LITE-ON SEMICONDUCTOR

TB0640HL thru TB4600HL

SURFACE MOUNT
THYRISTOR SURGE PROTECTIVE DEVICE

Bi-Directional

VDRM - **58 to 400** Volts
IPP - **100** Amperes

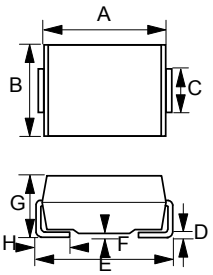
FEATURES

- Oxide Glass Passivated Junction
- Bidirectional protection in a single device
- Surge capabilities up to 100A @ 10/1000us or 400 @ 8/20us
- High off state Impedance and low on state voltage
- Low Capacitance
- 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

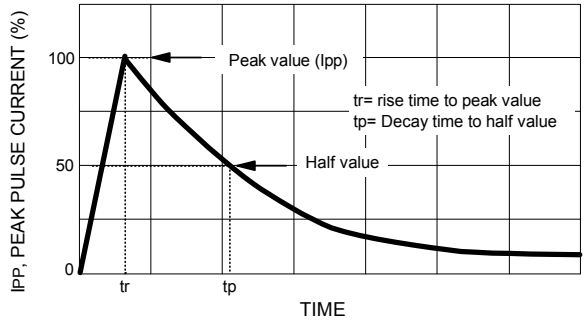
CHARACTERISTICS	SYMBOL	VALUE	UNIT
Non-repetitive peak impulse current @ 10/1000us	I_{PP}	100	A
Non-repetitive peak On-state current @ 8.3ms (one half cycle)	I_{TSM}	50	A
Junction temperature range	T_J	-40 to +150	℃
storage temperature range	T_{STG}	-55 to +150	℃

THERMAL RESISTANCE

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Junction to leads	$R_{th(J-L)}$	20	℃/W
Junction to ambient on print circuit (on recommended pad layout)	$R_{th(J-A)}$	100	℃/W
Typical positive temperature coefficient for brekdown voltage	$\triangle V_{BR}/\triangle T_J$	0.1	%/℃

MAXIMUM RATED SURGE WAVEFORM

WAVEFORM	STANDARD	IPP (A)
2/10 us	GR-1089-CORE	500
8/20 us	IEC 61000-4-5	400
10/160 us	FCC Part 68	250
10/560 us	FCC Part 68	200
10/700 us	ITU-T K20/K21	160
10/1000 us	GR-1089-CORE	100



REV. 2, Oct-2014, KSWB07

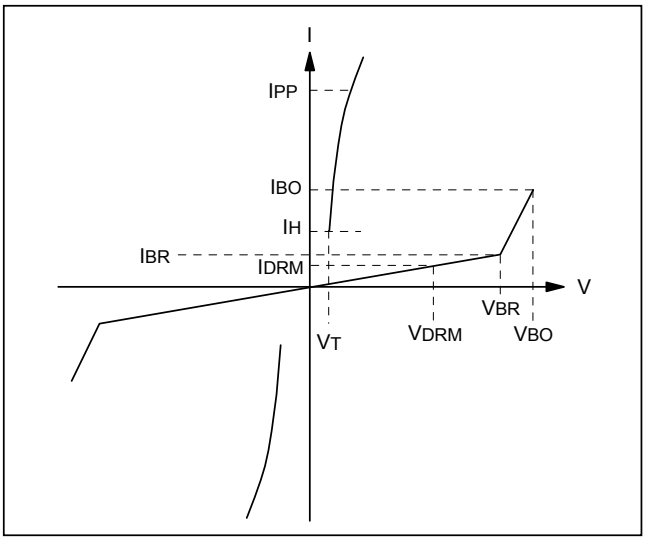
ELECTRICAL CHARACTERISTICS
TB0640HL thru TB4600HL

LITEON

@ TA= 25℃ unless otherwise specified

PARAMETER	MARKING CODE	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		IH		Co
UNITS		V	uA	V	V	mA		mA		pF
LIMIT		Max	Max	Max	Max	Min	Max	Min	Max	Typ
TB0640HL	T064HL	58	5	77	3.5	50	800	150	800	40
TB0720HL	T072HL	65	5	88	3.5	50	800	150	800	40
TB0900HL	T090HL	75	5	98	3.5	50	800	150	800	40
TB1100HL	T110HL	90	5	130	3.5	50	800	150	800	40
TB1300HL	T130HL	120	5	160	3.5	50	800	150	800	40
TB1500HL	T150HL	140	5	180	3.5	50	800	150	800	40
TB1800HL	T180HL	170	5	220	3.5	50	800	150	800	40
TB2300HL	T230HL	190	5	265	3.5	50	800	150	800	40
TB2600HL	T260HL	220	5	300	3.5	50	800	150	800	40
TB3100HL	T310HL	275	5	350	3.5	50	800	150	800	40
TB3500HL	T350HL	320	5	400	3.5	50	800	150	800	40
TB4000HL	T400HL	360	5	450	3.5	50	800	150	800	40
TB4600HL	T460HL	400	5	520	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



NOTES: 1. IH > (VL/RL) 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=1.0MHz; 1.0VRMS signal; VR=2VDC bias.

FIG.1 - OFF STATE CURRENT vs JUNCTION TEMPERATURE

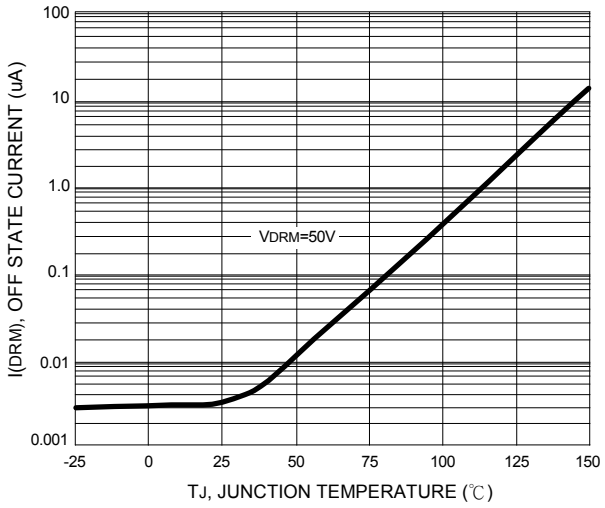


FIG. 2 - RELATIVE VARIATION OF BREAKDOWN VOLTAGE vs JUNCTION TEMPERATURE

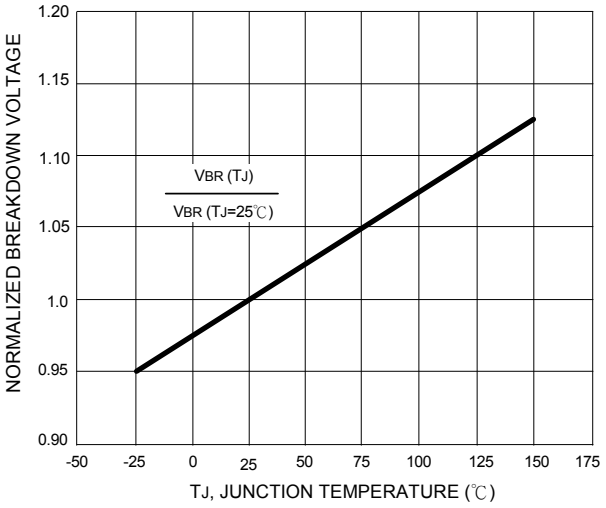


FIG. 3 - RELATIVE VARIATION OF BREAKOVER VOLTAGE vs JUNCTION TEMPERATURE

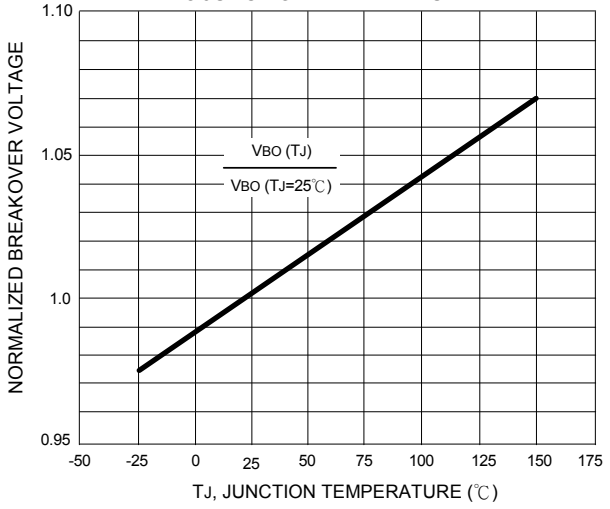


FIG. 4 - ON STATE CURRENT vs ON STATE VOLTAGE

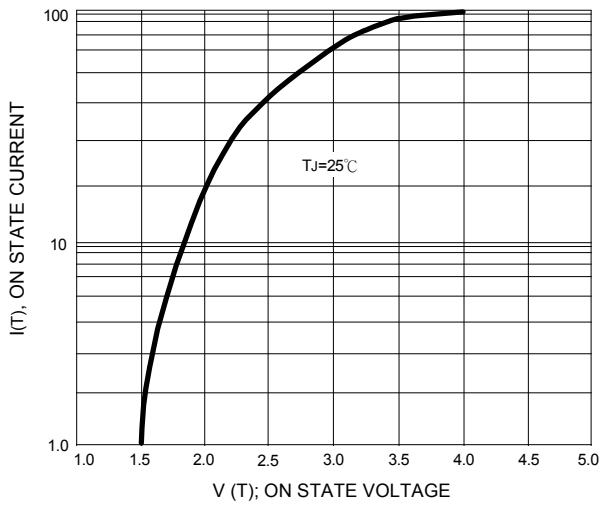


FIG. 5 - RELATIVE VARIATION OF HOLDING CURRENT vs JUNCTION TEMPERATURE

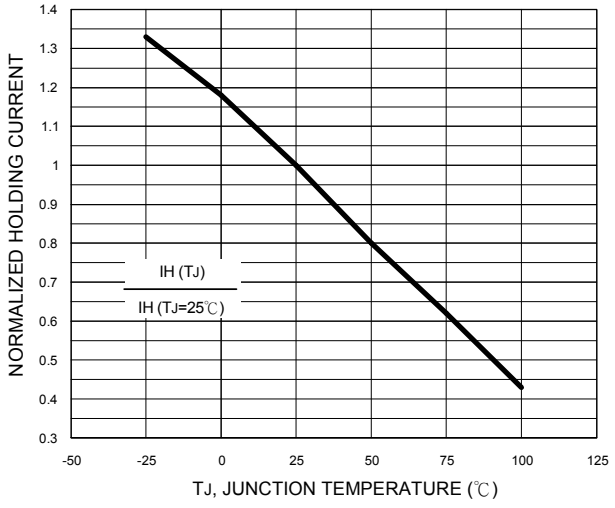
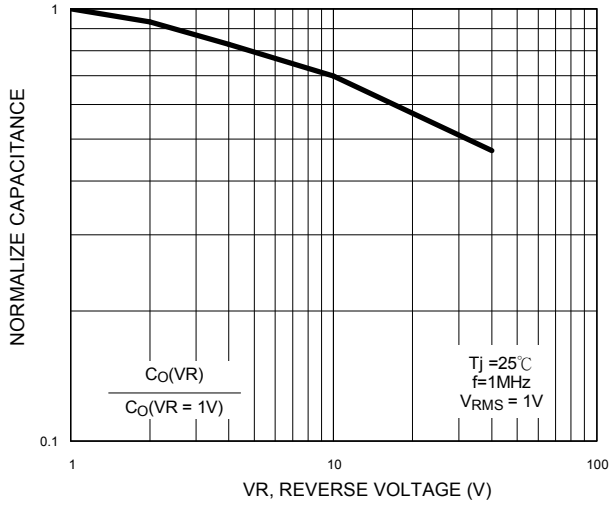
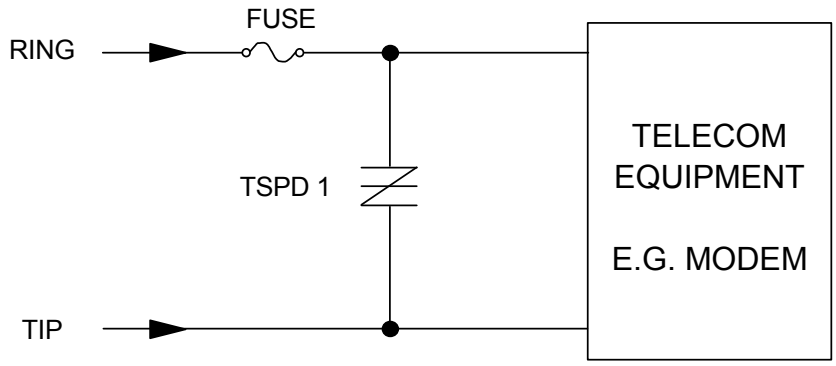
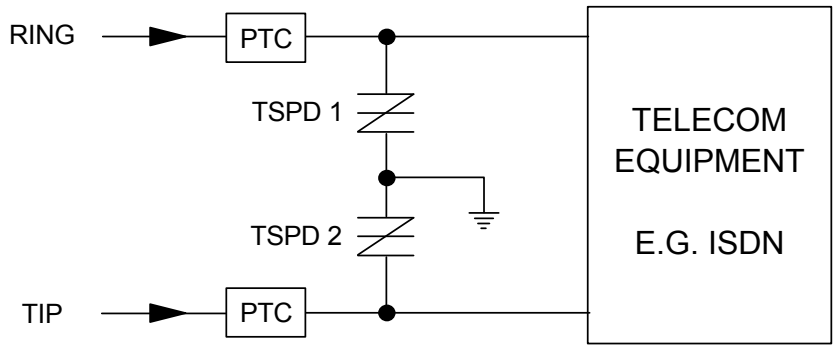
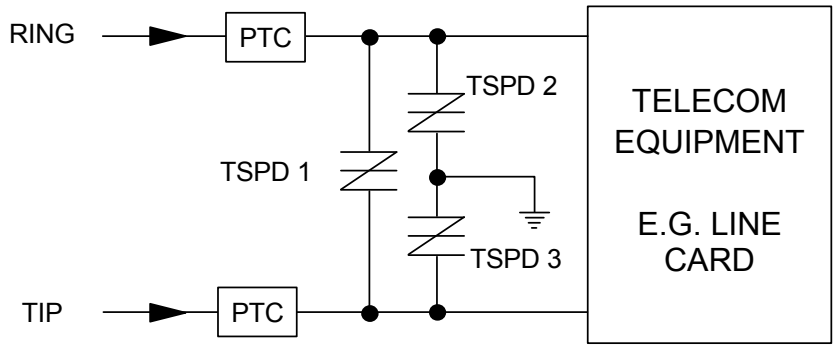


FIG. 6 - RELATIVE VARIATION OF JUNCTION CAPACITANCE vs REVERSE VOLTAGE BIAS









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

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