SPECIFICATION SHEET

SMD BIDIRECTIONAL TVS DIODES ESD3Z SERIES

SPECIFICATION SHEET NO.	S0408- ESD3Z5V0CMS03M	
ORIGINAL MFG/PART NO.	LGE Diodes/ESD3Z5.0CM	
NEXTGEN PART CODE	ESD3Z5V0CMS03M	Indicate This Code For RFQ /Order
DATE	Apr. 8, 2025	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Transient Voltage Suppressor (TVs) Diodes, ESD3Z Series, Case SOD-323, 2 Pads, Ultra -Low leakage, Bi-Directional Type Reverse Working Voltage : 5.0V, Clamping Voltage 9.8VC Max.@1.0A Operating Junction Temp. Range -55°C ~+125°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
Effective Date: Apr. 8, 2025

CUSTOMER APPROVE
Date:

MAIN FEATURE

Image shown is a representation only.

Exact specifications should be obtained from the product dimension.

- Ultra low leakage: nA level
- Operating Voltage: 5V
- Low Clamping Voltage
- Complies With IEC 61000-4-2 (ESD) Immunity Test Air Discharge: ±15kV

  Contact Discharge: ±8kv
- Complies With IEC61000-4-4 (EFT) 40A (5/50ns)
- Complies With IEC61000-4-5 (Lightning) 15A (8/20 μs)
- Short Lead Time
- 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

- USB 2.0 Power And Data Line
- Set-top Box And Digital TV
- Digital Video Interface (DVI)
- Notebook Computers
- SIM Ports
- 10/100 Ethernet

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 ESD3Z5V0CMS03M For RFQ and Order.

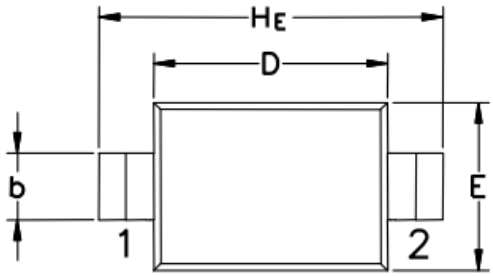
PART CODE GUIDE

RFQ
Request For Quotation

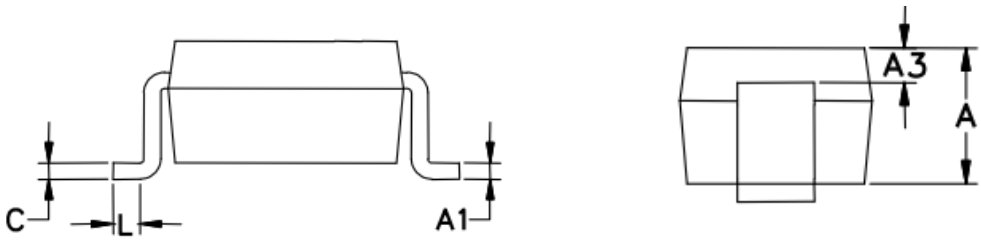
CODE	NAME	KEY SPECIFICATION OPTION
ESD3Z	Product Series Code	SMD Transient Voltage Suppressors (TVs) Diodes, Case SOD-323, 2 Pads, Bi-Directional Type
5V0	Reverse Working Voltage Code	5V0: Reverse Working Voltage 5V 3V3: Reverse Working Voltage 3.3V
CM	Internal Control Code	Letter or Digits (A~Z, a~z or 1~9)
S03M	Marking Code	Marking “3M”
XX	Special/Custom Parameters Code	Letter or Digits (A~Z, a~z or 1~9) for Special Parametric; Blank: N/A

DIMENSION- Unit: Inch [mm], Case SOD-323 Outline

Top View

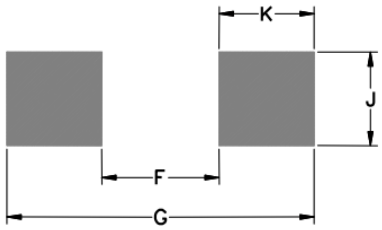


Side View

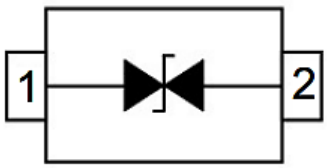


SYMBOL	MM			INCH		
	MIN.	Nom.	MAX.	MIN.	Nom.	MAX.
A	0.80	0.90	1.00	0.031	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A3	0.15 REF			0.006 REF		
B	0.25	0.32	0.40	0.010	0.012	0.016
C	0.089	0.12	0.177	0.003	0.005	0.007
D	1.60	1.70	1.80	0.062	0.066	0.070
E	1.15	1.25	1.35	0.045	0.049	0.053
L	0.08			0.003		
HE	2.30	2.50	2.70	0.090	0.098	0.105

Recommend Pad Layout



Pin Configuration



SYMBOL	F	G	J	K
Unit (Inch)	0.063	0.112	0.033	0.025
Unit (mm)	1.60	2.85	0.83	0.83

MECHANICAL CHARACTERISTICS

CASE	UL FLAMMABILITY CLASSIFICATION RATING	HIGH TEMPERATURE SOLDERING GUARANTEED:	MARKING
JEDEC SOD-323 molded plastic body	UL 94V-0	260℃/ 10s	3M

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

PARAMETER	SYMBOLS	VALUE	UNITS
Peak Pulse Power (8/20μs)	P_{pp}	320	W
ESD per IEC 61000−4−2 (Air)	V_{ESD}	±15	Kv
ESD per IEC 61000−4−2 (Contact)		±8	
Operating Temperature Range	T_J	-55 ~ +125	°C
Storage Temperature Range	T_{STJ}	-55 ~ +150	°C

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

PARAMETER	SYMBOLS	VALUE			UNITS
		MIN.	TYPICAL	MAX.	
Reverse Working Voltage	V_{RWM}			5.0	V
Reverse Breakdown Voltage @ I_T = 1.0mA	V_{BR}	6.0			V
Reverse Leakage Current @V_{RWM} = 5.0V	I_R			10	µA
Clamping Voltage @ I_{PP} = 1.0A, tp = 8/20µs	V_C			9.8	V
Clamping Voltage @ I_{PP} = 4A, tp = 8/20µs	V_C	15		17	V
Junction Capacitance @ V_R= 0V, f = 1MHz	C		11	-	pF

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

Fig1. 8/20μs Pulse Waveform

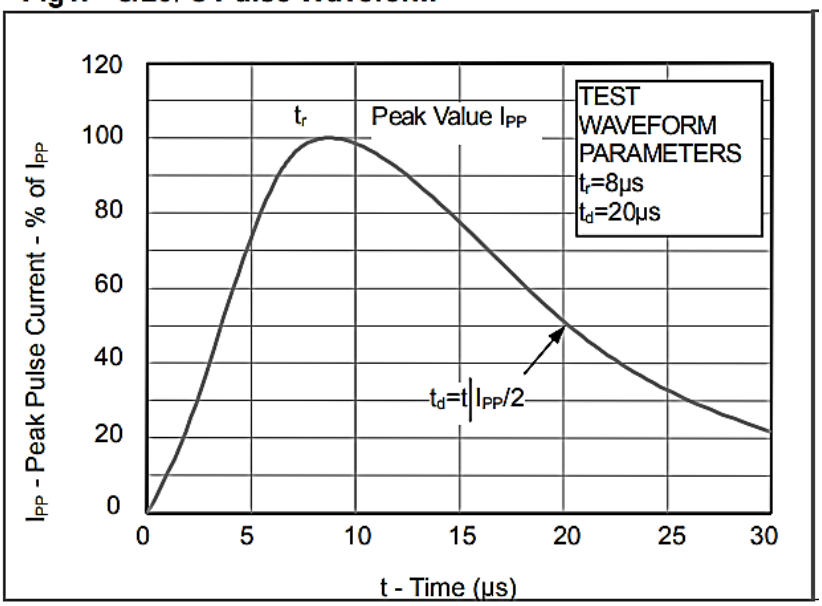
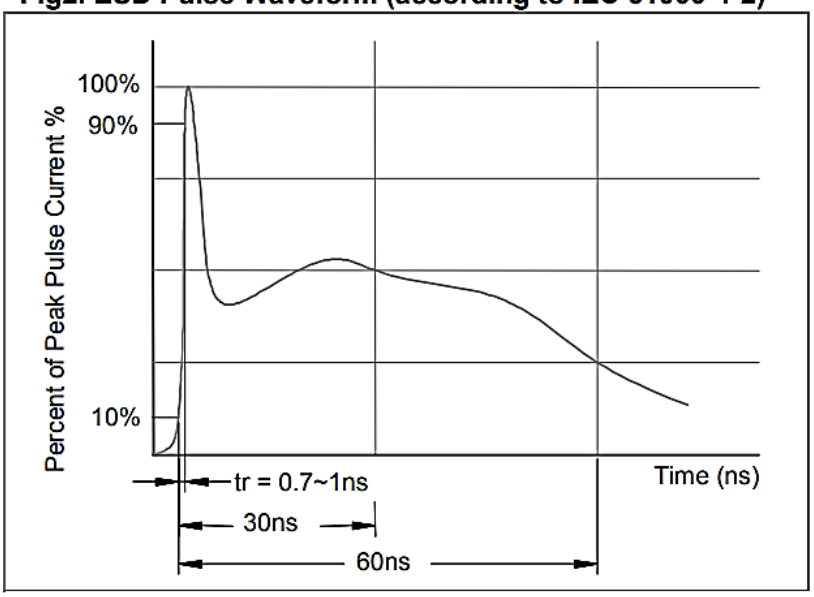
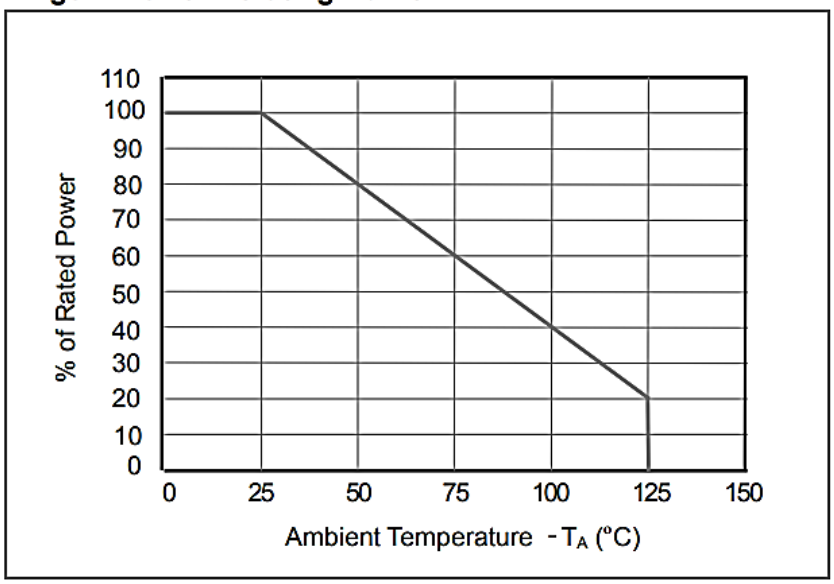


Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)

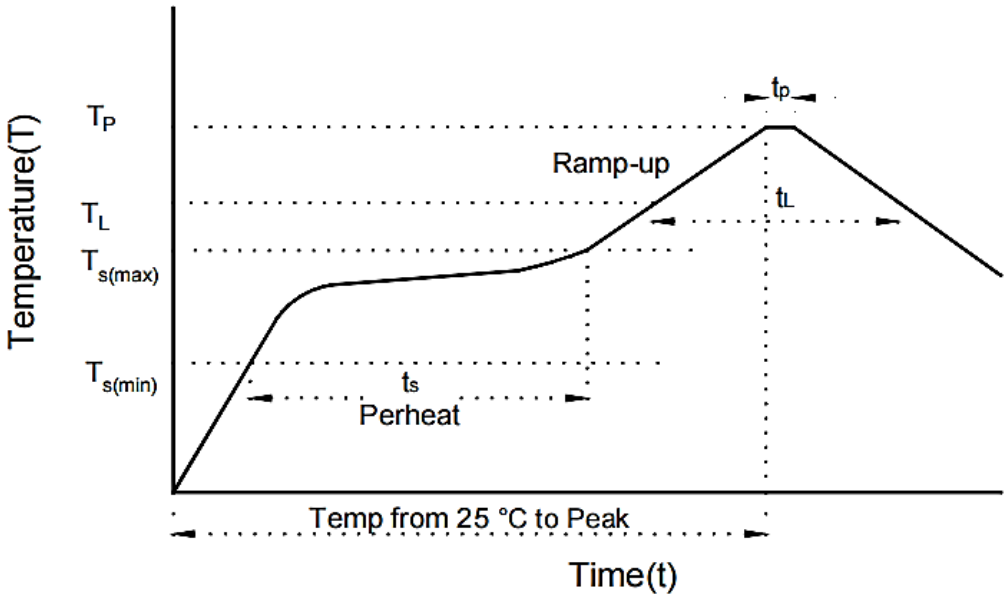


RATINGS AND CHARACTERISTICS CURVES- For Reference Only, Ta=25℃ Unless Otherwise Specified.

Fig3. Power Derating Curve

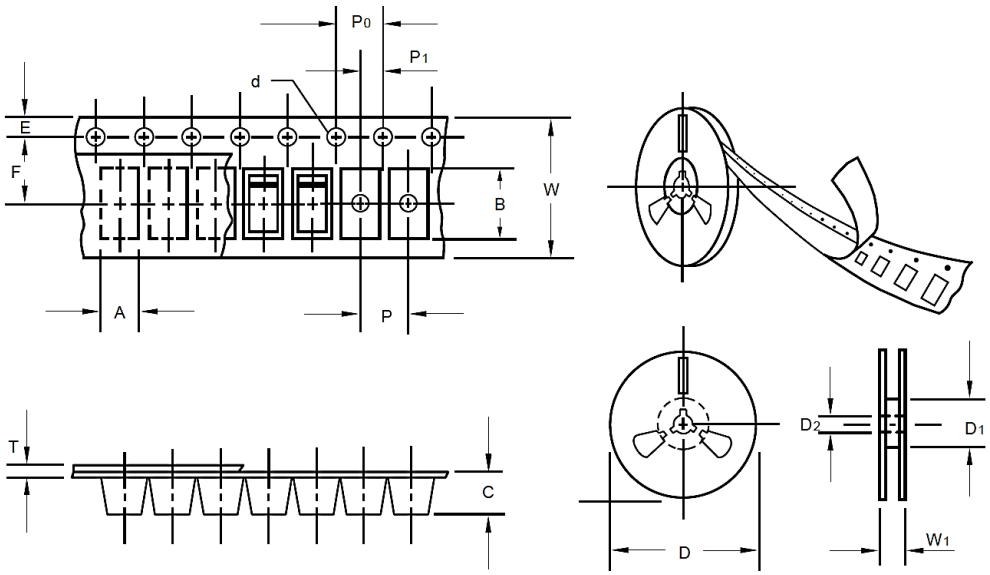


RECOMMENDED SOLDERING PARAMETERS – FOR REFERENCE ONLY



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



ITEM	SYMBOL	TOLERANCE	SOD-323
Carrier width	A	0.1	1.46
Carrier Length	B	0.1	2.9
Carrier Depth	C	0.1	1.25
Sprocket hole	d	0.05	1.55
7”Reel outside diameter	D	2	178
7”Reel inner diameter	D1	Min.	50
Feed hole diameter	D2	0.5	13
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.5
Punch hole pitch	P	0.1	4
Sprocket hole pitch	P0	0.1	4
Embossment center	P1	0.1	2
Overall tape thickness	T	0.1	0.06
Tape width	W	0.3	8
Reel width	W1	1	12.3
Qty. Per Reel (pcs)	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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