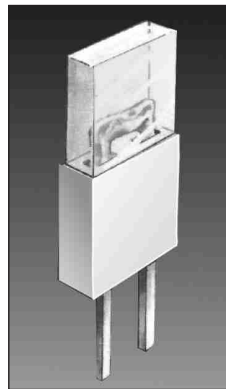
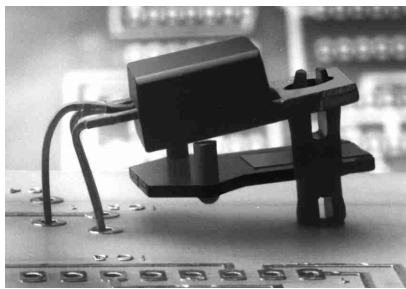


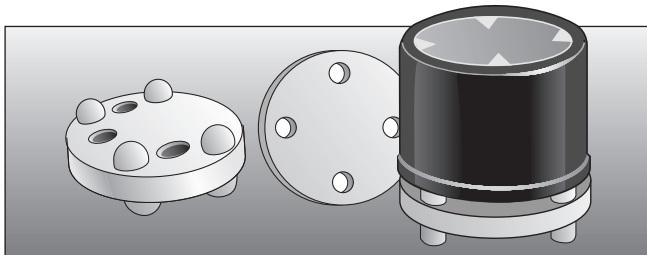
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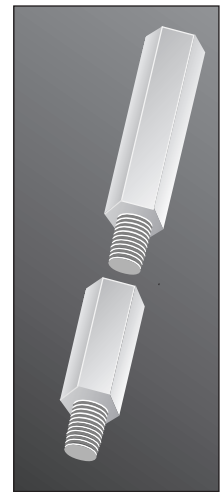
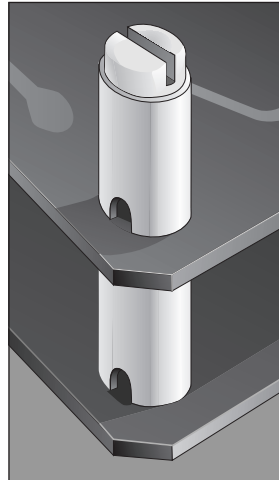


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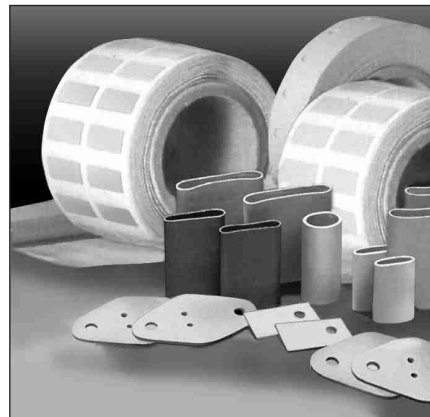
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Look us up on the Web at [www.teknational.com](http://www.teknational.com)

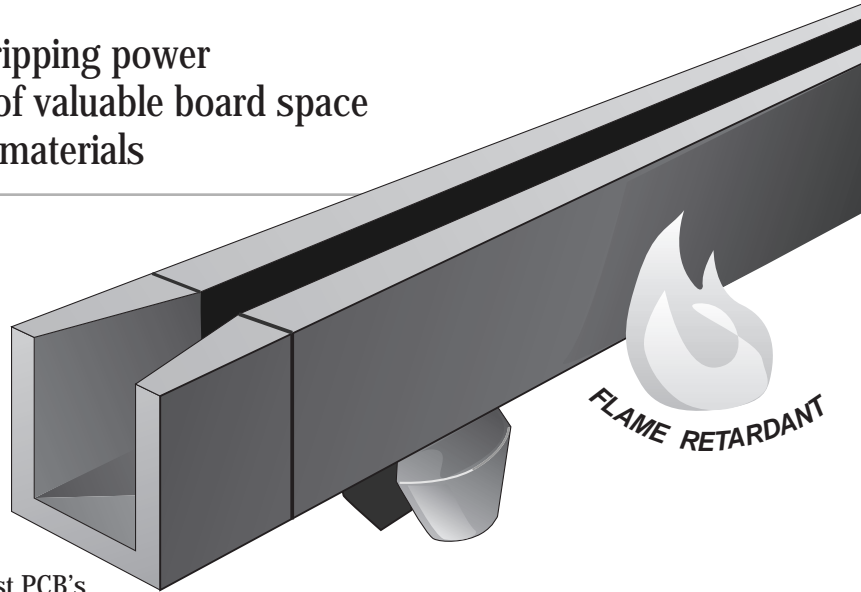
Deep Channel Guides provide "extra" gripping power  
 Space Saver Guides permit greater use of valuable board space  
 New Stat Guides protect static sensitive materials

## Deep Channel Guides

For 1/16" and 1/8" PCB's

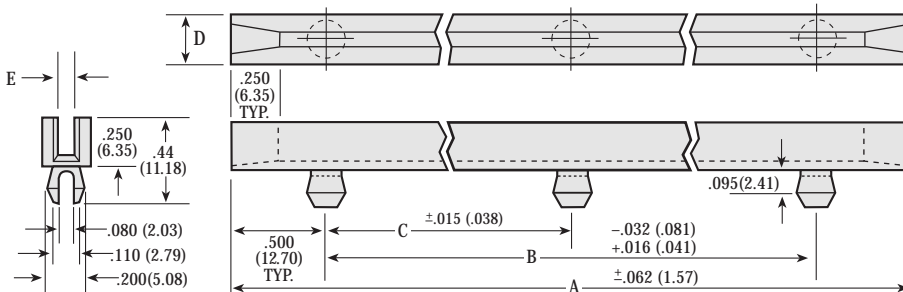
The 9400 series DEEP CHANNEL card guides hold PCB's more firmly, withstanding vibration. These guides are specified more and more because of their versatility and extra "gripping power".

- Permit horizontal and vertical mounting of extra large boards.
- .200" (5.08mm) deep channel slot firmly holds the heaviest PCB's.
- Extra grip "pinching action" is precision molded into the guide.
- PCB's will not vibrate out of slot.
- Reversible guides can be mounted end to end for tandem assembly.
- Press fit pylons easily slide into a .187" dia +.003" hole in any plate .047" to .090" thickness -.001". (4.75mm dia +.08mm hole in any plate 1.19mm to 2.29mm thickness -.03mm). Slotting or elongating of second and third hole is recommended to allow for length variations in molding.
- MATERIAL: Flame retardant nylon, U.L. rated 94V-0, Color: Black



Cross Reference to Bivar, Richco on page 21 and Milspec 84101 on page 22

PART NO.	A	B	C	D	E
9425	2.5 ( 63.5)	1.5 (038.1)	-	.250(6.35)	.080(2.03)
9445	4.5(114.3)	3.5(088.9)	-	.250(6.35)	.080(2.03)
9445-125	4.5(114.3)	3.5(088.9)	-	.250(6.35)	.130(3.30)
9460	6.0(152.4)	5.0(127.0)	-	.250(6.35)	.080(2.03)
9460-125	6.0(152.4)	5.0(127.0)	-	.250(6.35)	.132(3.35)
9480	8.0(203.2)	7.0(177.8)	3.5(88.9)	.250(6.35)	.080(2.03)
9480-125	8.0(203.2)	7.0(177.8)	3.5(88.9)	.290(7.37)	.132(3.35)

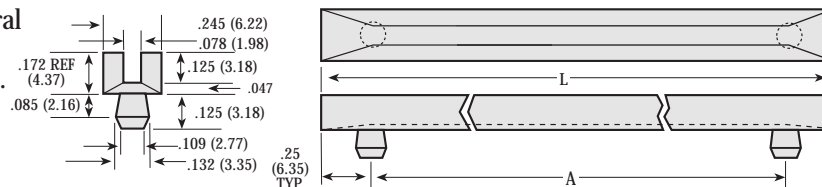


STANDARD DRAWING TOLERANCES, Unless otherwise indicated:  
 Fractions  
 .X : ± 1/64 (.397)  
 .XX : ± .010 (.025)  
 .XXX : ± .005 (.127)

## 9200 Series Guides For Tight Spaces

- Thin (less than 1/4" width) improves airflow and packaging density.
- 13 standard sizes, 2.5" - 8.5".
- Snap-in design for easy assembly, no tools required.
- .125" channel depth for good board retention.
- Molded in natural nylon 6/6, U.L. rated 94V2. Available U.L. 94V-0

Teknational's 9200 Series guides have been designed for easy insertion in sheet metal housing .048"-.085" (1.2-2.2) thick (US gauges 18/14). Parts should be mounted in a front hole .125" (3.2mm) diameter with a slotted hole .120" (3.0mm) X .218" (5.5mm) for the rear pylon. Longer lengths available with a third pylon (special order).



Cross Reference to Bivar, Keystone and Richco on page 21

PART NO.	L	A
	+/- .030 (.76)	+/- .024 (61)
9200-25	2.5 ( 63.5)	2.0 ( 50.8)
9200-30	3.0 ( 76.2)	2.5 ( 63.5)
9200-35	3.5 ( 88.9)	3.0 ( 76.2)
9200-40	4.0 (101.6)	3.5 ( 88.9)
9200-45	4.5 (114.3)	4.0 (101.6)
9200-50	5.0 (127.0)	4.5 (114.3)
9200-55	5.5 (139.7)	5.0 (127.0)
9200-60	6.0 (152.4)	5.5 (139.7)
9200-65	6.5 (165.1)	6.0 (152.4)
9200-70	7.0 (177.8)	6.5 (165.1)
9200-75	7.5 (190.5)	7.0 (177.8)
9200-80	8.0 (203.2)	7.5 (190.5)
9200-85	8.5 (215.9)	8.0 (203.2)

# TEK-GUIDES

Web-Site: [www.teknational.com](http://www.teknational.com)

## Space Saver Guides

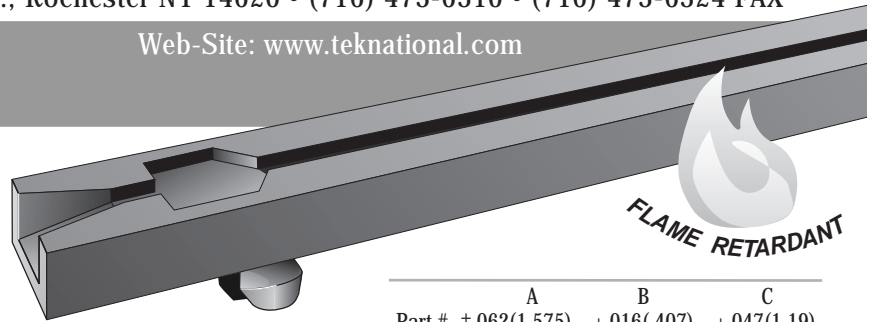
For 1/16" PCB's – Low profile for economy of space

The 9300 series TEK-Guide offers excellent retention with its .078" (1.98mm x 1.98mm) channel while saving valuable board area due to its shallow depth.

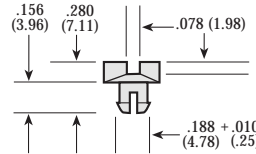
- Available 2.5" to 8" in 12 standard lengths.
- Precision molded, offering strength and rigidity.
- Snap-in installation with any metal plate.
- PCB's will not vibrate out of slot.
- Mount on a plate .047" to .090" (1.19mm to 2.29mm) thickness with hole size .172" dia. + .003" (4.37mm dia. + .08mm) - .001" (.03mm) 11/64 drill

Slotting or elongating of second hole is recommended to allow for length variations in molding.

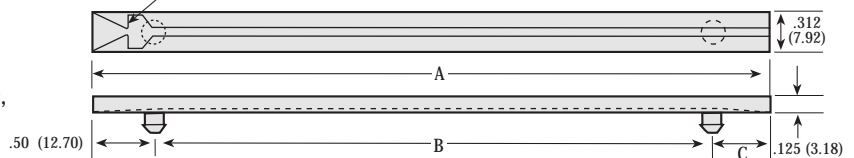
- For extra retention use TEK 9062 or 9162 Locking Ejectors to firmly hold PCB's in place, see page 4.
- MATERIAL: Flame retardant nylon, U.L. rated 94V-0, Color: Black



**Cross Reference to Bivar E Series on page 21**  
**Milspec 84006 on page 22**



Opening for engaging TEK Locking Ejectors



Part #.	A	B	C
+062(1.575)	+016(.407)	+047(1.19)	
		-.032(.813)	
9300-25	2.5 ( 63.5)		0.5 (12.70)
-30	3.0 ( 76.2)	1.516 (38.51)	1.0 (25.40)
-35	3.5 ( 88.9)		1.5 (38.10)
-40	4.0 (101.6)		0.5 (12.70)
-45	4.5 (114.3)	3.016 (76.61)	1.0 (25.40)
-50	5.0 (127.0)		1.5 (38.10)
-55	5.5 (139.7)		2.0 (50.80)
-60	6.0 (152.4)	5.016 (127.41)	0.5 (12.70)
-65	6.5 (165.1)		1.0 (25.40)
-70	7.0 (177.8)		0.5 (12.70)
-75	7.5 (190.5)	6.031 (153.19)	1.0 (25.40)
-80	8.0 (203.2)		1.5 (38.10)

## ANTISTATIC GUIDES

Precisely molded in static dissipative UL rated 94VO material, these guides protect static sensitive boards. Made of nylon 6/6 filled with electrical grade PAN fibers (color gray), volume and surface resistivity are measured per ASTM D257 at 105-109 OHMS/m<sup>2</sup>. This material meets or exceeds NFPA and MB-81705B standards for static decay.

## 9200-S N-Stat Guides

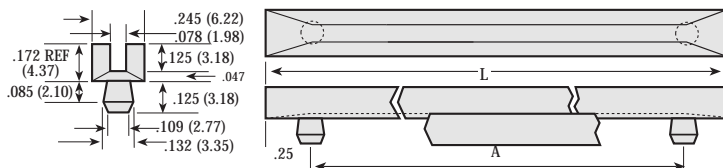
For 1/16" PCB's

- 13 standard sizes, 2.5" through 8.5"
- Simple snap-in installation, no tools required.
- Narrow width (less than 1/4")

These guides easily snap mount into sheet metal .048" -.085" (1.2mm-2.2mm) thick sheet metal (US gages 18/14).

Recommended mounting is a .125" (3.2mm) front hole with a slotted rear hole .120" (3.0mm) X .218" (5.5mm).

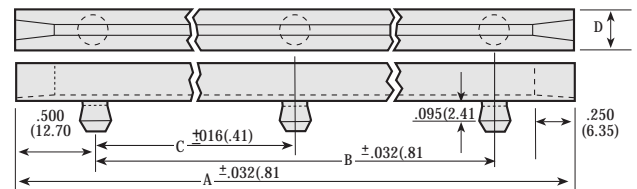
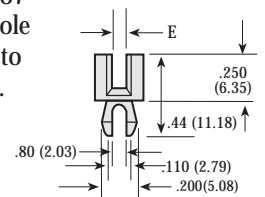
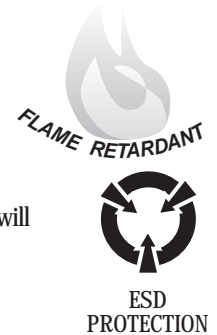
Part No.	L <sup>+</sup> /.030(.76)	A <sup>+</sup> /.024(.61)
9200-25S	2.532( 64.3)	2.020( 51.3)
9200-30S	3.032( 77.0)	2.520( 64.0)
9200-35S	3.532( 89.7)	3.020( 76.7)
9200-40S	4.032(102.4)	3.520( 89.4)
9200-45S	4.532(115.1)	4.020(102.1)
9200-50S	5.032(127.8)	4.520(114.8)
9200-55S	5.532(140.5)	5.020(127.5)
9200-60S	6.032(153.2)	5.520(140.2)
9200-65S	6.532(165.9)	6.020(152.9)
9200-70S	7.032(178.6)	6.520(165.6)
9200-75S	7.532(191.3)	7.020(178.3)
9200-80S	8.032(204.0)	7.520(191.0)
9200-85S	8.532(216.7)	8.020(203.7)



## Tek-Stat Guides

For 1/16" and 1/8" PCB's

- Available 2.5", 4.5", 6" and 8" long.
- Deep channel design ensures that PCB's will not vibrate loose.
- Sturdy design.
- Snap mounting system with two or three pylons depending upon length.
- Press fit pylons easily slide into a .187" dia. +.003" (4.75mm dia.+08mm) hole in any plate .047" to .090" (1.19mm to 2.29mm) thickness -.001" (.03mm). Slotting or elongating of second and third hole is recommended to allow for length variations in molding.



Part No.	A	B	C	D	E
9725E	2.520( 64.9)	1.511( 38.4)	-	.254(6.35)	.075(1.91)
9745E	4.520(114.8)	3.513(89.2)	-	.250(6.35)	.075(1.91)
9745-125E	4.520(114.8)	3.513(89.2)	-	.250(6.35)	.128(3.25)
9760-E	6.036(153.3)	5.017(127.4)	-	.250(6.35)	.075(1.91)
9760-125E	6.036(153.3)	5.017(127.4)	-	.250(6.35)	.128(3.25)
9780E	8.065(204.9)	7.024(178.4)	3.512(89.2)	.250(6.35)	.075(1.91)
9780-125E	8.065(204.9)	7.024(178.4)	3.512(89.2)	.290(7.37)	.128(3.25)

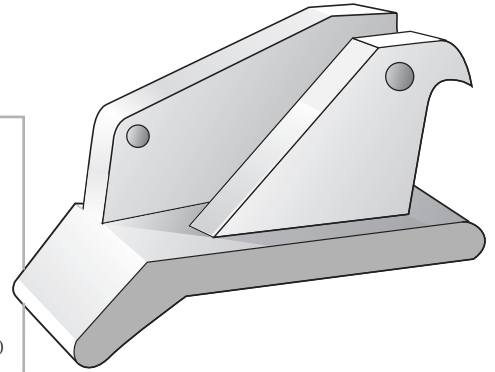
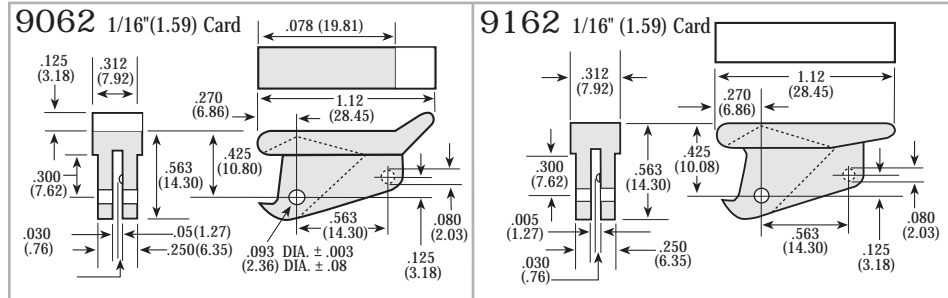
# TEK-EJECTORS & HANDLES

Web Site:  
www.teknational.com

## Locking Ejectors For Space Saver Guides

Cross References for Ejectors on page 21

Cross References to Milspec 83023 and 84191 on page 22



NYLON MATERIAL ASTM D4066 PA225  
UL RATED 94 V-2

Standard Color: Natural.

Other colors available for an additional charge.

Ejectors furnished with or without mounting pins.

STANDARD DRAWING TOLERANCES

Unless otherwise indicated:

Fractions

.X : +/-1/64 (.397)

.XX : +/- .010 (.025)

.XXX : +/- .005 (.127)

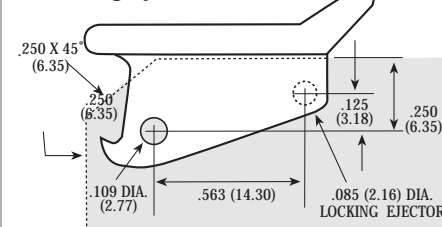
### MARKING

TEK-PULLS can be numerically and alphabetically marked to code PCB's. The marking method is accepted by both military and commercial users for its durability.

Specify Marking size and position.

### CARD MOUNTING DIMENSIONS

Locking Ejector illustrated



### MOUNTING SLOT DIMENSIONS:

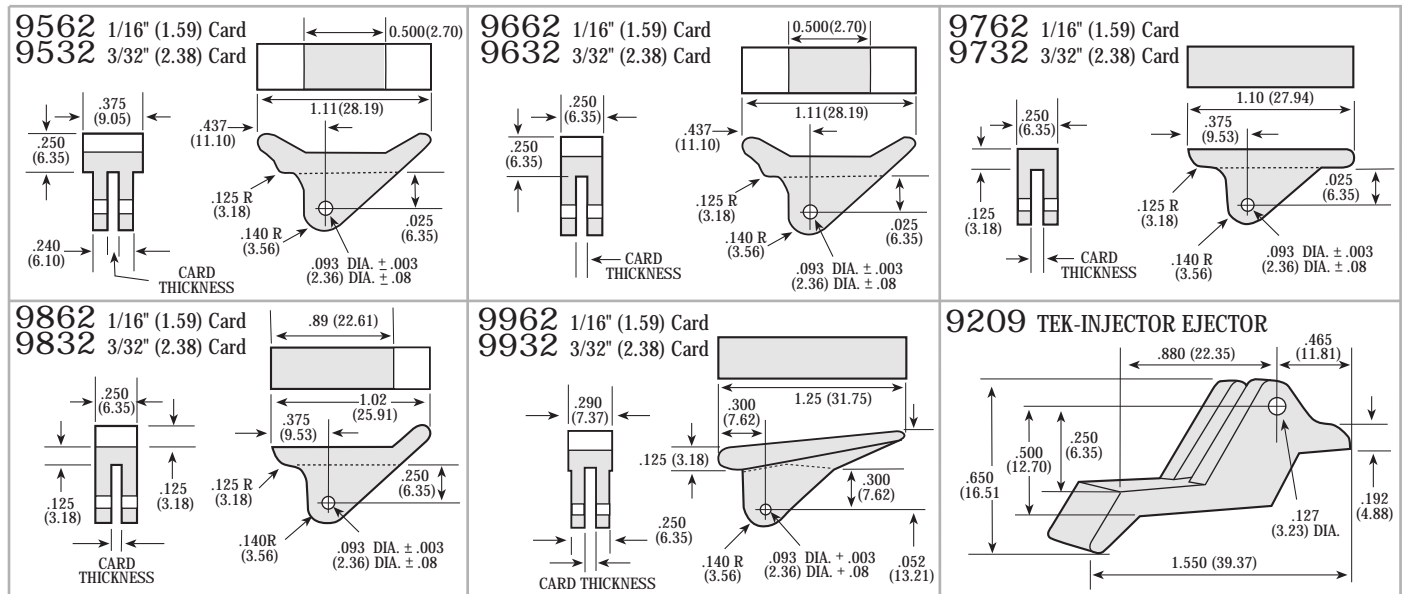
1/16 PCB's .073 (1.85)

3/32 PCB's .100 (2.54)

Flanges may converge as much as .020 (.51).



## Standard Ejectors



Dimensions in Millimeters are indicated by (.00)

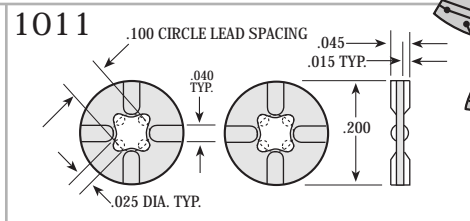
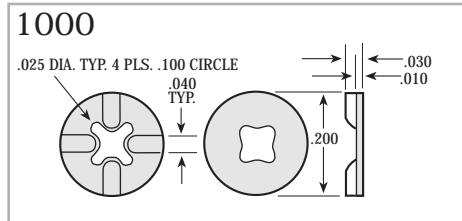
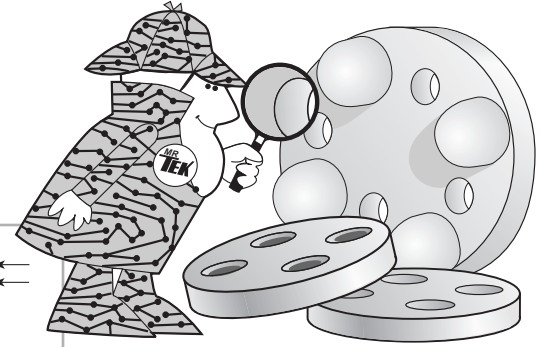
# TEK-MOUNTING PADS

These are the more popular Mounting Pads.  
Many other pads available, call the plant for details

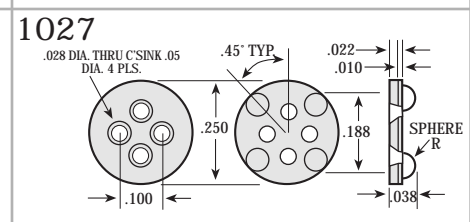
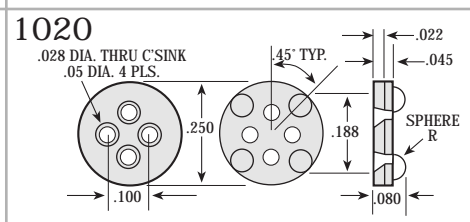
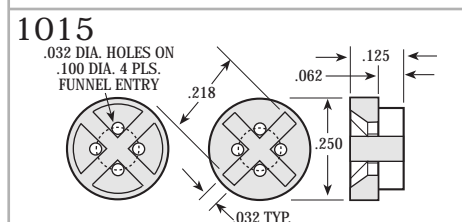
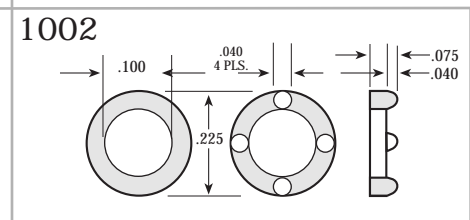
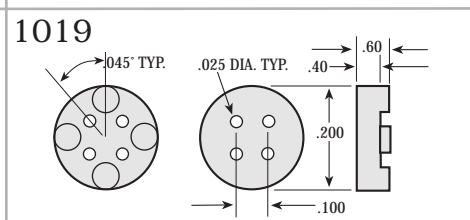
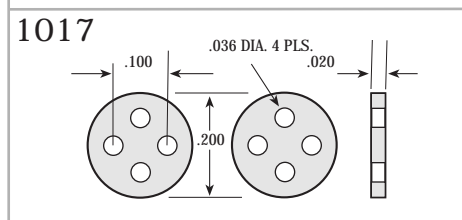
## TO-18 Mounts For .100" Entry and Exit

Also used with TO-16, 26, 28, 46, 52, 54, 56, 58, 72, 104, 106, 107

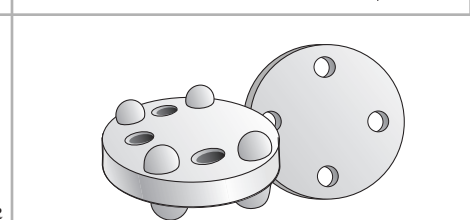
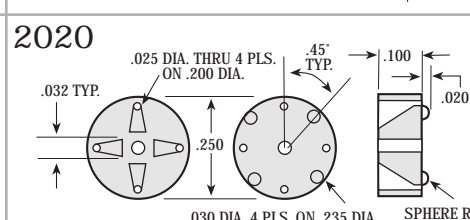
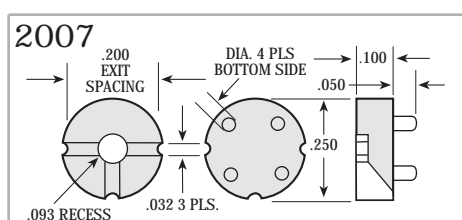
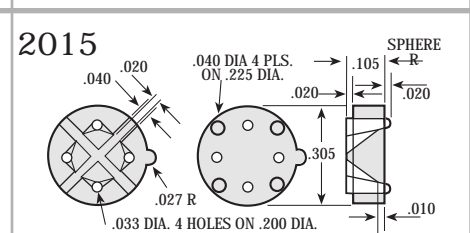
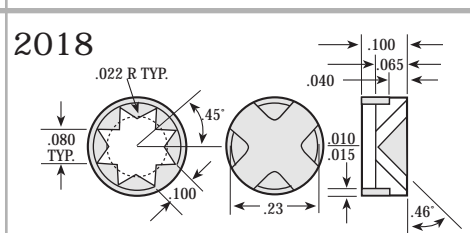
Parts arranged by outside diameters



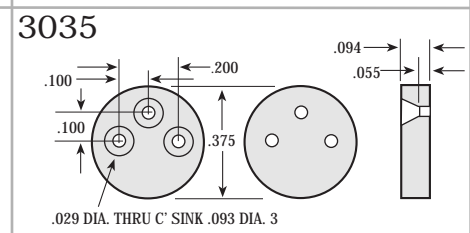
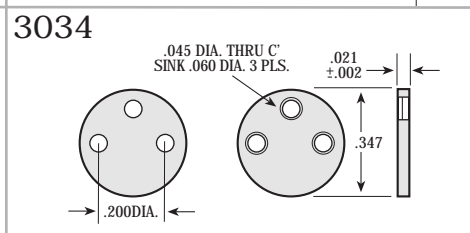
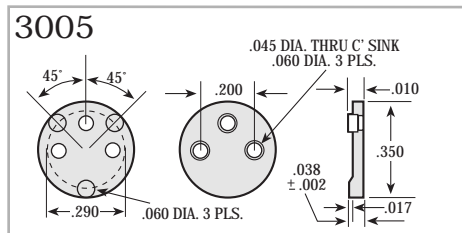
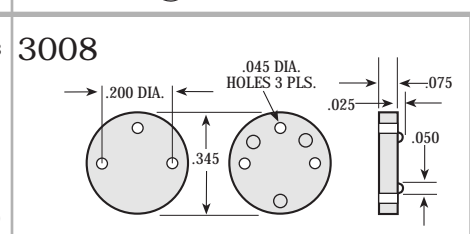
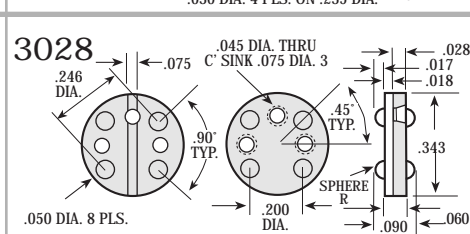
Cross Reference to Bivar on page 23 ,  
to Thermalloy on pages 25



**For Lead Conversion**  
Also used with TO-7, 9, 11, 12, 16, 26, 29, 31, 32, 38, 39, 40, 43, 45, 55, 77, 78, 92, 98, 105  
Parts arranged by number of leads and outside diameters

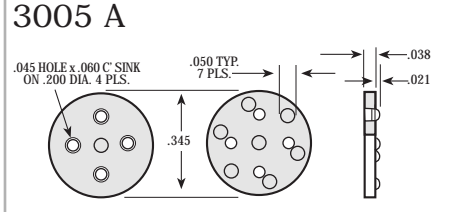
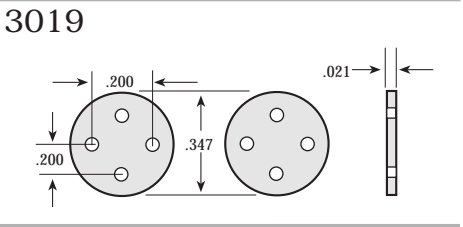
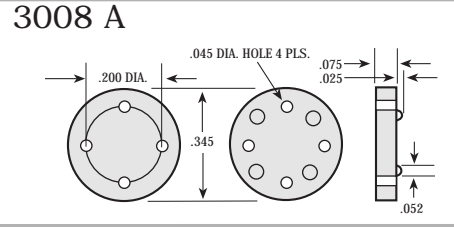
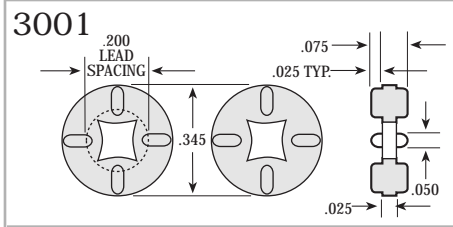


**TO-5 Mounts**  
For .200" Entry and Exit  
Also used with TO-7, 9, 11, 12, 16, 26, 29, 31, 32, 38, 39, 40, 43, 45, 55, 77, 78, 105  
Parts arranged by number of leads



# TEK-MOUNTING PADS

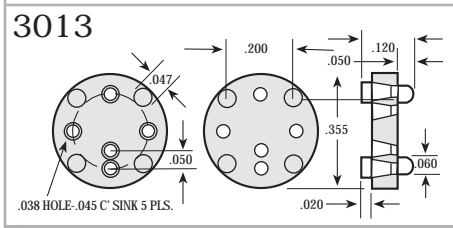
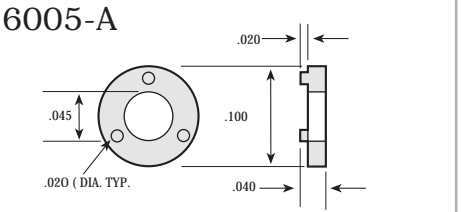
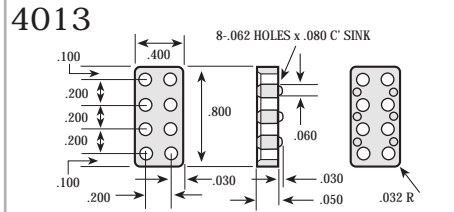
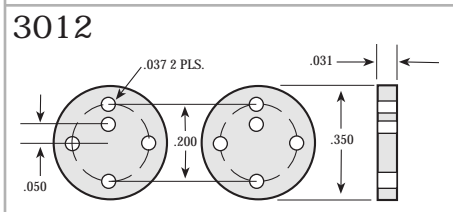
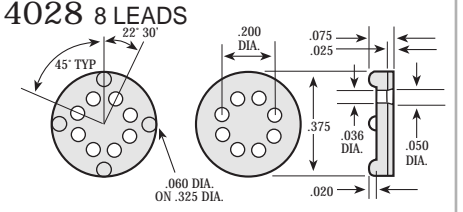
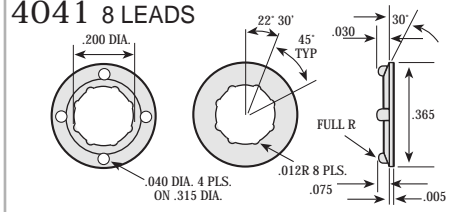
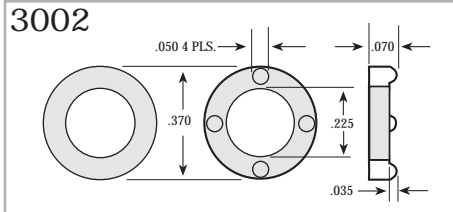
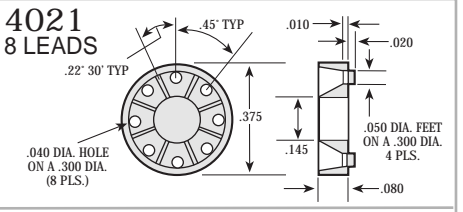
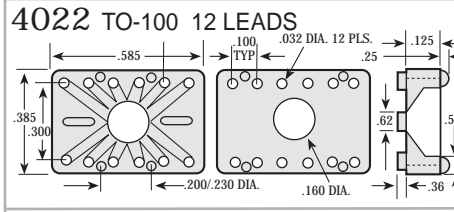
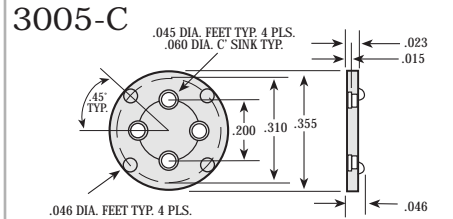
Cross Reference to Bivar on page 23, to Thermalloy on pages 25



## Integrated Circuit and Miscellaneous Mounts

Standard Color: Natural or White.

Pad No.	No. of Leads	Inches O.D.	Inches THK.	Spacing of Leads Entry	Spacing of Leads Exit
4021	8	.375	.080	.200 .230	.300 .300
4022	12	-	.186	.200 .230	.300 .300
4028	8	.375	.075	-	-
4041	8	.365	.080	.200 .230	.200 .230



## Screw Insulators—Power Devices

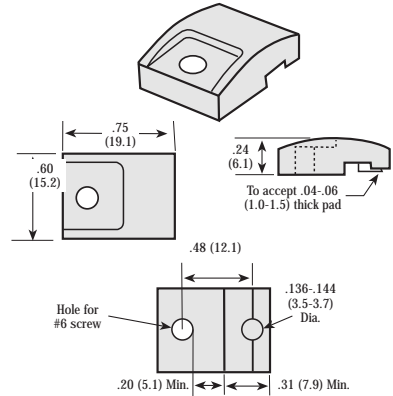
- Isolates mounting screws
- Permits uses of optimum pressure on power device for contact with heat sink
- Molded in nylon 6/6, glass filled
- Color: Black

## Discrete Component and Capacitor Mounts

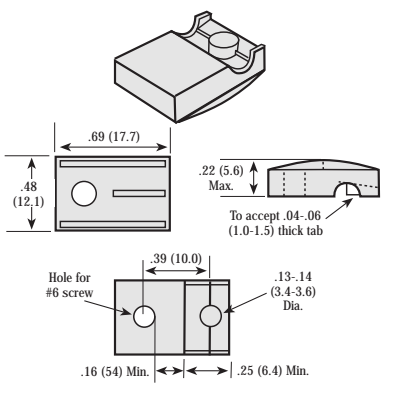
- ELIMINATE:
- Non Conducting Joints.
  - Component Failures.
  - Reduce inspection/rework.

PART #	8100	8200
A	.100 (2.54)	.200 (5.08)
B	.045 (1.14)	.045 (1.14)
C	.022 (0.56)	.022 (0.56)
D	.055 (1.40)	.090 (2.29)
E	.180 (4.57)	.290 (7.37)
F	.090 (2.29)	.090 (2.29)

2518 (TO-218)



2520 (TO-220)



Dimensions in Millimeters are indicated by (.00)

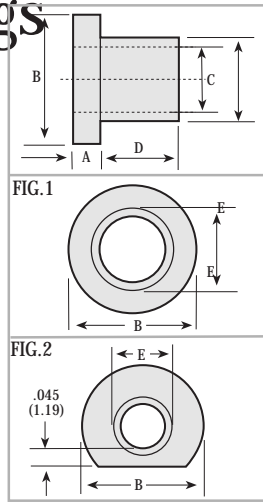
# PCB BUSHINGS & MOUNTS

## Nylon Flanged Bushings

Popular Applications for:

- 7045 – TO-220 Tabs Triac
- 7075 – Metal Brackets for Gauge Mtg.
- 7115 – TO-3, TO-41, TO-66
- 7175 – TO-3, TO-41, TO-66

Molded in natural nylon 6/6 unless part number has suffix "P" for PPS—40% glass filled polyphenylene sulfide—color black. PPS is chemically inert and permits maximum temperature 260° C. Tolerances +.005" (.127). Recommended torque for PPS is 5 to 6 inch-pounds; except 7037P which is 4 inch-pounds.

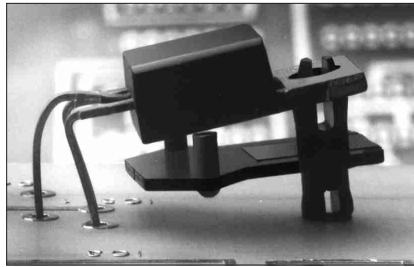


Cross Reference to Thermalloy page 25, Bivar page 23

Part No.	A	B	C	D	E	No.	Fig.
7037 P*	.040 (1.02)	.215 (5.46)	.116 (2.95)	.032 (0.81)	.135 (3.43)	4	1
SW4021	.063 (1.60)	.240 (6.10)	.114 (2.80)	.047 (1.19)	.138 (3.51)		
7033 P*	.042 (1.07)	.280 (7.11)	.112 (2.84)	.125 (3.18)	.140 (3.56)	4	1
7038 P*	.040 (1.02)	.245 (6.22)	.119 (3.02)	.040 (1.02)	.140 (3.56)	4	2
7045	.047 (1.19)	.238 (6.05)	.114 (2.90)	.047 (1.19)	.142 (3.61)	4	1
7036P*	.047 (1.19)	.280 (7.11)	.118 (3.00)	.031 (0.79)	.145 (3.68)	4	1
7031 P*	.042 (1.07)	.280 (7.11)	.112 (2.84)	.125 (3.18)	.150 (3.81)	4	1
7032 P*	.042 (1.07)	.280 (7.11)	.112 (2.84)	.185 (4.70)	.150 (3.81)	4	1
7115	.050 (1.27)	.247 (6.27)	.125 (3.18)	.122 (3.10)	.150 (3.81)	4/5	1
7035 P*	.047 (1.19)	.312 (7.92)	.144 (3.66)	.031 (0.79)	.177 (4.50)	6	1
7034 P*	.047 (1.19)	.312 (7.92)	.146 (3.71)	.031 (0.79)	.190 (4.83)	6	1
7075	.062 (1.57)	.380 (9.65)	.228 (5.79)	.173 (4.39)	.310 (7.87)	12	1
7175	.047 (1.19)	.246 (6.27)	.125 (3.18)	.175 (4.43)	.153 (3.88)	4/5	1

\* PPS material

## 11-2201 Power Pad For Low Profile Mounting of TO-220's



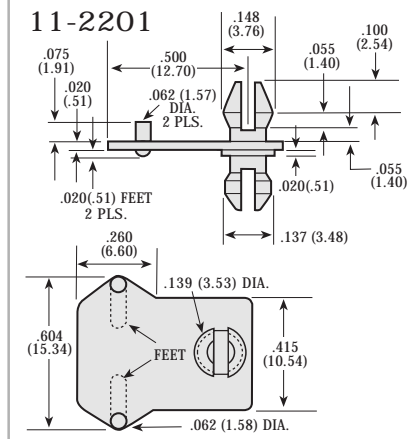
- 11-2201 is:
- A FASTENER - Secures devices without extra hardware.
  - AN INSULATOR - Run circuitry beneath devices. - Protects during wave solder
  - A SPACER - Uniformly positions parts on PCB

MATERIAL: Nylon 6/6-  
COLOR: Black

Quality of PCB's is improved with the 11-2201. It prevents lead breakage from accidental bumping and flexing of components. Feet on the 11-2201 permit complete washing under the assembly after wave solder. Devices are protected from heat during solder process.

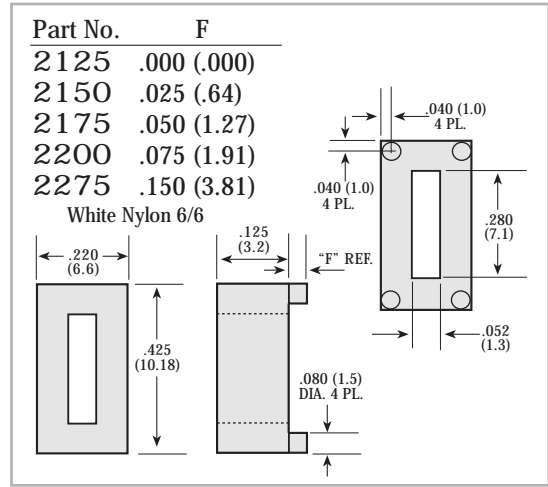
The 11-2201 frees up valuable PCB real estate beneath TO-220's for circuitry by electrically insulating the assembly.

The 11-2201 cuts cost by eliminating hardware and improving assembly time.



## 2100 Series For Vertical Mounting to 220's

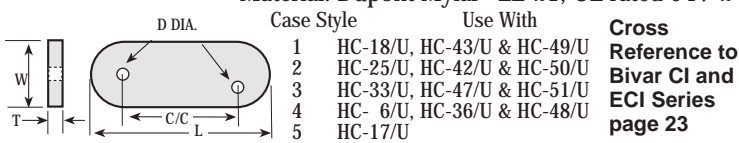
Cross Reference to Bivar page 23



Part No.	F
2125	.000 (.000)
2150	.025 (.64)
2175	.050 (1.27)
2200	.075 (1.91)
2275	.150 (3.81)

## Crystal Insulators

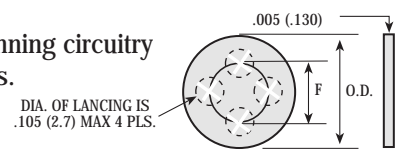
Material: Dupont Mylar® EL-21, UL rated 94V-2



PART #	C/C	L	D	W	T	Case Style
MY-192-028	.192 (4.88)	.465 (11.81)	.028 (0.71)	.219 (5.56)	.005 (.13)	1
MY-192-050	.192 (4.88)	.465 (11.81)	.050 (1.27)	.219 (5.56)	.005 (.13)	2
MY-486-040	.486 (12.3)	.775 (19.7)	.040 (1.0)	.375 (9.5)		3
MY-486-060	.486 (12.3)	.775 (19.7)	.060 (1.5)	.375 (9.5)		4
MY-486-105	.486 (12.3)	.775 (19.7)	.105 (2.7)	.375 (9.5)		5

## Electrolytic Capacitor Insulators

- Self-retaining.
  - Insulates while running circuitry beneath capacitors.
  - Punch resistant material.
  - Heat resistant, UL Rated 94V-2.
- Color: Clear



PART #	Case Style	O.D. +/- .005	F	Use With
MY-710	1	.710 (18.0)	.394 (10.0)	30
MY-830	2	.830 (21.0)	.394 (10.0)	22,25,35

# PCB SPACERS & SUPPORT POSTS

## Dual Locking Supports for 1/16" PCB's

- NO TOOL REQUIRED TO LOCK
- EASY ASSEMBLY
- STURDY, RELIABLE GRIP
- MOLDED IN NATURAL NYLON, UL RATED 94-V2
- TWO DESIGNS AVAILABLE

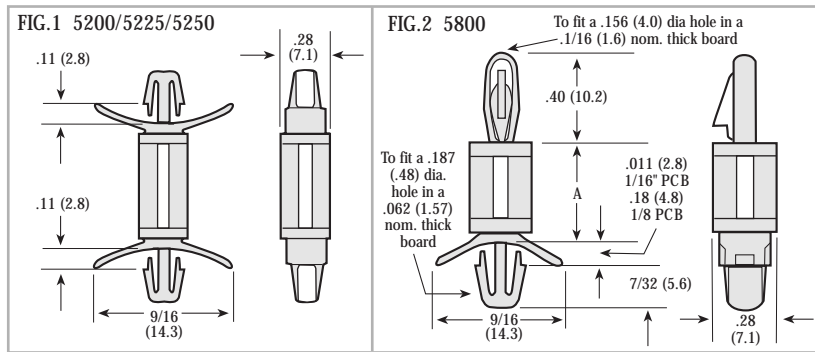
### 5200 SERIES

- Identical locking prongs on both ends (fig 1). (4.0mm)
- Available in stock for mounting in .156" (4.0)/ .156" (4.0) diameter and .187" (4.8)/ .187" (4.8) diameter holes.
- A .156"/.187" diameter combination may be special ordered.
- Seven lengths available from 3/16" (4.8) to 7/8" (22.2).

### 5800 SERIES

- Bayonet nose lock for mounting in .156" diameter hole in PCB with a locking prong to mount in a .187" (4.8) diameter base hole.
- May be special ordered for 1/8" (3.2) chassis thickness.
- Seven standard lengths stocked. Other lengths up to 1 3/8" (34.9) may be special ordered.

Cross References to Keystone page 24 and Richco page 24



Part numbers consist of the a base number for the PCB/chassis hole combination desired followed by "XXX" for the length designation in the table below.

Base #	Fig.	PCB hole dia.	Chassis hole dia.	XXX	Length
5200	1	.156" (4.0)	.156" (4.0)	-187	3/16" ( 4.8)
5225	1	.187" (4.8)	.187" (4.8)	-250	1/4" ( 6.4)
5250*	1	.156" (4.0)	.187" (4.8)	-375	3/8" ( 9.5)
5800	2	.156" (4.0)	.187" (4.8)	-500	1/2" (12.7)
				-625	5/8" (15.9)
				-750	3/4" (19.1)
				-875	7/8" (22.2)

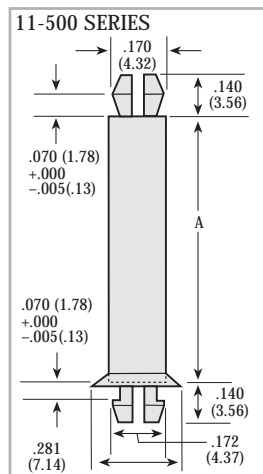
\*Special order

## Snap Mount Support Posts

### With Wide Base For Stability

Mount PCB's on metal chassis or stack them using no screws or other hardware. Available in nine lengths from .125" to 1.000".

- Economical, eliminates all hardware.
- Saves labor.
- Support base on chassis-end of post improves stability.
- Releasable head for mounting and removing PCB.
- Permanent locking head for chassis.
- Color code posts for identification.



Recommended hole size is .152 ±.002 (3.86 ±.05) in .062 (1.57) chassis.

Part No.	A
11-5125	.125 ( 3.2)
11-5250	.250 ( 6.4)
11-5312	.312 ( 7.9)
11-5375	.375 ( 9.5)
11-5500	.500 (12.7)
11-5625	.625 (15.9)
11-5750	.750 (19.1)
11-5875	.875 (22.2)
11-5000-1	1.000 (25.4)

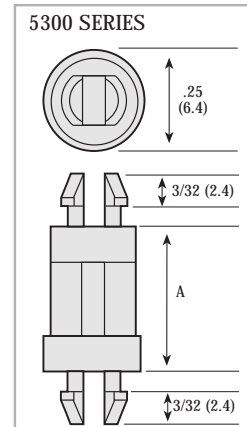
## Improved Support posts

### 5300 Series

- Easy assembly, no tools required.
- Pinch prongs to remove for repairs.
- Available for mounting in .156" (4.0), .187" (4.8) holes, or a combination of .187" and .156" holes.
- Releasable head for mounting and removing PCB.
- Permanent locking head for chassis.

Cross References to Richco page 24

Part No.	Part No.	Part No.	Height "A" Dim.
.156(4.0) Dia. Hole	.187(4.8) Dia. Hole	.156 (4.0) and .187 (4.8) Hole	
5300-187	5325-187	5350-187	3/16" ( 4.8)
5300-250	5325-250	5350-250	1/4" ( 6.4)
5300-375	5325-375	5350-375	3/8" ( 9.5)
5300-500	5325-500	5350-500	1/2" (12.7)
5300-625	5325-625	5350-625	5/8" (15.9)
5300-750	5325-750	5350-750	3/4" (19.1)
5300-875	5325-875	5350-875	7/8" (22.2)
5300-1000	5350-1000	5350-1000	1" (25.4)





# PCB SPACERS & SUPPORT POSTS

Web-Site: www.teknational.com

## PCB Snap Mount Spacers and Support Posts Self Retaining Board Spacers

### 5500 SERIES

- Maintain PCB spacing, insulate screws.
- Multilevel stacking.
- Spacers are self aligning and self retaining.
- Stack and space 1/16" PCB's.

### 5600 SERIES

- Snap mount design for 1/16" PCB's.
- Ideal for mounting PCB above wood.
- Secure fit in PCB before setting with screw.
- Insulate screws.

Molded in natural 94-V2 nylon, SERIES 5500 and 5600 PCB spacers are available for use with #4 (M-3) and #6 (M-3.5) screws. Five standard lengths range from 1/4" to 1". Spacers for #8 (M-4) screws and for some intermediate lengths may be special ordered.

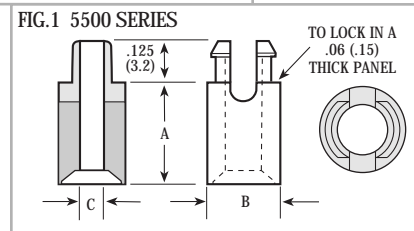
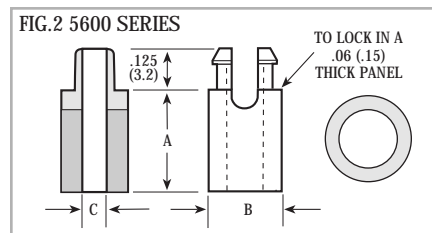
94-VO nylon is also available.

Call the plant for details.

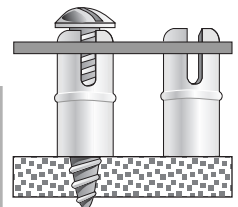
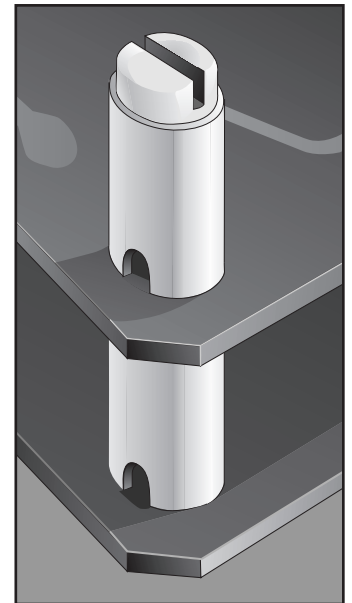
The part number for the spacers consists of the "PN" for the thread size and style shown in the table below followed by "XXX" for the length, eg 5600-375 or 5525-750.

The available lengths for the "XXX" are shown in column "A"

Cross References to Keystone page 24  
Cross References to Richco page 24



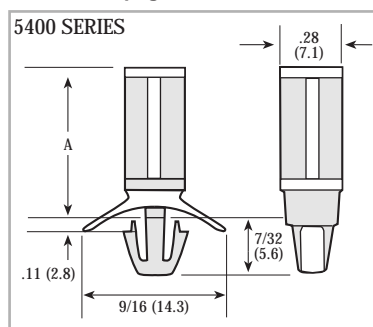
PN Fig 1	PN Fig 2	Screw size	"B"	"C"	Mounting hole dia. +.003 (.08)	Length	XXX dim. "A"
5500	5600	#4 (m-3)	.250 (6.6)	.125 (3.1)	.187 (4.75)	1/4" (6.4)	-125
5525	5625	#6 (m-3.5)	.312 (7.1)	.153 (3.9)	.234 (5.94)	3/8" (9.5)	-375
5550	5650	#8 (m-4)	.313 (7.1)	.169 (4.3)	.234 (5.94)	1/2" (12.7)	-500
						3/4" (19.1)	-750
						1" (25.4)	-1000



## 5400 Series Spacers Support Heavy Boards

- Snap mount into 1/16" (1.6) thick chassis; may be special ordered for 1/8" (3.2) chassis.
- Easy installation with no tools.
- Mount in 3/16" (4.8) dia. hole.
- May be special ordered for 5/32" (4.0) hole.
- Molded in natural nylon 6/6, 94V2; (94VO may be special ordered).
- Eight lengths available.

Cross References to Keystone and Richco page 24



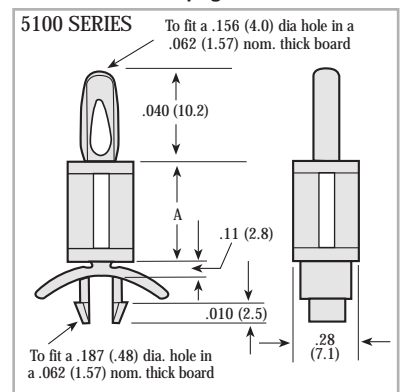
Part No.	Length "A" Dim.
5400-187	3/16" ( 4.8)
5400-250	1/4" ( 6.4)
5400-375	3/8" ( 9.5)
5400-437	7/16" (11.1)
5400-500	1/2" (12.7)
5400-625	5/8" (15.9)
5400-750	3/4" (19.1)
5400-875	7/8" (22.2)

## Versatile PCB Supports

### 5100 SERIES

- Locks on chassis, snaps onto board.
- Fits .187" (4.8) hole in chassis, .156" (4.0) hole in PCB
- No tools required.
- Releases easily for repairs.
- Molded in natural nylon 6/6, 94-V2; (94-VO available special order).
- Seven lengths available

Cross References to Keystone and Richco page 24



Part No.	Length
5100-187	3/16" ( 4.8)
5100-250	1/4" ( 6.4)
5100-375	3/8" ( 9.5)
5100-500	1/2" (12.7)
5100-625	5/8" (15.9)
5100-750	3/4" (19.1)
5100-875	*7/8" (22.2)

\*Other lengths up to 1 3/8" (34.9) may be special ordered

# PCB SPACERS & STANDOFFS

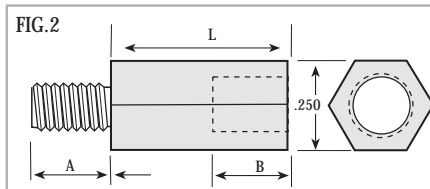
Web-Site:  
www.teknational.com

## Threaded Nylon Standoffs

Available in 14 lengths (1/4" - 1 3/8") with 1/16" incremental spacing, these standoffs are economical supports for PCB's. Molded in 94-V2 nylon, 4-40 and 6-32 threads are stocked. These are also available on a special order basis with 8-32 and 10-32 threads, or molded in 94-VO nylon.

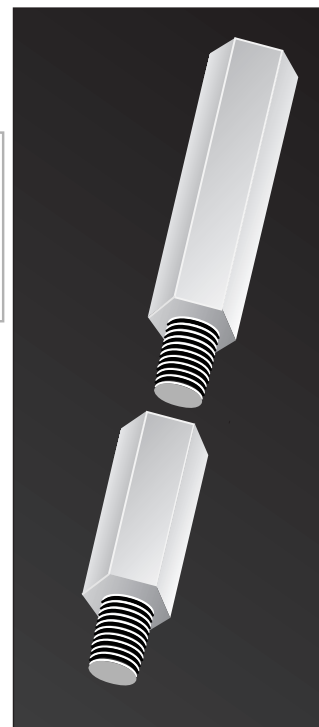
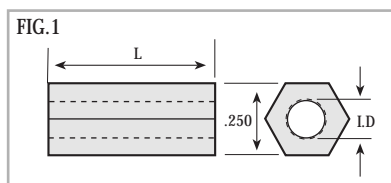
Cross Reference to Keystone page 23.

Thread Size	PN Fem Fig.1	PN Male/Fem Fig.2	A (fig.2)	B. (fig.2)
4-40	4H	4MF	3/16"(4.76)	3/16"(4.76)min
6-32	6H	6MF	1/4" (6.35)	1/4" (6.35)min
8-32	8H*	8MF*	3/8" (9.53)	3/8" (9.53)min
10-32	10H*	10MF*	3/8" (9.53)	3/8" (9.53)min



The part number for each standoff consists of the PN for the thread size and type of standoff shown above followed by "XXX" for the length. The available lengths for the "XXX" suffix are shown in Column "L" on the table below. The part number consists of the thread shown on Figure 1 Or 2, followed by (xxx) the desired length in column "L" below. PN 6 MF-375 is a male/female standoff with a 6-32 thread and 3/8" body length; 6 H-375 is a 3/8" long hex standoff with 6-32 thread).

L	(XXX Suffix)	L	(XXX Suffix)
1/4"	( 6.35) - 250	11/16"	(17.36) - 688
5/16"	( 7.84) - 312	3/4"	(19.05) - 750
3/8"	( 9.53) - 375	7/8"	(22.23) - 875
7/16"	(11.11) - 438	1"	(25.40) - 1000
1/2"	(12.70) - 500	1 1/8"	(28.58) - 1125
9/16"	(14.25) - 562	1 1/4"	(31.75) - 1250
5/8"	(15.88) - 625	1 3/8"	(34.93) - 1375



## Permanent Spacers and LED Mounts

### 5000 SERIES TUBULAR SPACERS

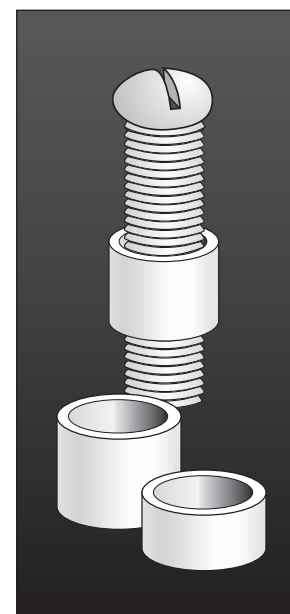
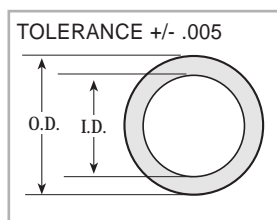
- Customized lengths up to 1"
- 15 ID/OD combinations available
- Available for #2, 4, 6, and 8 screws
- Made from extruded Nylon 6/6
- Inexpensive even in small quantities

The 5000 Series tubular spacers inexpensively solve many mounting problems. Designs can now be customized without being limited to the few standard lengths of molded spacers commercially available.

The ID/OD combinations for the 5000 SERIES are shown in the table right. Each ID/OD has its own letter or style designation (ie. an ID/OD of .028"/.085" is "F"). The complete part number is 5+ "xxx" for the height + the ID/OD style letter. In other words a spacer .200" long ID/OD of .028"/.085" will have part number 5200-F. These spacers may be ordered in lengths from .030" up to 1.000" in .010" length increments. Tolerances are +/- .005" for lengths up to .500", for lengths .505" - .750" +/- .008", .755" - 1.000" +/- .015".

Cross Reference to Bivar page 23

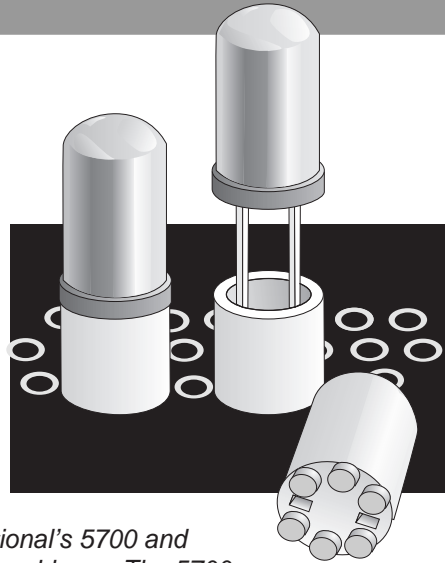
Style	I.D.	O.D.	Screw No.
F	.028 (0.71)	.085 (2.16)	
P	.032 (0.81)	.085 (2.16)	
E	.032 (0.81)	.125 (3.18)	
Q	.047 (1.19)	.125 (3.18)	
G	.047 (1.19)	.156 (3.96)	
T	.063 (1.60)	.156 (3.96)	
H	.063 (1.60)	.187 (4.75)	
A	.085 (2.16)	.148 (3.76)	
M	.091 (2.31)	.187 (4.75)	2
J	.091 (2.31)	.250 (6.35)	2
B	.105 (2.67)	.167 (4.24)	
K	.115 (2.92)	.250 (6.35)	4
S	.135 (3.43)	.230 (5.84)	
C	.120 (3.05)	.187 (4.75)	4
D	.147 (3.73)	.250 (6.35)	6



# LED MOUNTS

## 5700 Series For T 1 3/4 5725 Series Universal Mount For T 1 and T 1 3/4

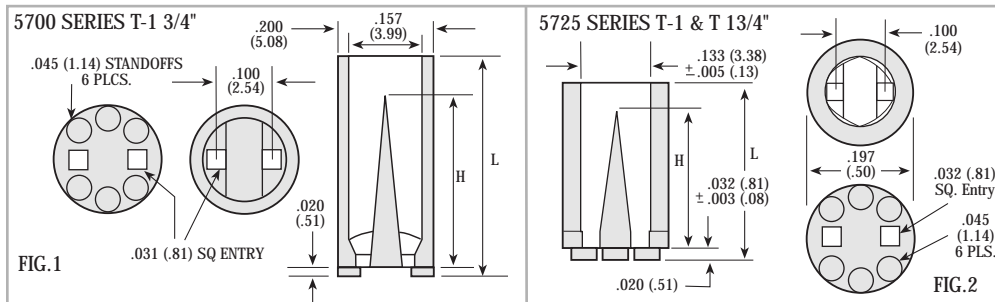
- Tapered entry eases lead insertion.
- Feet permit board cleansing.
- Leads isolated and protected.
- Uniform spacing of LED's.
- Available in .010" (.25mm) increments from .120" (3.05mm) to .900" (22.86mm).



Cross Reference to Keystone pages 23 and 24 and Richo page 24

(Prefix # & XXX)	"L Dim.	"H" Dim.
5700-120	.120 (3.05)	.075 ( 1.91)
or		
5725-140	.140 (3.56)	.075 ( 1.91)
-160	.160 (4.06)	.075 ( 1.91)
-180	.180 (4.57)	.075 ( 1.91)
-200	.200 (5.08)	.075 ( 1.91)
-220	.220 (5.59)	.075 ( 1.91)
-240	.240 (6.10)	.200 ( 5.08)
-250	.250 (6.35)	.200 ( 5.08)
-260	.260 (6.60)	.200 ( 5.08)
-280	.280 (7.11)	.200 ( 5.08)
-300	.300 (7.62)	.200 ( 5.08)
-320	.320 (8.13)	.200 ( 5.08)
-340	.340 (8.64)	.200 ( 5.08)
-360	.360 (9.14)	.200 ( 5.08)
-380	.380 (9.65)	.325 ( 8.26)
-400	.400 (10.16)	.325 ( 8.26)
-420	.420 (10.67)	.325 ( 8.26)
-440	.440 (11.18)	.325 ( 8.26)
-450	.450 (11.43)	.325 ( 8.26)
-460	.460 (11.68)	.325 ( 8.26)
-480	.480 (12.19)	.325 ( 8.26)
-500	.500 (12.70)	.445 (11.30)
-550	.550 (13.97)	.445 (11.30)
-600	.600 (15.24)	.445 (11.30)
-650	.650 (16.51)	.580 (14.73)
-700	.700 (17.78)	.580 (14.73)
-750	.750 (19.05)	.580 (14.73)
-800	.800 (20.32)	.690 (17.53)
-850	.850 (21.59)	.690 (17.53)
-900	.900 (22.86)	.690 (17.53)

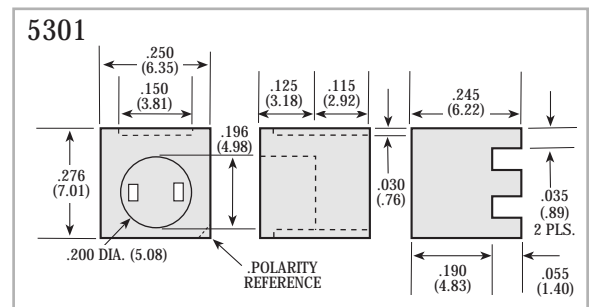
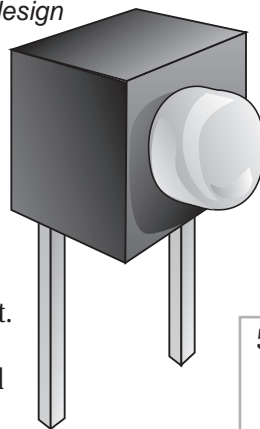
Molded in natural nylon, UL rated 94-V2, Teknational's 5700 and 5725 Series LED mounts solve many mounting problems. The 5700 Series is designed specifically for T1<sup>3/4</sup> LED's (see figure 1). For universal mounting of both T1<sup>3/4</sup> and T1 LED's, use the 5725, followed by "XXX" for the height. PN 5725-500 is figure 2, .500" (12.7mm) high; Pn 5700-140 is figure 1, .140" (3.56) high. A table showing standard heights is shown right. Other sizes available upon request.



## 5301 Series Right Angle LED Mount For T 1 3/4 LEDs

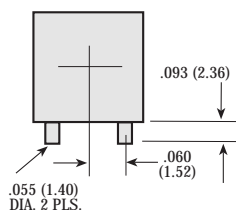
Assembly ease for accurate alignment of LED's in the 90° position is an important consideration in PCB design and layout. The 5301 solves several design and assembly problems for flangeless LED's.

- Uniform accurate spacing.
- Precise 90° alignment.
- Low Cost.
- Ease of PCB assembly.
- Compact size uses minimal board space.
- Wide viewing angle.
- Available in a black case to improve contrast.
- Polarity identification.
- Vibration and shock resistance for improved PCB reliability.
- Prevents lead breakage.
- Molded nylon 6/6, 94V-2, black.

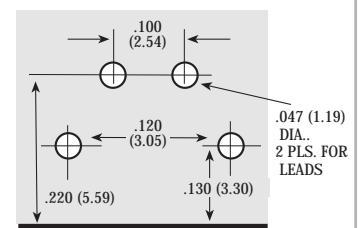


### 5301P

LOCKING PINS FOR EXACT POSITING



SUGGESTED DRILL PATTERN FOR 5301 P

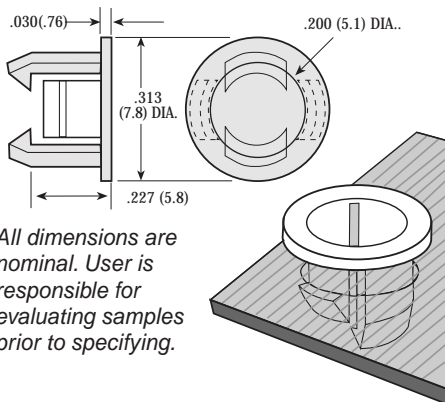


For more accurate positioning, the 5301 Mount may be ordered with optional locating pins (PN 5301P) which are pressed into holes in the PCB. The pins are .055" (1.40mm) diameter and .073" (2.36mm) long. A suggested hole drill pattern for the 5301P is shown on the right.

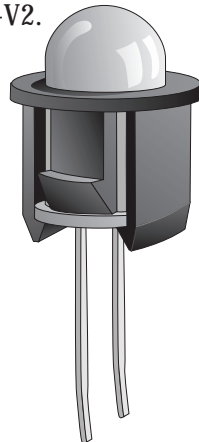
# LED MOUNTS

## 11-3301 Snap Mount LED Holder

- Accurate positioning of T-1 3/4 LED's.
- No retaining ring required.
- Mounts either flush on panel, or counterbored.
- Snap mounts on panel for tight fit in .245" - .250" dia. hole (6.2mm - 6.4mm).
- Assemble LED after placing mount in panel.
- Panel thickness .060" - .070" (1.5 - 1.8mm).
- Molded in black nylon 6/6, UL rated 94-V2.



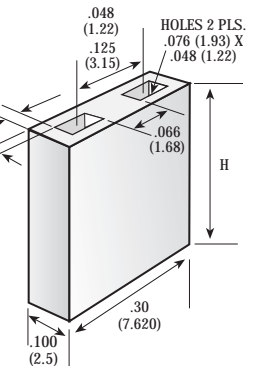
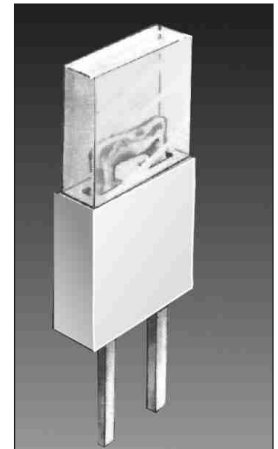
All dimensions are nominal. User is responsible for evaluating samples prior to specifying.



## R SERIES FOR RECTANGULAR LEDS

- Uniformly position LED's
- Maintain correct height
- Avoid "miss-match" of LED's with control panels
- Separate lead holes prevent shorting and lead breakage
- LED's will not bend during assembly

Made from extruded nylon 6/6, these spacers are custom cut to the length desired. The part number is 5xxx-R. The "xxx" is the length. For example 5200-R is .200" long. Tolerances for length up to .500" +/- .005", .505" - .750" +/- .008", .755" to 1.000" +/- .015". Due to extrusion process, no tolerances for hole size and other dimensions.



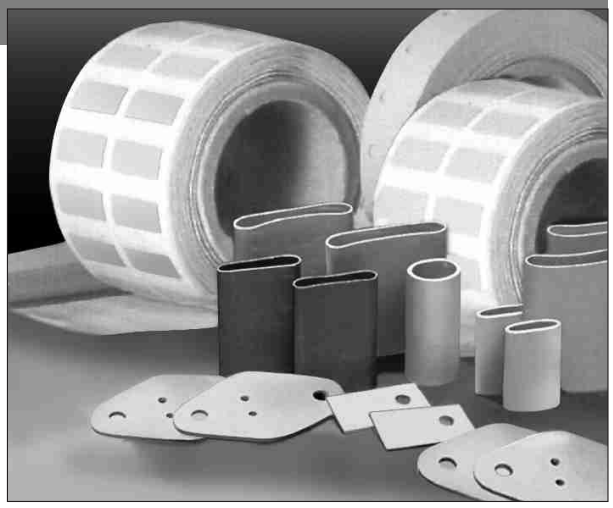
# TEK-SIL PRODUCTS

## A wide range of products for Thermal Management

- THERMAL INSULATORS • GASKETING
- ELECTRICALLY CONDUCTIVE/NONCONDUCTIVE
- GAP FILLING • TUBES/SLEEVES/COVERS

The TEK-SIL family of thermal management materials continues to grow as new and improved products are developed.

**NEW**



SR-06 - with thermal resistance at .21° C/watt, this product offers the best performance within the economical SR family of thermal management materials. See page 14 for details.

TUBES and CASES - Molded in silicone SCT and SCH materials, these tubes and cases easily slip on TO-220's, TO-3's and TO-3P's for complete protection from arcing. Mounted in series, assembly time is reduced compared to

individually securing each device. See page 18 for dimensions and specifications.

SB-08 - In high heat situations, SB-08 is the choice for superior performance in the boron nitride filled insulators. See page 14 for details.

GAP FILLERS - See our whole range of new GEL-PADS and gap fillers on page 16.

## Selecting Thermal Interface Materials

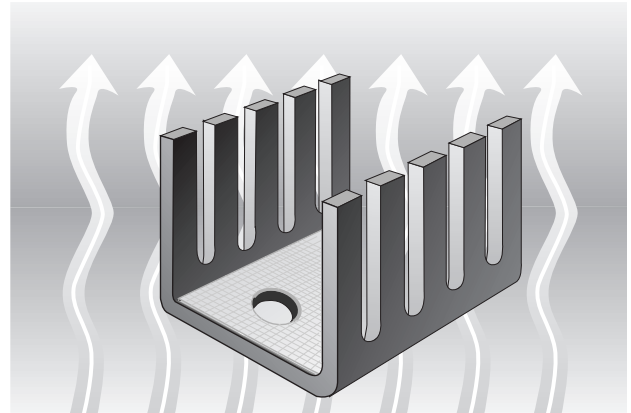
Thermally conductive silicone insulators were introduced many years ago as a cost saving improvement to mica and grease. Assemblies are clean, with no contamination from migrating grease. Assembly time is cut to 5 seconds - a 400% improvement compared to mica. To help solve heat transfer problems, **Teknational's** growing **TEK-SIL** family of thermally conductive insulators provides an extensive variety of solutions to thermal interface problems. To assist in selecting the appropriate material for your design, we offer some suggestions that should be considered as you design your assembly.

New PCB designs, which are denser and generate more heat, mandate improved thermal interface materials. To satisfy these needs **Teknational** offers a broad selection of products with different combinations of thickness, dielectric and thermal management properties. All of these factors are relevant to your selection. The final material decision will often result in a trade off between the need for thermal resistance as opposed to dielectric requirements and cost.

**Air bubbles** in the gap between the interface surfaces impede heat transfer. Ideally we will fill the gap with a highly conformable, thermally conductive material which will make complete contact with the irregular surfaces of the power device and heat sink. As excess material will increase thermal resistance, too much material is as detrimental as too little. For this reason it is important to measure the width of the gap to select the proper material thickness.

**The mounting pressure** of the contact between a heat sink and the interface material is another design consideration. High pressure will force out all air between the surfaces. However typical assemblies are not strong enough to be subjected to such pressure. Spring clips or nuts and bolts with a 5-15# mounting force are often used for heat sink assembly. To minimize the high cost in thermal efficiency caused by such low mounting pressures, one should select a highly conformable interface material. Another option might be to use **K-275®** which allows one to fix a heat sink on an IC without any hardware.

**The dielectric properties** of a thermal interface material to effectively provide electrical isolation for an assembly are often as important as the material's thermal properties. In densely populated PCB's potential damage from electrical shorting caused by a misplaced or torn insulator should be considered. To prevent tears or pin holes many materials are reinforced with fiber glass mesh. An increase in material thickness to solve the electrical isolation problem will unfortunately increase thermal resistance. The fillers required for dielectric strength will also significantly reduce heat transfer. One will note that for most materials, dielectric properties decrease as thermal properties improve. Product selection again must take both factors into consideration.



**Thermal resistance** measures the impact of contact resistance on thermal performance. Aside from selecting a thinner or more conformable material, thermal resistance can be lowered by using more/or better thermally conductive fillers in the **TEK-SIL** compound. The boron nitride used in **TEK-SIL "SB"** is highly conductive. It is also much more expensive than the alumina fillers used in our standard **TEK-SIL "SR"** and **"SH"** materials. The latter are more than adequate for most designs and should be used to lower costs. If heat transfer, low thermal resistance, or filling air gaps in irregular surfaces are critical, then other materials should be considered.

**PSA** is available with many, but not all, of our **TEK-SIL** materials. It is generally applied to one side of the material. If the insulator configuration is small, parts are usually "kiss cut" on a release liner so that they can be easily removed from the backing. It is often specified to facilitate assembly. The significant effect of **PSA** on thermal resistance is often overlooked. Even using a thermally conductive adhesive, thermal resistance on our basic **SR-06** increases from .21 degrees to .54 for **SR-06P**; for **SB-08** it goes from .11 degrees to .24 with **PSA**.

## Dies and Die Cutting

**Teknational** has a modern diecutting facility with tools and dies to cut most standard sizes and shapes. If you require something special, most dies are inexpensive and typically can be made in a few days. In a pinch Mr Tek and our customer friendly engineers can quickly supply prototype samples.

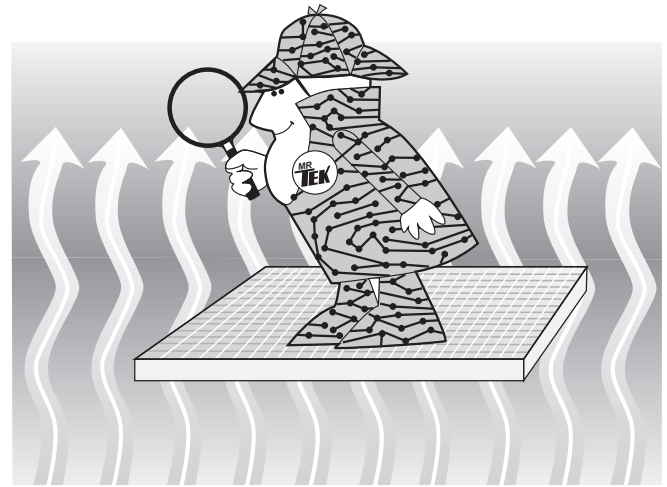
**Teknational** is continually working with design engineers to find solutions to their problems. Demands for higher performance and more conformable thermal interface materials have lead us to broaden our offering of products. We expect our next catalog will contain even more of them.

# TEK-SIL PRODUCTS

## TEK-SIL Materials

### Comparative Summary of TEK-SIL materials

Material	Page#	Suggested Application	cal/cm <sup>2</sup> sec°C	W/m-k
SR	14	Reinforced, general use	.0022	.90
SCT	14	Unreinforced, general use, low cost	.0029	1.20
SH	14	Reinforced, better than "SR"	.0034	1.40
SCH	14	Unreinforced, cost effective	.0041	1.70
SU	14	Unreinforced, high performance	.0062	2.60
SB	14	Reinforced, best performance	.0070	2.90
SA	15	Medium hardness, good dielectric .025"-.062" (.64-1.57mm) thick	.0031	1.30
"SQ"	16	Medium hardness	.0026	1.10
"Gel Pad"	16	best gap filler, very soft<5 .020"-.200" (.50-5.0mm) thick	.0036	1.50



TEK SIL Products will keep me cool !

## TEK-SIL "SR" and "SCT" Materials **Best Value**

**TEK-SIL "SR"** materials offer an economical solution to most thermal transfer problems. They are inexpensive and easy to use. All "SR" materials are made with a fiber glass matrix to resist puncturing and improve tear strength. "SR" is available in four standard thicknesses (.006" to .012") both with and without PSA. Typical thermal conductivity for "SR" is .90 W/m-k. See Tables 1 and 2 on page 15 for specific properties.

**TEK-SIL "SCT"** is an unreinforced version of "SR" without the fiber glass matrix. To provide puncture resistance, "SCT" is somewhat thicker than "SR" materials. It is made in three thicknesses from .012" to .033". The added thickness combined with the smooth surface of "SCT" make this a highly conformable material. PSA is not available for the unreinforced materials. Specific material properties are shown in the Tables 1 and 2 on page 15. Part number is material and thickness (SCT-12, SR-06).

## TEK-SIL "SH" and "SCH" Materials **Better Performance**

**TEK-SIL "SH"** has added fillers to improve thermal conductivity and dielectric strength. "SH" materials are formulated using a fiber glass matrix to improve tear strength and puncture resistance. Thermal conductivity for **TEK-SIL "SH"** is 1.40 W/m-k, a 56% improvement compared to "SR". "SH" materials come in 3 thicknesses from .006" to .012". Optional PSA is also available. See the Tables 1 and 2 on page 15 for specific properties.

**TEK-SIL "SCH"** is made using the same compound as "SH". Without fiber glass reinforcement thermal resistance improves from .26 degrees for "SH" to .18 for "SCH". This material has a smooth, conformable surface. Part number includes material plus thickness ("SH-12" or "SCH-33").

## TEK-SIL "SB" Materials

**TEK-SIL "SB-08"** is our best performing material with thermal conductivity measured at 2.9 watts/m-k and thermal resistance as low as .10 degrees C. It is available in four thicknesses from .008" to .033" (.20-.85mm). All "SB" materials are coated on a fiber glass matrix to improve tear strength and pre-vent pin holes from forming. These materials also have excellent dielectric strength. They are available with optional PSA. **Teknational** stocks many standard shapes and sizes of parts made with "SB" materials. See Tables 1 and 2 on page 15 for specific properties of all thicknesses of **TEK-SIL "SB"** (.008"-.033"). It is also available in sheets 12" x 12" (310 x 310mm).

**Optimum Performance**

## TEK-SIL "SU" **Lower Cost Excellent Performance**

**TEK-SIL "SU"** is an improved formulation of silicone and alumina fillers which offers a low cost solution to many high heat problems. With thermal conductivity measured at 2.6 W/m-k, its performance is close to that of our best performing "SB-08". As "SU" is not reinforced with fiber glass, PSA is unavailable. **Teknational** die cuts "SU" in many standard sizes. This material is also sold in roll form 3.33" (85mm) wide. Specific properties are shown in the Tables 1 and 2 on page 15.

# TEK-SIL PRODUCTS

## Physical Properties of Thermal Insulating Materials

TABLE 1	SR	SCT	SH	SCH	SB	SQ	SU	SA
Material – Binder	.Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone	Silicone
– Filler	Alumina	Alumina	Alumina+ALN	Alumina+ALN	Boron Nitride	Alumina	Alumina	Alumina
– Reinforcement	Fiber glass	None	Fiber glass	None	Fiber glass	None	None	None
Elongation %	2	100	2	60	2	250	110	200
Hardness (Shore A)	85	75	92	85	85	55	79	65
Thermal conductivity								
– watts/m-k	0.9	1.2	1.4	1.7	2.9	1.1	2.6	1.3
– cal/cm <sup>2</sup> sec°C	0.0022	0.0029	0.0034	0.0041	0.007	0.0026	0.0062	0.0031
UL 94 rating								
°F	-76 to >356	-76 to >356	-76 to >356	-76 to >356	-76 to >356	-76 to >356	-76 to >356	-80 to >400
°C	-60 to >180	-60 to >180	-60 to >180	-60 to >180	-60 to >180	-60 to >180	-60 to >180	-60 to >204

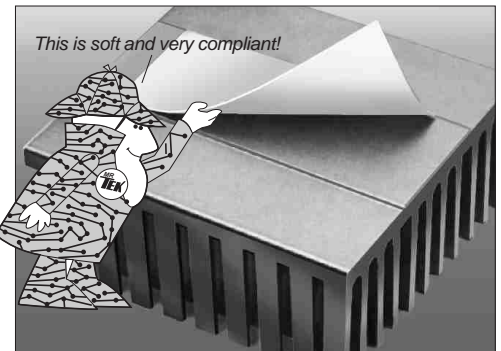
TABLE 2	MATERIAL	Color	Thickness	Thermal Resistance**		Withstand Voltage kv	Maximum Roll Width inches(mm)	
				w.o. PSA	w. PSA			
SR-06	Green	.0059 (.15)	0.21	0.54	4.0	3.33 (85)	Before specifying user shall determine suitability of the product for his use. User assumes all risk and liability whatsoever in connection therewith.	
SR-07	Gray	.007 (.18)	0.39	0.61	3.5	11.80 (300)		
SR-09	Gray	.009 (.23)	0.45	0.71	4.5	11.80 (300)		
SR-12	Green	.012 (.30)	0.48	0.86	7.0	3.33 (85)		
SCT-12	Green	.012 (.30)	0.36	NA	10.0	3.33 (85)		
SCT-18	Green	.018 (.45)	0.46	NA	11.0	3.33 (85)		
SCT-33	Green	.033 (.85)	0.90	NA	15.0	3.33 (85)		
SH-06	Brown	.0059 (.15)	0.22	0.39	2.0	3.33 (85)		
SH-08	Brown	.008 (.20)	0.22	0.41	4.0	3.33 (85)		
SH-12	Brown	.012 (.30)	0.26	0.56	8.0	3.33 (85)		
SCH-12	Brown	.012 (.30)	0.18	NA	9.0	3.33 (85)		
SCH-18	Brown	.018 (.45)	0.29	NA	10.0	3.33 (85)		
SCH-33	Brown	.033 (.85)	0.51	NA	14.0	3.33 (85)		
SB-08	White	.008 (.20)	0.11	0.24	3.0	NA***		
SB-12	White	.012 (.30)	0.10	0.25	5.0	NA***		
SB-18	White	.018 (.45)	0.20	0.30	7.0	NA***		
SB-33	White	.033 (.85)	0.32	0.48	10.0	NA***		
SU-12	Dark Gray	.012 (.30)	0.09	NA	11.0	3.33 (85)		
SU-18	Dark Gray	.018 (.45)	0.15	NA	12.0	3.33 (85)		
SU-33	Dark Gray	.033 (.85)	0.32	NA	16.0	3.33 (85)		
SQ-12	Black	.012 (.30)	0.39	NA	9.0	3.33 (85)		
SQ-18	Black	.018 (.45)	0.55	NA	12.0	3.33 (85)		
SQ-33	Black	.033 (.85)	1.01	NA	16.0	3.33 (85)		
SA-025	Blue	.025(.64)	1.80	NA	11.0	18.00(457)		

## Conformable Materials

### For Gasketing and Filling Gaps

- Thermally conductive • Shock absorbent

Recognizing a need for thermally conductive products which will conform well to irregular surfaces and fill larger gaps, **TEKNATIONAL** offers a variety of materials to solve these problems.



## Medium/Firm Materials

Some times there may be a small space between mismatched surfaces that must be filled. The **TEK-SIL** line includes two materials from .012" (.30mm) to .062" (1.57mm) thickness. Being somewhat softer in durometer and often thicker than the standard materials, these products conform well to mating surfaces for optimum heat transfer. They also protect assemblies from mechanical shock and absorb thermal expansion.

## TEK-SIL SA

**TEK-SIL SA** is an unsupported, thermally conductive silicone rubber with high dielectric strength to protect against power surges. **TEK-SIL SA** conforms better than many thermally conductive materials while protecting assemblies from mechanical shock and absorbing thermal expansion.

Continued on page 16

**TEK-SIL SA** (Continued from page 15)

The thicknesses are: .025" (.64mm); .032" (.82mm); and .062" (1.57mm). This material is available in sheets or roll stock 18" wide. **Teknational** will die cut parts to customer specifications. See tabs 1 & 2 on page 15 for general specifications and properties.

Order **TEK-SIL SA** by thickness and size - eg. **SA-062-9X16**.

**TEK-SIL "SQ"**

Offered in three thicknesses ranging from .012" to .033" (.30 - .85mm), **TEK-SIL "SQ"** is a medium firm material. With a durometer of 55, "SQ" may be used as thermally conductive gasketing which will absorb shock. It can also be squeezed into tight places. It's thermal properties are very good with conductivity measured at 1.10 W/m-k. Dielectrically, "SQ" will withstand a minimum 9 Kv depending upon thickness. See Tables 1 & 2 for comparative physical properties.

**Extra Soft Gap Fillers**

**Teknational** has a whole range of gap filling materials to fill voids up to .197" (5.0mm). Even highly polished surfaces have irregularities which prevent them from making complete contact. In typical manufacturing environments such precision polishing is not affordable, even if it would solve the contact problem. To correct this, our gap fillers will minimize thermal resistance providing the best thermally conductive path.

Most of our gap fillers/Gel Pads are available in 9 thicknesses: .20"; .039"; .059"; .079"; .098"; .118"; .126"; .157"; and .197" (.5; 1.0; 1.5; 2.0; 2.5; 3.0; .3.2; 4.0; and 5.0mm).

**TEK-SIL "GP"**

With a durometer of <5, our **TEK-SIL "GP" Gel Pads** fill all voids. **Gel Pads**, which are made of unreinforced silicone rubber, are quite thermally conductive (1.5 W/m-k). They are so soft and tacky that no PSA is required. To ease handling problems, the sheets have release liner on both sides. "GP" is made in 9 thicknesses ranging from .020" to .197" (.50 - 5.0mm). All thicknesses are supplied in sheets 11.8" x 7.9" (300 x 200mm). As with all other **TEK-SIL** materials, **Teknational** will die cut special shapes to customer specifications. Material properties, comparative Thermal Resistance and Compression Set for all thicknesses are shown on Table 3 and Table 4 page 17. To order sheets of "GP", specify the material and thickness (eg. "GP-04" for a sheet .04" (1.0mm) thick).

**TEK-SIL "GPN"**

In some instances where puncturing from sharp edges may be a problem, **Gel Pad "GPN"** will solve this problem. Using the same material formulation as "GP", "GPN" is extruded with a nylon mesh that makes it more puncture resistant while not affecting the thermal properties of the base material. The mesh stiffens the material so that it will not stretch as much as "GP"

Resistance and Compression Set for all thicknesses are shown on Table 3 and Table 4 on page 17. Sheets are 11.8" x 7.9" (300 x 200mm). To order by the sheet, the part number is "GPN" followed by the thickness (eg. **GPN-06** for .06" thick). **Teknational** will also die cut parts to your specifications. All materials are supplied with release liner on both sides.

**TEK-SIL "GPH"**

In some assembly situations, the stickiness of our standard **Gel Pad "GP"** makes it difficult to handle. We now offer **Gel Pad "GPH"** which is hardened on one surface. Even with the hardened surface, this material is supplied with release liner on both sides. Thermal characteristics are not affected by the hardening. Standard sheet sizes and thicknesses are available. Comparative product data is shown on Table 3 and Table 4 on page 17. The ordering method is the same as for "TEK-SIL "GP". The part number for a sheet .197" (5.0mm) thick will be "GPN-197".

**TEK-SIL "GPHN"**

**Gel Pad "GPHN"** combines all of the above options. It has been extruded using nylon mesh to stiffen the material so that it is more puncture proof. Distortion from compression is also minimized. With one hardened surface, the pads are easy to handle. Thermal conductivity which is measured at 1.50 W/m-k is the same as for **Gel Pad "GP"**. Look at Table 3 and Table 4 for specific product information. The ordering method is the same as for **TEK-SIL "GP"**, with the part number for a sheet .118" thick "GPHN-118".

**High Performance GEL Pads****TEK-SIL "GPX"**

If you need a gap filler with higher thermal conductivity, **Gel Pad "GPX"** is rated at 2.30 watt/mk compared to 1.50 watt/mk for the standard "GP" material. Thermal resistance data and Compression Set for each thickness are shown on the Table 4 below. All other performance aspects of "GPX" are shown on Table 3. This material is presently available in five thicknesses, ranging from .020" to .098" (.50 - 2.50mm). Consult the plant for data on thicknesses greater than .098". The part number is the material plus thickness.

**TEK-SIL "GPXH"**

As with the original "GP" material, four thicknesses of the high performance **GEL PAD** are available with one hardened surface to ease handling of the material. This material is named **TEK-SIL "GPXH"**. All **GEL PADS** are supplied with a release liner on both sides. The part number is the material plus its thickness (eg "GPXH-118" is 118" thick.)



# TEK-SIL PRODUCTS

**TABLE 3 Common Material Properties - GEL PADS**

Color		"GP" Dark Gray	"GPN" Dark Gray	"GPH" Dark Gray	"GPHN" Dark Gray	"GPX" Gray	"GPXH" Gray
Hardness	Shore A	<5	<5	<5	<5	<5	<5
Elongation		100	60	80	60	100	80
Temperature	Continuous Use	250F (120C)	250F (120C)	250F (120C)	250F (120C)	250F (120C)	250F (120C)
Thermal	Watt/m-k	1.5	1.5	1.5	1.5	2.3	2.3
Conductivity	Cal/cm-sec-C	0.0036	0.0036	0.0036	0.0036	0.005	0.005
Flame Retardance	UL 94	VO	V1	VO	V1	VO	VO
Sheet Size		7.9" x 11.8" (200 x 300mm) for all materials					

For ease of handling, all sheets are supplied with release liner on both sides. To order, the part number is the material name followed by thickness. "GP-04" is one sheet .04" thick. Before specifying, user shall determine suitability for his use. User assumes all risk and liability whatsoever in connection therewith.

**TABLE 4 Tek-Sil GEL PADS Thermal Resistance and Compression Set**

		MATERIAL THICKNESS									
		.020 (.5mm)	.040 (1.0)	.060 (1.5)	0.79 (2.0)	.098 (2.5)	.118 (3.0)	.138 (3.5)	.157 (4.0)	.197 (5.0)	
Thermal Resistance	°C/watt/inch <sup>2</sup>										
	GP	0.39	0.82	1.23	1.48	1.87	2.10	2.34	2.54	3.04	
	GPH	0.44	0.89	1.37	1.71	2.00	2.29	2.38	2.62	3.06	
	GPN	0.42	0.83	1.35	1.62	2.03	2.32	2.38	2.64	2.91	
	GPHN	0.48	0.90	1.43	1.69	2.15	2.43	2.49	2.66	3.11	
	GPX	0.37	0.63	0.98	1.18	Consult plant for specifications					
	GPXH	0.37	0.72	1.08	1.37						
COMPRESSION SET	Kgf/inch <sup>2</sup>										
	GP 10%	13.0	12.5	11.5	10.2	7.7	6.1	5.6	4.9	4.2	
	50%	40.2	39.2	33.1	30.9	27.2	24.7	23.5	20.3	15.8	
	GPH 10%	20.9	19.8	15.2	12.3	10.9	8.0	6.9	5.7	5.0	
	50%	106.9	91.6	59.8	33.4	28.1	25.2	24.7	23.1	20.0	
	GPN 10%	17.0	15.2	15.4	11.2	8.2	7.3	6.5	5.4	4.8	
	50%	96.4	71.6	49.9	31.2	25.8	20.8	18.9	18.2	17.9	
	GPHN 10%	22.5	20.7	20.1	15.7	14.8	12.1	9.8	9.0	7.1	
	50%	119.8	102.9	78.2	50.8	41.7	38.7	32.2	32.4	25.2	
	GPX 10%	15.5	16.2	14.0	8.0	5.5	Consult plant for specifications				
	50%	95.2	85.3	66.7	48.2	38.2					
	GPXH 10%	15.5	16.2	14.0	8.0						
	50%	92.5	85.3	66.7	48.2						

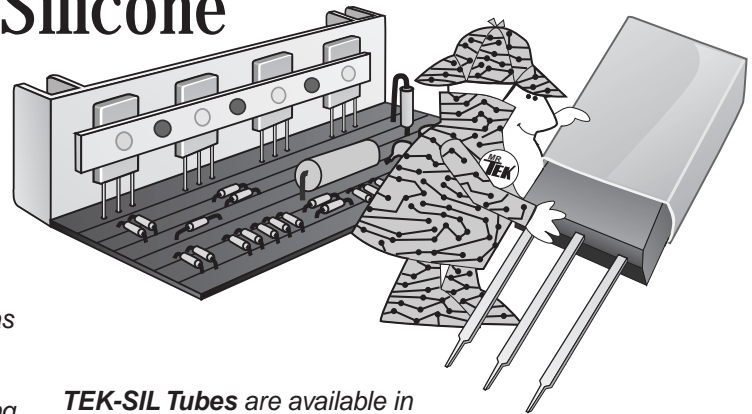
Before specifying, user shall determine suitability of the product for his use. User assumes all risk and liability whatsoever in connection therewith.

## Thermally Conductive Silicone Tubes and Covers

- Easy Assembly
- Full Protection

**Teknational** now offers both **TEK-SIL SCT** and **SCH** materials extruded in tubular form as sleeves and molded as five sided rectangular covers to completely encapsulate electronic devices. Easy to assemble, the tubes and covers slip over IC's to fully protect them from shock or damage during assembly and prevent arcing. With the sleeves, assembly labor is reduced when several are secured with a bar against an aluminum housing used as a heat sink.

The dielectric qualities of **TEK-SIL SCT** and **SCH** isolate the devices while conducting heat to a heat sink. Both materials are UL rated 94VO. These products are often used for mounting TO-3P and TO-220 style devices. See Tables 1 & 2 on page 15 for the physical properties of **TEK-SIL SCT** and **SCH** materials.



**TEK-SIL Tubes** are available in three thicknesses and three inner diameters. .433", .531", and .669" (11mm, 13.5mm and 17mm). They are stocked in several lengths which are standard for TO-220's, TO-3P's and TO-3PL's. Tubes are also available cut into other lengths not shown. Some other diameters may be available for special order. Tables showing part numbers for standard sizes of both Tubes and Covers are shown on the right and below. If you are ordering the better performing **TEK-SIL SCH** material, Substitute "**SCH**" in place of "**SCT**" for the part number.

# TEK-SIL PRODUCTS

## TEK-SIL TUBES Standard Part Numbers

Part number consists of material designation (eg. SCT or SCH followed by material thickness (eg. "12" for .012"))

FOR TO-220's	Diameter	Length
SCT12-433-0984	.433+/- .04	.984+/- .04
SCT18-433-0984	(11+/-1)	(25+/-1)
SCT33-433-0984		
SCT12-433-1181	.433+/- .04	1.181+/- .04
SCT18-433-1181	(11+/-1)	(30+/-1)
SCT33-433-1181		
FOR TO-3P's/TO-247/TO- 218		
SCT12-531-0984	.531+/- .04	.984 +/- .04
SCT18-531-0984	(13.5+/-1)	(25 +/-1)
SCT33-531-0984		
SCT12-531-1181	.531 +/- .04	1.181+/- .04
SCT18-531-1181	(13.5 +/-1)	(30 +/-1)
SCT33-531-1181		
FOR TO-3PL's		
SCT18-669-1378	.669 +/- .04	1.378 +/- .04
SCT33-669-1378	(17 +/-1)	(35 +/-1)

## TEK-SIL COVERS Standard SIZES

Standard sizes-the part number begins with the material name (eg. SCT or SCH and thickness (eg. "12" for .012"))

Part No.	A	B	C
SCT12-0886	0.886 (22.5)	0.433 (11.0)	0.177 (4.5)
SCT18-0866	0.866 (22.0)	0.433 (11.0)	0.197 (5.0)
SCT33-0866	0.866 (22.0)	0.433 (11.0)	0.197 (5.0)
FOR TO-3P's			
SCT12-1102	1.102 (28.0)	0.630 (16.0)	0.177 (4.5)
SCT20-1083	1.083 (27.5)	0.650 (16.5)	0.197 (5.0)
SCT33-1102	1.102 (28.0)	0.709 (18.0)	0.197 (5.0)

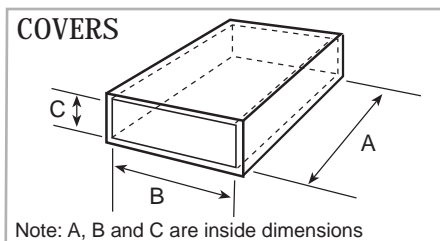


TABLE 5 Physical Properties Kapton® Materials

	K-275®	SK-04		K-275®	SK-04
MATERIAL COMPOSITION			ADHESION TO STEEL (oz/inch)		
Kapton® MT - thickness	.001" (.025mm)	.001" (.025mm)	before thermoset	30	8
Silicon (one side) - thickness	NA	.002" (5.08mm)	after thermoset	60	25
Acrylic PSA- thickness	.002" (5.08mm)	0.015" (3.81mm)	TEMPERATURE RANGE °F	-20 to +300	-20 to +300
THERMAL CONDUCTIVITY			°C	-20 to +149	-29 to +149
watt/m-k	.40	.60	MAXIMUM ROLL WIDTH	16" (406.4mm)	16" (406.4mm)
DIELECTRIC STRENGTH					
volts/mil	1600	1600			

<sup>1</sup> ASTM E1530 @ 10psi.

<sup>2</sup> The thermosetting PSA will become stronger and more solvent resistant after curing with wave solder; cure at 15 seconds @ 200° C or 5 sec @ 250° C.

## K-275® Thermally Conductive Insulators

K-275® solves many problems encountered in surface mounting applications.

With K-275 you can attach heat sinks without any external hardware. Suggested uses are for mounting ceramic hybrid and flat packages.

The base material for K-275 is thermally conductive polyimide which is noted for its high (6.0 KV) dielectric strength and excellent thermal impedance.

K-275 is coated with a liberal application of thermoset acrylic PSA adhesive (.002" thick on both sides). The uncured PSA adheres sufficiently for assembly operations. In its soft, uncured state, the extra thickness of PSA conforms to mating surfaces – improving thermal conductivity.

Ordinary exposure to wave solder will thermoset the PSA, with adhesion improving to 60 oz/in<sup>2</sup>. In the absence of wave soldering, the PSA may be cured for 5 seconds at 250° C. Thermosetting also improves resistance to solvents. The PSA used in K-275 is thermally conductive. Its thermal interface penalty is less than for most adhesives offered with this type of product.

TEK-SIL K-275® is made by Furon. The base material is .001" thermally conductive KAPTON® type MT which is puncture resistant. It is supplied with a release liner of 80# silicone coated paper on one or both sides. TEK-SIL K-275® is available in roll form, 16" wide and in squares or rectangles: 8" x 8" and 9" x 16". Teknational will die cut parts to your specifications.

## TEK-SIL SK-04

TEK-SIL SK-04 is a composite of high performance thermally conductive materials. Polyimide film is coated on one side with thermally conductive silicone rubber to provide high conformability with the upper surface. The opposite side is coated with thermally conductive acrylic adhesive which speeds assembly and improves performance by filling voids between mating surfaces.

SK-04 is highly puncture resistant. Its excellent dielectric strength (6000 volts) and thermal resistance (.20° C/w) make SK-04 a cost effective replacement for beryllium oxide insulators. To reduce assembly time, SK-04 parts are kiss-cut on a release liner. SK-04 is also available in 16" wide sheets.

# TEK-SIL PRODUCTS

## How to order TEK-SIL Materials

Tek-Sil materials may be ordered in sheet form or die cut.

### SHEET FORM

To order sheets, designate the material desired (e.g. Tek-Sil SK-04 or SR-09) followed by the dimensions of the sheet. The part number for a 12"x12" sheet of SR-09 will be SR-09 12"x12"

### DIE CUT

Tek-Sil materials are available die cut in styles to fit the more common transistor, diode and IC packages. The table below shows drawings and dimensions for many of our die cut products. Select the "Style" which fits your requirements.

The Part Number will consist of:

Material	Thickness	Style	(optional PSA)
PN: SR	09	-6	P*
SB	07	-83	P*
SK	04	-58	

\*Since SK-04 is only available with PSA, no "P" is necessary

### FOR STYLES NOT YET TOOLED

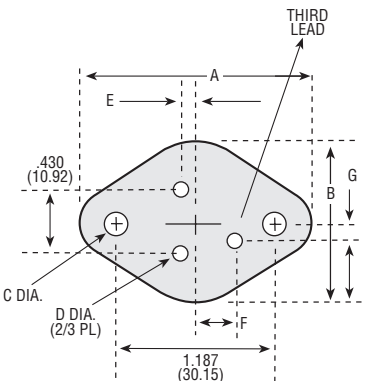
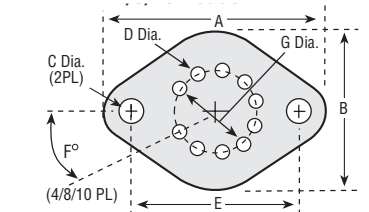
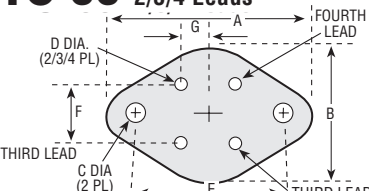
We can design and produce new dies within a few days.

Depending upon your volume requirements, tooling is inexpensive. Call or fax us with the material and dimensions required.

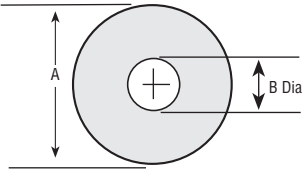
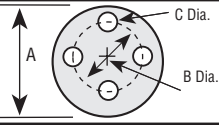
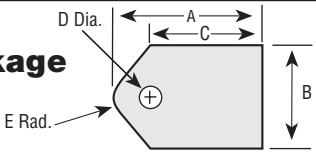
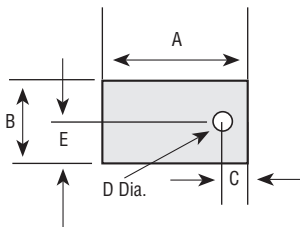
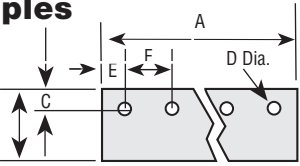
Dimensional Tolerances +/- .015"(.381mm),

Hole Diameters +/- .005"(.127mm).

**IMPORTANT NOTICE TO PURCHASER**—the following is made in lieu of all warranties express or implied. Seller's and manufacturer's only obligation shall be to replace such quantity of the product found to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his intended use and assume all risk and liability whatsoever in connection therewith. The foregoing may not be changed except by an agreement signed by officers of seller and manufacturer.

CONFIGURATION	STYLE	A	B	C	D	E	F	G	LEAD HOLES	SCREW TORQUE
<b>TO 3</b> 2/3 Leads 	-3	1.563 (39.70)	1.050 (26.67)	.140 (3.56)	0.080 (2.03)	0.072 (1.83)				
	-5	1.563 (39.70)	1.050 (26.67)	0.140 (3.56)	0.140 (3.56)	0.072 (1.83)			2	#4-40 5 in/lb. OR #6-32 6in/lb.
	-6	1.593 (40.46)	1.100 (27.94)	0.156 (3.96)	0.062 (1.57)	0.072 (1.83)			2	
	-9	1.650 (41.91)	1.140 (28.96)	0.140 (3.56)	0.046 (1.17)	0.072 (1.83)			2	
	-11	1.650 (41.91)	1.140 (28.96)	0.165 (4.19)	0.062 (1.57)	0.072 (1.83)			2	
	-12	1.700 (43.18)	1.187 (30.15)	0.156 (3.96)	0.062 (1.57)	0.072 (1.83)			2	
	-14	1.780 (45.21)	1.250 (31.75)	0.140 (3.56)	0.093 (2.36)	0.072 (1.83)			2	
	-17	1.650 (41.91)	1.140 (28.96)	0.140 (3.56)	0.093 (2.36)	0.124 (3.15)	0.400 (10.16)	0.155 (3.94)	3	
	-83	1.650 (41.91)	1.140 (28.96)	0.140 (3.56)	0.093 (2.36)	0.072 (1.83)			2	
	-90	1.655 (42.04)	1.063 (27.00)	0.156 (3.96)	0.062 (1.57)	0.072 (1.83)			2	
	-91	1.646 (41.81)	1.125 (28.58)	0.156 (3.96)	0.093 (2.36)	0.072 (1.83)			2	
	-100	1.650 (41.91)	1.140 (28.96)	0.122 (3.10)	0.062 (1.57)	0.072 (1.83)			2	
	-189	1.653 (42.00)	1.142 (29.00)	.122 (3.10)	.059 (1.50)	.079 (2.00)				
<b>TO 3</b> 4/8/10 Leads 	-19	1.563 (39.70)	1.050 (26.67)	0.156 (3.96)	0.063 (1.60)	1.187 (30.15)	72	0.470 (11.94)	4	#4-45 5 in/lb OR #6-32 6in/lb.
	-20	1.655 (42.04)	1.187 (30.15)	0.156 (3.96)	0.060 (1.52)	1.187 (30.15)	40	0.500 (12.7)	8	
<b>TO 66</b> 2/3/4 Leads 	-23	1.312 (33.32)	0.762 (19.35)	0.140 (3.56)	0.062 (1.57)	0.960 (24.38)	0.200 (5.08)	0.100 (2.54)	2	#4-40 5 in/lb. OR #6-32 6 in/lb.
	-24	1.250 (31.75)	0.700 (17.78)	0.140 (3.56)	0.062 (1.57)	0.960 (24.38)	0.200 (5.08)	0.100 (2.54)	2	
	-25	1.375 (34.93)	0.825 (20.96)	0.140 (3.56)	0.062 (1.57)	0.960 (24.38)	0.200 (5.08)	0.100 (2.54)	2	
	-190	1.378 (35.00)	0.826 (21.00)	0.122 (3.10)	0.059 (1.50)	0.960 (24.38)	0.200 (5.08)	0.079 (2.00)		

# TEK-SIL PRODUCTS

CONFIGURATION	STYLE	A	B	C	D	E	F	G	LEAD HOLES	SCREW TORQUE
<b>Diode Washers</b> 	-93	0.562 (14.27)	0.203 (5.16)							#10-32 2in/lb.
	-34 (DO-4)	0.625 (15.88)	0.200 (5.08)							
	-37 (DO-5)	0.800 (20.32)	0.260 (6.60)							
	-42 (DO-5)	1.000 (25.40)	0.260 (6.60)							
	-110	0.360 (9.14)	0.172 (4.37)							
	154	1.600 (40.64)	0.200 (5.08)							
<b>Small Power Devices</b> 	-48 (TO-5)	0.360 (9.14)	0.200 (5.08)	0.040 (1.02)					3	
	-49 (TO-5)	0.360 (9.14)	0.200 (5.08)	0.040 (1.02)					4	
<b>Tip Package</b> 	-65 (Tip-36)	0.865 (21.97)	0.650 (16.51)	0.650 (16.51)	0.140 (3.56)	0.205 (5.21)				#4-40 4 in/lb.
	-51 (TO-126)	0.437 (11.10)	0.312 (7.92)	0.140 (3.56)	0.122 (3.10)					#4-40 2in/lb.
	-54	0.687 (17.45)	0.562 (14.27)	0.218 (5.54)	0.125 (3.18)					
<b>Plastic Power Devices</b> 	-97	0.687 (17.45)	0.562 (14.27)	0.185 (4.70)	0.093 (2.33)					
	-191 (TO-220)	0.708 (18.00)	0.512 (13.00)	0.177 (4.50)	0.118 (3.00)					
	-55	0.710 (18.03)	0.500 (12.70)	0.160 (4.06)	0.141 (3.58)					
	-81	0.725 (18.42)	0.520 (13.21)	0.170 (4.32)	0.115 (2.92)					
	-56	0.750 (19.05)	0.410 (10.41)	0.225 (5.72)	0.156 (3.96)					
	-57 (TO-220)	0.750 (19.05)	0.500 (12.70)	0.187 (4.75)	0.125 (3.18)					
	-58 (TO-220)	0.750 (19.05)	0.500 (12.70)	0.187 (4.75)	0.147 (3.73)					
	-52	0.760 (19.05)	0.600 (15.24)	0.240 (6.10)	0.150 (3.81)					
	-64 (220 clip)	0.750 (19.05)	0.500 (12.70)							
	-102 (no hole)	0.870 (22.10)	0.620 (15.75)							
	-98 (TO-218)	0.800 (20.32)	0.600 (15.24)	0.218 (5.54)	0.110 (2.79)					
	-99	0.826 (20.96)	0.905 (22.99)	0.210 (5.33)	0.145 (3.69)					
	-96	0.937 (23.80)	0.750 (19.05)	0.656 (16.66)	0.125 (3.18)					
	-192 (TO-3PF)	0.945 (24.00)	0.787 (20.00)	0.295 (7.50)	0.122 (3.10)					
	-84	0.945 (24.00)	0.825 (20.96)	0.235 (5.97)	0.140 (3.56)					
-106	0.945 (24.00)	0.825 (20.96)	0.235 (5.97)	0.120 (3.05)						
-112	1.125 (28.58)	0.625 (15.88)	0.200 (5.08)	0.145 (3.68)						
-113	1.410 (35.81)	0.810 (20.57)	0.360 (9.14)	0.147 (3.73)						
-122	1.300 (33.02)	1.000 (25.4)	0.650 (16.51)	0.166 (4.22)	0.350 (8.89)					
<b>Plastic Devices Multiples</b> 	-82	1.260 (32.00)	0.690 (17.53)	0.250 (6.35)	0.160 (4.06)	0.230 (5.84)	0.800 (20.32)		2	
	-107	1.420 (36.07)	0.440 (11.18)	0.155 (3.94)	0.120 (3.05)	0.310 (7.87)	0.400 (10.16)		3	
	-109	2.165 (54.99)	0.945 (24.00)	0.472 (11.99)	0.167 (4.24)	0.472 (11.99)	1.220 (30.99)		2	
	-134	2.515 (63.88)	2.031 (51.59)	0.531 (13.49)	0.156 (3.96)	0.734 (18.64)	1.047 (26.59)		2	
	-80	4.000 (101.60)	0.750 (19.05)	0.187 (4.75)	0.125 (3.18)	0.250 (6.35)	0.500 (12.70)		8	

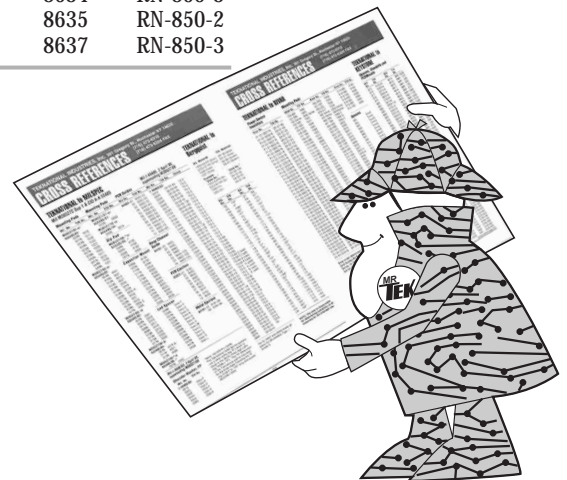
Dimensions in Millimeters are indicated by (.00)

# CROSS REFERENCES

Cross  
References  
to:  
Bergquist  
Birtcher  
Bivar  
Calmark  
Concord  
Keystone  
Milspec  
Richco  
Rosin  
SAE  
Scanbe  
HH Smith  
Thermalloy

## Card Guides

Teknational	Birtcher	Bivar	Calmark	E.S.F	Keystone	Richco	Rosin	Thermalloy
9425	94-2-5	DC-250				RDC-250	C12203-0004F	8820-2
9445	94-2-9	DC-450				RDC-450		8820-4
9445-125	94-4-9	DC-450-130				RDC-450-130		
9460	94-2-12	DC-600				RDC-600	C12203-0002F	8820-6
9460-125	94-4-12	DC-600-130				RDC-600-130		
9480	94-2-16	DC-800				RDC-800	C12203-0003F	8820-8
9480-125	94-4-16	DC-800-130				RDC-800-130		
9200-25		N-250-2			8620	RN-250-2		
9200-30		N-300-2		A-42870-4	8621	RN-300-2		
9200-35		N-350-2			8622	RN-350-2		
9200-40		N-400-2	120-400	A-42870-1	8623	RN-400-2		
9200-45		N-450-2			8624	RN-450-2		
9200-50		N-500-2			8625	RN-500-2		
9200-55		N-550-2			8626	RN-550-2		
9200-60		N-600-2	120-600	A-42870-2	8627	RN-600-2		
9200-65		N-650-2			8628	RN-650-2		
9200-70		N-700-2	120-700X		8629	RN-700-2		
9200-70-3		N-700-3	120-700		8630	RN-700-3		
9200-75		N-750-2			8631	RN-750-2		
920075-3		N-750-3			8632	RN-750-3		
9200-80		N-800-2	120-800X		8633	RN-800-2		
9200-80-3		N-800-3	120-800		8634	RN-800-3		
9200-85		N-850-2			8635	RN-850-2		
9200-85-3		N-850-3			8637	RN-850-3		
9300-25	93-5	E-250						
9300-30	93-6	E-300						
9300-35	93-7	E-350						
9300-40	93-8	E-400						
9300-45	93-9	E-450						
9300-50	93-10	E-500						
9300-55	93-11	E-550						
9300-60	93-12	E-600						
9300-65	93-13	E-650						
9300-70	93-14	E-700						
9300-75	93-15	E-750						
9300-80	93-16	E-800						



## Ejectors

TEK	Birtcher	Bivar	Calmark	Concord	Keystone	Richco	SAE	Scanbe	HH Smith	Thermalloy
9062	90-2	LP-06								
9162	91-2	LP-36								
9209	92-2	1209-062				R1209-062		S209		
9532	95-3	CP-09				RCP-09		S200-100		
9562	93-2	CP-06	Series 103	770-4496	8640	RCP-06		S200		
9632	96-3	CP-29				RCP-29		S202-100		
9662	96-2	CP-26		770-4497	8641	RCP-26		S202	6297	5003N
9732	97-3	CP-39				RCP-39		S203-100		
9762	97-2	CP-36		770-4495	8842	RCP-36		S203		5009N
9832	98-3	CP-89				RCP-89		S208-100		
9862	98-2	CP-86	Series 101	770-4493	8844	RCP-86		S208		5005-20N
9932	99-3	CP-69				RCP-69				
9962	99-2	CP-66	Series 105	770-4494	8643	RCP-66	6100	S-212		5005-08N
9990	88-125	CP-00								
9991	86-125	CP-2	Series 110		6200			40080		5005-09N

\*Teknational ejectors are natural nylon. The parts shown are functional equivalents to those offered by other manufacturers.

NOTE: The user is responsible for determining suitability of all materials for the intended use.

# CROSS REFERENCES

## TEKNATIONAL to MILSPEC FSC #24227

Mil M38527C Sup 1 & CID A-A 55485

Mil-I-49466, 2 April 90,  
superseding M38527/08

Mounting Pads		Mounting Pads		PCB Guides		Mil-I-49466, 2 April 90, superseding M38527/08		
Mil. No.	TEK No.	Mil. No.	TEK No.	Mil No.	TEK No.	Mil No.	TEK No.	Descp.
M38527/01-or		M38527/07-or		84006-01	9300-25	1-49466/02-		
A55485/01-		A55485/07-			02 9300-30	001R	SR-09-04	TO-3
030N	1018	002N	2009		03 9300-35	002R	SB-09-04	TO-3
031N	1011	M38527/10 or			04 9300-40	003R	SR-09-05	TO-3
033N	1029	A55485/10-			05 9300-45	004R	SB-09-05	TO-3
034N	1020	006N	2014		06 9300-50	006R	SR-09-06	TO-3
036N	1027	<b>Dip Pad</b>			07 9300-55	007R	SB-09-06	TO-3
037N	1000	M38527/06-or			08 9300-60	009R	SR-09-100	TO-3
040N	1017	A55485/06 -			09 9300-65	010R	SB-09-100	TO-3
041N	3035	004N	4130		10 9300-70	011R	SR-09-09	TO-3
044N	1030	005N	4160		11 9300-75	012R	SR-09-09	TO-3
049N	1001	006N	4180		12 9300-80	013R	SR-09-83	TO-3
M38527/02-or		007N	4360			014R	SB-09-83	TO-3
A55485/02-		<b>Capacitor Mount</b>		<b>Deep Channel</b>		016R	SR-09-12	TO-3
004N	4041	008N	8100	84101-01	9425	017R	SB-09-12	TO-3
010N	3001	009N	8150		02 9445	019R	SR-09-132	TO-3
012N	4015	010N	8200		03 9460	020R	SB-09-132	TO-3
013N	3027	017N	8250		04 9480	022R	SR-09-14	TO-3
014N	3005	018N	8300		22 9445-125	023R	SB-09-14	TO-3
018N	3019	019N	8350		23 9460-125	024R	SR-09-15	TO-3
019N	3034	020N	8400		24 9480-125	025R	SB-09-15	TO-3
020N	3005-A	021N	8500			026R	SR-09-24	TO-66
027N	3030	023N	8201			027R	SB-09-24	TO-66
030N	4031	024N	8202	<b>PCB Ejectors</b>		029R	SR-09-23	TO-66
033N	4029	025N	8203	83023-01	9762	030R	SB-09-23	TO-66
039N	3005-C	026N	8204		02 9562	031R	SR-09-25	TO-66
047N	3006	027N	8205		03 9662	032R	SB-09-25	TO-66
M38527/03- or		028N	8206		04 9962	034R	SR-09-26	TO-66 3 Leads
A55485/03-		<b>Led Spacer*</b>			05 9732	035R	SB-09-26	TO-66 3 Leads
002N	2001	029N	5xxx-F		06 9532	036R	SR-09-27	TO-66 4 Leads
004N	2018	030N	5xxx-P		07 9632	037R	SB-09-27	TO-66 4 Leads
007N	2010	031N	5xxx-E		08 9932	038R	SR-09-19	TO-3 4 Leads
008N	2017	032N	5xxx-Q		18 9162	039R	SB-09-19	TO-3 4 Leads
009N	2016	033N	5xxx-A		19 9209	040R	SR-09-20	TO-3 8 Leads
010N	2015	034N	5xxx-G			041R	SB-09-20	TO-3 8 Leads
013N	2028	035N	5xxx-B			060R	SR-09-47	TO-36
015N	2020	036N	5xxx-H			061R	SB-09-47	TO-36
017N	3032	037N	5xxx-M			067R	SR-09-48	TO-5
M38527/04 or		038N	5xxx-C			068R	SB-09-48	TO-5
A55485/04-		039N	5xxx-J			070R	SR-09-49	TO-5
001N	4018-A	040N	5xxx-K			071R	SB-09-49	TO-5
011N	4021	041N	5xxx-D			080R	SR-09-32	DO-4
013N	4006	042N	5xxx-L			081R	SB-09-32	DO-4
M38527/06-or						082R	SR-09-34	DO-4
A55485/06 -						083R	SB-09-34	DO-4
001N	4042					085R	SR-09-37	DO-5
						086R	SB-09-37	DO-5
						087R	SR-09-42	D5
						088R	SB-09-42	DO-5

\*Note: /06-029 thru 042N  
The Teknational 5000 Series spacers use a letter suffix (eg "F") which is equal to the DESC three digit suffix (eg "029N = "F"). The "H" dimension of the Teknational part is indicated by the three digits following the "5" (eg 5125-F is .125" long and equals 06/029N-125H).

Mil-I-4946/03, 2 April 90, superseding M38527/08

Shoulder Washer, PP	Mil. No.	TEK No.
	1-49466/03-	001S 7034-P
		002S 7033-P
		003S 7032-P
		004S 7034-P
		005S 7035-P
		006S 7036-P

Tek-Sil SR07 and SR09 meet all specs for MIL49456A, Type 1, Grade 3.

## TEKNATIONAL to Bergquist

BQ. Material	TEK. Material
7403-09-FR (Gray)	SR-09 (Gray)
3223-07-FR (Gray)	SR-07 (Gray)
1009 (Pink)	SB-09 (Green)
1007 (Pink)	SB-07 (Green)
Example:	
"Style No."	"Style No."
7403-09-FR-04=	SR-09-100
3223-07-FR-35=	SR-07-55
1009-11=	SB-09-23
1007-51=	SB-07-54

BQ. No.	TEK No.	BQ. No.	TEK No.
-02	-14	-54	-58
-03	-4	-55	-53
-04	-100	-56	-61
-05	-83	-57	-69
-06	-11	-58	-57
-07	-15	-59	-111
-08	-47	-60	-51
-09	-48	-61	-56
-10	-22	-62	-60
-11	-23	-63	-59
-12	-114	-64	-52
-13	-116	-65	-67
-15	-13	-66	-71
-16	-16	-72	-121
-17	-9	-73	-66
-18	-5	-75	-30
-19	-31	-76	-35
-20	-32	-78	-40
-21	-37	-79	-43
-22	-34	-80	-44
-23	-6	-81	-45
-24	-12	-82	-33
-25	-42	-83	-28
-26	-38	-84	-27
-27	-39	-85	-18
-28	-41	-86	-18
-29	-7	-87	-19
-30	-24	-88	-20
-31	-25	-89	-70
-32	-46	-90	-63
-33	-49	-91	-21
-34	-144	-92	-17
-35	-55	-93	-29
-36	-75	-94	-142
-37	-76	-95	-143
-38	-77	-96	-72
-39	-78	-97	-73
-40	-79	-98	-74
-41	-80	-99	-75
-42	-68	-101	-146
-43	-64	-102	-147
-50	-50	-104	-148
-51	-54	-105	-149
-52	-62	-105	-150
-53	-65		

**NOTE: The user is responsible for determining suitability of all materials for the intended use.**

# CROSS REFERENCES

Web-Site: [www.teknational.com](http://www.teknational.com)

## TEKNATIONAL to BIVAR

### Power Device Insulators

Bivar No.	TEK No.
P1-07-0031-N	SR-07-06
P1-07-0032-N	SR-07-83
P1-07-0041-N	SR-07-34
P1-07-0051-N	SR-07-37
P1-07-0052-N	SR-07-42
P1-07-0661-N	SR-07-24
P1-07-0662-N	SR-07-23
P1-07-2181-N	SR-07-65
P1-07-2182-N	SR-07-96
P1-07-2201-N	SR-07-54
P1-07-2202-N	SR-07-55
P1-07-2203-N	SR-07-57
P1-07-2204-N	SR-07-58
P1-07-2205-N	SR-07-63
P1-09-0031-N	SR-09-06
P1-09-0032-N	SR-09-83
P1-09-0041-N	SR-09-34
P1-09-0051-N	SR-09-37
P1-09-0052-N	SR-09-42
P1-09-0661-N	SR-09-24
P1-09-0662-N	SR-09-23
P1-09-2181-N	SR-09-65
P1-09-2182-N	SR-09-96
P1-09-2201-N	SR-09-54
P1-09-2202-N	SR-09-55
P1-09-2203-N	SR-09-57
P1-09-2204-N	SR-09-58
P1-09-2205-N	SR-09-63
P2-09-0031-N	SB-09-06
P2-09-0032-N	SB-09-83
P2-09-0041-N	SB-09-34
P2-09-0051-N	SB-09-37
P2-09-0052-N	SB-09-42
P2-09-0661-N	SB-09-24
P2-09-0662-N	SB-09-23
P2-09-2181-N	SB-09-65
P2-09-2182-N	SB-09-96
P2-09-2201-N	SB-09-54
P2-09-2202-N	SB-09-55
P2-09-2203-N	SB-09-57
P2-09-2204-N	SB-09-58
P2-09-2205-N	SB-09-63

Bivar cross references to Card Guides DC,N,S and E Series, for Ejectors LP & CP Series see page 21

**NOTE: The user is responsible for determining suitability of all materials for the intended use.**

### Mounting Pads

Bivar No.	TEK No.	Bivar No.	TEK No.	Bivar No.	TEK No.
101-096	1009	426-250	7009	814-060	4160
103-080	1002	427-327	7010	814-080	4180
104-020	1017	428-207	7028	814-100	4200
105-021	1004	429-217	7029	816-030	4330
106-045	1001	466-380	7066-5	816-060	4360
107-180	1008	467-380	7066-0	816-080	4380
108-021	1003	468-380	7066-1	816-100	4400
109-045	1011	500-080	3002		
110-030	1000	501-075	3008		
112-040	2009	502-120	3013		
113-125	1015	503-075	3001		
115-100	1018	505-120	3011		
116-060	1019	506-038	3012		
117-080	1020	507-100	3010		
118-055	1027	508-075	3006		
119-096	1029	509-060	3009		
120-156	1030	510-110	3007		
121-032	1031	511-038	3005-A		
200-115	2028	513-075	3008-A		
200-170	2004	515-020	3019		
201-150	2002	517-038	3027		
202-150	2007	517-095	3028		
203-150	2006	518-038	3041		
205-085	2001	519-075	3032		
209-125	2015	520-021	3034		
211-040	2016	521-094	3035		
212-087	2030	524-085	3037		
213-100	2018	525-038	3005		
214-120	2020	526-090	3045		
300-100	8100	527-117	3030		
301-150	8150	528-117	3042		
302-200	8200	530-090	3038		
303-090	7203	531-218	3011-A		
303-469	7203-WB	532-050	3011-A		
311-200	8201	600-080	3003		
312-250	8202	601-120	3015		
313-300	8203	602-038	3040		
315-400	8205	603-115	4030*		
316-500	8206	605-085	4001*		
366-090	7266	606-075	4005		
366-402	7266-WB	607-075	4008		
400-100	3004	608-090	4015		
401-187	5002	609-075	3018		
402-120	2010	610-075	4028		
403-062	5001	611-075	4031		
405-160	7115	612-075	4040		
407-220	7175	615-075	4029		
408-080	4013	616-070	4041		
409-120	7055	700-130	4002		
414-125	2005	701-130	4006		
415-480	7003-5	702-130	4009		
416-110	4011	703-250	4004		
416-480	7003-0	704-250	4003		
417-480	7003-1	706-250	4010		
422-315	2012	707-120	4012		
424-040	6008	709-275	4016		
424-125	2125	710-275	4018		
424-150	2150	812-187	4022		
424-175	2175	814-030	4130		
424-200	2200	814-045	4145		
425-310	7006	814-060	4160		

## TEKNATIONAL to KEYSTONE

### Spacers, Standoffs and PCBMounts

KEY No.	TEK No.	KEY No.	TEK No.
875	5125-K	4814	6MF- 250
876	5250-K	4815	6MF- 375
877	5375-K	4816	6MF- 500
878	5500-K	4817	6MF- 625
879	5625-K	4818	6MF- 750
880	5750-K	4819	6MF- 875
881	5875-K	4820	6MF-1000
882	5000-1-K	4821	6MF-1125
883	5125-D	4822	6MF-1250
884	5250-D	4823	6MF-1375
885	5375-D	4828	8MF- 250
836	5500-D	4829	8MF- 375
887	5625-D	4830	8MF- 500
888	5750-D	4831	8MF- 625
889	5875-D	4832	8MF- 750
890	5000-1-D	4833	8MF- 875
891	5125-L	4884	8MF-1000
892	5250-L	4835	8MF-1125
893	5375-L	4836	8MF-1250
894	5500-L	4837	8MF-1375
895	5625-L	7351	5725-120
896	5750-L	7352	5725-140
897	5875-L	7353	5725-160
89B	5000-1-L	7354	5725-180
1902A	4H-250	7355	5725-200
1902B	4H-375	7356	5725-220
1902C	4H-500	7357	5725-240
1902F	4H-625	7358	5725-250
1902D	4H-750	7359	5725-260
1902G	4H-875	7360	5725-280
1902E	4H-1000	7361	5725-300
1903A	6H-250	7362	5725-320
1903B	6H-375	7363	5725-340
1903C	6H-500	7364	5725-350
1903F	6H-625	7365	5725-360
1903D	6H-750	7366	5725-380
1903G	6H-875	7367	5725-400
1903E	6H-1000	7368	5725-420
1904A	8H-250	7369	5725-440
1904B	8H-375	7370	5725-450
1904C	8H500	7371	5725-460
1904F	8H-625	7372	5725-480
1904D	8H-750	7373	5725-500
1904G	8H-875	7374	5725-550
1904E	8H-1000	7375	5725-600
4800	4MF-250	7376	5725-650
4801	4MF-375	7377	5725-700
4802	4MF-500	7378	5725-750
4803	4MF-625	7379	5725-800
4804	4MF-750	7380	5725-850
4805	4MF-875	7381	5725-900
4806	4MF-1000		
4807	4MF-1125		
4808	4MF-1250		
4809	4MF-1375		

### Spacers

901	5xxxF
902	5xxxE
903	5xxxG
904	5xxxH
905	5xxxD
906	5xxxA
907	5xxxB
908	5xxxC
910	5xxxJ
911	5xxxK
912	5xxxL
913	5xxxM
938	5xxxP
939	5xxxQ
940	5xxxT
941	5xxxS

For Teknational spacers xxx = "H" dimension for the spacer  
 Example:  
 Bivar 901-250 = Teknational 5250-F

### Other Bivar Cross References

CI192-028	MY192-028
CI192-050	MY192-050
CI480-060	MY480-060
CI480-105	MY480-105
ECl-1	MY710
ECl-2	MY820
SW-125-150	7031-P
SW-185-150	7032-P
SW-125-140	7033-P
SW-031-190	7034-P
SW-031-177	7035-P
SW-031-145	7036-P
SW-032-135	7037-P
SW-040-140	7038-P

# CROSS REFERENCES

## TEKNATIONAL to KEYSTONE

### Spacers, Standoffs and PCBMounts

KEY No.	TEK No.	KEY No.	TEK No.
8311	5700-120	8442F	8HV-875
8312	5700-140	8842G	8HV-1000
8313	5700-160	8800	5100-187
8314	5700-180	8801	5100-250
8315	5700-200	8802	5100-375
8316	5700-220	8803	5100-500
8317	5700-240	8804	5100-625
8318	5700-250	8805	5100-750
8319	5700-260	8806	5100-875
8320	5700-280	8807	5800-187
8321	5700-300	8808	5800-250
8322	5700-320	8809	5800-375
8323	5700-340	8810	5800-500
8324	5700-350	8811	5800-625
8325	5700-360	8812	5800-750
8326	5700-380	8813	5800-875
8327	5700-400	8814	5800-1000
8328	5700-420	8815	5225-187
8329	5700-440	8816	5225-250
8330	5700-450	8817	5225-375
8331	5700-460	8818	5225-500
8332	5700-480	8819	5225-625
8333	5700-500	8820	5225-750
8334	5700-550	8821	5225-875
8335	5700-600	8822	5400-187
8336	5700-650	8823	5400-250
8337	5700-700	8824	5400-375
8338	5700-750	8825	5400-500
8339	5700-800	8826	5400-625
8340	5700-850	8827	5400-750
8341	5700-900	8828	5400-875
8440A	4HV-250	8829	5500-125
8440B	4HV-375	8830	5500-187
8440C	4HV-500	8831	5500-250
8440D	4HV-625	8832	5500-375
8440E	4HV-750	8833	5500-500
8440F	4HV-875	8834	5500-625
8440G	4HV-1000	8835	5525-250
8441A	6HV-250	8836	5525-375
8441B	6HV-375	8837	5525-500
8441C	6HV-500	8838	5525-625
8441D	6HV-625	8839	5550-250
8441E	6HV-750	8840	5550-375
8441F	6HV-475	8841	5550-500
8441G	6HV-1000	8842	5550-625
8442A	8HV-250		
8442B	8HV-375		
8442C	8HV-500		
8442D	8HV-625		
8442E	8HV-750		

Cross references to Card Guides 8620 thru 8637 Series, to Ejectors 8640 thru 8643 Series, Die Cast Handles 7169 thru 7199 Series see page 21

## TEKNATIONAL to Richco

Richco No.	TEK No.	Richco No.	TEK No.	Richco No.	TEK No.
CBS-3-01	5100-187	LEDS2M-450-48	5700-450	SRS6-4-01	5625-250
C8S-4-01	5100-250	LEDS2M-460-48	5700-460	SRS6-5-01	5625-312
CBS-6-01	5100-375	LEDS2M-480-48	5700-480	SRS6-6-01	5625-375
CBS-8-01	5100-500	LEDS2M-500-48	5700-500	SRS6-8-01	5625-500
CBS-10-01	5100-625	LEDS2M-550-48	5700-550	SRS6-10-01	5625-625
CBS-12-01	5100-750	LEDS2M 600-48	5700-600	SRS6-12-01	5625-750
CBS-14-01	5100-875	LEDS2M-650-48	5700-650	SRS6-14-01	5625-875
DLCBS-3-01	5200-187	LEDS2M-700-48	5700-700	SRS6-16-01	5625-1000
DLCBS-4-01	5200-250	LEDS2M-750-48	5700-750	SRS8-4-01	5650-250
DLCBS-6-01	5200-375	LEDS2M-800-48	5700-800	SRS8-5-01	5650-312
DLCBS-8-01	5200-500	LEDS2M-850-48	5700-850	SRS8-6-01	5650-375
DLCBS-10-01	5200-625	LEDS2M-900-48	5700-900	SRS8-8-01	5650-500
DLCBS-12-01	5200-750	MNI-HT #4-2	7036-P	SRS8-10-01	5650-625
DLCBS-14-01	5200-875	MNI-HT #4-8	7031-P	SRS8-12-01	5650-750
DLCBS2-3-01	5225-187	MNI-HT #4-12	7032-P	SRS8-14-01	5650-875
DLCBS2-4-01	5225-250	MNI-HT #6-2	7034-P	SRS8-16-01	5650-1000
DLCBS2-6-01	5225-375	PS-3-01	5400-187	SSRS4-2-01	5500-125
DLC8S2-8-01	5225-500	PS-4-01	5400-250	SSRS4-3-01	5500-187
DLCBS2-10-01	5225-625	PS-6-01	5400-375	SSRS4-4-01	5500-250
DLCBS2-12-01	5225-750	PS-7-01	5400-437	SSRS4-5-01	5500-312
DLCBS2-14-01	5225-875	PS-8-01	5400-500	SSRS4-6-01	5500-375
DLCBS3-3-01	5250-187	PS-10-01	5400-625	SSRS4-7-01	5500-437
DLCBS3-4-01	5250-250	PS-12-01	5400-750	SSRS4-8-01	5500-500
DLCBS3-6-01	5250-375	SP-14-01	5400-875	SSRS4-10-01	5500-625
DLCBS3-8-01	5250-500	SP1-3-01	5300-187	SSRS6-4-01	5525-250
DLCBS3-10-01	5250-625	SP1-4-01	5300-250	SSRS6-5-01	5525-312
DLCBS3-12-01	5250-750	SP1-6-01	5300-375	SSRS6-6-01	5525-375
DLCBS3-14-01	5250-875	SP1-8-01	5300-500	SSRS6-7-01	5525-437
LCBS-3	5800-187	SP1-10-01	5300-625	SSRS6-8-01	5525-500
LCBS-4	5800-250	SP1-12-01	5300-750	SSRS6-10-01	5525-625
LCBS-5	5800-312	SP1-14-01	5300-875	SSRS8-4-01	5550-250
LCBS-6	5800-375	SP1-16-01	5300-1000	SSRS8-5-01	5550-312
LCBS-8	5800-500	SP2-3-01	5325-187	SSRS8-6-01	5550-375
LCBS-10	5800-625	SP2-4-01	5325-250	SSRS8-7-01	5550-437
LCBS-12	5800-750	SP2-6-01	5325-375	SSRS8-8-01	5550-500
LCBS-14	5800-875	SP2-8-01	5325-500	SSRS8-10-01	5550-625
LCBS-16	5800-1000	SP2-10-01	5325-625	TO-3-05	SR-07-83
LCBS-18	5800-1125	SP2-12-01	5325-750	TO-220-68	SR-07-112
LCBS-20	5800-1250	SP2-14-01	5325-875	TO-218-70	SR-07-113
LCBS-22	5800-1375	SP2-16-01	5325-1000	IEC TO-220V-18	2520
LEDS2M-120-48	5700-120	SP2-18-01	5325-1187	IEC TO-218	2518
LEDS2M-140-48	5700-140	SP3-3-01	5350-187		
LEDS2M-160-48	5700-160	SP3-4-01	5350-250		
LEDS2M-180-48	5700-180	SP3-6-01	5350-375		
LEDS2M-200-48	5700-200	SP3-8-01	5350-500		
LEDS2M-220-48	5700-220	SP3-10-01	5350-625		
LEDS2M-240-48	5700-240	SP3-12-01	5350-750		
LEDS2M-250-48	5700-250	SP3-14-01	5350-875		
LEDS2M-260-48	5700-260	SP3-16-01	5350-1000		
LEDS2M-280-48	5700-280	SRS4-2-01	5600-125		
LEDS2M-300-48	5700-300	SRS4-3-01	5600-187		
LEDS2M-320-48	5700-320	SRS4-4-01	5600-250		
LEDS2M-340-48	5700-340	SRS4-5-01	5600-312		
LEDS2M-350-48	5700-350	SRS4-6-01	5600-375		
LEDS2M-360-48	5700-360	SRS4-8-01	5600-500		
LEDS2M-380-48	5700-380	SRS4-10-01	5600-625		
LEDS2M-400-48	5700-400	SRS4-12-01	5600-750		
LEDS2M-420-48	5700-420	SRS4-14-01	5600-875		
LEDS2M-440-48	5700-440	SRS4-16-01	5600-1000		
LEDS2M-450-48	5700-450				

Cross references to Card Guides RDC Series, RN Series, to Ejectors R1209-062, RCP Series see page 21

## Led Spacers

Richco No.	TEK No.	Richco No.	TEK No.
R901	F Series	R908	C Series
R902	E Series	R910	J Series
R903	G Series	R911	K Series
R904	H Series	R912	L Series
R905	D Series	R913	M Series
R906	A Series	R938	P Series
R907	B Series	R939	Q Series

Example: Richco R905-2= Teknational 5125-D

Richco "H" Dim.	TEK No.	Richco "H" Dim.	TEK No.
1	5060	9	5560
2	5125	10	5625
3	5185	11	5685
4	5250	12	5750
5	5310	13	5810
6	5375	14	5875



# CROSS REFERENCES

## Teknational to Thermalloy

### Mounting Pads

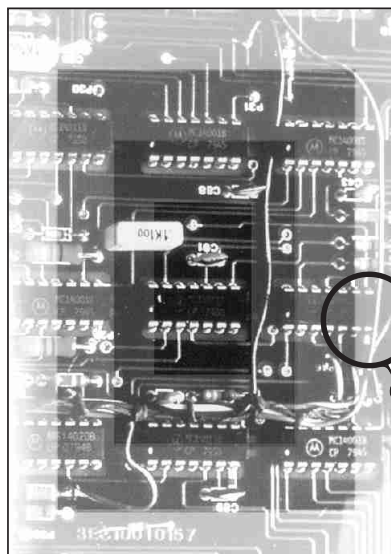
Therm No.	TEK No.	Therm No.	TEK No.
7717-2	2014	7717-153	1027
3	3001	154	3002*
4	3008-A*	155	3033
5	51124	156	4145
6	3018	157	1004*
7	51746	159	3013*
8	4028	160	2010
10	4031	161	3032
11	5001*	162	4017*
12	4040	175	4013*
15	3019	178	3034
16	1017	188	1029
18	1018*	189	3031
20	4014*	190	3037
21	4016*	192	1030
22	3008*	193	1031
26	2010	195	3028*
30	4005*	198	3005
32	4040*	201	4030*
38	4029	205	2028
43	2017	206	3008-A
44	2015	207	1017
46	1019	219	3005-A*
79	3005-A*	220	1012
86	3008	222	6008
89	1020	224	3039
93	2016	227	3009
94	3027	239	1180*
104	4016*	240	3040
107	4012*	241	4360*
108	1006*	247	2020*
109	3028	248	2015
110	1003*	251	3001
112	1000*	252	4018*
114	3005-A*	253	4030*
119	4016*	330	3012
120	4004*	337	1002
121	2015*	342	1180*
122	4041*	7721-1	7031-P
124	1003	7721-2	7032-P
125	4001*	7721-3	7033-P
127	3012	7721-4	7034-P
128	3030	7721-5	7035-P
129	4013*	7721-6	7036-P
130	2009	7721-7	7037-P
131	3041	7721-8	7038-P
133	2001*	7732	8202
135	2020*	7733	8203
137	2018	7734	8204
139	2015*	7735	8205
145	2015	7736	8206
146	1018	7737	8100
147	4005*	7738	8150
148	4030*	7739	8200
149	2020	7741	7203-WB
151	3006*	7742	7203
152	1011		

### Thermasil

Thermalloy No.	TEK No.	Thermalloy No.	TEK No.	Thermalloy No.	TEK No.
53-02-10	SR-06-93	54-02-10	SR-09-93	55-02-10	SR-07-93
53-02-15	SR-06-34	54-02-15	SR-09-34	55-02-15	SR-02-34
53-02-20	SR-06-42	54-02-20	SR-09-42	55-02-20	SR-07-42
53-02-25	SR-06-94	54-02-25	SR-09-94	55-02-25	SR-07-94
53-02-95	SR-06-95	54-02-95	SR-09-95	55-02-95	SR-07-95
53-02-102	SR-06-173	54-02-102	SR-09-173	55-02-102	SR-07-173
50-02-103	SR-06-96	54-02-103	SR-09-96	55-02-103	SR-07-96
53-03-02	SR-06-90	54-03-102	SR-09-90	55-03-02	SR-07-90
53-03-11	SR-06-91	54-03-11	SR-09-91	55-03-11	SR-07-91
53-03-12	SR-06-83	54-03-12	SR-09-83	55-03-12	SR-07-83
53-03-14	SR-06-05	54-03-14	SR-09-05	55-03-14	SR-07-05
53-03-15	SR-06-172	54-03-15	SR-09-172	55-03-15	SR-07-172
53-03-16	SR-06-12	54-03-16	SR-09-12	55-03-16	SR-07-12
53-66-2	SR-06-23	54-66-2	SR-09-23	55-66-2	SR-07-23
53-66-9	SR-06-92	54-66-9	SR-09-92	55-66-9	SR-07-92
53-66-10	SR-06-24	54-66-10	SR-09-24	55-66-10	SR-07-24
53-66-11	SR-06-25	54-66-11	SR-09-25	55-66-11	SR-07-25
53-77-2	SR-06-54	54-77-2	SR-09-93	55-77-2	SR-07-54
53-77-3	SR-06-97	54-77-3	SR-07-54	55-77-3	SR-07-97
53-77-4	SR-06-58	54-77-4	SR-09-97	55-77-4	SR-07-58
53-77-5	SR-06-98	54-77-5	SR-09-58	55-77-5	SR-07-98
53-77-9	SR-06-81	54-77-9	SR-09-98	55-77-9	SR-07-81
53-77-10	SR-06-99	5477-10	SR-09-81	55-77-10	SR-07-99
53-77-11	SR-06-101	54-77-11	SR-09-99	55-77-11	SR-07-101
53-77-13	SR-06-55	54-77-13	SR-09-101	55-77-13	SR-07-55
53-78-1	SR-06-102	55-78-1	SR-07-102	55-78-1	SR-07-102
(no hole)		(no hole)		(no hole)	
53-78-3	SR-06-103	55-78-3	SR-07-103	55-78-3	SR-07-103
(no hole)		(no hole)		(no hole)	

\* Teknational parts marked with an asterisk are recommended substitutes which perform equally in function to the part referenced. Overall appearance and dimensions may be different.

Cross References to 8820 Guides and 5003-5009 ejectors on page 21



*Mr TEK always on the look out for new solutions to your PCB assembly problems.*

