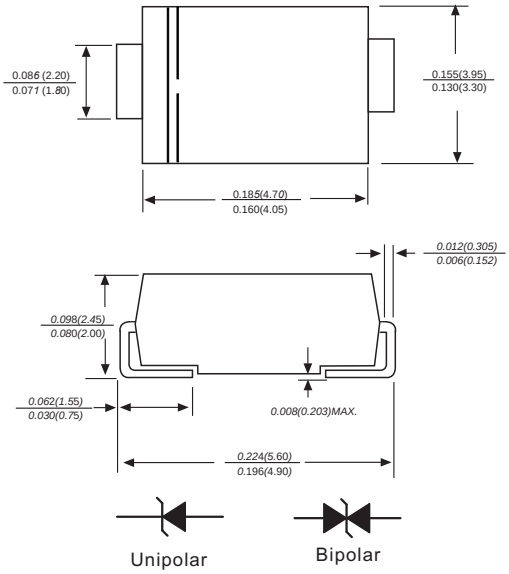
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Features

- For surface mounted applications in order to optimize board
- space Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 1000W peak pulse power capability at 10/1000μs waveform,
- repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1μA above 10V
- High Temperature soldering: 260℃/10 seconds at terminals
- Plastic package has underwriters laboratory flammability 94V-0

DO-214AA/SMB

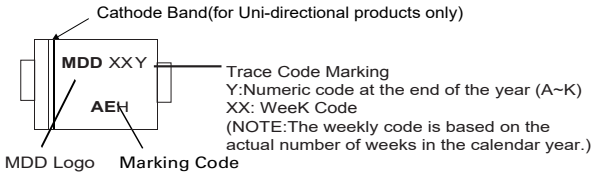


Dimensions in inches and (millimeters)

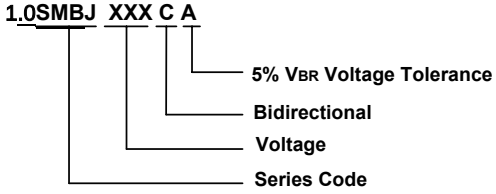
Mechanical Data

Case : JEDEC DO-214AA/SMB molded plastic body
Terminals : Solderable per MIL-STD-750,Method 2026
Polarity : Polarity symbol marking on body
Mounting Position : Any
Weight : 0.003 ounce, 0.095 grams
Standard Packaging: 12mm tape (EIA STD RS-481)

Marking Code



Part Number Code



Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

MAXIMUM RATINGS AND CHARACTERISTICS			
Ratings at 25℃ ambient temperature unless otherwise specified.			
Peak pulse power dissipation at 10/1000μs waveform (Note1, Note2, Fig.1)	P_{PPM}	1000	W
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	A
Steady state power dissipation at T_A=50℃ (Fig.5)	$P_{M(AV)}$	5.0	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6)	I_{FSM}	100	A
Operating junction and Storage Temperature Range.	T_J,T_{STG}	-65 to +150	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	100	℃/W

Notes:1. Non-repetitive current pulse, per Fig.3 and derated above TA=25℃ per Fig.2.
2. Mounted on 5.0mm×5.0mm (0.03mm thick) copper pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

Electrical Characteristics (T_A=25℃)

Part Number		Device Marking Code		Reverse Stand-Off Voltage	Breakdown Voltage @I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RWM}
Unidirectional	Bidirectional	UNI	BI	V_{RWM}(V)	V_{BR}(V)	I_T(mA)	V_C(V)	I_{PP}(A)	I_R(μA)
1.0SMBJ5.0A	1.0SMBJ5.0CA	KEH	AEH	5.0	6.40~7.00	10	9.2	108.70	800
1.0SMBJ6.0A	1.0SMBJ6.0CA	KGH	AGH	6.0	6.67~7.37	10	10.3	97.10	800
1.0SMBJ6.5A	1.0SMBJ6.5CA	KKH	AKH	6.5	7.22~7.98	10	11.2	89.30	500
1.0SMBJ7.0A	1.0SMBJ7.0CA	KMH	AMH	7.0	7.78~8.60	10	12.0	83.40	200
1.0SMBJ7.5A	1.0SMBJ7.5CA	KPH	APH	7.5	8.33~9.21	1	12.9	77.60	100
1.0SMBJ8.0A	1.0SMBJ8.0CA	KRH	ARH	8.0	8.89~9.83	1	13.6	73.60	50
1.0SMBJ8.5A	1.0SMBJ8.5CA	KTH	ATH	8.5	9.44~10.40	1	14.4	69.50	20
1.0SMBJ9.0A	1.0SMBJ9.0CA	KVH	AVH	9.0	10.00~11.10	1	15.4	65.00	10
1.0SMBJ10A	1.0SMBJ10CA	KXH	AXH	10.0	11.10~12.30	1	17.0	58.90	5
1.0SMBJ11A	1.0SMBJ11CA	KZH	AZH	11.0	12.20~13.50	1	18.2	55.00	1
1.0SMBJ12A	1.0SMBJ12CA	LEH	BEH	12.0	13.30~14.70	1	19.9	50.30	1
1.0SMBJ13A	1.0SMBJ13CA	LGH	BGH	13.0	14.40~15.90	1	21.5	46.60	1
1.0SMBJ14A	1.0SMBJ14CA	LKH	BKH	14.0	15.60~17.20	1	23.2	43.20	1
1.0SMBJ15A	1.0SMBJ15CA	LMH	BMH	15.0	16.70~18.50	1	24.4	41.00	1
1.0SMBJ16A	1.0SMBJ16CA	LPH	BPH	16.0	17.80~19.70	1	26.0	38.50	1
1.0SMBJ17A	1.0SMBJ17CA	LRH	BRH	17.0	18.90~20.90	1	27.6	36.30	1
1.0SMBJ18A	1.0SMBJ18CA	LTH	BTH	18.0	20.00~22.10	1	29.2	34.30	1
1.0SMBJ20A	1.0SMBJ20CA	LVH	BVH	20.0	22.20~24.50	1	32.4	30.90	1
1.0SMBJ22A	1.0SMBJ22CA	LXH	BXH	22.0	24.40~26.90	1	35.5	28.20	1
1.0SMBJ24A	1.0SMBJ24CA	LZH	BZH	24.0	26.70~29.50	1	38.9	25.80	1
1.0SMBJ26A	1.0SMBJ26CA	MEH	CEH	26.0	28.90~31.90	1	42.1	23.80	1
1.0SMBJ28A	1.0SMBJ28CA	MGH	CGH	28.0	31.10~34.40	1	45.4	22.10	1
1.0SMBJ30A	1.0SMBJ30CA	MKH	CKH	30.0	33.30~36.80	1	48.4	20.70	1
1.0SMBJ33A	1.0SMBJ33CA	MMH	CMH	33.0	36.70~40.60	1	53.3	18.80	1
1.0SMBJ36A	1.0SMBJ36CA	MPH	CPH	36.0	40.00~44.20	1	58.1	17.30	1
1.0SMBJ40A	1.0SMBJ40CA	MRH	CRH	40.0	44.40~49.10	1	64.5	15.60	1
1.0SMBJ43A	1.0SMBJ43CA	MTH	CTH	43.0	47.80~52.80	1	69.4	14.50	1
1.0SMBJ45A	1.0SMBJ45CA	MVH	CVH	45.0	50.00~55.30	1	72.7	13.80	1
1.0SMBJ48A	1.0SMBJ48CA	MXH	CXH	48.0	53.30~58.90	1	77.4	13.00	1
1.0SMBJ51A	1.0SMBJ51CA	MZH	CZH	51.0	56.70~62.70	1	82.4	12.20	1
1.0SMBJ54A	1.0SMBJ54CA	NEH	DEH	54.0	60.00~66.30	1	87.1	11.50	1
1.0SMBJ58A	1.0SMBJ58CA	NGH	DGH	58.0	64.40~71.20	1	93.6	10.70	1
1.0SMBJ60A	1.0SMBJ60CA	NKH	DKH	60.0	66.70~73.70	1	96.8	10.40	1
1.0SMBJ64A	1.0SMBJ64CA	NMH	DMH	64.0	71.10~78.60	1	103.0	9.84	1
1.0SMBJ70A	1.0SMBJ70CA	NPH	DPH	70.0	77.80~86.00	1	113.0	8.84	1
1.0SMBJ75A	1.0SMBJ75CA	NRH	DRH	75.0	83.30~92.10	1	121.0	8.34	1
1.0SMBJ78A	1.0SMBJ78CA	NTH	DTH	78.0	86.70~95.80	1	126.0	8.00	1
1.0SMBJ85A	1.0SMBJ85CA	NVH	DVH	85.0	94.40~104.00	1	137.0	7.30	1
1.0SMBJ90A	1.0SMBJ90CA	NXH	DXH	90.0	100.00~111.00	1	146.0	6.85	1

Notes: For bidirectional type having V_{RWM} of 10V and less, the I_R limit is double

Ratings and Characteristic Curves (T_A=25°Cunlessotherwisenoted)

Figure1.Peak Pulse Power Rating Curve

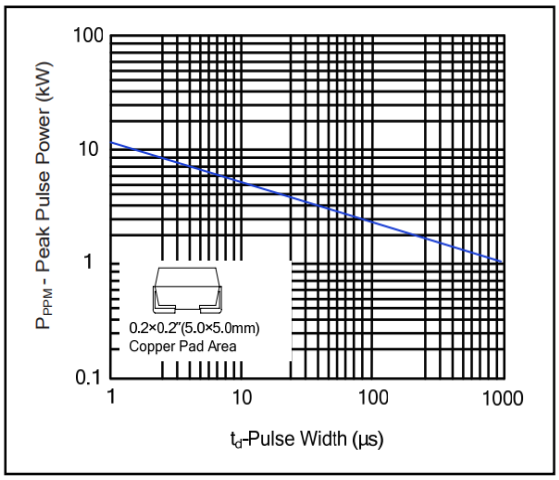


Figure2.Pulse Derating Curve

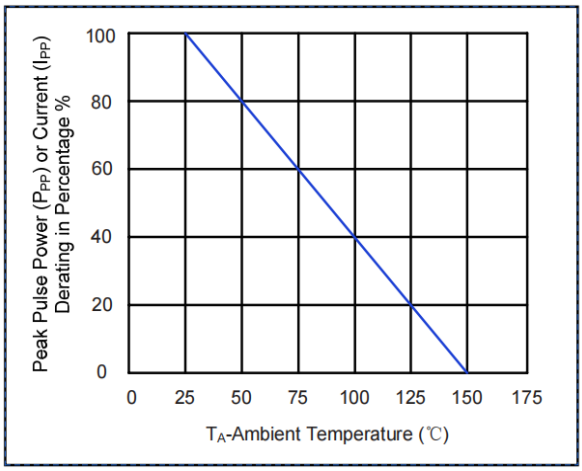


Figure3.Pulse Waveform

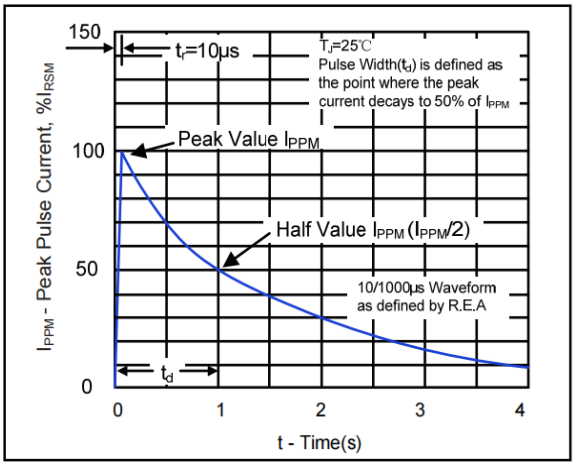


Figure4.Pulse Waveform

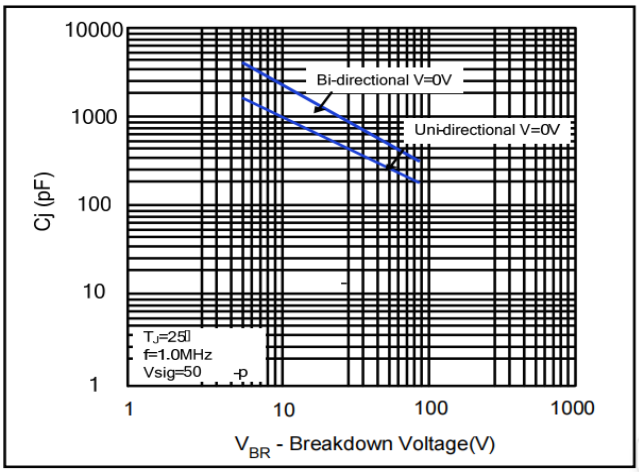


Figure5.Steady State Power Dissipation Derating Curve

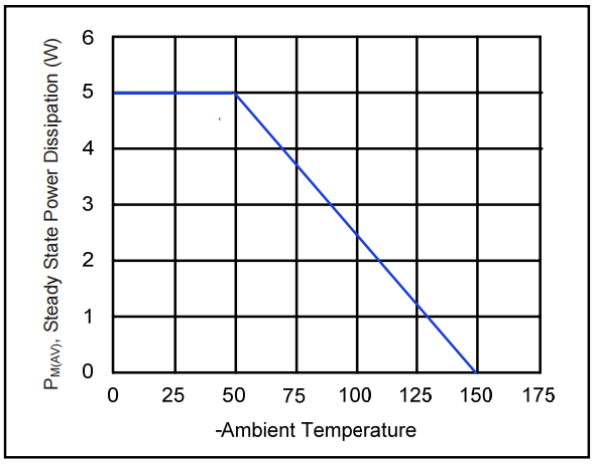
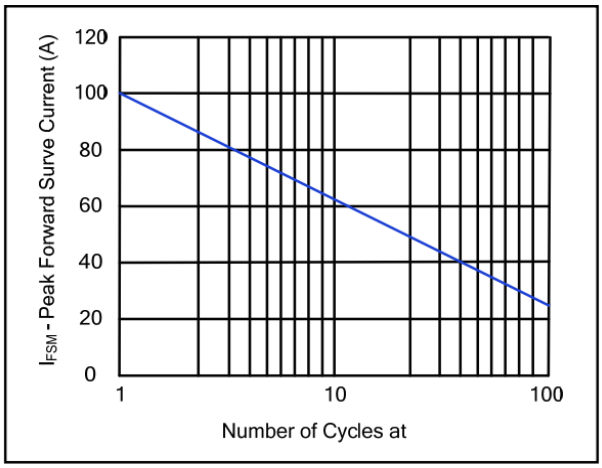
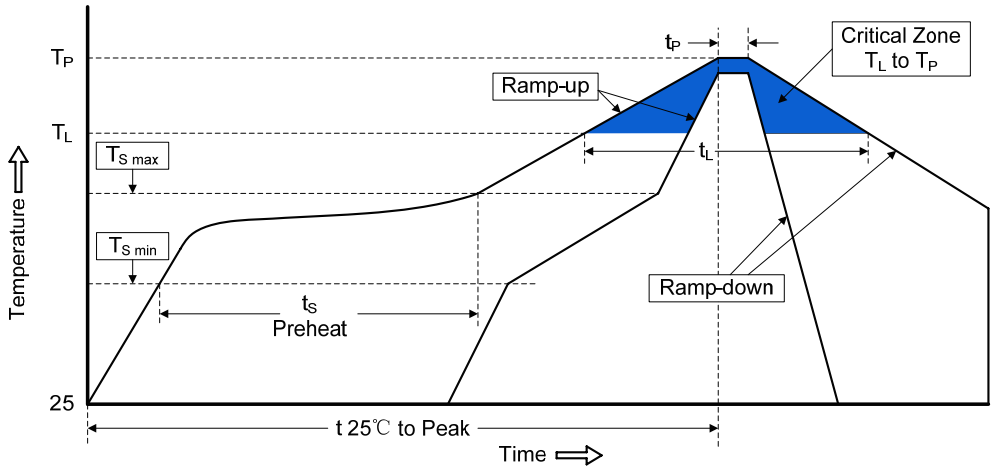


Figure6.Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



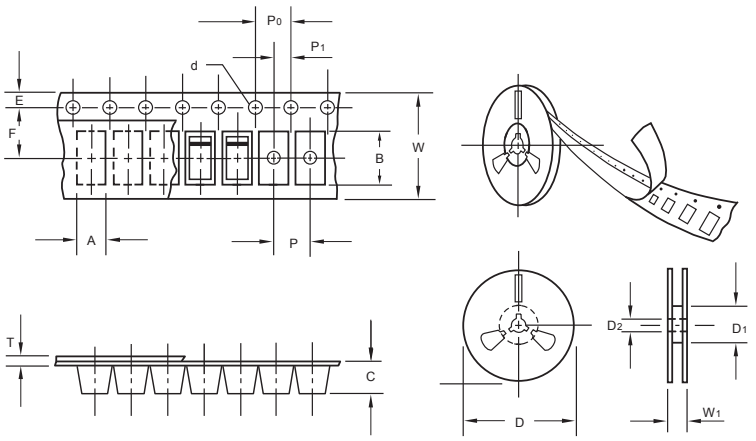
Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

Packing information



unit:mm

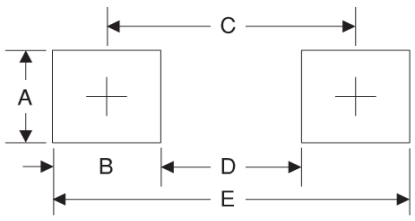
Item	Symbol	Tolerance	SMB
Carrier width	A	0.1	3.81
Carrier length	B	0.1	5.41
Carrier depth	C	0.1	2.42
Sprocket hole	d	0.05	1 5.0
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D_1	min	50.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	5.55
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.30
Tape width	W	0.3	12.00
Reel width	W_1	1.0	12.30

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (mm)	BOX (pcs)	INNER BOX (mm)	REEL DIA, (mm)	CARTON SIZE (mm)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SMB	13"	3,000	4.0	6,000	340*350*40	330	370*370*370	48,000	14.0

Suggested Pad Layout



Symbol	Unit (mm)	Unit (inch)
A	2.8	0.110
B	2.4	0.094
C	4.6	0.181
D	2.2	0.086
E	7.0	0.276

Important Notice and Disclaimer

Microdiode semiconductor (Shenzhen) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design,purchase or use.

Microdiode semiconductor (Shenzhen) makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does Microdiode semiconductor (Shenzhen) assume any liability for application assistance or customer product design. Microdiode semiconductor (Shenzhen) does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application.

No license is granted by implication or otherwise under any intellectual property rights of Microdiode semiconductor (Shenzhen).

Microdiode semiconductor (Shenzhen) products are not authorized for use as critical components in life support devices or systems without express written approval of Microdiode semiconductor (Shenzhen).