SPECIFICATION SHEET

SMD ESD PROTECTION DIODES CASE SOT-23 SM SERIES

SPECIFICATION SHEET NO.	S0427- SM08000000SM08	
ORIGINAL MFG/PART NO.	MDD Diodes/SM08	
NEXTGEN PART CODE	SM08000000SM08	Indicate This Code For RFQ /Order
DATE	Apr. 27, 2025	
REVISION	A3	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Plastic-Encapsulate ESD Protection Diodes, TVS Diodes Array, SM Series Case SOT-23, 3 Pads, Uni-Directional Type Reverse Working Voltage (V_{RWM}): 8.0V Clamping Voltage (V_C): 13.4VC Max.@1.0A Operating Temperature Range (T_{OPT}) -55°C ~+150°C Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NUMBER		
CROSS REF. PART NUMBER		
MEMO		

VENDOR APPROVE
Issued/Checked/Approved Mandy Xu · Ruby Zhang · Jack Zhang (NextGen Components, Inc.)
Effective Date: Apr. 27, 2025

CUSTOMER APPROVE
Date:

DESCRIPTION

The SMxx Series is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium. This series has been specifically designed to protect sensitive components which are connected to power data and transmission lines from overvoltage caused by ESD(electrostatic discharge), CDE (Cable Discharge Events) and EFT (electrical fast transients).

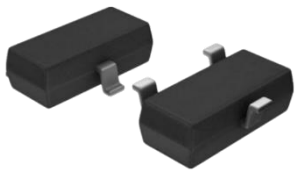


Image shown is a representation only. Exact specifications should be obtained from the product dimension.

MAIN FEATURE

- 350 Watts Peak Pulse Power per (8/20μs)
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Protects one bidirectional line or two unidirectional Lines
- Low Clamping Voltage
- Working voltages: 3.3V, 5V, 8V, 12V, 15V, 18V, 20V, 24V, 36V
- Meet MSL 1 Requirement
- Cross Competitors Parts and More.
- RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)

APPLICATION

- Cell phone Handsets And Accessories
- Microprocessor Based Equipment and Personal Digital Assistants (PDA's)
- Notebooks, Desktops And Servers
- Portable Instrumentation and Networking and Telecom
- Serial/Parallel Ports/Peripherals

ELECTRICAL CHARACTERISTICS

- See Page 5 ~Page 6.
- All Parameters are Subject To NextGen Components' Final Confirmation

HOW TO ORDER

- Please Follow Up Part Code Guide And Indicate NextGen Part Code SM08000000SM08 For RFQ and Order.

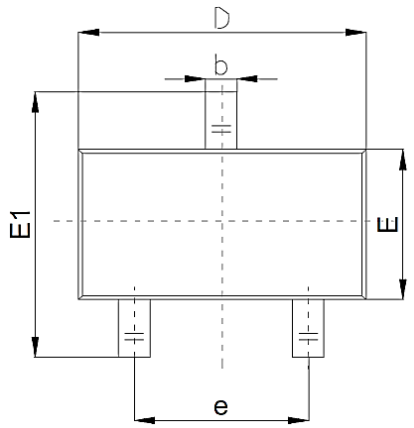
PART CODE GUIDE

RFQ
Request For Quotation

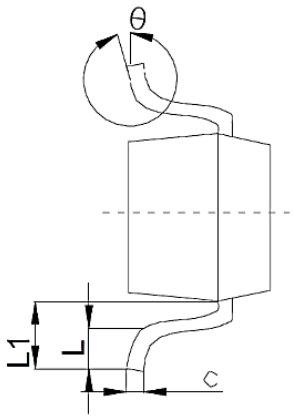
CODE	NAME	KEY SPECIFICATION OPTION
SM	Product Series Code	SMD Plastic-Encapsulate ESD Protection Diodes, TVS Diodes Array, Case SOT-23, 3 pads, Uni-Directional Type
08	Parameters Code	Letter or Digits (A~Z, a~z or 0~9)
000000S	Internal Control Code	Letter or Digits (A~Z, a~z or 0~9)
M08	Marking Code	Marking "M08" or See Marking list For different part code
XX	Special/Custom Parameters Code	Letter or Digits (A~Z, a~z or 0~9) for Special Parametric Blank: N/A

DIMENSION- Unit: mm, Case SOT-23 Outline

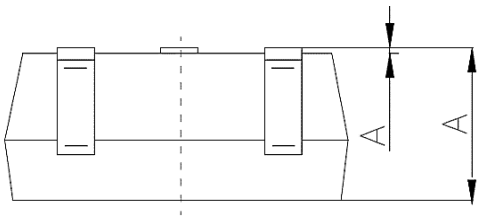
Top View



Side View

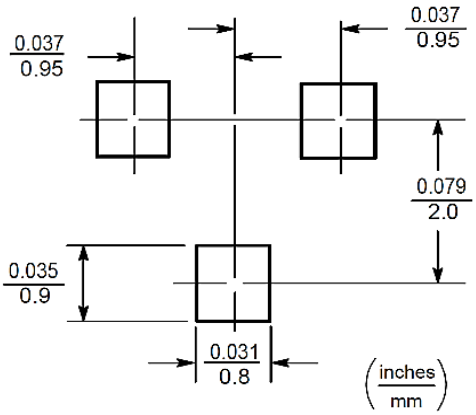


Side View

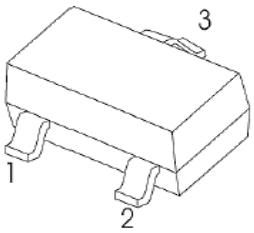


SYMBOL	DIMENSION (MM)		
	MIN.	TYP.	MAX.
A	0.65		1.40
A1	0.00		0.20
b	0.30		0.55
c	0.08		0.20
D	2.70		3.10
E	1.15		1.65
E1	2.10		2.80
e	1.70		2.10
L	0.15		0.50
L1	0.35		0.70
θ	0°		12°

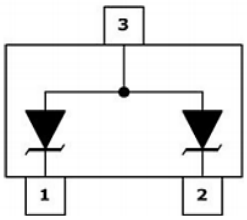
Recommend Pad Layout - Tolerance: ±0.05mm



Pin Configuration



Circuit Diagram



MECHANICAL CHARACTERISTICS

CASE	FLAMMABILITY RATING	TERMINALS	MARKING
JEDEC SOT-23 molded plastic body	UL 94V-0	Matte tin plated, High temperature soldering guaranteed: 260℃/10s	See Marking list For different part code

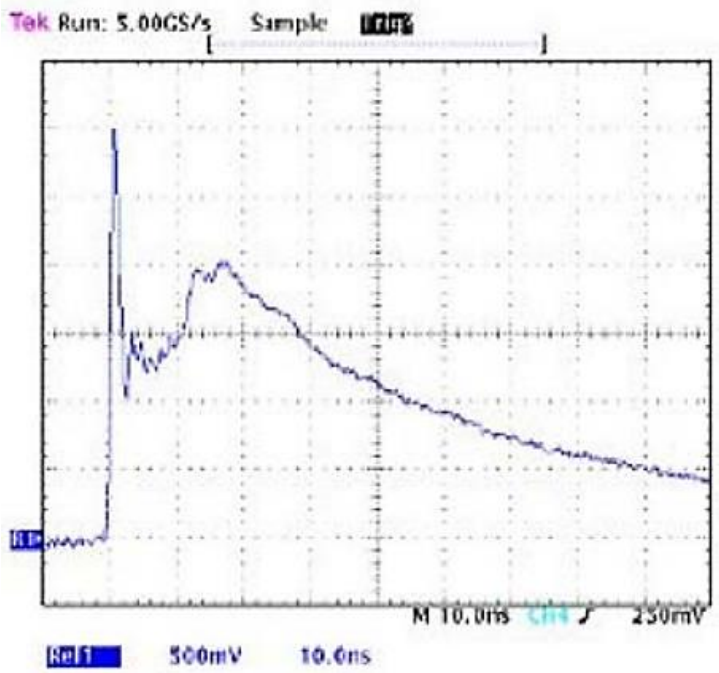
ABSOLUTE MAX. RATING & CHARACTERISTICS - T_A=25°C unless otherwise specified, For Reference Only

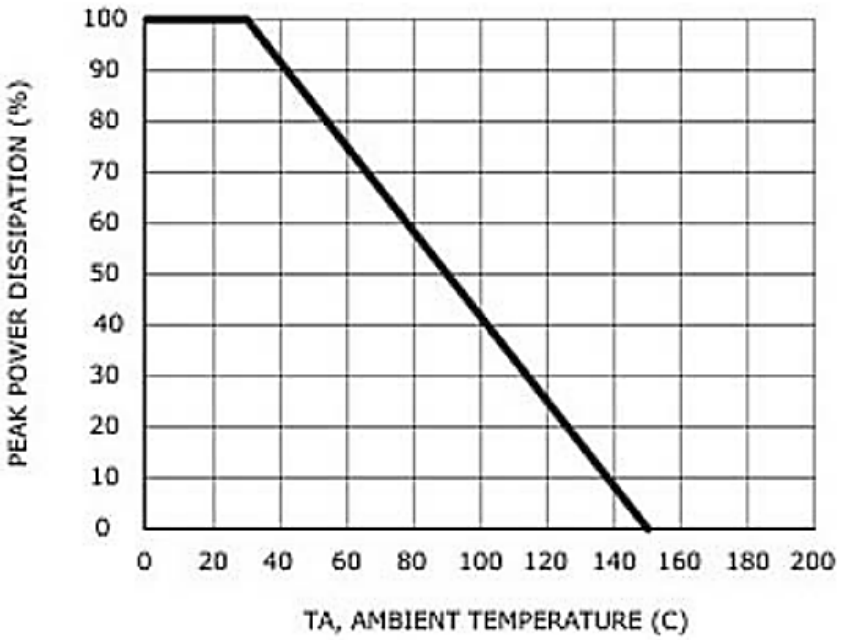
PARAMETER	SYMBOLS	VALUE	UNITS
ESD per IEC 61000-4-2 (Air)	V_{ESD}	±30	KV
ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±30	KV
Peak Pulse Power (tp=8/20us waveform)	P_{PP}	350	W
Operating Temperature Range	T_{OPT}	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C
Lead Solder Temperature- Max. (10s Duration)	T_L	260 /10s	°C

ELECTRICAL CHARACTERISTICS - T_A=25°C unless otherwise specified, For Reference Only

PART CODE	MAX. V_{RWM}	MIN. V_B	I_T	V_C				MAX. I_R	MAX. C_T	MARKING LIST
				MAX.	@A	MAX.	@A			
	V	V	mA	V		V		µA	PF	
SM03000000SM03	3.3	4	1	7.0	1	14	20	40	450	M03
SM05000000SM05	5	6	1	9.8	1	18	17	10	300	M05
SM08000000SM08	8	8.5	1	13.4	1	24	15	2	240	M08
SM12000000SM12	12	13.3	1	19	1	32	11	1	130	M12
SM15000000SM15	15	16.7	1	24	1	38	10	1	120	M15
SM18000000SM18	18	20	1	29	1	45	9	1	100	M18
SM20000000SM20	20	22.3	1	35	1	50	8	1	90	M20
SM24000000SM24	24	26.7	1	43	1	52	7	1	80	M24
SM36000000SM36	36	40	1	60	1	75	4.5	1	60	M36

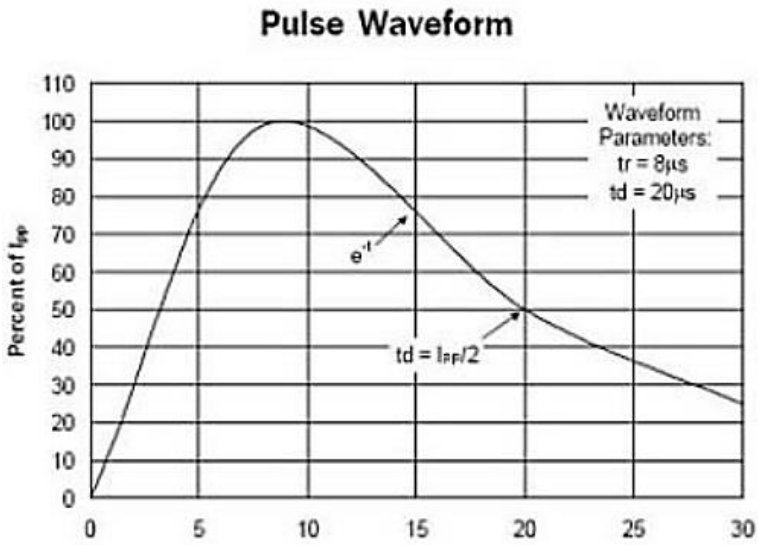
RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.



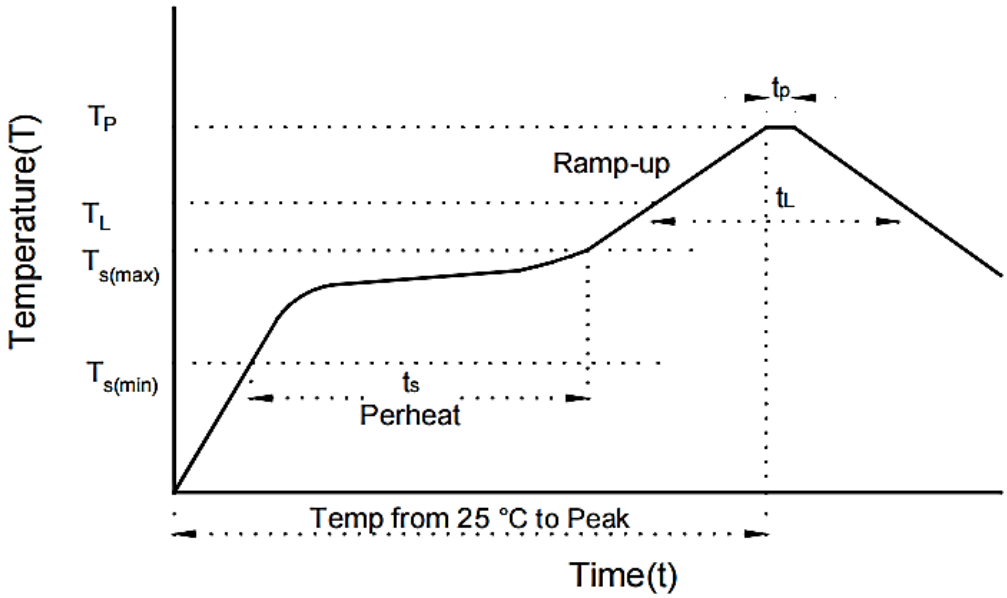


Power Derating Curve

RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.

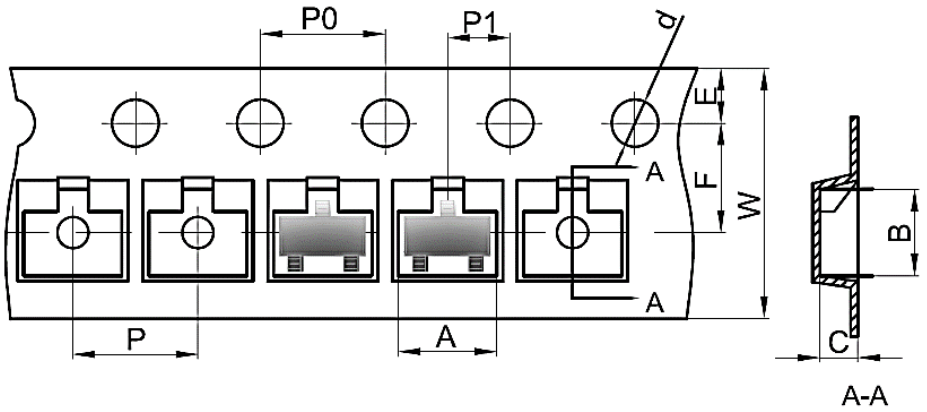


RECOMMENDED SOLDERING PARAMETERS – FOR REFERENCE ONLY

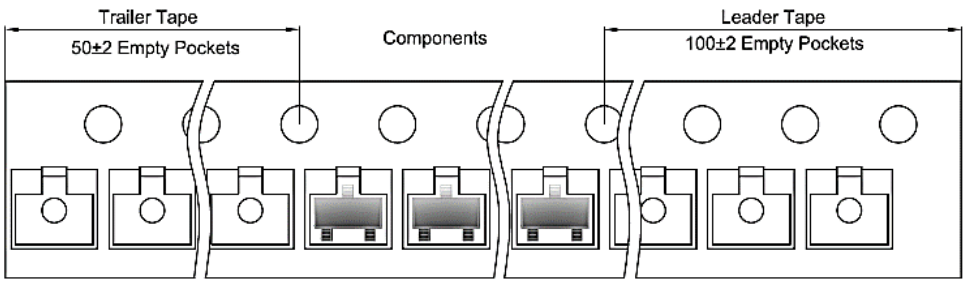


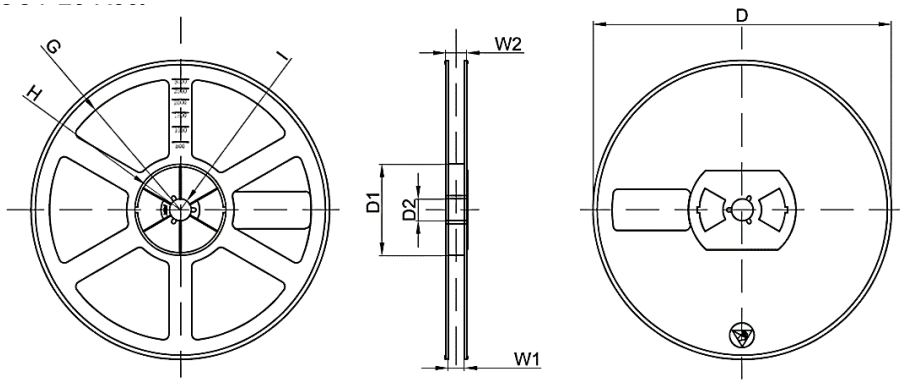
PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (T_L Max to T_p)		3°C/second Max
Preheat	Temperature Min (T_s Min.)	150°C
	Temperature Max (T_s Max.)	200°C
	Time (t_s Min. to t_s Max.)	60 ~ 180 seconds
Time maintained above	Temperature (T_L)	217°C
	Time (t_L)	60 ~ 150 seconds
Peak/Classification Temperature (T_p)		260 °C
Time within 5°C of actual Peak Temperature (t_p)		10 seconds Max.
Ramp-down Rate		6 °C /Second Max.
Time 25 °C to Peak Temperature		8 Minutes Max.
Suggest reflow times		3 Times Max.

TAPE/REEL - Unit: mm, All Devices are packed in accordance with EIA standard RS-481-A and specifications



Case	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.5	1.75	3.5	4.0	4.0	2.0	8.0





Reel Size	D	D1	D2	G	H	I	W1	W2	Qty. (pcs)
7”	Ø178	54.4	13.0	R78.0	R25.6	R6.5	9.5	12.3	3000

IMPORTANT NOTES AND DISCLAIMER

1. ROHS COMPLIANCE: The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained can be obtained at Download Center.
2. REACH COMPLIANCE: REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
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