

SM8TvvA/CA



TRANSIENT VOLTAGE SUPPRESSOR DIODES

V_{RWM}: 10~85 Volts

P_{PP}: 8000 W

Package: DO-218AB

Features

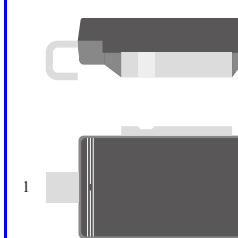
- NH'S Glass Passivated Chip Technology
- Wave And Reflow Solderable
- Low Reverse Leakage
- Very Fast Response Time
- Excellent Clamping Capability
- 10/1000μs Waveform, Repetition Rate(Duty Cycle):0.01 %
- ESD Immunity Acc. IEC 61000-4-2

Typical Applications

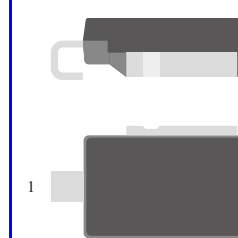
- Power Port
- Communication And Data Port
- ESD Protection And Automotive Electronics
- Industrial Control and Automation

Diagram:

UNI

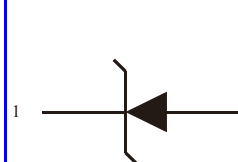


BI

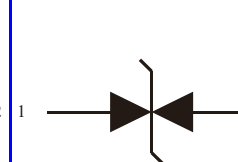


Polarity:

UNI



BI



Maximum Ratings (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Value	Unit
Non-Repetitive Peak Pulse Power Dissipation	10/1000μs Waveform	P_{PP}	8000	W
Peak Pulse Current	10/1000μs Waveform	I_{PP}	See Table-1	A
Peak Forward Surge Current (Only UNI)	8.3ms Single Half Sine-Wave Superimposed On Rate Load	I_{FSM}	800	A
Power Dissipation On Infinite Heatsink	T _L = 25.0 °C	P_D	8.5	W

Thermal Characteristics (Ta=25°C Unless Otherwise Specified)

Parameter	Test Conditions	Symbol	Value	Unit
Operating Junction Temperature Range		T_J	-55 ~ 175	°C
Storage Temperature Range		T_{STG}	-55 ~ 175	
Thermal Resistance Junction To Ambient With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz. Copper	R_{θJA}	55	°C/W

C-V Curve Chart

Symbol Instruction

UNI	BI	Symbol	Instruction
		I_{PP}	Maximum Reverse Peak Pulse Current
		V_C	Clamping Voltage @ I _{PP}
		P_{PP}	Peak Power Dissipation
		V_{RWM}	Working Peak Reverse Voltage
		I_R	Maximum Reverse Leakage Current @ V _{RWM}
		V_{BR}	Breakdown Reverse Voltage
		I_T	Test Current @ V _{RWM}
		I_F	Maximum Average Forward Rectified Current
		V_F	Maximum Instantaneous Forward Voltage
		C_J	Junction Capacitance @ VR = 0 and f = 1.0 MHz

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Table-1.ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise noted)

Part Number And Code		Reverse Stand-off Voltage	Breakdown Voltage VBR @ I _T		Test Current	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V _{RWM}
UNI-POLAR	BI-POLAR	V _{RWM} (V)	Min.(V)	Max.(V)	I _T (mA)	V _{C Max} (V)	IPP(A)	I _R (uA)
SM8T10A	SM8T10CA	10	11.1	12.3	5	17.0	470.6	10
SM8T11A	SM8T11CA	11	12.2	13.5	5	18.2	439.6	10
SM8T12A	SM8T12CA	12	13.3	14.7	5	19.9	402.0	10
SM8T13A	SM8T13CA	13	14.4	15.9	5	21.5	372.1	5
SM8T14A	SM8T14CA	14	15.6	17.2	5	23.2	344.8	5
SM8T15A	SM8T15CA	15	16.7	18.5	5	24.4	327.9	5
SM8T16A	SM8T16CA	16	17.8	19.7	5	26.0	307.7	5
SM8T17A	SM8T17CA	17	18.9	20.9	5	27.6	289.9	5
SM8T18A	SM8T18CA	18	20.0	22.1	5	29.2	274.0	5
SM8T20A	SM8T20CA	20	22.2	24.5	5	32.4	246.9	5
SM8T22A	SM8T22CA	22	24.4	26.9	5	35.5	225.4	5
SM8T24A	SM8T24CA	24	26.7	29.5	5	38.9	205.7	5
SM8T26A	SM8T26CA	26	28.9	31.9	5	42.1	190.0	5
SM8T28A	SM8T28CA	28	31.1	34.4	5	45.4	176.2	5
SM8T30A	SM8T30CA	30	33.3	36.8	5	48.4	165.3	5
SM8T33A	SM8T33CA	33	36.7	40.6	5	53.3	150.1	5
SM8T36A	SM8T36CA	36	40.0	44.2	5	58.1	137.7	5
SM8T40A	SM8T40CA	40	44.4	49.1	5	64.5	124.0	5
SM8T43A	SM8T43CA	43	47.8	52.8	5	69.4	115.3	5
SM8T45A	SM8T45CA	45	50.0	55.3	5	72.7	110.0	5
SM8T48A	SM8T48CA	48	53.3	58.9	5	77.4	103.4	5
SM8T51A	SM8T51CA	51	56.7	62.7	5	82.4	97.1	5
SM8T54A	SM8T54CA	54	60.0	66.3	5	87.1	91.8	5
SM8T58A	SM8T58CA	58	64.4	71.2	5	93.6	85.5	5
SM8T60A	SM8T60CA	60	66.7	73.7	5	96.8	82.6	5
SM8T64A	SM8T64CA	64	71.1	78.6	5	103.0	77.7	5
SM8T70A	SM8T70CA	70	77.80	86.00	5	113.0	70.8	5
SM8T75A	SM8T75CA	75	83.30	92.10	5	121.0	66.1	5
SM8T78A	SM8T78CA	78	86.70	95.80	5	126.0	63.5	5
SM8T85A	SM8T85CA	85	94.40	104.00	5	137.0	58.4	5

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TRANSIENT VOLTAGE SUPPRESSOR DIODES



Typical Characteristics Curves

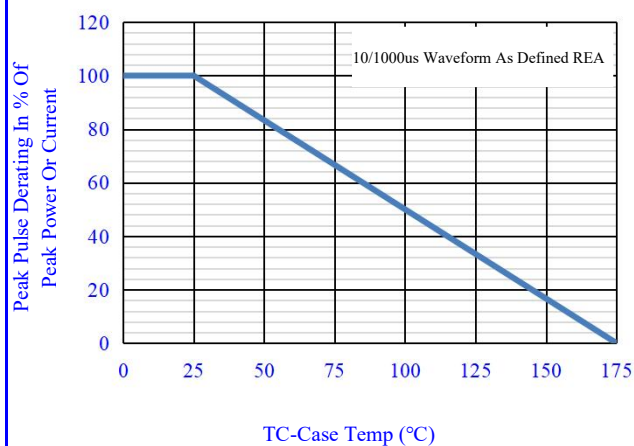


Fig.1-Peak Power Or Current Vs.Tc

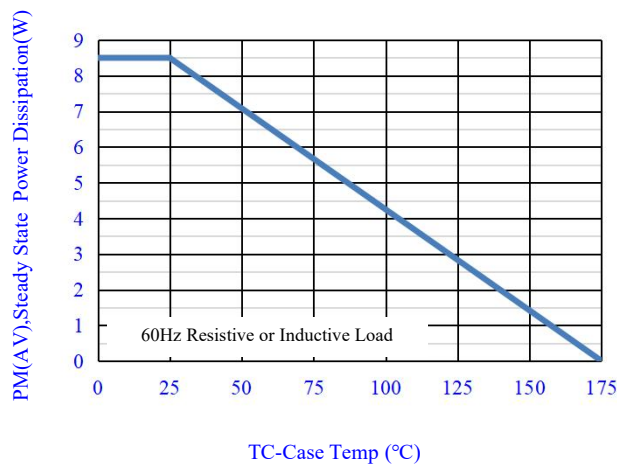


Fig.2-Steady State Power Derating Curve

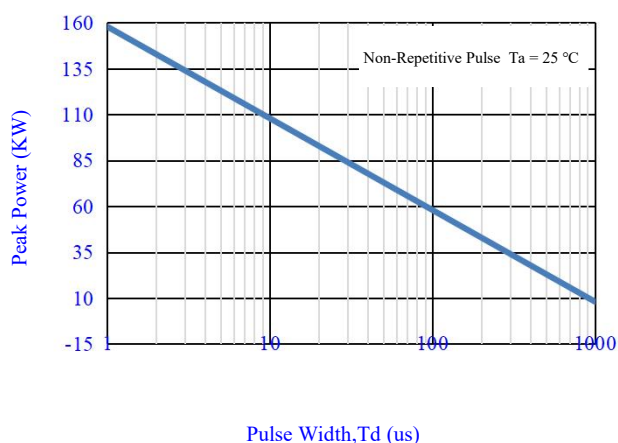


Fig.3-Peak Pulse Power Rating Curve

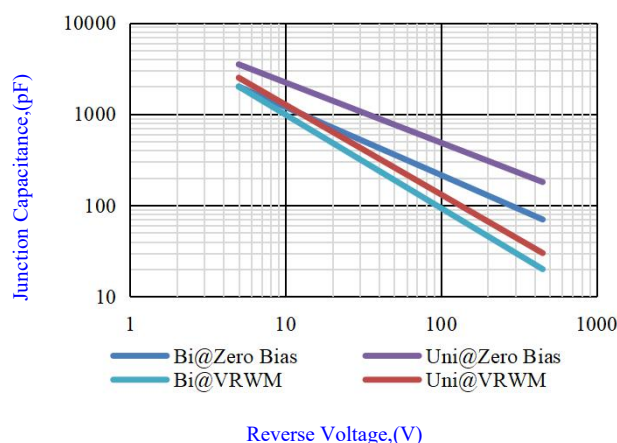


Fig.4-Typical Junction Capacitance

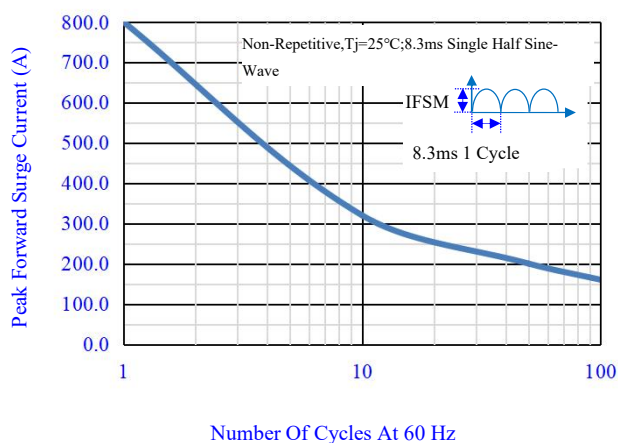


Fig.5-Max. Non-Repetitive Surge Current

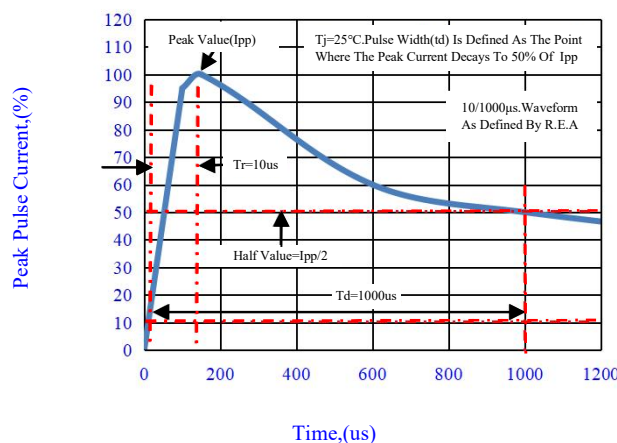


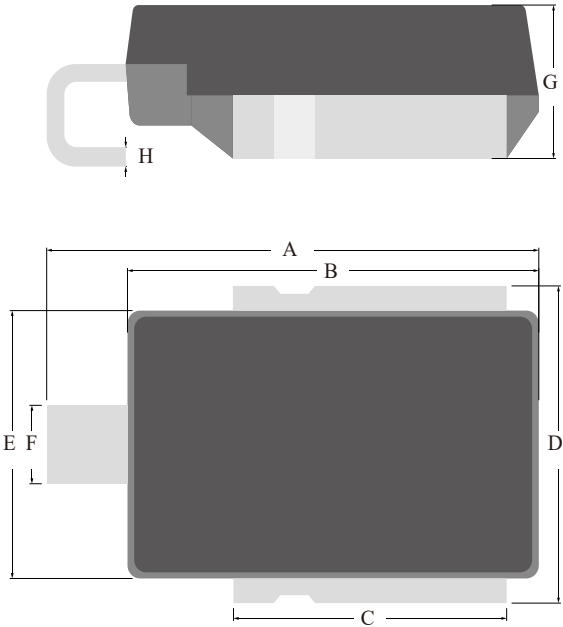
Fig.6-Pulse Waveform

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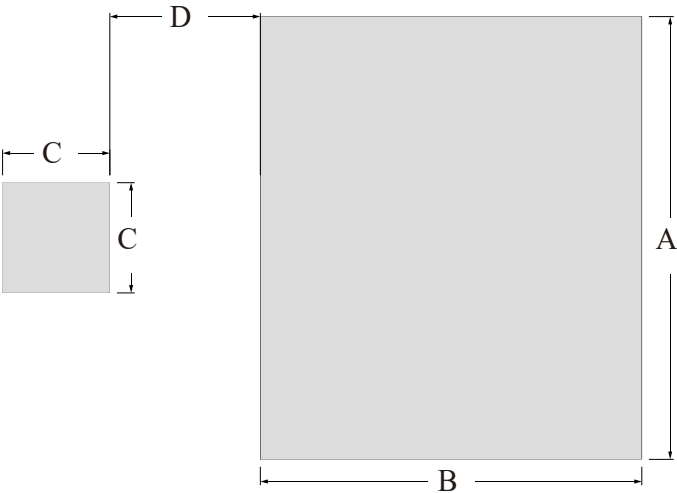
OUTLINE DRAWINGS



DO-218AB

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	14.80	-	16.20	0.5827	-	0.6378
B	13.00	-	14.00	0.5118	-	0.5512
C	8.70	-	9.30	0.3425	-	0.3661
D	9.60	-	10.40	0.3780	-	0.4094
E	8.20	-	8.80	0.3228	-	0.3465
F	2.20	-	2.80	0.0866	-	0.1102
G	4.55	-	5.15	0.1791	-	0.2028
H	0.50	-	0.70	0.0197	-	0.0276

RECOMMEDND LAYOUT DRAWINGS



DO-218AB

OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	10.00	-	-	0.3937	-
B	-	9.00	-	-	0.3543	-
C	-	2.50	-	-	0.0984	-
D	-	3.60	-	-	0.1417	-

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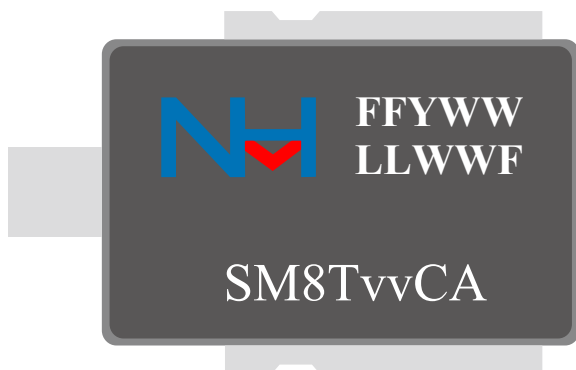
MARKING(UNI)



MARKING INSTRUCTION

NH=Niuhan Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Inernal Code,According To Actual Changes
SM8TvvA=Model,vv=See Table-1

MARKING(BI)



MARKING INSTRUCTION

NH=Niuhan Trademark
FF=Product Line Code,According To Actual Changes
YWW=Date Code,According To Actual Changes
LLWWF=Inernal Code,According To Actual Changes
SM8TvvCA=Model,vv=See Table-1

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
DO-218AB	P1	3.046	13" Reel	750	750	6000

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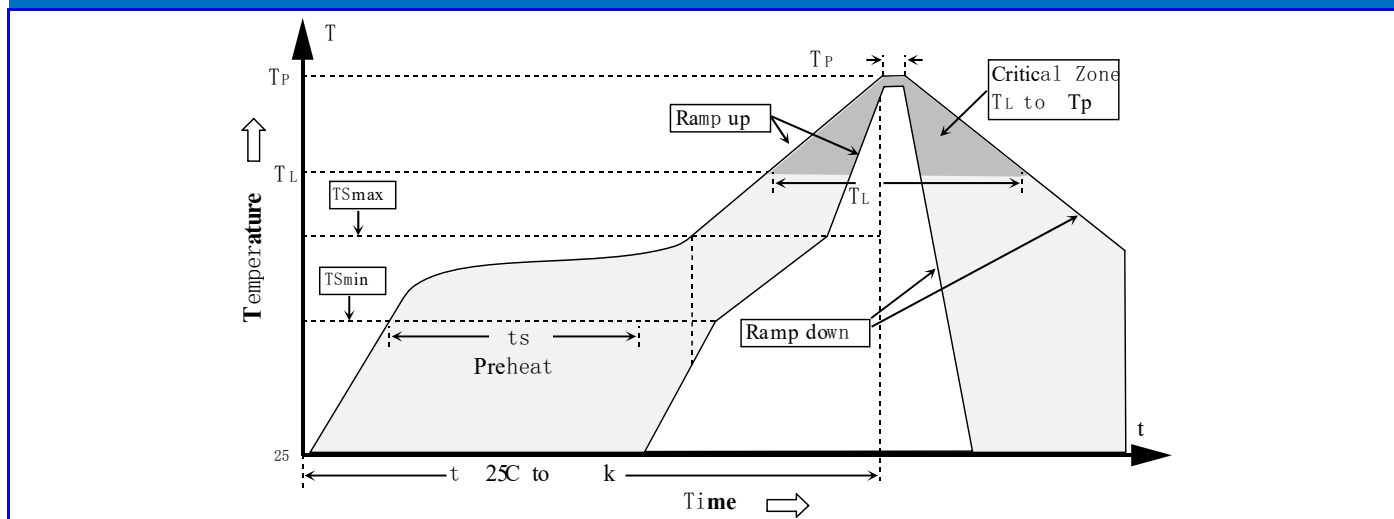
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Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

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