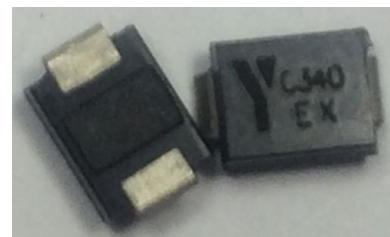


SMBJ-H Series

General Information

The SMB-H series is designed to protect voltage sensitive components from high voltage, high energy transients. They have excellent clamping capability, high surge capability, low zener impedance and fast response time. The SMB-H series is supplied in YINT Semiconductor's exclusive, cost-effective, highly reliable and is ideally suited for use in communication systems, automotive, numerical controls, process controls, medical equipment, business machines, power supplies and many other industrial/consumer Applications.



Molded plastic
glass passivated junction.

Features

- Case: DO-214AA/SMB
- For surface mounted applications in order to optimize board space.
- Polarity: Color band denoted positive end (cathode) except Bidirectional.
- Typical failure mode is short from over-specified voltage or current
- High Temperature soldering: 260°C/10 seconds at terminals.
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026.

Applications

TVS devices are ideal for the protection of I/O Interfaces, V_{CC} bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Minimum Peak Pulse Power Dissipation ($T = 1 \text{ ms}$) (note1 note 2)	P_{PK}	600	Watts
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	100	Amps
Steady State Power Dissipation @ $T_L = 75^\circ\text{C}$	$P_{M(AV)}$	5.0	Watts
Maximum Instantaneous Forward Voltage @ $I_{PP} = 50 \text{ A}$ (For Unidirectional Units Only)(note4 note 5)	V_F	3.5/5	Volts
Operating Temperature Range	T_J	-55 to +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^\circ\text{C}$

NOTES:

1. Non-repetitive current pulse, per Pulse Waveform graph and derated above $T_A = 25^\circ\text{C}$ per Pulse Derating Curve.
2. Thermal Resistance Junction to Lead.
3. 8.3 ms Single Half-Sine Wave duty cycle = 4 pulses maximum per minute (unidirectional units only).
4. Single Phase, Half Wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20 %.
5. $V_F < 3.5\text{V}$ for $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for $V_{BR} > 201\text{V}$.

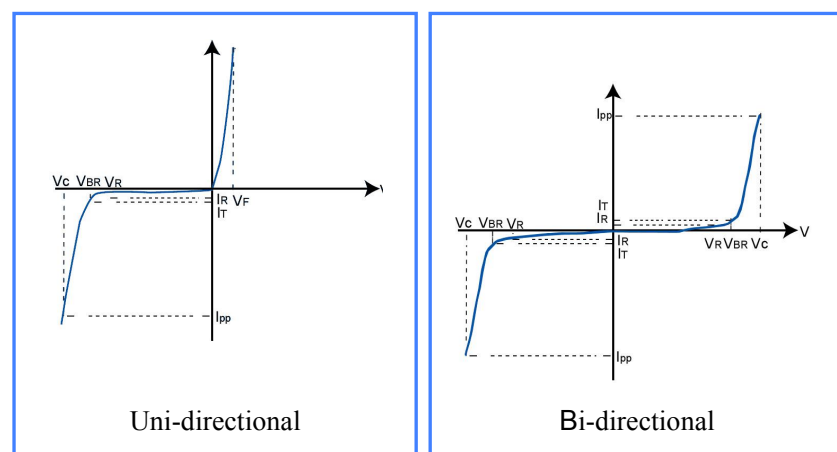
Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@ I_T		Test Current I_T (mA)	Maximum Reverse Leakage I_R @ V_R (μA)	Maximum Peak Pulse Current I_{pp} (A)	Maximum Clamping Voltage V_C @ I_{pp} (V)
		BI	UNI		Min .V	Max .V				
SMBJ5.0CA-H	SMBJ5.0A-H	AEH	KEH	5.0	6.40	7.00	10	500	65.2	9.2
SMBJ6.0CA-H	SMBJ6.0A-H	AGH	KGH	6.0	6.67	7.37	10	500	58.3	10.3
SMBJ 6.5CA-H	SMBJ 6.5A-H	AKH	KKH	6.5	7.22	7.9	10	300	53.6	11.2
SMBJ7.0CA-H	SMBJ7.0 A-H	AMH	KMH	7.0	7.78	8.60	10	200	50.0	12.0
SMBJ7.5CA-H	SMBJ7.5A-H	APH	KPH	7.5	8.33	9.21	1	100	46.6	12.9
SMBJ8.0CA-H	SMBJ8.0A-H	ARH	KRH	8.0	8.89	9.83	1	50	44.2	13.6
SMBJ8.5CA-H	SMBJ8.5 A-H	ATH	KTH	8.5	9.44	10.40	1	20	41.7	14.4
SMBJ9.0CA-H	SMBJ9.0 A-H	AVH	KVH	9.0	10.00	11.10	1	10	39.0	15.4
SMBJ10CA-H	SMBJ10A-H	AXH	KXH	10.0	11.10	12.30	1	5	35.3	17.0
SMBJ11CA-H	SMBJ11A-H	AZH	KZH	11.0	12.20	13.50	1	1	33.0	18.2
SMBJ12CA-H	SMBJ12A-H	BEH	LEH	12.0	13.30	14.70	1	1	30.2	19.9
SMBJ13CA-H	SMBJ13A-H	BGH	LGH	13.0	14.40	15.90	1	1	28.0	21.5
SMBJ14CA-H	SMBJ14A-H	BKH	LKH	14.0	15.60	17.20	1	1	25.9	23.2
SMBJ15CA-H	SMBJ15A-H	BMH	LMH	15.0	16.70	18.50	1	1	24.6	24.4
SMBJ16CA-H	SMBJ16A-H	BPH	LPH	16.0	17.80	19.70	1	1	23.1	26.0
SMBJ17CA-H	SMBJ17A-H	BRH	LRH	17.0	18.90	20.90	1	1	21.8	27.6
SMBJ18CA-H	SMBJ18A-H	BTH	LTH	18.0	20.00	22.10	1	1	20.6	29.2
SMBJ20CA-H	SMBJ20A-H	BVH	LVH	20.0	22.20	24.50	1	1	18.6	32.4
SMBJ22CA-H	SMBJ22A-H	BXH	LXH	22.0	24.40	26.90	1	1	16.9	35.5
SMBJ24CA-H	SMBJ24A-H	BZH	LZH	24.0	26.70	29.50	1	1	15.5	38.9
SMBJ26CA-H	SMBJ26A-H	CEH	MEH	26.0	28.90	31.90	1	1	14.3	42.1
SMBJ28CA-H	SMBJ28A-H	CGH	MGH	28.0	31.10	34.40	1	1	13.3	45.4
SMBJ30CA-H	SMBJ30A-H	CKH	MKH	30.0	33.30	36.80	1	1	12.4	48.4
SMBJ33CA-H	SMBJ33A-H	CMH	MMH	33.0	36.70	40.60	1	1	11.3	53.3
SMBJ36CA-H	SMBJ36A-H	CPH	MPH	36.0	40.00	44.20	1	1	10.4	58.1
SMBJ40CA-H	SMBJ40A-H	CRH	MRH	40.0	44.40	49.10	1	1	9.3	64.5
SMBJ43CA-H	SMBJ43A-H	CTH	MTH	43.0	47.80	52.80	1	1	8.7	69.4
SMBJ45CA-H	SMBJ45A-H	CVH	MVH	45.0	50.00	55.30	1	1	8.3	72.7
SMBJ48CA-H	SMBJ48A-H	CXH	MXH	48.0	53.30	58.90	1	1	7.8	77.4
SMBJ51CA-H	SMBJ51A-H	CZH	MZH	51.0	56.70	62.70	1	1	7.3	82.4
SMBJ54CA-H	SMBJ54A-H	DEH	NEH	54.0	60.00	66.30	1	1	6.9	87.1
SMBJ58CA-H	SMBJ58A-H	DGH	NGH	58.0	64.40	71.20	1	1	6.5	93.6
SMBJ60CA-H	SMBJ60A-H	DKH	NKH	60.0	66.70	73.70	1	1	6.2	96.8
SMBJ64CA-H	SMBJ64A-H	DMH	NMH	64.0	71.10	78.60	1	1	5.9	103.0
SMBJ70CA-H	SMBJ70A-H	DPH	NPH	70.0	77.80	86.00	1	1	5.3	113.0
SMBJ75CA-H	SMBJ75A-H	DRH	NRH	75.0	83.30	92.10	1	1	5.0	121.0

Part Number (Bi)	Part Number (Uni)	MARKING		Reverse Stand off Voltage V_R (Volts)	Breakdown Voltage V_{BR} (Volts)@ I_T		Test Current I_T (mA)	Maximum Reverse Leakage I_R @ V_R (μ A)	Maximum Peak Pulse Current I_{pp} (A)	Maximum Clamping Voltage V_C @ I_{pp} (V)
		BI	UNI		Min .V	Max .V				
SMBJ78CA-H	SMBJ78A-H	DTH	NTH	78.0	86.70	95.80	1	1	4.8	126.0
SMBJ85CA-H	SMBJ85A-H	DVH	NVH	85.0	94.4	104.0	1	1	4.4	137.0
SMBJ90CA-H	SMBJ90A-H	DXH	NXH	90.0	100.0	111.0	1	1	4.1	146.0
SMBJ100CA-H	SMBJ100A-H	DZH	NZH	100.0	111.0	123.0	1	1	3.7	162.0
SMBJ110CA-H	SMBJ110A-H	EEH	PEH	110.0	122.0	135.0	1	1	3.4	177.0
SMBJ120CA-H	SMBJ120A-H	EGH	PGH	120.0	133.0	147.0	1	1	3.1	193.0
SMBJ130CA-H	SMBJ130A-H	EKH	PKH	130.0	144.0	159.0	1	1	2.9	209.0
SMBJ150CA-H	SMBJ150A-H	EMH	PMH	150.0	167.0	185.0	1	1	2.5	243.0
SMBJ160CA-H	SMBJ160A-H	EPH	PPH	160.0	178.0	197.0	1	1	2.3	259.0
SMBJ170CA-H	SMBJ170A-H	ERH	PRH	170.0	189.0	209.0	1	1	2.2	275.0
SMBJ180CA-H	SMBJ180A-H	ETH	PTH	180.0	201.0	222.0	1	1	2.1	292.0
SMBJ190CA-H	SMBJ190A-H	ECH	PAH	190.0	211.0	233.0	1	1	2.0	308.0
SMBJ200CA-H	SMBJ200A-H	EVH	PVH	200.0	224.0	247.0	1	1	1.9	324.0
SMBJ210CA-H	SMBJ210A-H	EDH	PBH	210.0	237.0	263.0	1	1	1.8	340.0
SMBJ220CA-H	SMBJ220A-H	EXH	PXH	220.0	246.0	272.0	1	1	1.7	356.0
SMBJ250CA-H	SMBJ250A-H	EZH	PZH	250.0	279.0	309.0	1	1	1.5	405.0
SMBJ300CA-H	SMBJ300A-H	FEH	QEH	300.0	335.0	371.0	1	1	1.3	486.0
SMBJ350CA-H	SMBJ350A-H	FGH	QGH	350.0	391.0	432.0	1	1	1.1	567.0
SMBJ400CA-H	SMBJ400A-H	FKH	QKH	400.0	447.0	494.0	1	1	0.9	648.0
SMBJ440CA-H	SMBJ440A-H	FMH	QMH	440.0	492.0	543.0	1	1	0.9	713.0

Notes: For bidirectional devices with a V_R of 10 volts or less, the I_R limit is double.

I-V Curve Characteristics



Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T (Test Current)

Rating & Characteristic Curves

Figure 1- Pulse Derating Curve

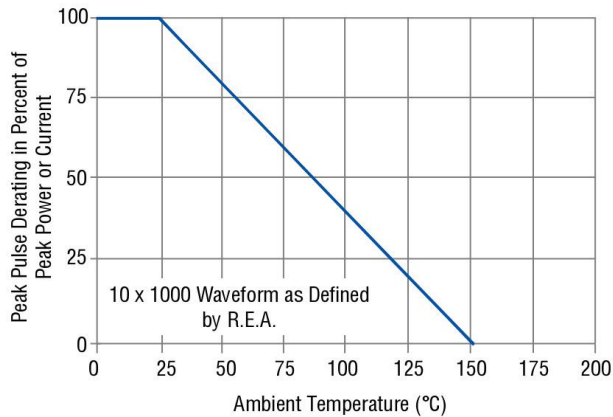


Figure 2- Maximum Non-Repetitive Surge Current

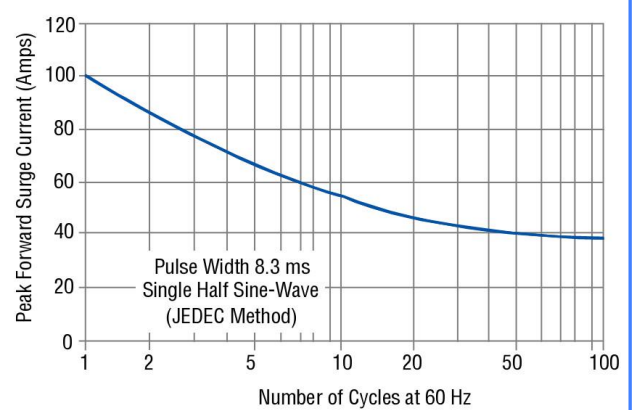


Figure 3- Typical Junction Capacitance

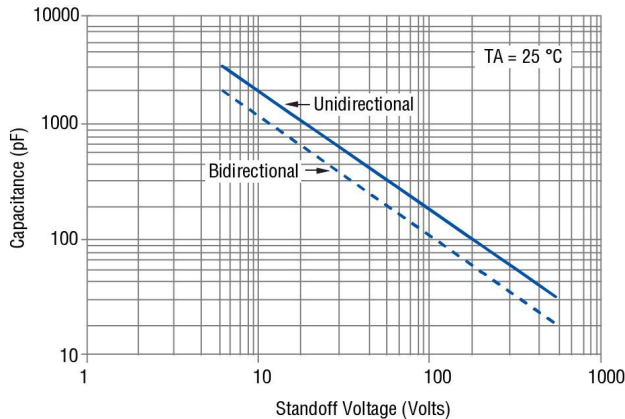


Figure 4- Pulse Waveform

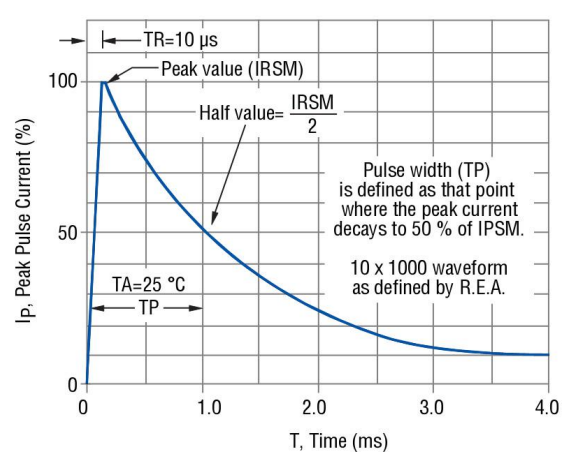


Figure 5- Steady State Power Derating Curve

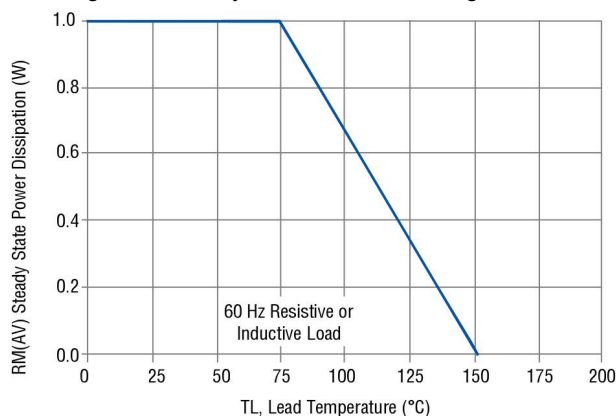
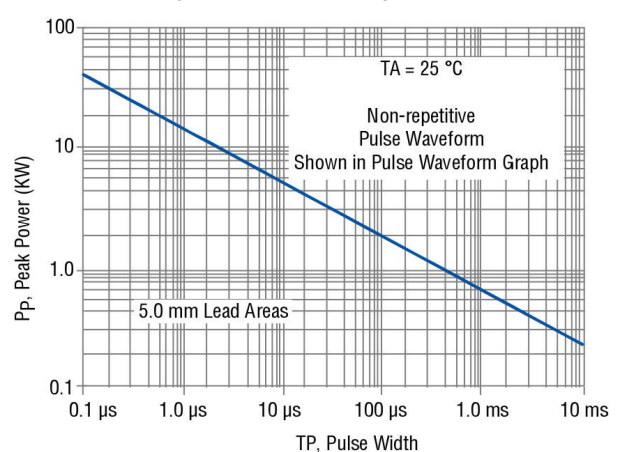
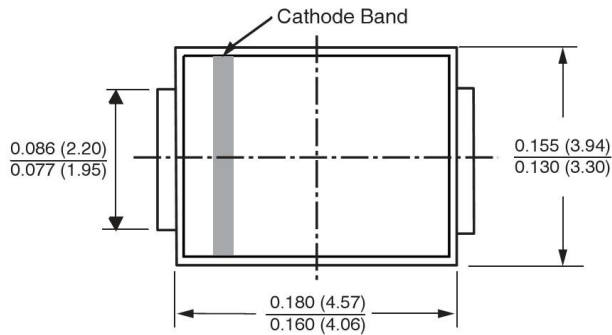


Figure 6- Pulse Rating Curve

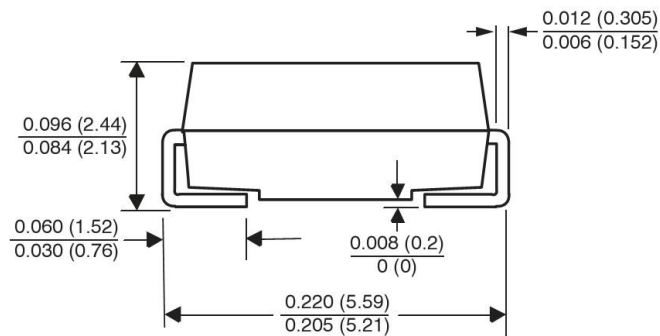
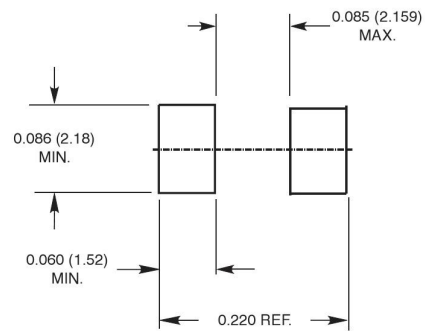


PACKAGE OUTLINE DIMENSIONS in inches (millimeters)

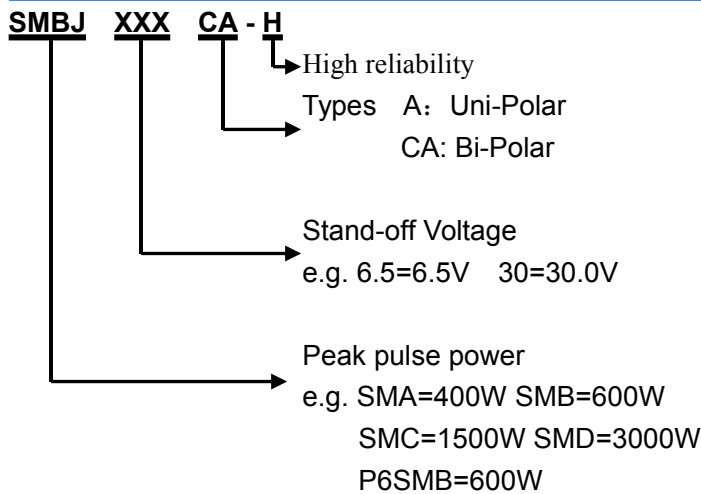
DO-214AA (SMB)



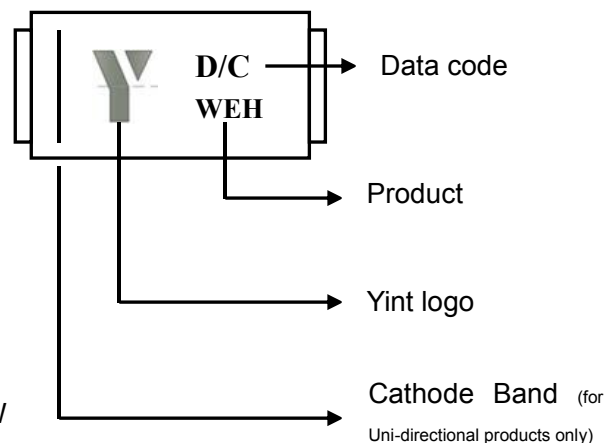
Mounting Pad Layout



Part Numbering System



Part Marking System



Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.