TELECOMMUNICATION PROTECTION

BREAKDOWN VOLTAGE: 62 --- 270 V
POWER DISSIPATION: 5.0 W

FEATURES

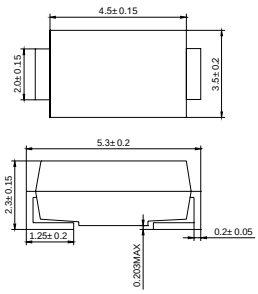
- ◇ Bidirectional crowbar protection
- ◇ Voltage range:from 62V to 270V.
- ◇ Holding current:I_H=150mA min
- ◇ Repetitive peak pulse current:I_{PP}=100A,10/1000μs.

DESCRIPTION

The SMTPB series are designed for protecting sensitive telecommunication equipment against lightning and transient voltages induced by AC power lines.

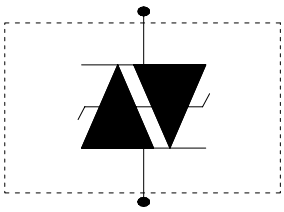
The devices provide bidirectional protection by crowbar action.Their characteristic response to transien over-voltages makes them particularly suited to protect volatge sensitive telecommunication equipment.

SMB



Dimensions in millimeters

SCHEMATIC DIAGRAM



Complies with the following standards:	Peak surge voltage (V)	Voltage waveform (μ s)	Current waveform (μ s)	Admissible Ipp (A)	Necessary resistor (Ω)
CCITTK20	4000	10/700	5/310	100	--
VDE0433	4000	10/700	5/310	100	--
VDE0878	4000	1.2/50	1/20	100	--
IEC-1000-4-5	level 4 level 4	10/700 1.2/50	5/310 8/20	100 100	-- --
FCC Part 68,lightning surge type A	1500 800	10/160 10/560	10/160 10/560	200 100	-- --
FCC Part 68,lightning surge type B	100	5/320	5/320	25	--
BELLCORE TR-NWT-001089 First level	2500 1000	2/10 10/1000	2/10 10/1000	500 100	-- --
BELLCORE TR-NWT-001089 Second level	500	2/10	2/10	500	--
CNET131-24	4000	0.5/700	0.8/310	100	--

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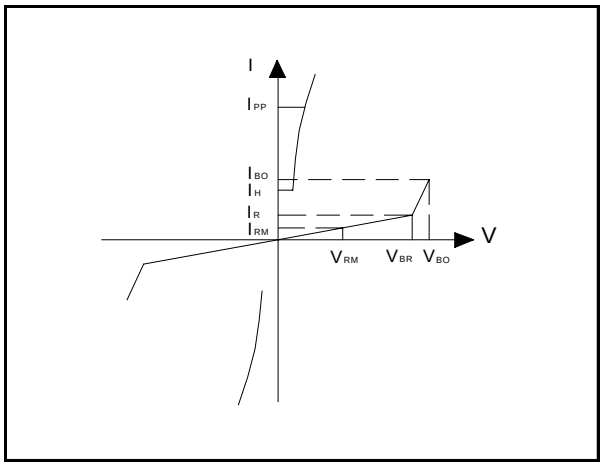
ABSOLUTE MAXIMUM RATINGS (T_A=25℃)

Symbol	Parameter		Value	Unit
P	Power dissipation on infinite heatsink	T_{amb}=50℃	5.0	W
Ipp	Peak pulse current	10/1000 μ s 8/20 μ s 2/10 μ s	100 150 500	A
I_{TSM}	Non repetitive surge peak on-state current	tp=20ms	50	A
I^2t	I^2t vallue for fusing	tp=20ms	25	A^2s
dV/dt	Critical rate of rise of off-state voltage	V_{RM}	5	kV/μS
T_{stg} T_j	Storage temperature range Maximum junction temperature		-55to+150 150	℃
T_L	Maximum lead temperature for soldering during 10s at 5mm form case		230	℃

THERMAL RESISTANCES

Symbol	Parameter	Value	Unlt
R_{th}(j-l)	Junction to leads (L_{lead}=10mm)	20	℃/W
R_{th}(j-a)	Junction to ambient on printed circuit (L_{lead}=10mm)	75	℃/W

Type	I_{RM} @ V_{RM} max.		V_R @ I_R min. note1		V_{BO} @ I_{BO} max. note2		I_H min. note3	C max. note4
	μA	V	V	μA	V	mA	mA	pF
SMTPB62	2	56	62	50	82	800	150	300
SMTPB68	2	61	68	50	90	800	150	300
SMTPB100	2	90	100	50	133	800	150	200
SMTPB120	2	108	120	50	160	800	150	200
SMTPB130	2	117	130	50	173	800	150	200
SMTPB180	2	162	180	50	240	800	150	200
SMTPB200	2	180	200	50	267	800	150	200
SMTPB220	2	198	220	50	293	800	150	200
SMTPB240	2	216	240	50	320	800	150	200
SMTPB270	2	243	270	50	360	800	150	200



ELECTRICAL CHARACTERISTICS (T_A=25℃)

Symbol	Parameter
V_{RM}	Stand-off voltage
I_{RM}	Leakage current at stand-off voltage
V_R	Continuous reverse voltage
V_{BR}	Breakdown voltage
V_{BO}	Breakover voltage
I_H	Holding current
I_{BO}	Breakover current
I_{PP}	Peak pulse current
C	Capacitance

Note1:I_R measured at V_R guarantees $V_{BRmin} \geq V_R$

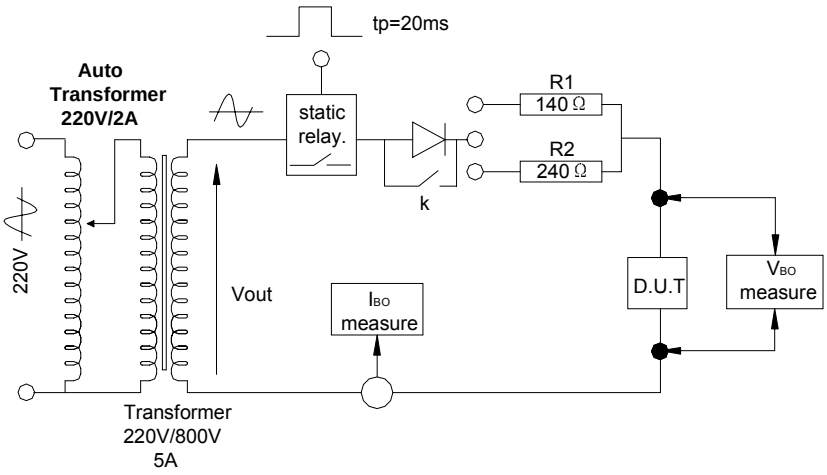
Note3: See test circuit2.

Note 2:Measured at 50H_z(1 cycle)-See test circuit 1.

Note4: V_R=1V,F=1MHz,refer to fig.3 for C versus V_R.

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TEST CIRCUIT 1 FOR I_{BO} AND V_{BO} PARAMETERS:



TEST PROCEDURE :

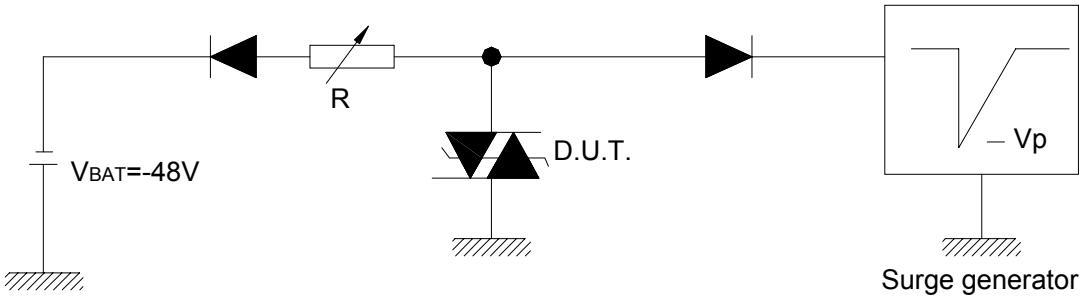
Pulse Test duration (tp = 20ms):

- For Bidirectional devices = SwitchK is closed
- For Unidirectional devices = Switch K is open.

V_{OUT} Selection

- Device with V_{BO} < 200 Volt
  - V_{OUT} = 250 V_{RMS}, R1 = 140 Ω.
- Device with $V_{BO} \geqslant$200 Volt
  - V_{OUT} = 480 V_{RMS}, R2 = 240Ω.

TEST CIRCUIT 2 FOR I_H PARAMETER:



This is a GO-NO GOTest which allows to confirm the holding current (I_H) level in a functionaltest circuit.

TEST PROCEDURE :

1) Adjust the current level at the I_H value by short circuiting the D.U.T.
2) Fire the D.U.T with a surge current : Ipp = 10A , 10/1000μ s.
3) The D.U.T will come back off-state within 50ms max.

FIG.1 -- NON REPETITIVE SURGE PEAK ON-STATE CURRENT VERSUS OVERLOAD DURATION (T_J INItIAL=25°C).

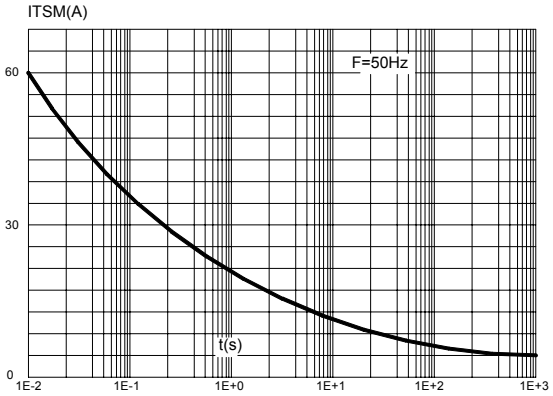


FIG.2 -- RELATIVE VARIATION OF HOLDING CURRENT VERSUS JUNCTION TEMPERATURE.

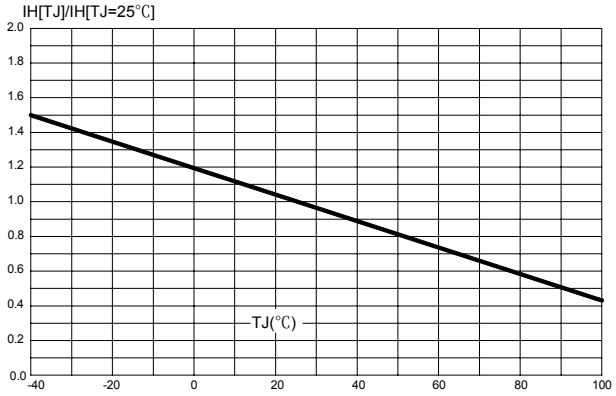


FIG.3 -- RELATIVE VARIATION OF JUNCTION CAPACITANCE VERSUS REVERSE APPLIED VOLTAGE

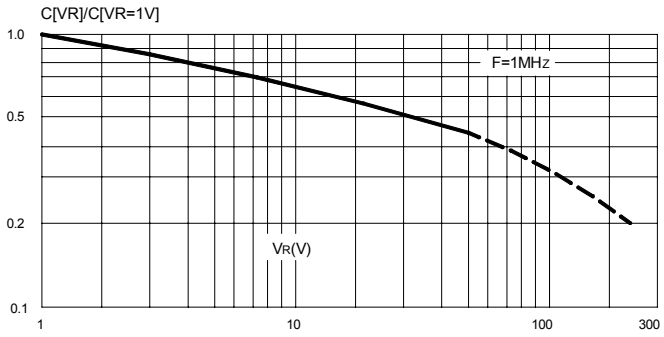


FIG.4 -- ON-STATE CURRENT VERSUS ON-STATE VOLTAGE

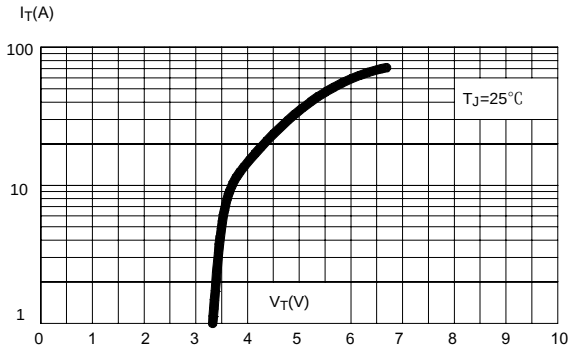


FIG.5 -- TRANSIENT THERMAL IMPEDANCE JUNCTION TO AMBIENT VERSUS PULSE DURATION

