

# SIDACtor™ - The New Standard

If your electronic equipment is being protected by zener diodes, gas discharge tubes, MOV's or other types of protectors, you are taking unnecessary risks. The TECCOR SIDACtor offers longer life and faster response than other types of protection.

The bidirectional SIDACtor is ideal for protecting electronic equipment (telecommunications, computers, instrumentation, etc.) from lightning, line transients and other damaging high voltage spikes. The SIDACtor can be tailored to meet your specific application requirements.

The SIDACtor is normally connected between the high side of the circuit to be protected and common. As long as the voltage being monitored remains below the specified level, the SIDACtor presents a high forward im-

pedance (leakage current  $\leq 10\mu A$ ). When the monitored voltage exceeds the specified level (clamping voltage) the SIDACtor starts to conduct, in less than 1ns.

The SIDACtor is faster than other currently used devices or methods and is able to respond without voltage overshoot. Conventional gas discharge tubes, carbon arrestors and MOV's are all slow to respond, and allow significant voltage spikes above the clamping voltage before they begin to conduct. The SIDACtor is as fast as a zener diode, while offering a much lower impedance (0.1 Ohm vs 10 Ohms) when conducting, and can handle 100 times as much energy, and its bidirectional!

PACKAGE TYPE	PART NUMBER	V <sub>BO</sub>		V <sub>BO</sub>		V <sub>DRM</sub>	I <sub>DRM</sub>	I <sub>BO</sub>	I <sub>H</sub>		60Hz
		Breakover Voltage (Instantaneous Clamping Voltage) (1) PINS 1 to 3		Breakover Voltage (Instantaneous Clamping Voltage) (1) PINS 2 to 3 PINS 2 to 1		Repetitive Peak Off-State Voltage (4)	Repetitive Peak Off-State Current 60Hz Sine Wave $V = V_{DRM}$ (2)	Breakover Current 60Hz Sine Wave	Holding Current (3) (11)		
		Volts		Volts		Volts	$\mu A$ mps	$\mu A$ mps	mAmps		
		MIN	MAX	MIN	MAX	MINIMUM	MAXIMUM	MAXIMUM	MIN	MAX	
E TO-92 (Isolated)	P0800E	60	100			$\pm 50$	10	200	50	500	30
	P1050E	85	113			$\pm 90$	10	200	150	500	30
	P1100E	104	118			$\pm 90$	10	200	150	500	30
	P1200E	110	125			$\pm 90$	10	200	150	500	30
	P1300E	120	138			$\pm 90$	10	200	150	500	30
	P1400E	130	146			$\pm 90$	10	200	150	500	30
	P1500E	140	170			$\pm 90$	10	200	150	500	30
F TO-202AB (Non-Isolated)	P2000F1	190	215			$\pm 180$	10	200	150	500	30
	P2200F1	205	230			$\pm 180$	10	200	150	500	30
	P2400F1	220	250			$\pm 190$	10	200	150	500	30
	P2500F1	240	280			$\pm 190$	10	200	150	500	30
	P3000F1	270	330			$\pm 190$	10	200	150	500	30
	P1602F1	120	200	60	100	$\pm 50$ (10)	10	200	150	750	30
	P2202F1	190	250	95	125	$\pm 90$ (10)	10	200	150	750	30
	P2702F1	240	300	120	150	$\pm 90$ (10)	10	200	150	750	30
	P1553F1	140	170	140	170	$\pm 90$ (11)	10	200	40	750	30
	P2103F1	180	240	180	240	$\pm 160$ (11)	10	200	40	750	30
	P2353F1	210	265	210	265	$\pm 180$ (11)	10	200	40	750	30
	P1604F1	120	200	60	100	$\pm 50$ (10)	10	200	150	750	60
	P2204F1	190	250	95	125	$\pm 90$ (10)	10	200	150	750	60
	P2704F1	240	300	120	150	$\pm 90$ (10)	10	200	150	750	60
A MODIFIED TO-220 (Isolated)	P1602A	120	200	60	100	$\pm 50$ (10)	10	200	150	750	30
	P2202A	190	250	95	125	$\pm 90$ (10)	10	200	150	750	30
	P2702A	240	300	120	150	$\pm 90$ (10)	10	200	150	750	30
	P1553A	140	170	140	170	$\pm 90$ (11)	10	200	40	750	30
	P2103A	180	240	180	240	$\pm 160$ (11)	10	200	40	750	30
	P2353A	210	265	210	265	$\pm 180$ (11)	10	200	40	750	30
M TO-218 (Non-Isolated)	P1051M			95 (12)	113 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P1101M			104 (12)	118 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P1201M			110 (12)	125 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P1301M			120 (12)	138 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P1401M			130 (12)	146 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P1501M			140 (12)	170 (12)	$\pm 90$	10	200	150 (12)	500 (12)	60
	P2001M	190	215			$\pm 180$	10	200	150	750	60
	P2201M	205	230			$\pm 180$	10	200	150	750	60
	P2401M	220	250			$\pm 190$	10	200	150	750	60
	P2501M	240	280			$\pm 190$	10	200	150	750	60
	P3001M	270	330			$\pm 190$	10	200	150	750	60
	P1604M	120	200	60	100	$\pm 50$ (10)	10	200	150	750	60
	P2204M	190	250	95	125	$\pm 90$ (10)	10	200	150	750	60
	P2704M	240	300	120	150	$\pm 90$ (10)	10	200	150	750	60

**GENERAL NOTES**

- All measurements are made at 60Hz with a resistive load at an ambient temperature of +25°C unless otherwise specified.
- Storage temperature range (TS) is -65°C to +150°C.
- The case temperature (TC) is measured as shown on the dimensional outline drawings. See "package dimensions" section.

- Junction temperature range (T<sub>J</sub>) is -40°C to +125°C.
- Lead solder temperature is a maximum of +230°C for 10 seconds maximum;  $\geq 1/16"$  from case.

**ELECTRICAL ISOLATION**  
 Teccor's electrically isolated TO-92 and modified TO-220 Sidactor will withstand a high potential test of 1600 VAC RMS from leads to case over the operating temperature range.



# Transient Voltage Protection For Telecommunications

Transient voltage surges can be generated by lightning strikes, industrial equipment, the utilities themselves, as well as other equipment within the telecommunications system.

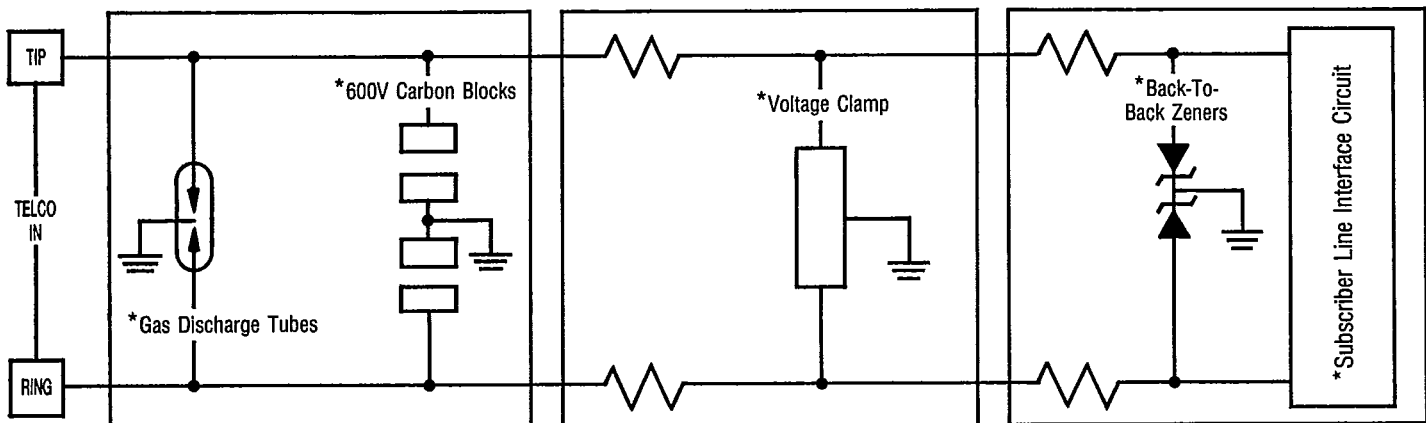
The traditional methods of protecting telecommunications equipment include the gas discharge tube, carbon blocks, and other types of devices and wiring schemes. While these methods are certainly better than nothing, they will not provide the level of protection required for the solid state circuits

that are used in today's equipment. The bidirectional TECCOR SIDACTor is faster, offers lower leakage, and provides lower power dissipation than other types of protection. The SIDACTor can be economically applied to primary, secondary, and board level circuits.

The SIDACTor is the preferred choice for transient surge protection because of its speed, reduced component requirements, physical size and surge current capabilities.

## TRADITIONAL TYPES OF TELECOMMUNICATIONS PROTECTION

\*The Teccor SIDACTOR provides a more effective replacement for these functions.



### PRIMARY PROTECTION

Primary protection applies to those circuits that are exposed to the highest potential levels of transient surges. These would include such occurrences as lightning, power distribution spikes, and heavy industrial equipment switching.

### SECONDARY PROTECTION

Secondary protection circuits are applied to installations where the circuits to be protected are preceded by either primary protection circuits, or sufficient isolation such as is provided by transformers or resistor/inductor networks.

### BOARD LEVEL PROTECTION

Board level protection is intended to protect specific components such as microprocessors, signal lines, etc., from either internally or externally generated transients with the protection devices mounted directly on PC boards.





FIGURE 3

Typical Applications of Sidactor as a Transient Protector and OVP in a Regulated Power Supply

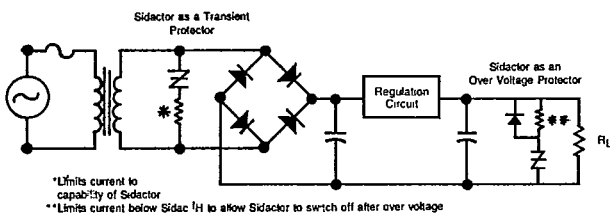


FIGURE 5

Normalized Repetitive Peak Off-State Current vs Junction Temperature

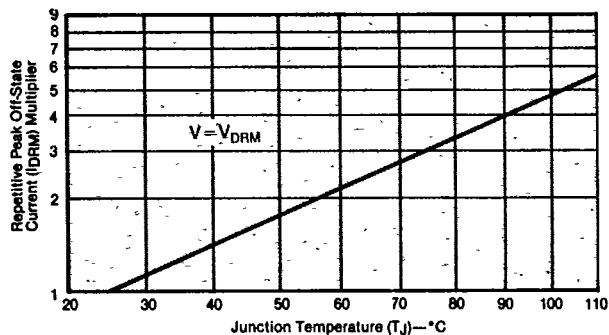
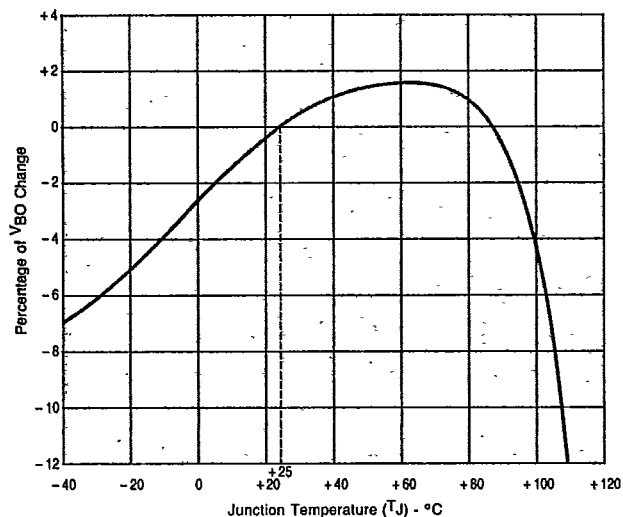
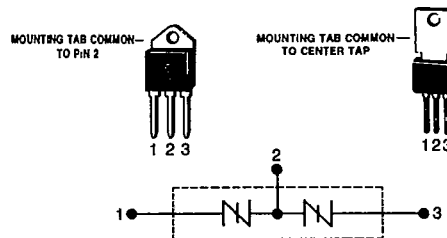


FIGURE 4

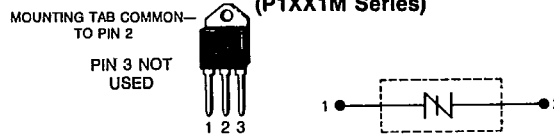
Normalized  $V_{BO}$  Change vs Junction Temperature



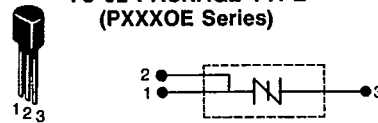
TO-218 and TO-202 PACKAGE TYPES ONLY  
 (PXXXOFXX, PXXX2FXX, P2XX1M, PXXX2A, PXXX4M, or PXXX4FXX Series)



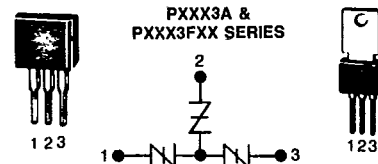
TO-218 (P1XX1M Series)



TO-92 PACKAGE TYPE (PXXXOE Series)



TO-202 and MODIFIED TO-220 PACKAGE TYPE



Represented By \_\_\_\_\_