

**SURFACE MOUNT
THYRISTOR SURGE PROTECTIVE DEVICE**

Bi-Directional

VDRM - **58 to 320** Volts
IPP - **30** Amperes

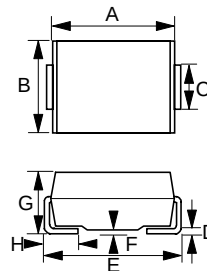
FEATURES

- Oxide Glass Passivated Junction
- Bidirectional protection in a single device
- Surge capabilities up to 30A @ 10/1000us or 150A @ 8/20us
- High off state Impedance and low on state voltage
- Plastic material has UL flammability classification 94V-0

MECHANICAL DATA

- Case : Molded plastic
- Polarity : Denotes none cathode band
- Weight : 0.003 ounces, 0.093 grams

SMB



SMB		
DIM.	MIN.	MAX.
A	4.06	4.57
B	3.30	3.94
C	1.96	2.21
D	0.15	0.31
E	5.21	5.59
F	0.05	0.20
G	2.01	2.62
H	0.76	1.52
All Dimensions in millimeter		

MAXIMUM RATINGS

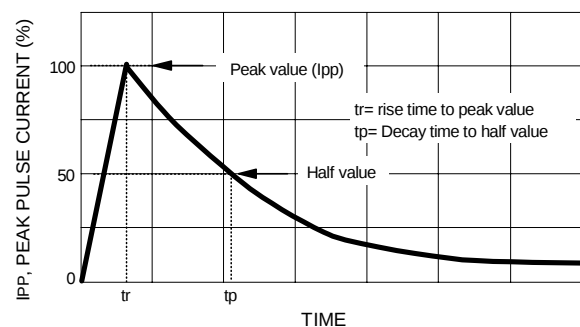
CHARACTERISTICS	SYMBOL	VALUE	UNIT
Non-repetitive peak impulse current @ 10/1000us	IPP	30	A
Non-repetitive peak On-state current @ 8.3ms (one half cycle)	ITSM	15	A
Junction temperature range	TJ	-40 to +150	°C
storage temperature range	TSTG	-55 to +150	°C

THERMAL RESISTANCE

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Junction to leads	Rth(J-L)	30	°C/W
Junction to ambient on print circuit (on recommended pad layout)	Rth(J-A)	120	°C/W
Typical positive temperature coefficient for breakdown voltage	$\Delta V_{BR}/\Delta T_J$	0.1	%/°C

MAXIMUM RATED SURGE WAVEFORM

WAVEFORM	STANDARD	IPP (A)
2/10 us	GR-1089-CORE	200
8/20 us	IEC 61000-4-5	150
10/160 us	FCC Part 68	100
10/700 us	ITU-T K20/21	60
10/560 us	FCC Part 68	50
10/1000 us	GR-1089-CORE	30



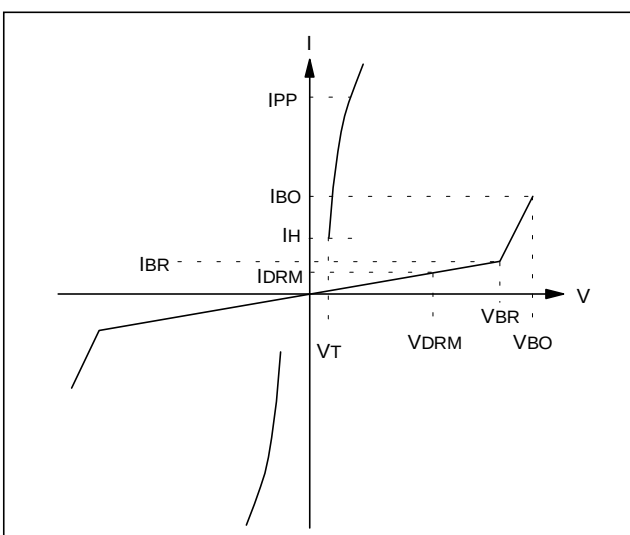
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ELECTRICAL CHARACTERISTICS @ TA= 25°C unless otherwise specified
TB0640L thru TB3500L



PARAMETER	RATED REPETITIVE OFF-STATE VOLTAGE	OFF-STATE LEAKAGE CURRENT @ VDRM	BREAKOVER VOLTAGE	ON-STATE VOLTAGE @ IT=1.0A	BREAKOVER CURRENT		HOLDING CURRENT		OFF-STATE CAPACITANCE
SYMBOL	VDRM	IDRM	VBO	VT	IBO-	IBO+	IH-	IH+	Co
UNITS	Volts	uA	Volts	Volts	mA	mA	mA	mA	pF
LIMIT	Max	Max	Max	Max	Min	Max	Min	Max	Typ
TB0640L	58	5	77	3.5	50	800	150	800	100
TB0720L	65	5	88	3.5	50	800	150	800	100
TB0900L	75	5	98	3.5	50	800	150	800	100
TB1100L	90	5	130	3.5	50	800	150	800	60
TB1300L	120	5	160	3.5	50	800	150	800	60
TB1500L	140	5	180	3.5	50	800	150	800	60
TB1800L	160	5	220	3.5	50	800	150	800	60
TB2300L	190	5	265	3.5	50	800	150	800	40
TB2600L	220	5	300	3.5	50	800	150	800	40
TB3100L	275	5	350	3.5	50	800	150	800	40
TB3500L	320	5	400	3.5	50	800	150	800	40

SYMBOL	PARAMETER
VDRM	Stand-off Voltage
IDRM	Leakage current at stand-off voltage
VBR	Breakdown voltage
IBR	Breakdown current
VBO	Breakover voltage
IBO	Breakover current
IH	Holding current Note: 1
VT	On state voltage
IPP	Peak pulse current
CO	Off state capacitance Note: 2



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- NOTES: 1. $I_H > (V_L/R_L)$ If this criterion is not obeyed, the TSPD Triggers but does not return correctly to high-resistance state.
The Surge recovery time does not exceed 30ms.
2. Off-state capacitance measured at $f=1.0\text{MHz}$; $1.0V_{RMS}$ signal; $V_R=2V_{DC}$ bias.

FIG. 1 - OFF STATE CURRENT vs JUNCTION TEMPERATURE **FIG. 2 - RELATIVE VARIATION OF BREAKDOWN VOLTAGE vs JUNCTION TEMPERATURE**

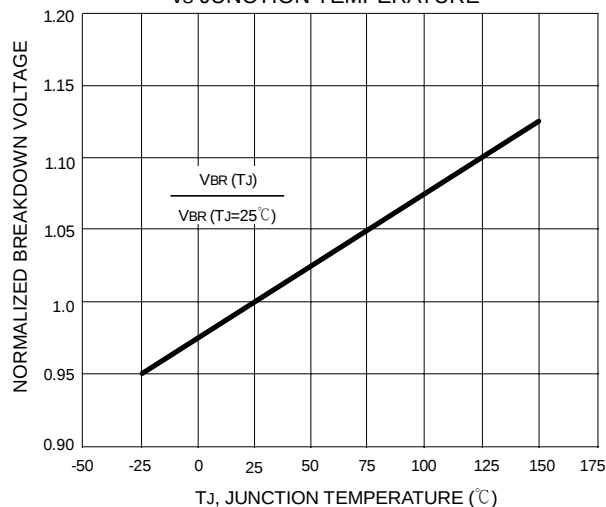
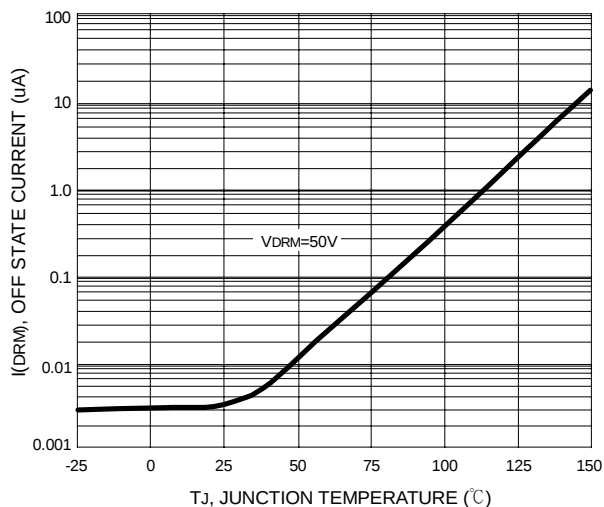


FIG. 3 - RELATIVE VARIATION OF BREAKOVER VOLTAGE vs JUNCTION TEMPERATURE

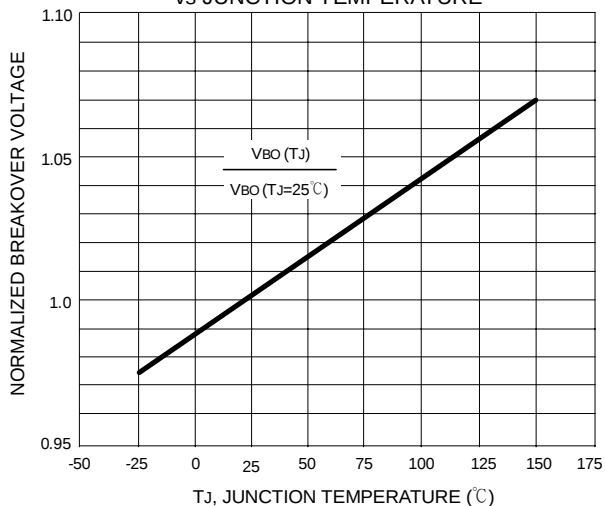


FIG. 4 - ON STATE CURRENT vs ON STATE VOLTAGE

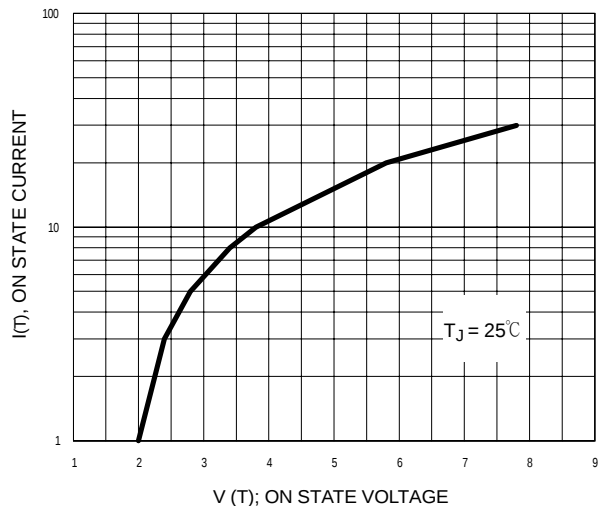


FIG. 5 - RELATIVE VARIATION OF HOLDING CURRENT vs JUNCTION TEMPERATURE

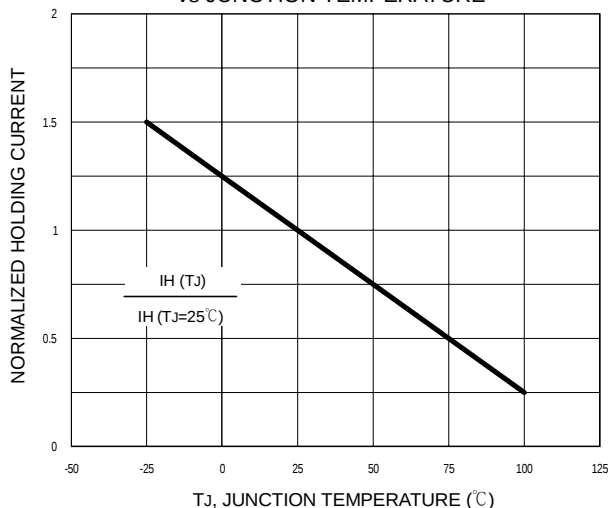
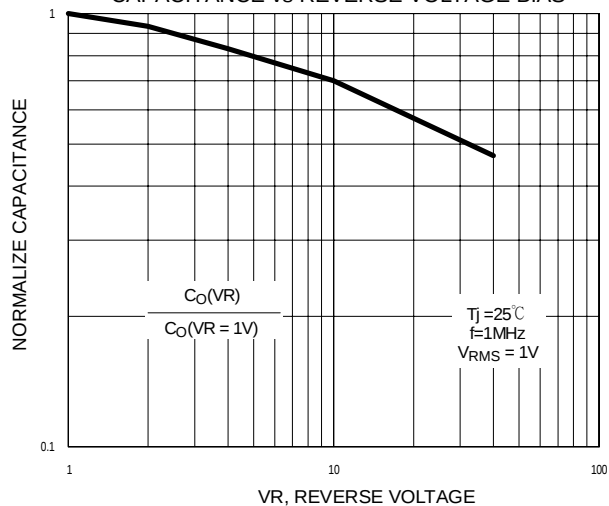
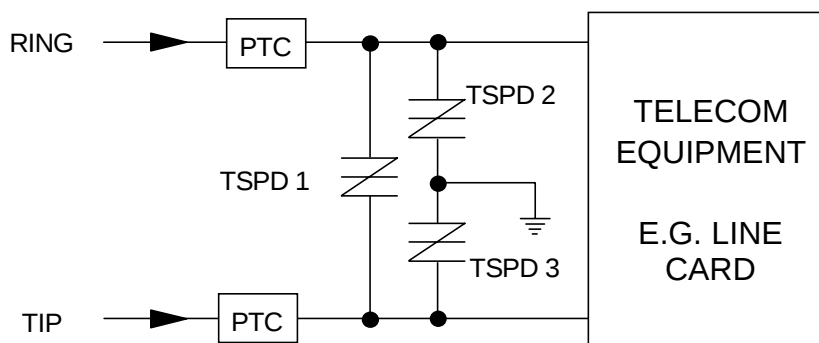
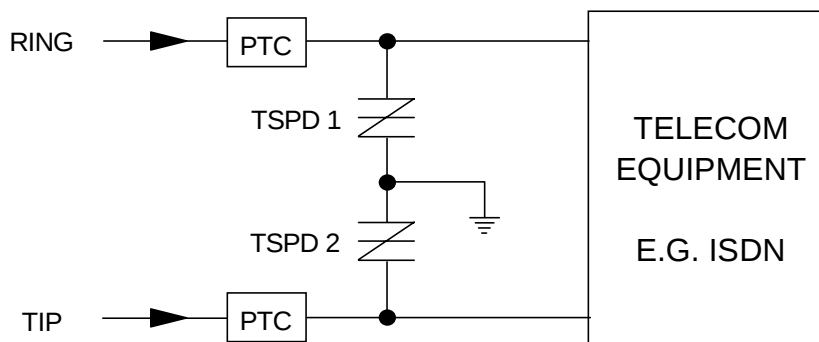
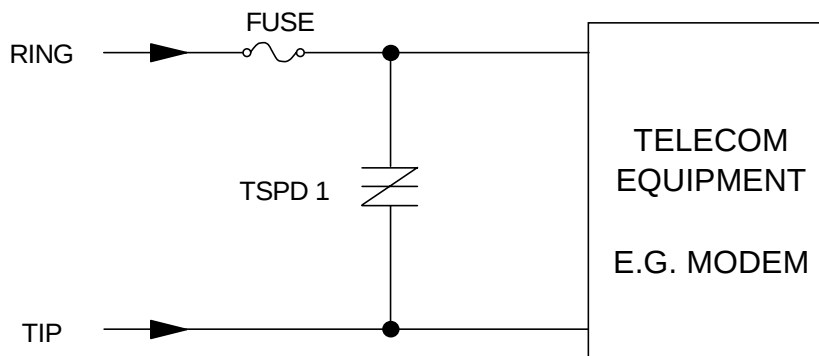


FIG. 6 - RELATIVE VARIATION OF JUNCTION CAPACITANCE vs REVERSE VOLTAGE BIAS





The PTC (Positive Temperature Coefficient) is an overcurrent protection device