THE DATASHEET OF

SM8S20CA

NextGen Components,Inc.

PART CODE: DO218ABM8S20CA

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	N1115 - DO218ABM8S20CA
DATE	Nov. 15, 2021
REVISION	A0
DESCRIPITION	SMD Transient Voltage Suppressor (TVs) Diodes, DO-218AB series, High Temperature Stability and High Reliability Conditions SM8S20CA Type, 2 Pads, Bi-directional Stand-off Voltage 20V. Reverse Surge Current. 204A Max. Operating Temp. Range -55°C ~+175°C Package in Tape/Reel, 750pcs/13" Reel RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	MDD SM8S20CA
PART CODE	DO218ABM8S20CA

VENDOR APPROVE			
Issued/Checked/Approved	NextGen Components, Inc. Mandy Xu	NextGen Components, Inc. Ruby Zhang	NextGen Components, Inc. Jack Zhang
DATE: Nov. 15, 2021			

CUSTOMER APPROVE
DATE:

NextGen Components,Inc.

PART CODE: **DO218ABM8S20CA**

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

MAIN FEATURE

- Round Chip Produced By Chemical Method
- Junction Passivated By Polyimide
- T J – 175 °C Capability Suitable For High Reliability And Automotive Requirement
- Available In both Uni-directional and Bi-directional Polarity
- Low Leakage Current
- Low Forward Voltage Drop
- High Surge Capability
- Meet ISO7637-2 Surge Specification (Varied By Test Condition)
- Meet MSL Level 1, Per J-STD_020, LF Max. Peak Of 245 °C
- AEC – Q101 Quality

APPLICATION

- Use In Sensitive Electronics Protection Against Voltage Transients Included By Inductive Load Switching And Lighting, Especially For Automotive Load Dump Protection Application

RFQ
Request For Quotation

PART CODE GUIDE

DO218AB	M8S20CA
1	2

1) **DO218AB**: SMD Transient Voltage Suppressor (TVs) Diodes, DO218AB series

2) **M8S20CA**: Type code for original part number SM8S20CA

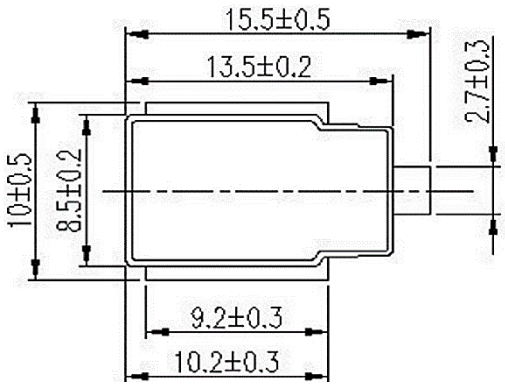
SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

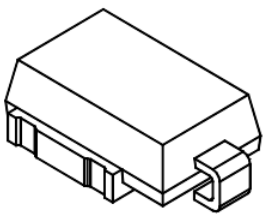
DIMENSION (Unit: mm)

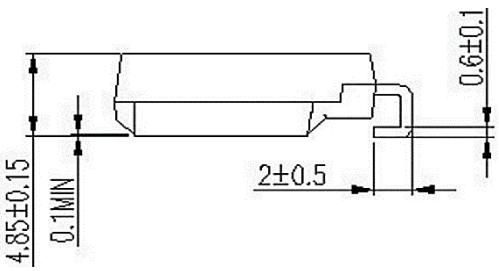
Image for reference

Marking: SM8S20CA

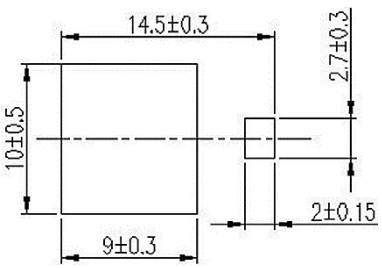
DO-218AB







Recommend Pad Layout



NextGen Components,Inc.

PART CODE: **DO218ABM8S20CA**

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

MECHANICAL DATA

Case	Terminals	Polarity	Mounting Position	Unit Weight
JEDEC DO-218AB molded plastic	Matte tin plated leads, solderable per J-STD-002 & JESD22-B102	Heatsink is Anode	Meets UL 94 V-0 flammability rating base P/NHE3_X – RoHS Compliant & AEC – Q101 qualified (X: denotes revision code e. g A, B…)	2.60 g/pc

MAX. RATING & CHARACTERISTICS - Ratings at 25℃ ambient temperature unless otherwise specified.

Parameter	SYMBOLS	VALUE			UNITS
		Min.	Typical	Max.	
Peak Pulse Power Dissipation @10/1000μs Waveform	P_{ppm}		6600		W
Peak Pulse Power Dissipation @10/1000μs Waveform	P_{ppm}		5200		W
Power Dissipation On Infinite Heatsink @ T_C = 25 °C (Fig. 1)	P_D		8.0		W
Peak Pulse Current On 10/1000μs Waveform (Note 1)	I_{ppm}			204	A
Peak Forward Surge Current 8.3 Ms Single Half Sine- Wave	I_{FSM}		700		A
Thermal Resistance Junction To Case	$R_{\Theta JA}$		0.90		°C/W
Operating Junction Temperature Range	T_J	-55		+175	°C
Storage Temperature Range	T_{STG}	-55		+175	°C

Note

1. Non-repetitive current pulse derated above T_A=25 °C

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

ELECTRICALCHARACTERISTICS - Ratings at 25℃

Parameter	SYMBOLS	VALUE			UNITS
		Min.	Typical	Max.	
Breakdown Voltage	V_{BR}	22.2	23.4	24.5	V
Test Current	I_T		5.0		mA
Reverse Stand-Off	V_{WM}		**20.0**		V
Reverse Leakage @V_{WM}	I_D			10.0	µA
Reverse Leakage @ V_{WM}, T_J = 175 °C	I_D			150	µA
Peak Pulse Current @ 10/1000 µs Wave-form	I_{PPM}			204	A
Clamping Voltage @ I_{PPM}	V_C			32.4	V
Temp. Coefficient of V_{BR} (Note 1)	αT		0.084		%/ °C

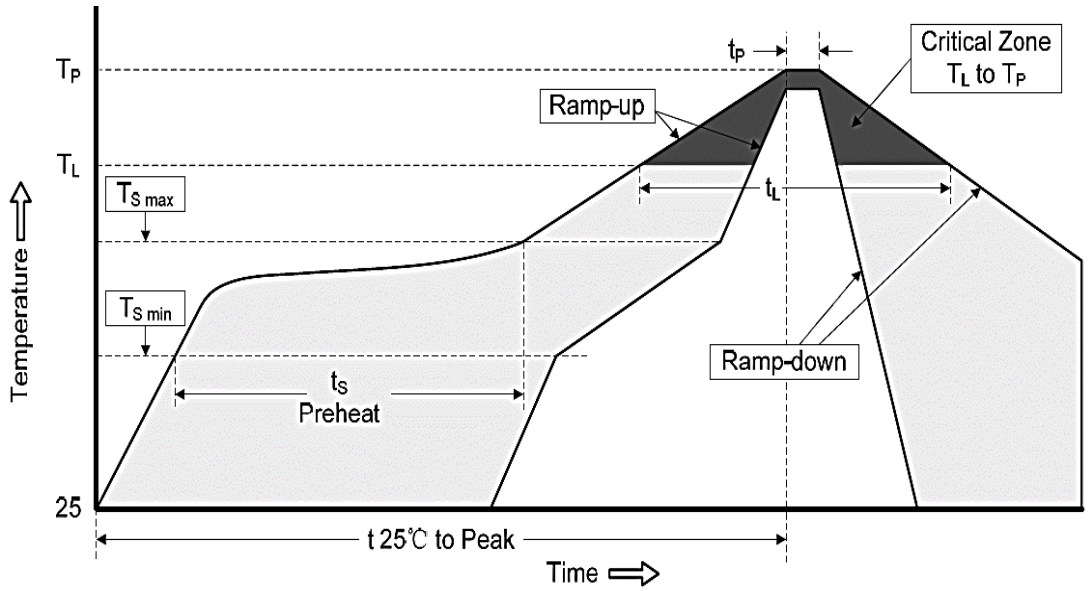
Note

1. To calculate V_{BR} vs Junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C x 1+ αT x (T_J -25)
2. For all type Max. V_F = 1.8V at I_F = 100 A measured on 8.3ms single half Sine-wave or equivalent square wave, duty cycle = 4 pulses per minute Max.

RELIABILITY

Number	Experiment Items	Experiment Method And Conditions	Reference Documents
1	Solder Resistance Test	Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031.2
2	Solderability Test	230°C ±5°C for 5 sec.	MIL-STD-750D METHOD-2026.1 0
3	Pull Test	1 kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036.4
4	Bend Test	0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times	MIL-STD-750D METHOD-2036.4
5	High Temperature Reverse Bias Test	T_A=100°C for 1000 Hours at V_R=80% Rated V_R	MIL-STD-750D METHOD-1038.4
6	Forward Operation Life Test	TA=25°C Rated Average Rectified Current	MIL-STD-750D METHOD-1027.3
7	Intermittent Operation Life Test	On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles.	MIL-STD-750D METHOD-1036.3
8	Pressure Cooker Test	15 PSIG, T_A=121°C, 4 hours	MIL-S-19500 APPENOIXC
9	Temperature Cycling Test	-55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles.	MIL-STD-750D METHOD-1051.7
10	Thermal Shock Test	0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles	MIL-STD-750D METHOD-1056.7
11	Forward Surge Test	8.3ms Single Sale Sine-wave One Surge.	MIL-STD-750D METHOD-4066.4
12	Humidity Test	T_A=65°C, RH=98% for 1000 hours.	MIL-STD-750D METHOD-1021.3
13	High Temperature Storage life Test	150°C for 1000 Hours	MIL-STD-750D METHOD-1031.5

SUGGESTED REFLOW PROFILE (For Reference Only)



Profile Feature		Pb-Free Assembly
Average Ramp-up Rate (Ts Max to Tp)		3℃/second Max
Preheat	**Temperature Min (Ts Min.)**	150℃
	Temperature Max (Ts Max.)	200℃
	Time (ts Min. to ts Max.)	60 ~ 180 seconds
Time maintained above	**Temperature (TL)**	217℃
	Time (tL)	60 ~ 150 seconds
Peak/Classification Temperature (Tp)		260 ℃
Time within 5℃ of actual Peak Temperature (tp)		20 ~ 40 seconds
Ramp-down rate		6 ℃ /Second Max.
Time 25 ℃ to Peak Temperature		6 minutes Max.
Suggest reflow times		3 Times Max.

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

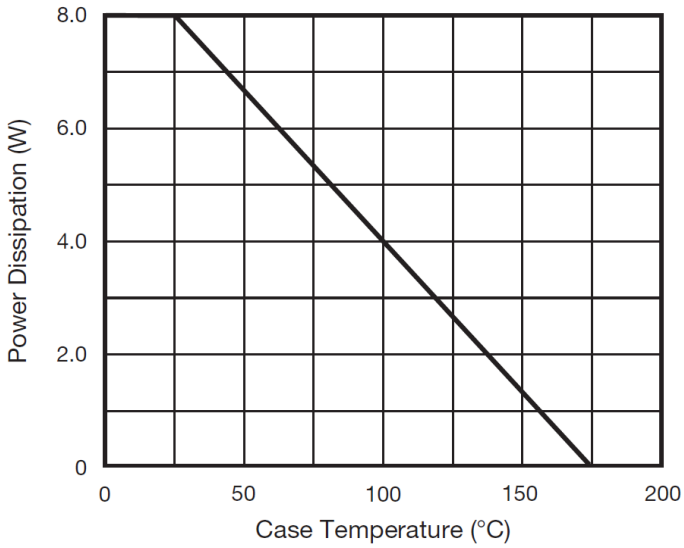


Fig. 1 - Power Derating Curve

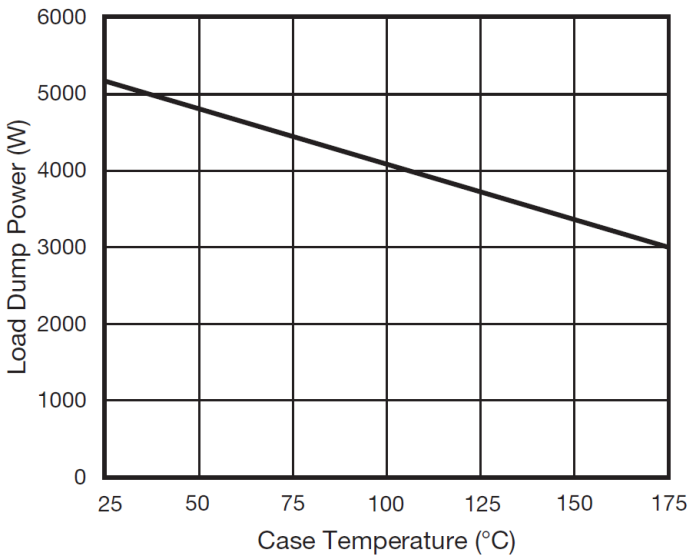


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

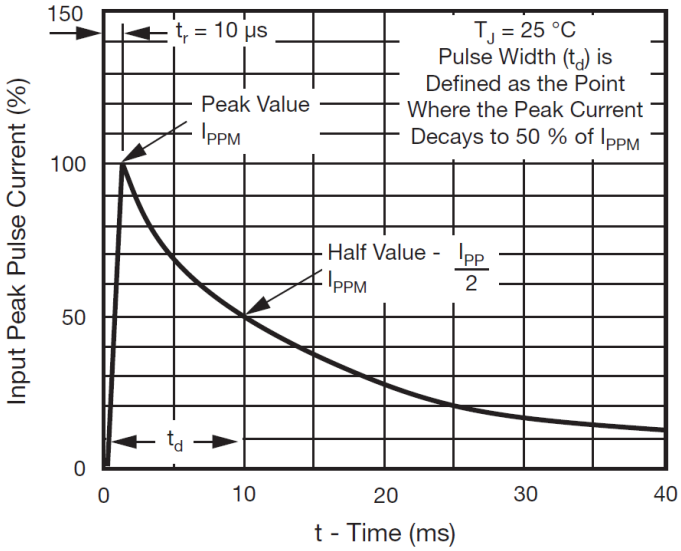


Fig. 3 - Pulse Waveform

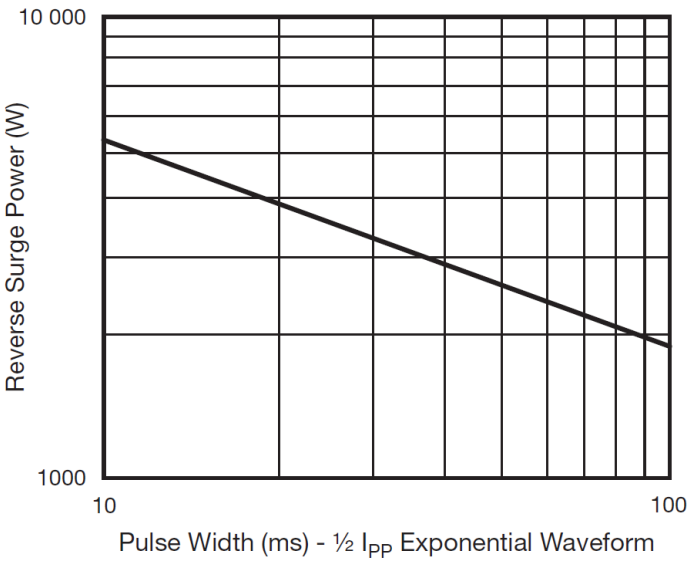


Fig. 4 - Reverse Power Capability

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

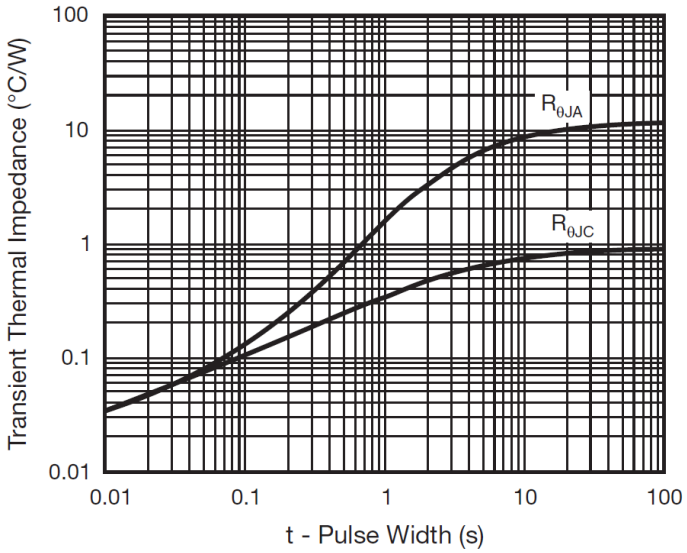


Fig. 5 - Typical Transient Thermal Impedance

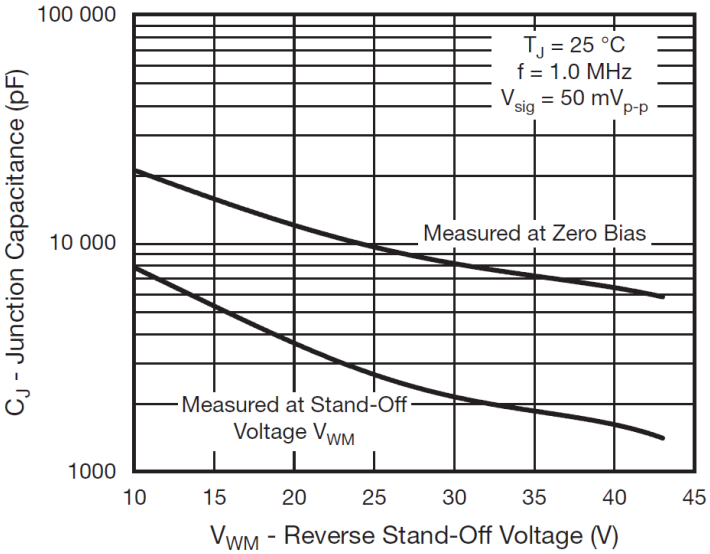
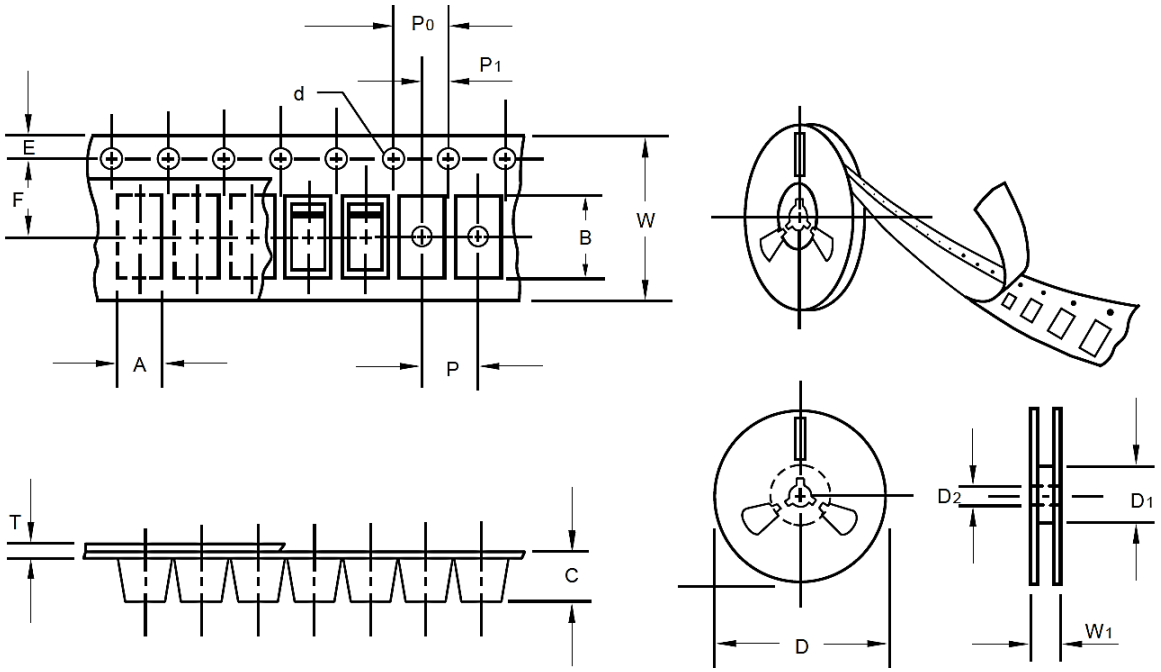


Fig. 6 - Typical Junction Capacitance

SMD TRANSIENT VOLTAGE SUPPRESSORS DO-218AB SERIES

TAPE/REEL (Unit: mm)

All Devices are packed in accordance with EIA standard RS-481-A and specifications. 750pcs/Reel



Item	Symbol	Tolerance	DO-218AB
Carrier width	A	+/-0.30	10.80
Carrier Length	B	+/-0.30	16.13
Carrier Depth	C	+/-0.20	6.00
Sprocket hole	d	+/-0.20	1.55
13”Reel outside diameter	D	+/-0.30	330.00
13”Reel inner diameter	D1	-	50.0 Min.
Feed hole diameter	D2	-	20.2 Min.
Sprocket hole position	E	+/-0.2	1.75
Punch hole position	F	+/-0.20	11.50
Punch hole pitch	P	+/-0.20	16.0
Sprocket hole pitch	P0	+/-0.20	4.00
Embossment center	P1	+/-0.20	2.00
Overall tape thickness	T	-	-
Tape width	W	+/-0.20	24.00
Reel width	W1	-	30.40 Max.

PACKAGE for reference

Case Code	DO- 218AB
Reel Size	13”
Reel Size	330 mm
MPQ/Reel	750 pcs
Qty. /Box	1500 pcs
G.W/Box	5.5 kgs

DISCLAIMER

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