JYELECTRONICS®

TSPD - TT8X

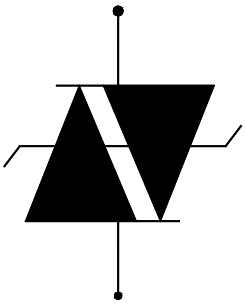
Thyristors Solid Protection Device Bidirectional transient voltage suppressors

Features

- UL Certificated E353174
- For surface mounted applications to optimize board space
- Low profile package
- Bidirectional crowbar protection
- Low leakage current : I = 5uA max
- Ultra-Low capacitance: Co= 55pF Max.
- Response Time is < 1us
- YD/T 950 IEC 61000-4-5
- YD/T 993 ITU K.20/21
- YD/T 1082 TIA-968-A
- GR 1089 Intra-building
- Solid-state silicon technology
- Meets MSL 1 Requirements
- ROHS compliant



SMB



Schematic Diagram

Maximum Ratings and Electrical Characteristics

Symbol	Parameter		Value	Unit
I_{PP}	Non-repetitive peak pulse current	10/1000 us 10/560 us 5/310 us 8/20 us	120 150 150 400	A
V_{PP}	Non-repetitive peak pulse voltage	10/700us	6000	V
V_{ESD}	ESD Rating per IEC61000-4-2:	Contact Air	8 15	KV
Ts	Storage temperature range		-40 to +150	℃
Tj	Maximum junction temperature		150	℃

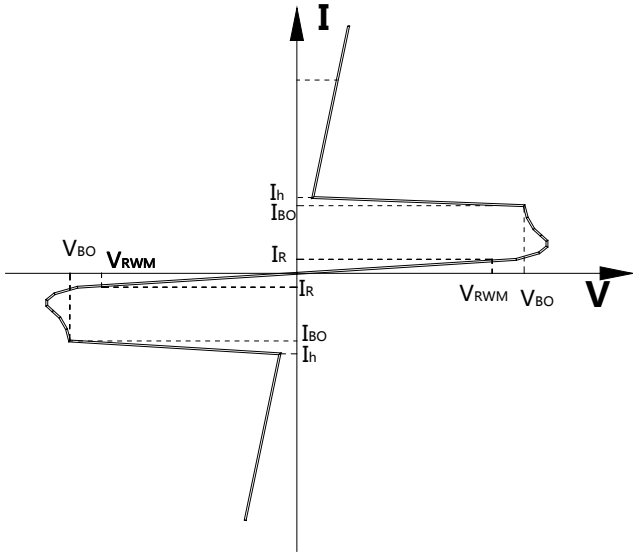
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied,damage may occur and reliability may be affected.

**Other voltages may be available upon request.*

Electrical Parameters (T_{amb}=25℃)

Type	V_{RM}	I_{RM}	V_{BO}	I_{BO}	V_T	I_T	C_O	I_H
	Min.		Max.	Max.	Max.		Max.	Tpy.
	V	μA	V	mA	V	A	pF	mA
TSPD-TT8X	400	5	550	800	4	2.2	55	50

Symbol	Parameter
V_{RM}	Stand-off voltage
V_{BR}	Breakdown voltage
V_{BO}	Switching Voltage
I_{BO}	Break over current
I_{RM}	Leakage current at VRM
I_{PP}	Peak pulse current
I_H	Holding current
V_T	On-state Voltage at I_T
C_O	Off-state Capacitance



Typical electrical characterist applications

Rating and Characteristics Curves

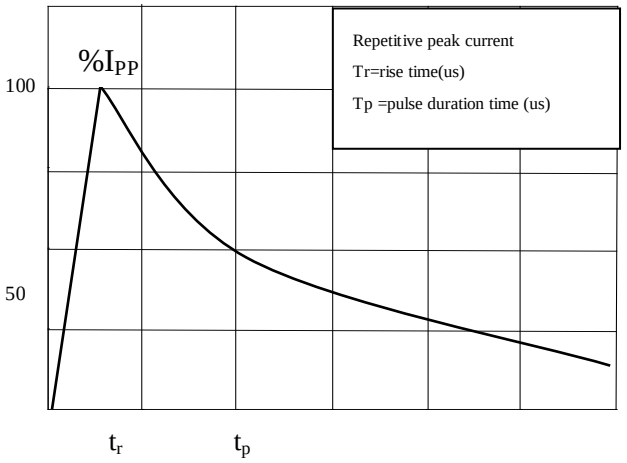


Fig.1 Pulse Waveform (10/1000us)

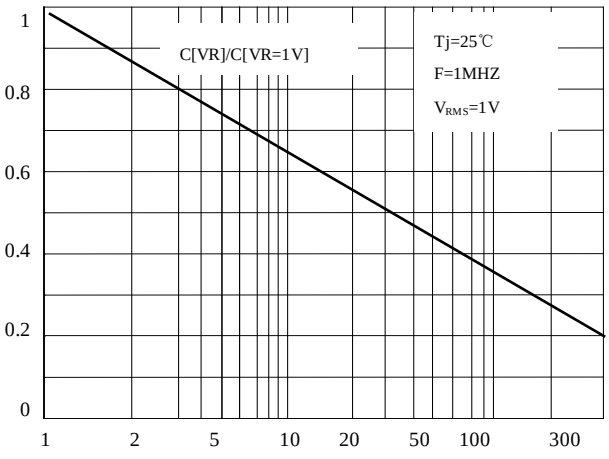


Fig. 2 Relation Variation Of Junction Capacitance Versus Reverse Voltage Applied (Typical Values)

Typical electrical characterist applications

Rating and Characteristics Curves

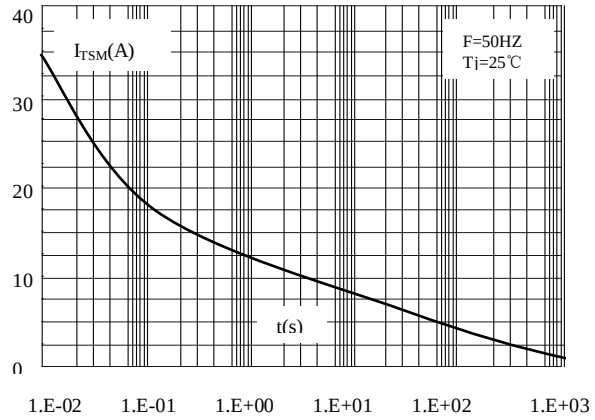


Fig.3 Non Repetitive Surge Peek On-State Current Versus Overload Duration

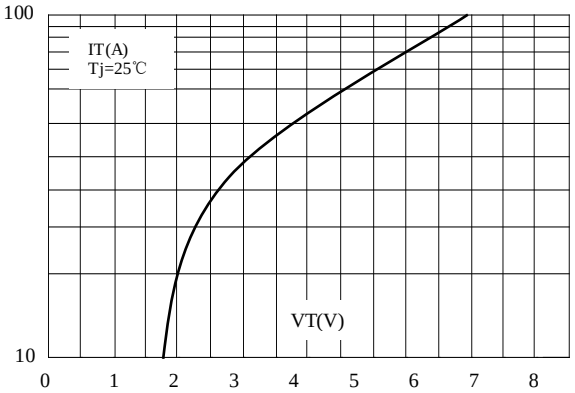


Fig.4 On-State Voltage Versus On-State Current (Typical Values)

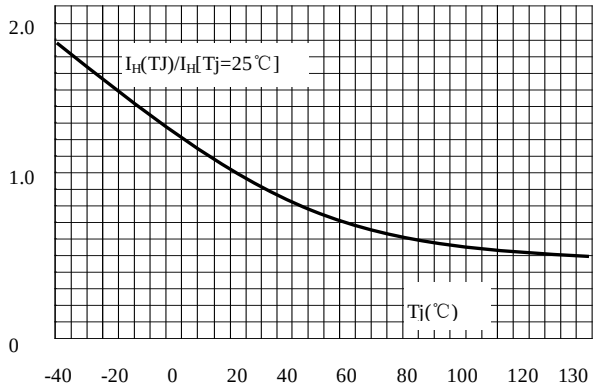


Fig.5 Relative Variation of Hold Current Versus Junction Temperature

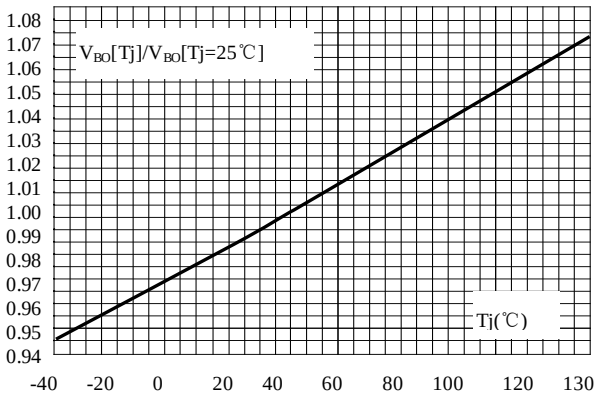


Fig.6 Relative Variation of Break Over Voltage Versus Junction Temperature

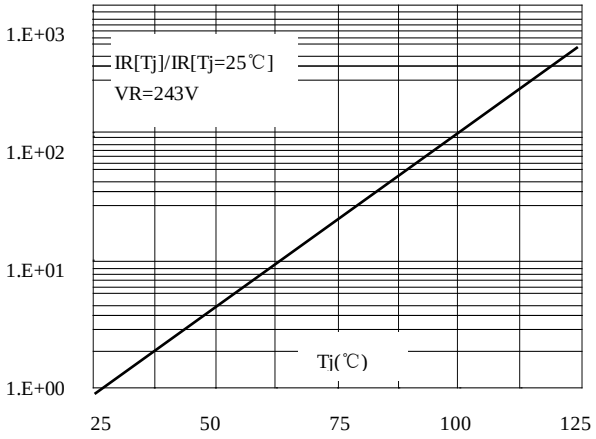


Fig.7 Relative Variation Of Leakage Current Versus Reverse Voltage (Typical Values)

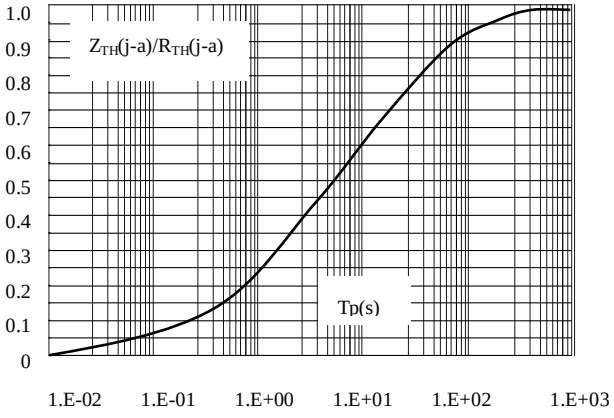


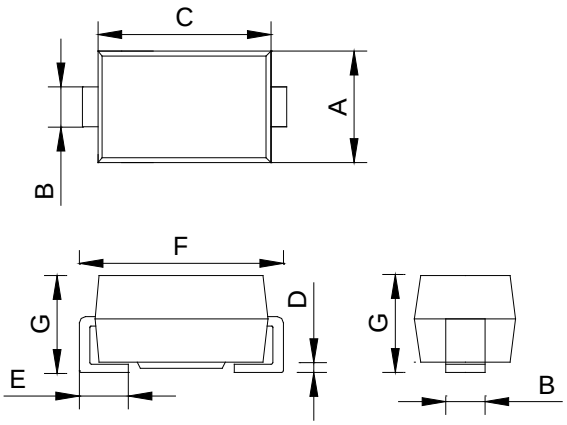
Fig.8 Variation Of Thermal Impedance Junction To Ambient Versus Pulse Duration

Package information

SMB

SMB Mechanical Data

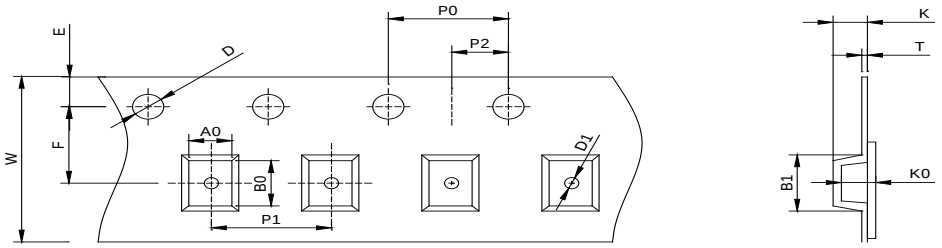
- Case: SMB
- Case Material: Molded Plastic. UL Flammability
- Classification Rating 94V-0
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Weight: 0.003 ounces, 0.093 gram



SMB

DIM	Millimeters			Inches		
	Min	Nom	Max	Min	Nom	Max
A	3.30	3.62	3.94	0.130	0.142	0.155
B	1.95	2.08	2.20	0.077	0.082	0.087
C	4.06	4.40	4.57	0.160	0.173	0.180
D	0.125	0.20	0.305	0.005	0.008	0.012
E	0.76	1.14	1.52	0.030	0.045	0.06
F	4.95	5.40	5.59	0.194	0.213	0.22
G	2.05	2.30	2.50	0.080	0.090	0.098

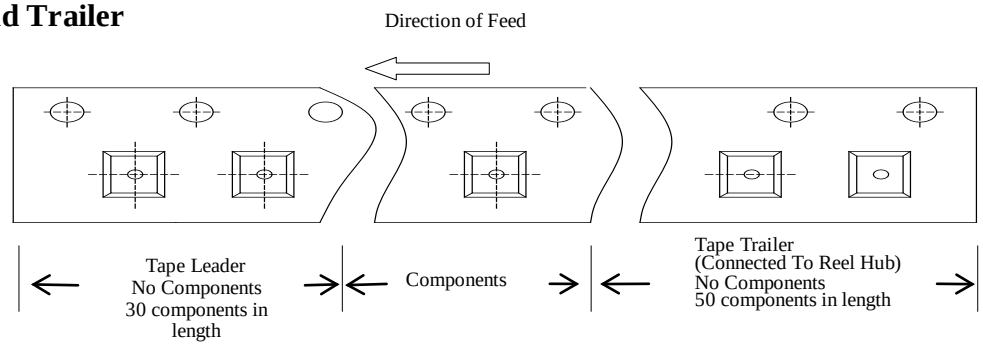
SMB Reel Dim



A0	B0	B1	D	D1	E	F	K0	T	W	P0	P1	P2
4.0	5.9	6.1	1.5	1.5	1.75	5.5	3.0	0.50	12.0	4.0	8.0	2.0

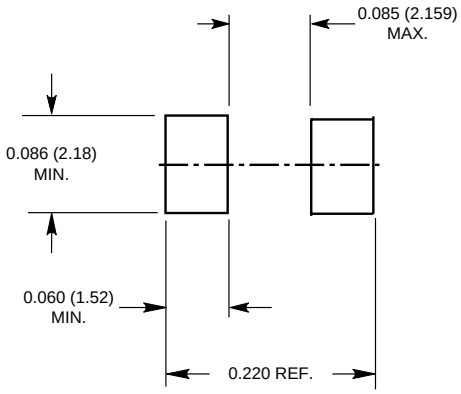
Dimension is in mm

Leader and Trailer



The LEADER is a minimum of 30 components in length and it consists of empty cavities with sealed cover tape
The TRAILER is a minimum of 50 components in length and it consists of empty cavities with sealed cover tape.

Mounting Pad Layout in inches (millimeters)



Marking Codes



Note:

(1) "TT8" is part number,fixed.

(2) "XXXYY" is the last 3 characters of wafer's Lot No., "YY" is internal code.

Ordering Information

Device	Qty per Reel	Reel Size
TSPD-TT8X	3000	13 Inch