

**SURFACE MOUNT
THYRISTOR SURGE PROTECTIVE DEVICE**

Bi-Directional

VDRM - 58 to 320 Volts
IPP - 30 Amperes

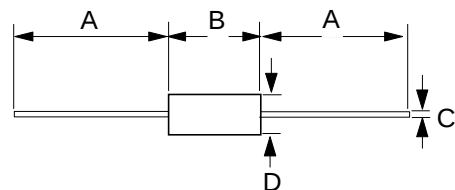
FEATURES

- 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 : JEDEC DO-15 Molded plastic
- Polarity : Denotes none cathode band
- Weight : 0.4 grams

DO-15



DO-15		
Dim.	Min.	Max.
A	25.4	-
B	5.80	7.60
C	0.71Ø	0.86Ø
D	2.60Ø	3.60Ø
All Dimensions in millimeter		

MAXIMUM RATINGS

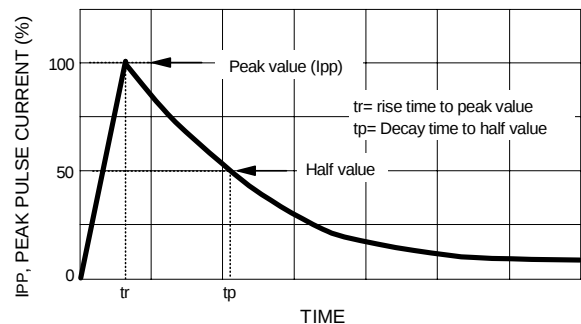
CHARACTERISTICS	SYMBOL	VALUE	UNIT
Non-repetitive peak impulse current @ 10/1000us	IPP	30	A
Non-repetitive peak On-state current @ 8.3ms (one half cycle)	ITSM	15	A
Junction and storage temperature range	TJ ; TSTG	-55 to +150	°C

THERMAL RESISTANCE

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Junction to leads	Rth(J-L)	60	°C/W
Junction to ambient on print circuit (on recommended pad layout)	Rth(J-A)	100	°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



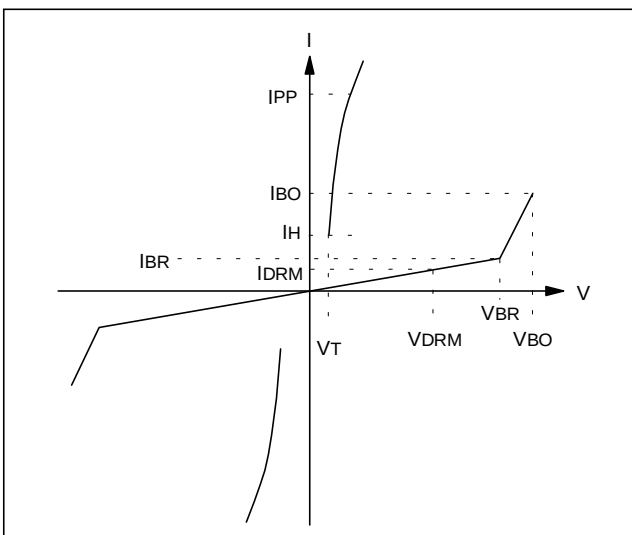
REV. 0, 15-Nov-2001, KDWD03

ELECTRICAL CHARACTERISTICS @ TA= 25°C unless otherwise specified
TL0640L thru TL3500L



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
TL0640L	58	5	77	3.5	50	800	150	800	100
TL0720L	65	5	88	3.5	50	800	150	800	100
TL0900L	75	5	98	3.5	50	800	150	800	100
TL1100L	90	5	130	3.5	50	800	150	800	60
TL1300L	120	5	160	3.5	50	800	150	800	60
TL1500L	140	5	180	3.5	50	800	150	800	60
TL1800L	160	5	220	3.5	50	800	150	800	60
TL2300L	190	5	265	3.5	50	800	150	800	40
TL2600L	220	5	300	3.5	50	800	150	800	40
TL3100L	275	5	350	3.5	50	800	150	800	40
TL3500L	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



REV. 0, 15-Nov-2001, KDWD03

- 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**

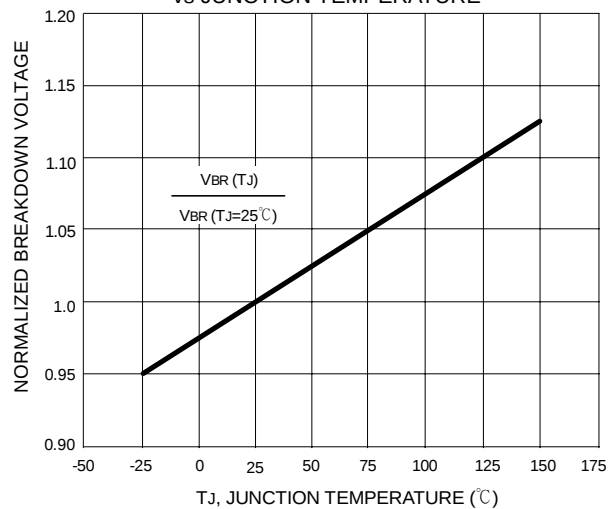
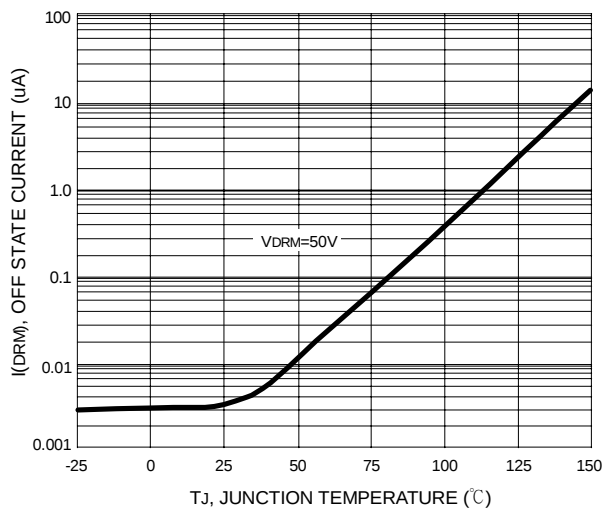


FIG. 3 - RELATIVE VARIATION OF BREAKOVER VOLTAGE vs JUNCTION TEMPERATURE

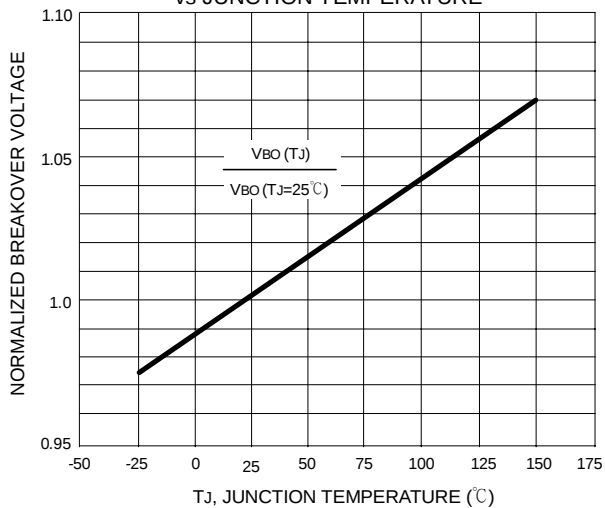


FIG. 4 - ON STATE CURRENT vs ON STATE VOLTAGE

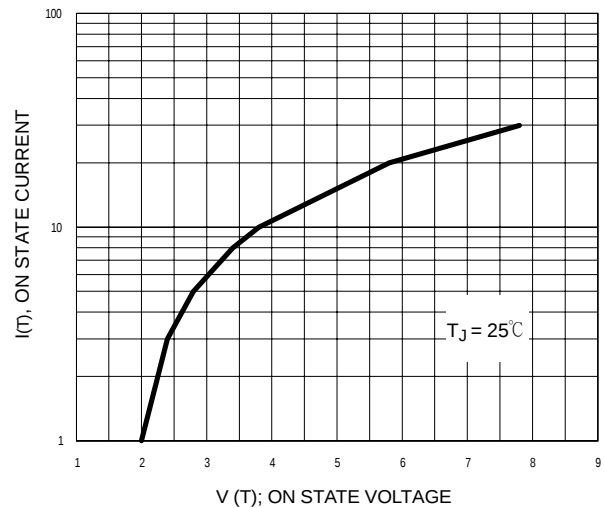


FIG. 5 - RELATIVE VARIATION OF HOLDING CURRENT vs JUNCTION TEMPERATURE

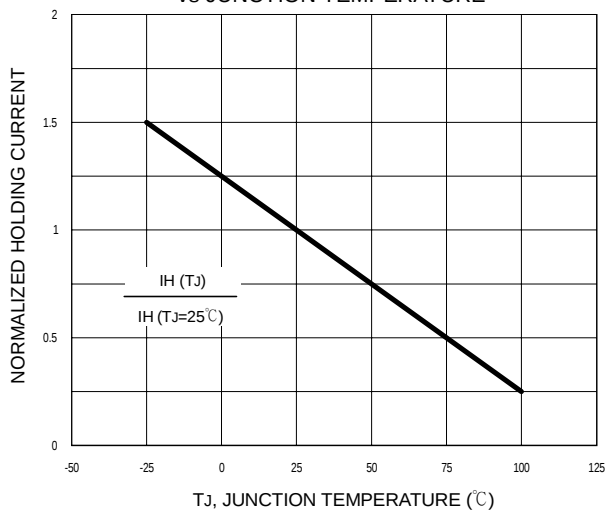
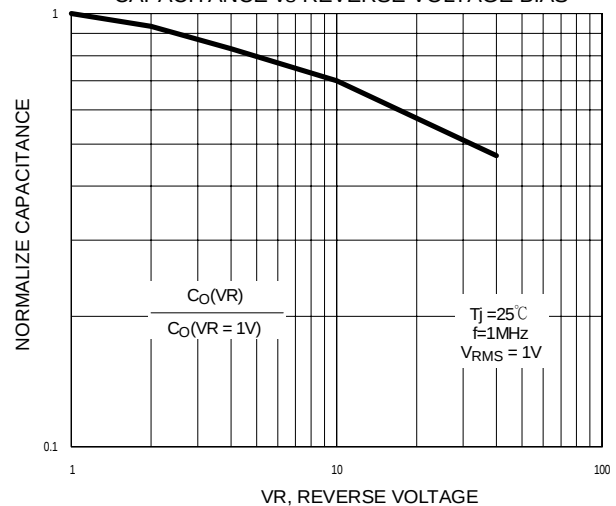
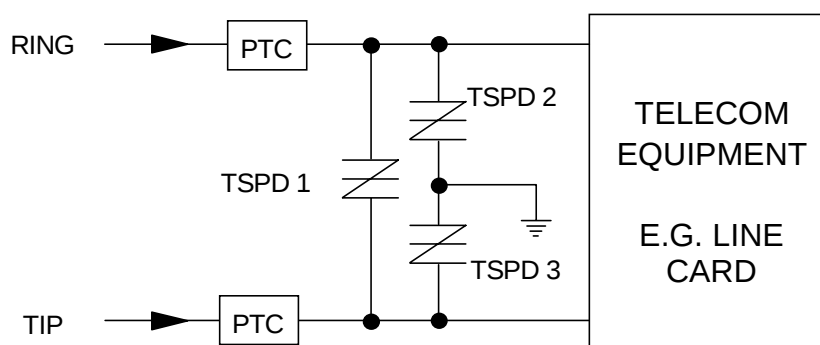
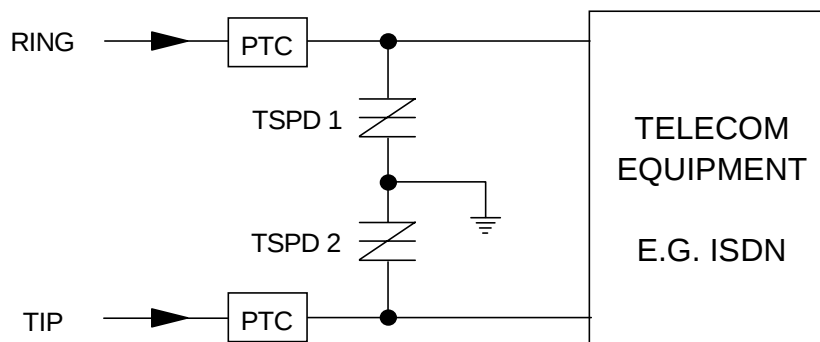
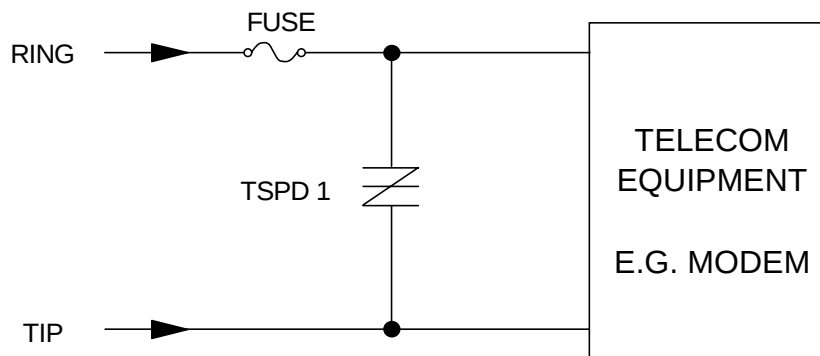


FIG. 6 - RELATIVE VARIATION OF JUNCTION CAPACITANCE vs REVERSE VOLTAGE BIAS





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