

Applications

- ◆ Automotive load dump protection application

Mechanical Data

- ◆ Package : DO-218AB
- ◆ Case Material : Molded Plastic. UL Flammability Classification Rating 94V-0. RoHS compliant
- ◆ Moisture Sensitivity : Meet MSL 1
- ◆ Terminal : Solder plated, solderable per MIL-STD-750, Method 2026
- ◆ Polarity : Color band denotes cathode except bi-directional models

Description

- ◆ Transient voltage suppression diodes, also known as TVS diodes, are protective electronic parts that protect electrical equipment from voltage spikes introduced by wires.

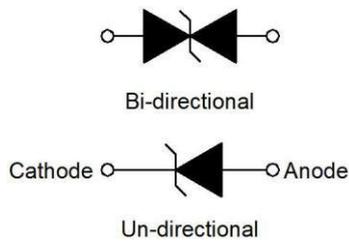
Features

- ◆ For surface mounted applications
- ◆ Excellent clamping capability
- ◆ 6600W peak pulse power capability with a 10/1000µs Waveform.
- ◆ VRWM 16 ~ 85V
- ◆ Low profile package and low inductance
- ◆ Fast response time: typically less than 1.0ps from 0V to VBR min.
- ◆ T_J = 175°C capability suitable for high reliability and automotive requirement.
- ◆ AEC-Q101 Qualified
- ◆ Meet ISO7637-2 pulse 5

DO-218AB



DO-218AB



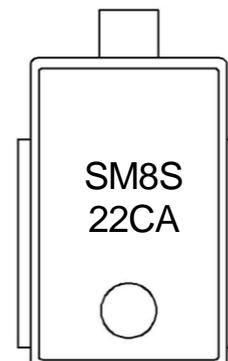
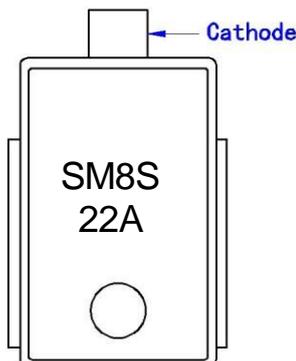
Product and Packing Information

Part Number	QTY/Reel	Reel Size
SM8Sxx(C)A	750	13 inch

Marking Information

EX :
SM8S22A : SM8S22A Marking code

SM8S22CA : SM8S22CA Marking code



Electrical Characteristics (T=25°C)

Part Number		Marking		V _R	I _R @V _R	V _{BR} @I _T		I _T	V _C @I _{PP}	I _{PP} ①
Uni-Polar	Bi-Polar	Uni	Bi	V	μA	min(V)	max(V)	mA	max(V)	A
SM8S16A	SM8S16CA	SM8S16A	SM8S16CA	16.0	10	17.80	19.70	5	26.0	254.0
SM8S17A	SM8S17CA	SM8S17A	SM8S17CA	17.0	10	18.90	20.90	5	27.6	239.0
SM8S18A	SM8S18CA	SM8S18A	SM8S18CA	18.0	10	20.00	22.10	5	29.2	226.0
SM8S20A	SM8S20CA	SM8S20A	SM8S20CA	20.0	10	22.20	24.50	5	32.4	204.0
SM8S22A	SM8S22CA	SM8S22A	SM8S22CA	22.0	10	24.40	26.90	5	35.5	186.0
SM8S24A	SM8S24CA	SM8S24A	SM8S24CA	24.0	10	26.70	29.50	5	38.9	170.0
SM8S26A	SM8S26CA	SM8S26A	SM8S26CA	26.0	10	28.90	31.90	5	42.1	157.0
SM8S28A	SM8S28CA	SM8S28A	SM8S28CA	28.0	10	31.10	34.40	5	45.4	145.0
SM8S30A	SM8S30CA	SM8S30A	SM8S30CA	30.0	10	33.30	36.80	5	48.4	136.0
SM8S33A	SM8S33CA	SM8S33A	SM8S33CA	33.0	10	36.70	40.6	5	53.3	124.0
SM8S36A	SM8S36CA	SM8S36A	SM8S36CA	36.0	10	40.00	44.2	5	58.1	114.0
SM8S40A	SM8S40CA	SM8S40A	SM8S40CA	40.0	10	44.40	49.1	5	64.5	102.0
SM8S43A	SM8S43CA	SM8S43A	SM8S43CA	43.0	10	47.80	52.8	5	69.4	95.0
SM8S60A	SM8S60CA	SM8S60A	SM8S60CA	60.0	10	66.70	73.7	5	96.8	68.1
SM8S85A	SM8S85CA	SM8S85A	SM8S85CA	85.0	10	87	93	5	137	48.0

Note: ①. Surge waveform: 10/1000μs

V_R: Stand-off voltage -- Maximum voltage that can be applied

V_{BR}: Breakdown voltage

V_C: Clamping voltage -- Peak voltage measured across the suppressor at a specified I_{PP}

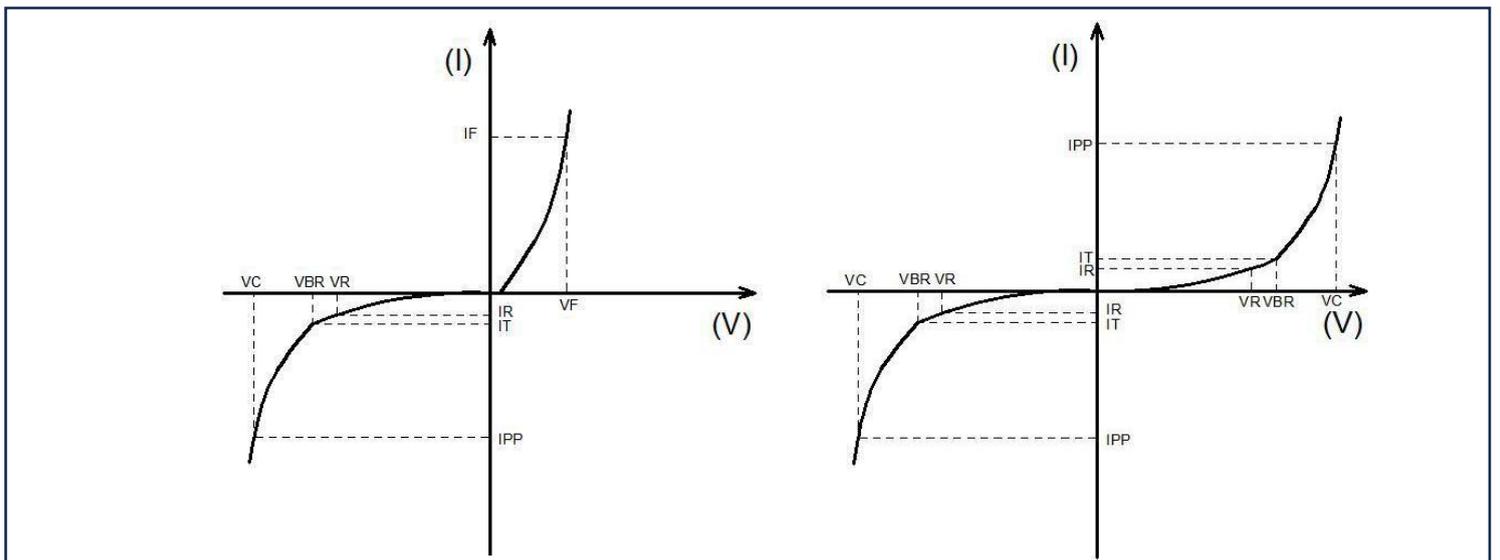
I_R: Reverse leakage current

I_T: Test current

Maximum Ratings (T=25°C, RH=45% ~ 75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000µs waveform	P _{PP}	6600	W
Peak pulse power dissipation on 10/10000µs waveform	P _{PP}	5200	W
Steady state power dissipation at T _L =25°C	P _{M(AV)}	8.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method)	I _{FSM}	700	A
Operating junction and Storage Temperature Range	T _j , T _{stg}	-55 to +175	°C

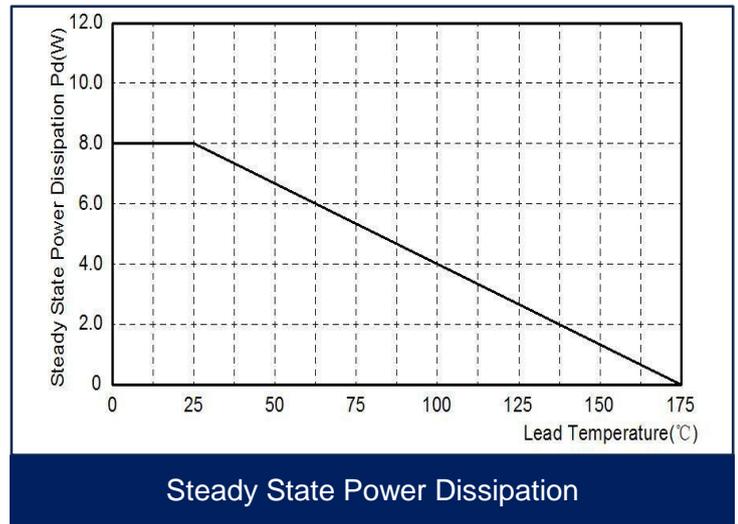
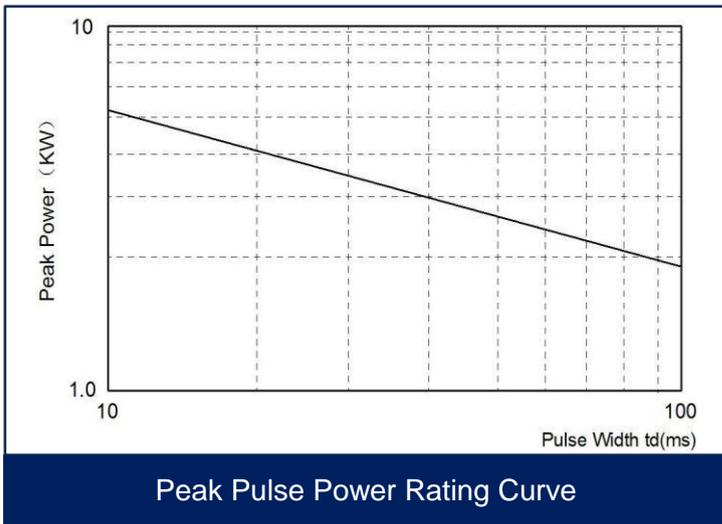
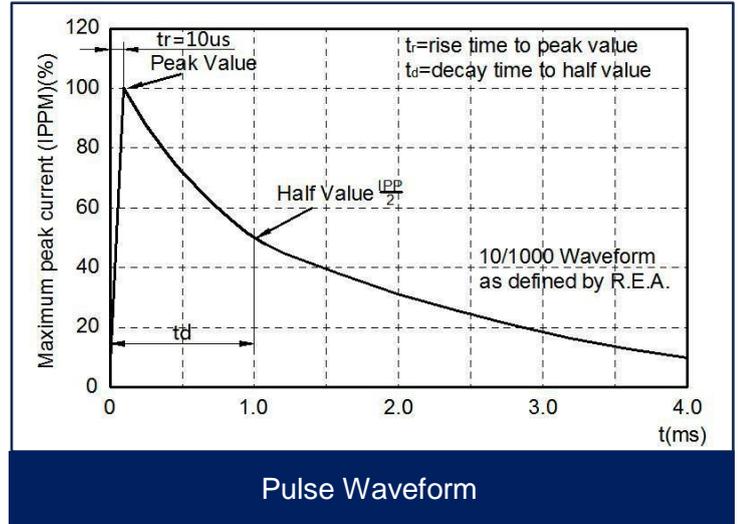
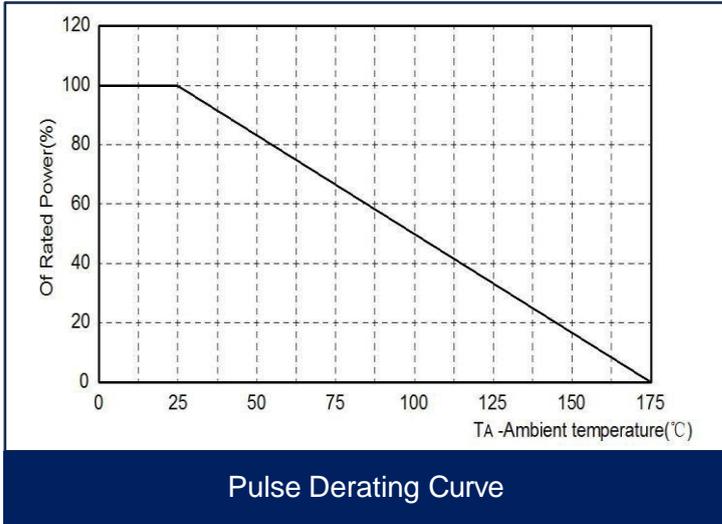
Ratings And V-I Characteristics Curves (T=25°C, unless otherwise noted)



V-I cure characteristics

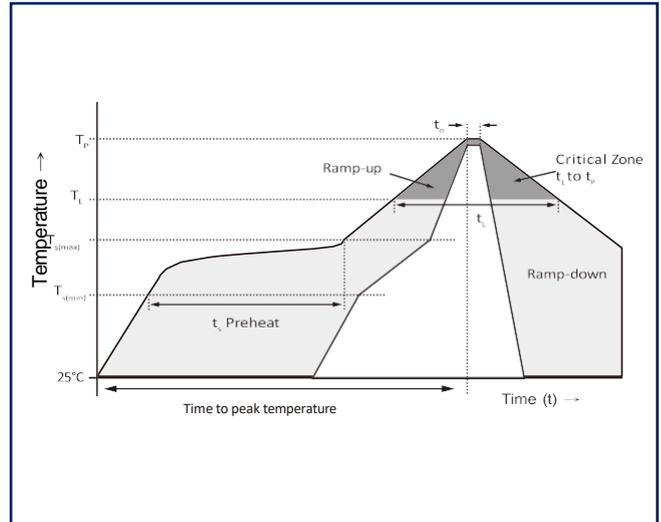
Symbol	Parameter
I _F	Mean Forward Current
V _F	Maximum Forward Voltage @ I _F
V _R	Peak Reverse Working Voltage
I _R	Reverse Leakage Current @ V _R
V _{BR}	Breakdown Voltage @ I _T
I _T	Test Current
I _{PP}	Maximum Reverse Peak Pulse Current
V _C	Clamping Voltage @ I _{PP}

Typical Characteristics

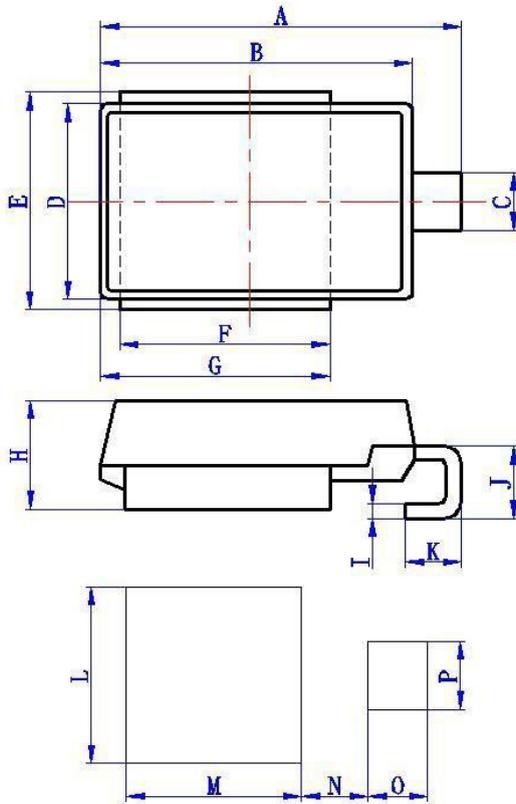


Soldering Parameters

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_p)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_r)	60 – 150 seconds
Peak Temperature (T_p)		260°C (+0/-5)
Time within 5°C of actual peak Temperature (t_p)		30 seconds Max
Ramp-down Rate		6°C/second Max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C

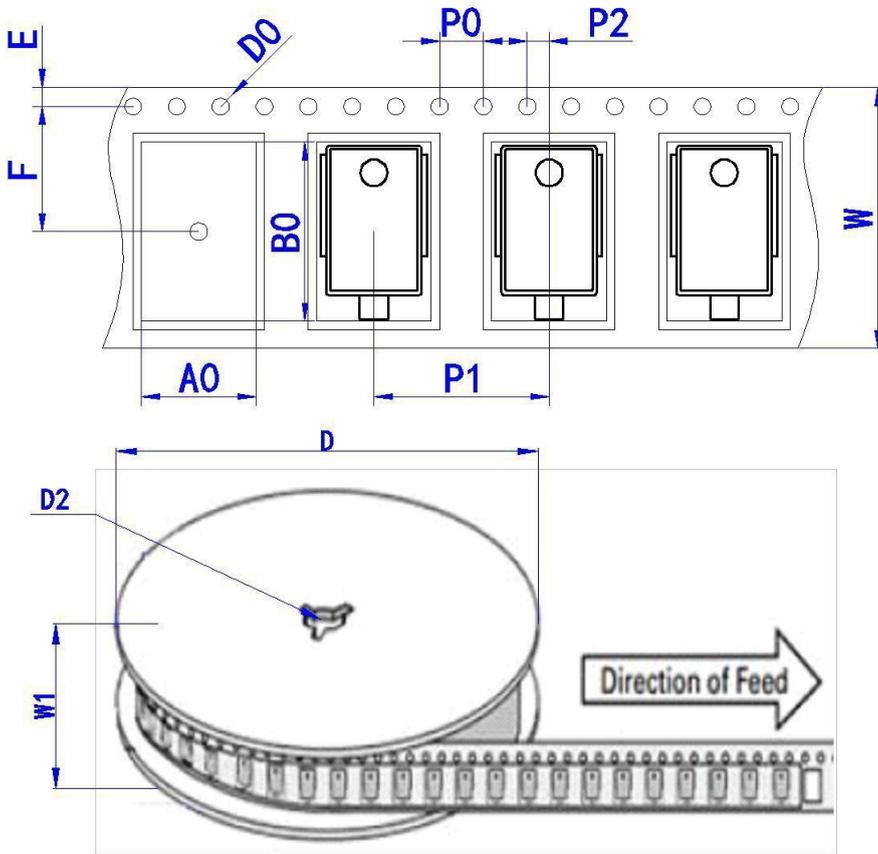


Package mechanical data & Suggested Land Pattern



Ref. (mm)	Millimeters	
	Min.	Max.
A	15	16
B	13.3	13.7
C	2.4	3.0
D	8.3	8.7
E	9.5	10.5
F	8.7	9.3
G	9.7	10.3
H	4.7	5.0
I	0.5	0.7
J	2.5	3.5
K	1.5	2.5
L	10	10.5
M	10.0	10.5
N	3.2	3.8
O	1.7	2.4
P	2.4	3.0

Tape And Reel Specification DO-218AB



Ref.	Millimeters
A0	10.50±0.20
B0	16.55±0.20
D	330
D0	1.55±0.10
D2	13.70±0.30
E	1.75±0.10
F	11.50±0.10
P0	4.00±0.10
P1	16.00±0.10
P2	2.00±0.10
W	24.00±0.30
W1	30.00±4.00