SPECIFICATION SHEET

SMD ESD PROTECTION DIODES CASE SOD-523 ESD5Z L SERIES

SPECIFICATION SHEET NO.	T0820 – ESD5Z12VL0S0ZM	
ORIGINAL MFG/PART NO.	LGE Diodes/ESD5Z12V-L	
NEXTGEN PART CODE	ESD5Z12VL0S0ZM	Indicate This Code For RFQ /Order
DATE	Aug. 20, 2026	
REVISION	A1	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Plastic-Encapsulate ESD Protection Diodes, ESD5Z L Series Case SOD-523, 2 Pads, Uni-Directional Type Reverse Working Voltage (VRWM) : 12V Junction Capacitance (CJ) 45pF Max. Junction and Storage Temperature Range (TJ, TSTG) -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
Effective Date: Aug. 20, 2026			

CUSTOMER APPROVE
Date:

DESCRIPTION

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

The ESD5Z Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies and many other portable applications.

MAIN FEATURE

- IEC61000-4-2 Level 4 ESD Protection
- Ultra-small package, Case SOD-523
- Protects one directional I/O line
- Low Clamping Voltage
- Low leakage current
- Working voltages: 2.5V, 3.3V, 5V, 6V, 7V, 12V, 15V
- 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
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops And Servers
- Portable Instrumentation
- Peripherals
- Pagers

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 ESD5Z12VL0S0ZM For RFQ and Order.

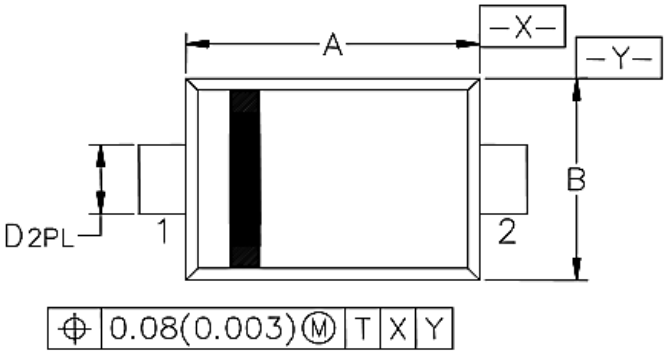
RFQ
Request For Quotation

PART CODE GUIDE

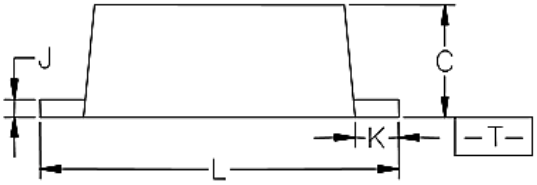
CODE	NAME	KEY SPECIFICATION OPTION
ESD5Z	Product Series Code	SMD Plastic-Encapsulate ESD Protection Diodes, Case SOD-523, 2 pads, Low Capacitance, Uni-Directional Type
12V	Parameters Code	12V: 12V
L0S0	Internal Control Code	Letter or Digits (A~Z, a~z or 0~9)
ZM	Marking Code	Marking "ZM" or See Maring 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 SOD-523

Top View

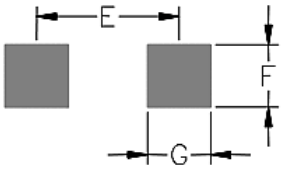


Side View



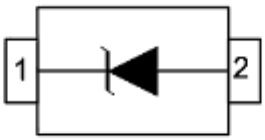
SYMBOL	MM		
	MIN.	Typ.	MAX.
A	1.10	1.20	1.30
B	0.70	0.80	0.90
C	0.50	0.60	0.70
D	0.25	0.30	0.35
J	0.07	0.14	0.20
K	0.15	0.20	0.25
L	1.50	1.60	1.70

Recommend Pad Layout - Tolerance: ±0.05mm



Symbol	Unit (mm)
E	1.40
F	0.40
G	0.40

Pin Configuration



MECHANICAL CHARACTERISTICS

CASE	FLAMMABILITY RATING	TERMINALS	MARKING
JEDEC SOD-523 molded plastic body	UL 94V-0	High Temperature Soldering Guaranteed: 260°C/ 10s	See Maring 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}	±22	KV
ESD Voltage per Human Body Model	ESD	16	KV
ESD Voltage per Machine Model	ESD	400	V
Total Power Dissipation on FR-5 Board (Note 2) @ Ta=25°C	P_D	150	mW
Junction and Storage Temperature	T_J, T_{STG}	-55 ~ +150	°C
Lead Solder Temperature- Max. (10 s Duration)	T_L	260	°C

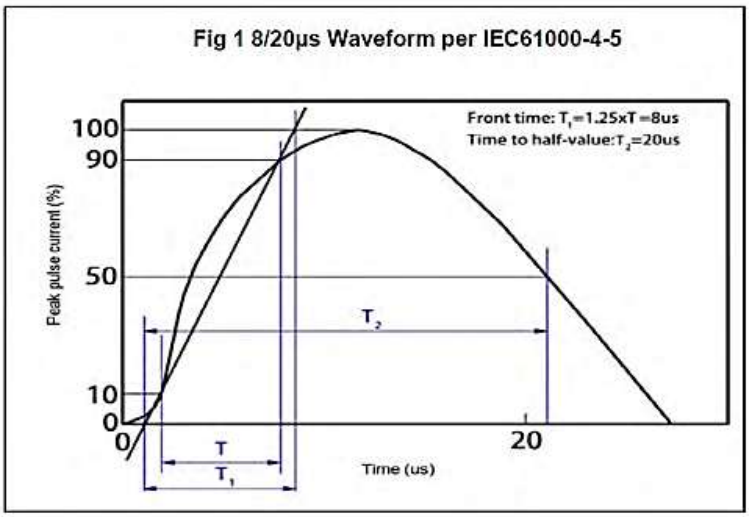
Note:

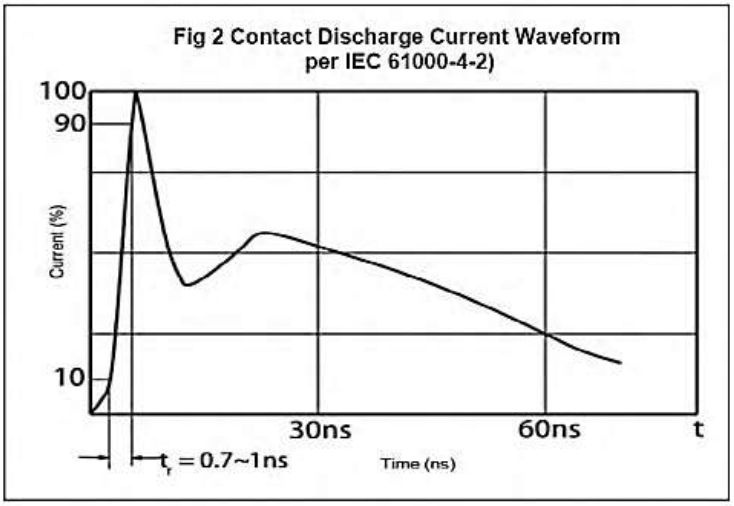
- Ratings are limiting values above which the serviceability of the diode may be impaired
- FR-5 = 1.0 x 0.75 x 0.62 inch

ELECTRICAL CHARACTERISTICS at Ta = 25°C - FOR DIFFERENT PART CODE

PART CODE	MAX. V_{RWM}	MAX. I_R	MIN. V_B	I_T	V_C				MAX. P_{PK}	MAX. C_J	MARKING
					MAX.	@A	MAX.	@A			
	V	µA	V	mA	V		V		W	PF	
ESD5Z2V5L0S0ZD	2.5	6.0	4.0	1	9.0	5.0	11.5	9.0	104	145	ZD
ESD5Z3V3L0S0ZE	3.3	0.90	5.0	1	10.0	5.0	14	7.5	105	105	ZE
ESD5Z5V0L0S0ZF	5.0	0.08	6.2	1	11.6	5.0	15	7.0	105	80	ZF
ESD5Z6V0L0S0ZG	6.0	0.05	6.8	1	13.5	5.0	17.5	6.0	105	70	ZG
ESD5Z7V0L0S0ZH	7.0	0.03	7.5	1	14.0	5.0	18	6.0	108	65	ZH
ESD5Z12VL0S0ZM	12	0.03	14.1	1	20.0	1.0	26	4.0	104	45	ZM
ESD5Z15VL0S0ZN	15	0.50	16	1	23.0	1.0	30	4.0	120	28	ZN

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





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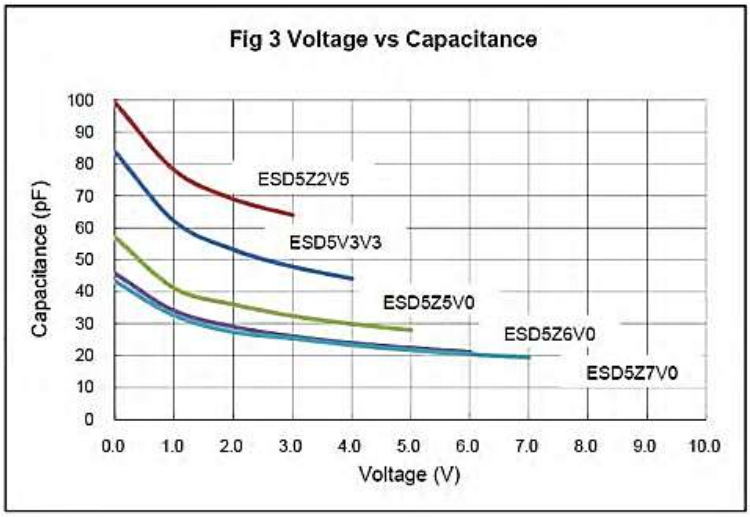

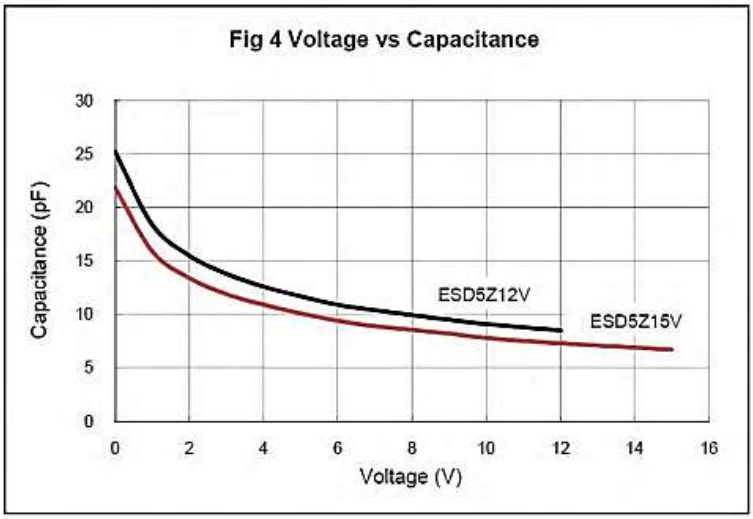

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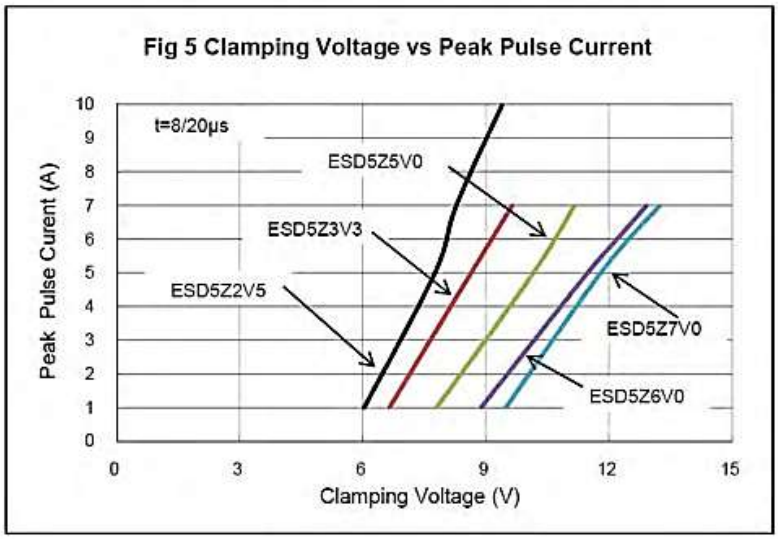
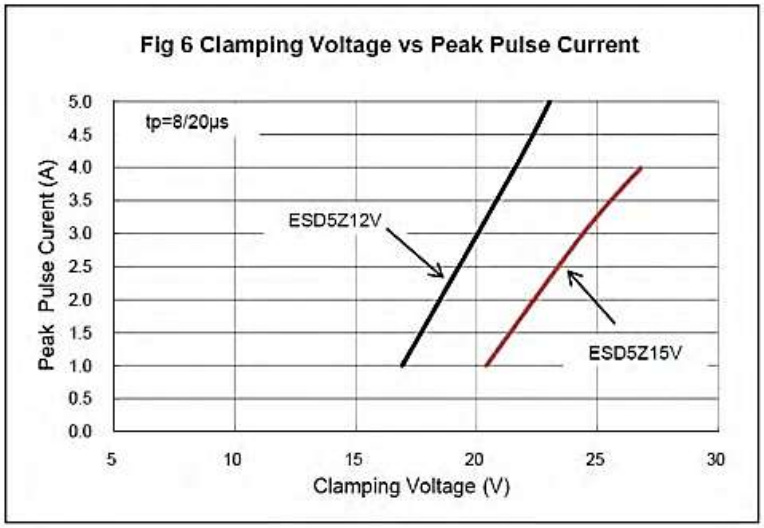
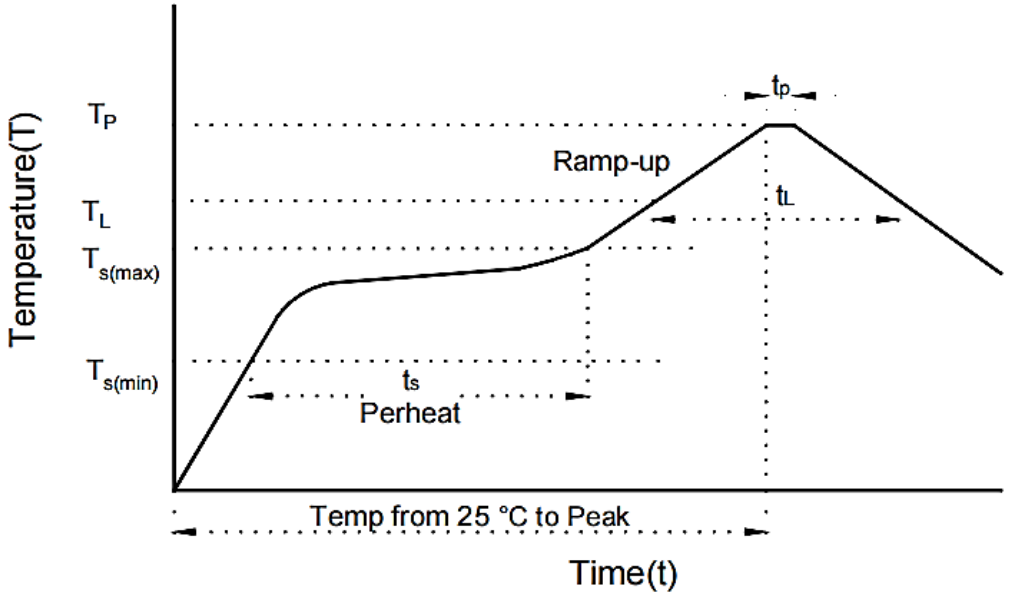


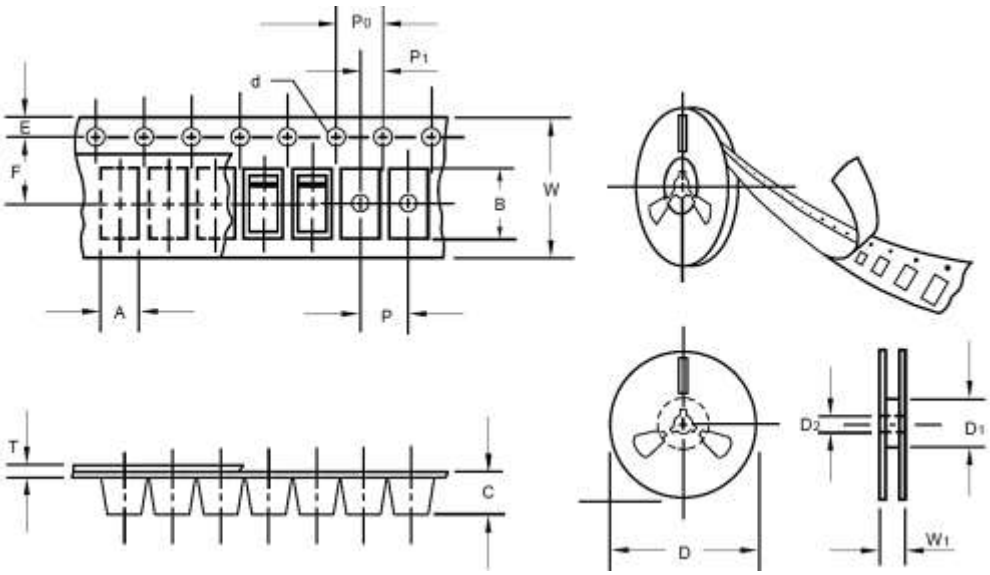


SUGGESTED REFLOW PROFILE - For Reference Only



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-523
Carrier width	A	0.1	2.10
Carrier Length	B	0.1	4.00
Carrier Depth	C	0.1	1.60
Sprocket hole	d	0.05	1.55
7”Reel outside diameter	D	2	178
7”Reel inner diameter	D1	Min.	50.0
Feed hole diameter	D2	0.5	13.0
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.15
Reel width	W1	1	10.5
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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