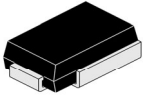
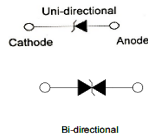


Surface Mount Transient Voltage Suppressors

SM8SXXX



DO-218AB



DO-218AB
Surface Mount Package
RoHS compliant

FEATURES:

1. Surface mount package.
2. Excellent clamping capability.
3. Glass passivated junction.
4. Low Leakage current
5. Meets ISO7637-2 test(varied by test condition)
6. Plastic material has UL flammability classification 94V-O
7. RoHS compliant in lead-free versions
8. This product is available in AEC-Q101 Qualified and PPAP Capable also.

Note: For AEC-Q101 qualified products, please use suffix -AQ in the part number while ordering.

APPLICATION:

1. Ideal for sensitive electronics protection against voltage transients.
2. Especially for automotive load dump protection

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power dissipation on 10/1000us Waveform ¹ Fig 1	P _{PPM}	6600	W
Power Dissipation on Infinite Heatsink at T _c =25°C	P _D	8	W
For uni-direction, Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load, (JEDEC Method) ^{2,3}	I _{FSM}	700	A
Operating Junction Temperature Range	T _J	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig.1 and derated above T_A=25°C per Fig.2.
2. Mounted on 5.0mm² (0.03mm thick) Copper Pads to each terminal.
3. 8.3 ms single half sine-wave, or equivalent square wave, Duty cycle=4 pluses per minute maximum.

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ELECTRICAL CHARACTERISTICS at (Ta = 25 °C Unless otherwise specified)

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I _T	Breakdown Voltage Max. @ I _T	Test Current	Maximum Clamping Voltage @I _{PP}	Max. Peak Pulse Current	Maximum Reverse Leakage @V _{RWM}
(uni)	Bi	V _{RWM} (V)	V _{BR MIN} (V)	V _{BR MAX} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (uA)
SM8S16A	SM8S16CA	16	17.8	19.7	5.0	26.0	254	10.0
SM8S17A	SM8S17CA	17	18.9	20.9	5.0	27.6	239	10.0
SM8S18A	SM8S18CA	18	20	22.1	5.0	29.2	226	10.0
SM8S20A	SM8S20CA	20	22.2	24.5	5.0	32.4	204	10.0
SM8S22A	SM8S22CA	22	24.4	26.9	5.0	35.5	186	10.0
SM8S24A	SM8S24CA	24	26.7	29.5	5.0	38.9	170	10.0
SM8S26A	SM8S26CA	26	28.9	31.9	5.0	42.1	157	10.0
SM8S28A	SM8S28CA	28	31.1	34.4	5.0	45.4	145	10.0
SM8S30A	SM8S30CA	30	33.3	36.8	5.0	48.4	136	10.0
SM8S33A	SM8S33CA	33	36.7	40.6	5.0	53.3	124	10.0
SM8S36A	SM8S36CA	36	40	44.2	5.0	58.1	114	10.0
SM8S40A	SM8S40CA	40	44.4	49.1	5	64.5	102	10.0
SM8S43A	SM8S43CA	43	47.8	52.8	5	69.4	95.1	10.0
SM8S45A	SM8S45CA	45	50	55.3	5	72.7	90.8	10.0
SM8S48A	SM8S48CA	48	53.3	58.9	5	77.4	85.3	10.0
SM8S51A	SM8S51CA	51	56.7	62.7	5	82.4	80.1	10.0
SM8S54A	SM8S54CA	54	60	66.3	5	87.1	75.8	10.0
SM8S58A	SM8S58CA	58	64.4	71.2	5	93.6	70.5	10.0
SM8S60A	SM8S60CA	60	66.7	73.7	5	96.8	68.1	10.0
SM8S64A	SM8S64CA	64	71.1	78.6	5	103	64.1	10.0
SM8S70A	SM8S70CA	70	77.8	86	5	113	58.4	10.0
SM8S75A	SM8S75CA	75	83	92.1	5	121	54.5	10.0
SM8S78A	SM8S78CA	78	86	95.8	5	126	52.4	10.0
SM8S85A	SM8S85CA	85	94	104	5	137	48.2	10.0

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TYPICAL CHARACTERISTICS CURVES

Fig 1: Pulse Waveform

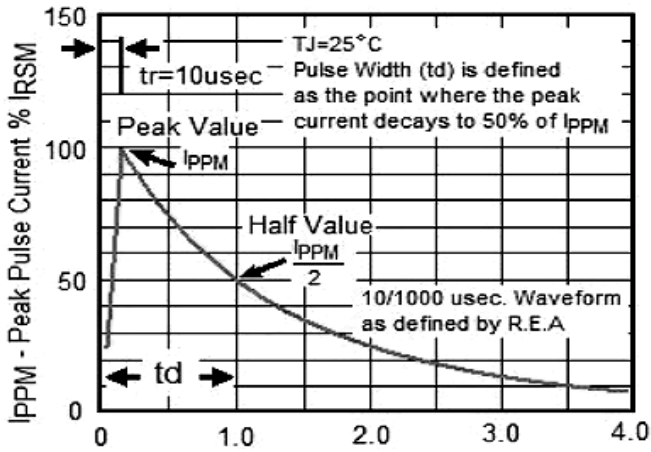


Fig 3: Pulse Derating Curve

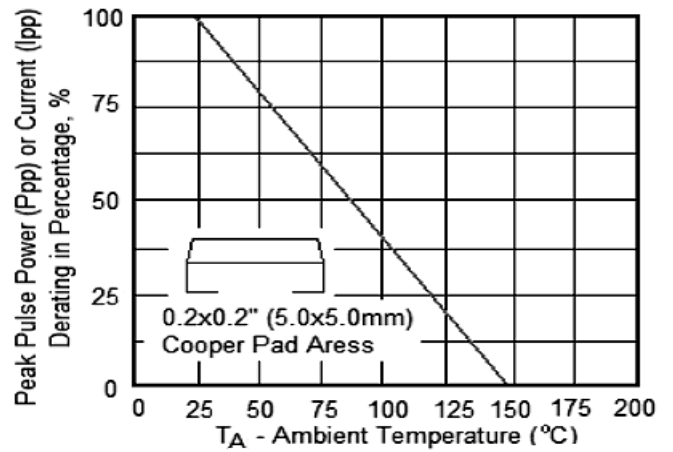
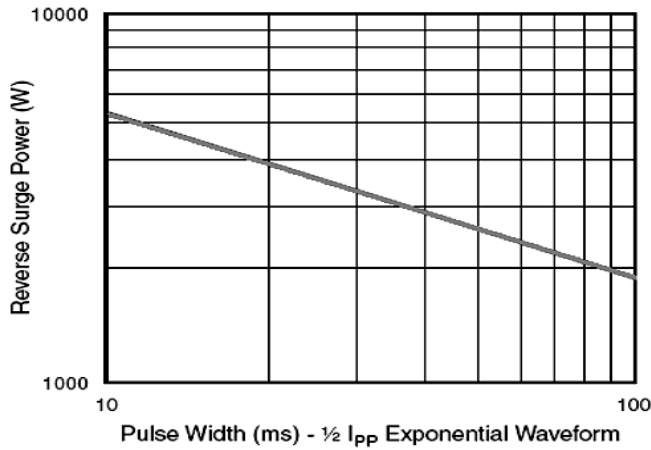
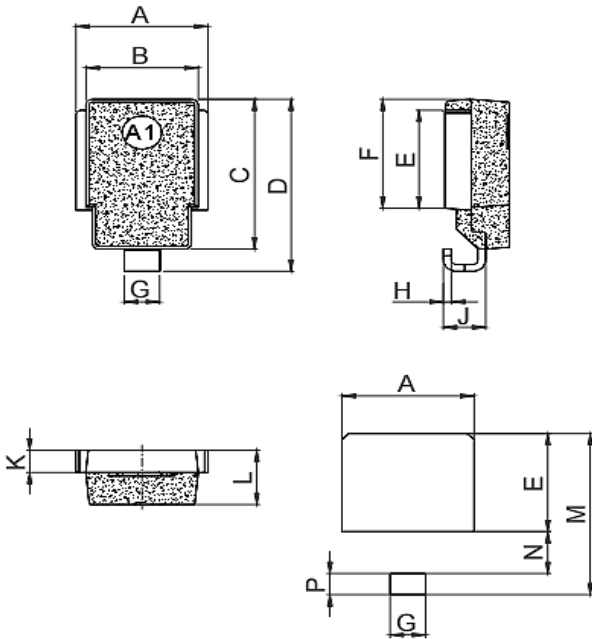


Fig 2: Reverse Power Capability



PACKAGE DETAIL

DO - 218AB



Ref	Dimensions			
	millimeter		Inches	
	Min	Max	Min	Max
A	9.5	10.5	0.374	0.413
B	8.3	8.7	0.327	0.342
C	13.3	13.7	0.524	0.539
D	15.0	16.0	0.592	0.628
E	8.5	9.1	0.335	0.358
F	9.5	10.1	0.374	0.398
G	2.4	3	0.094	0.118
H	0.5	0.7	0.020	0.028
J	2.7	3.7	0.106	0.146
K	1.9	2.1	0.075	0.083
L	4.7	5.1	0.185	0.201
M	14.2	14.8	0.559	0.583
N	3.5	4.1	0.138	0.161
P	1.6	2.2	0.063	0.087

Mechanical Data

CASE: DO-218AB Molded Plastic over glass passivated junction.

Polarity: Heatsink is anode for uni-direction.

Recommended Reflow Solder Profiles

The recommended reflow solder profiles for Pb and Pb-free devices are shown below.

Figure 1 shows the recommended solder profile for devices that have Pb-free terminal plating, and where a Pb-free solder is used.

Figure 2 shows the recommended solder profile for devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with a leaded solder.

Figure 1

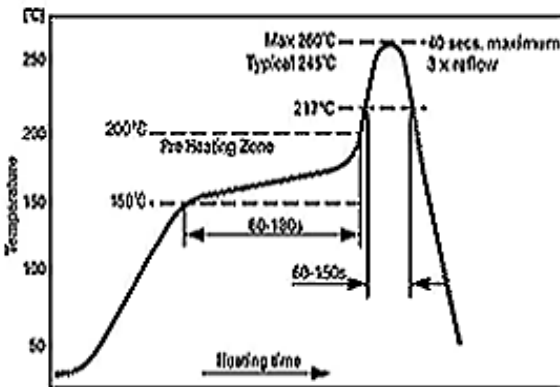
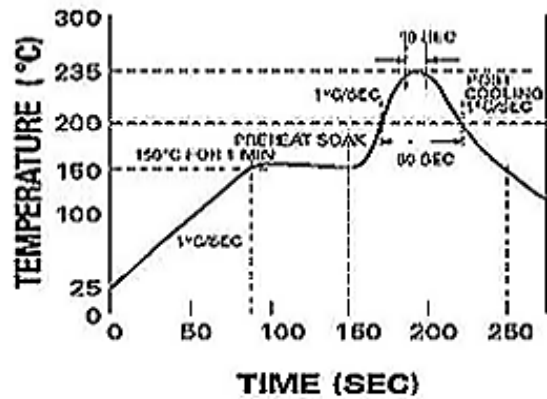


Figure 2

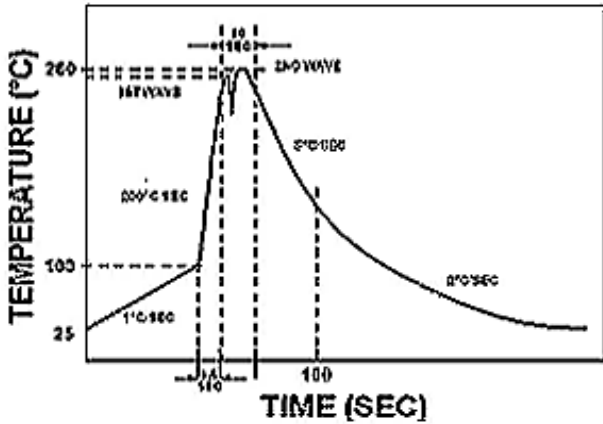


Reflow profiles in tabular form

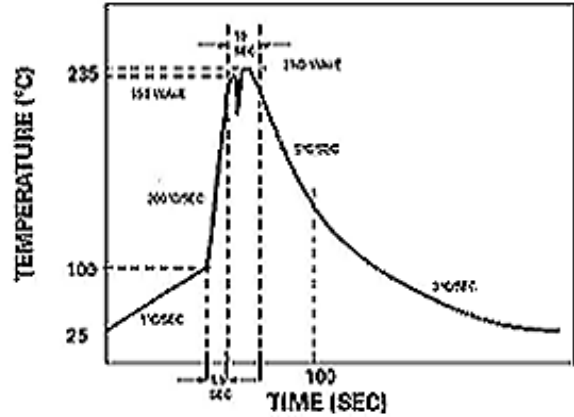
Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~3°C/second	~3°C/second
Preheat		
– Temperature Range	150-170°C	150-200°C
– Time	60-180 seconds	60-180 seconds
Time maintained above:		
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	40 seconds
Ramp-Down Rate	3°C/second max.	6°C/second max.

Recommended Wave Solder Profiles

The Recommended solder Profile For Devices with Pb-free terminal plating where a Pb-free solder is used



The Recommended solder Profile For Devices with Pb-free terminal plating used with leaded solder, or for devices with leaded terminal plating used with leaded solder



Wave Profiles in Tabular Form

Profile Feature	Sn-Pb System	Pb-Free System
Average Ramp-Up Rate	~200°C/second	~200°C/second
Heating rate during preheat	Typical 1-2, Max 4°C/sec	Typical 1-2, Max 4°C/Sec
Final preheat Temperature	Within 125°C of Solder Temp	Within 125°C of Solder Temp
Peak Temperature	235°C	260°C max.
Time within +0 -5°C of actual Peak	10 seconds	10 seconds
Ramp-Down Rate	5°C/second max.	5°C/second max



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Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH

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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



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