




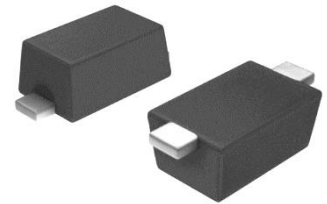
<b>SPECIFICATION SHEET NO.</b>	S0421- ESD5Z24000S05S	
<b>ORIGINAL MFG/PART NO.</b>	MDD Diodes/ESD5Z24/SOD5235Z24S05S	
<b>NEXTGEN PART CODE</b>	ESD5Z24000S05S	Indicate This Code For <a href="#">RFQ</a> /Order
<b>DATE</b>	Apr. 21, 2025	
<b>REVISION</b>	A3	Updated With Most Recent Data
<b>DESCRIPTION AND MAIN PARAMETRICS</b>	<p>SMD Plastic-Encapsulate ESD Protection Diodes, ESD5Z Series</p> <p>Case SOD-523, 2 Pads, Uni-Directional Type</p> <p>Reverse Working Voltage: 24V,</p> <p>Clamping Voltage 35VC Max.@1.0A</p> <p>Operating Junction Temp. Range -55°C ~+125°C</p> <p>Package in Tape/Reel, 3000pcs/Reel</p> <p>RoHS/RoHS III compliant, RoHS Annex III lead Exemption (Exempt per RoHS EU 2015/863) and Halogen Free (HF)</p>	
<b>CUSTOMER</b>		
<b>CUSTOMER PART NUMBER</b>		
<b>CROSS REF. PART NUMBER</b>		
<b>MEMO</b>		

<b>VENDOR APPROVE</b>			
Issued/Checked/Approved			
Effective Date: Apr. 21, 2025			

<b>CUSTOMER APPROVE</b>
Date:

## DESCRIPTION

The ESD5Z24 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.



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

## MAIN FEATURE

- IEC61000-4-2 Level 4 ESD Protection
- Protects one directional I/O line
- Low Clamping Voltage and Low Leakage Current
- Working voltages: 24V
- 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

- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops And Servers
- Portable Instrumentation
- Peripherals and 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 ESD5Z24000S05S For RFQ and Order.

## PART CODE GUIDE

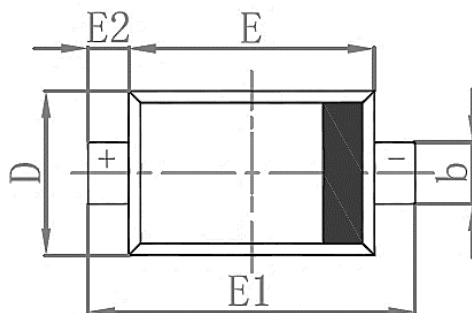
**RFQ**

[Request For Quotation](#)

CODE	NAME	KEY SPECIFICATION OPTION
ESD5Z	Product Series Code	SMD Plastic-Encapsulate ESD Protection Diodes, Case SOD-523, 2 pads, Uni-Directional Type
24	Parameters Code	Letter or Digits (A~Z, a~z or 0~9)
000S0	Internal Control Code	Letter or Digits (A~Z, a~z or 0~9)
5S	Marking Code	Marking "5S"
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 Outline

Top View



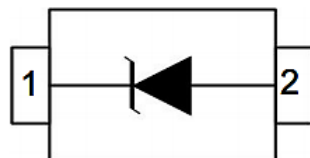
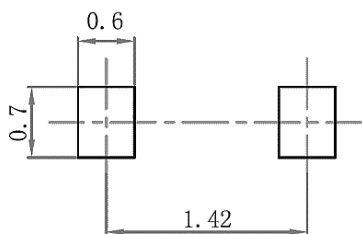
Side View



SYMBOL	DIMENSION (MM)		DIMENSION (INCH)	
	MIN.	MAX.	MIN.	MAX.
A	0.510	0.770	0.020	0.031
A1	0.500	0.770	0.020	0.031
b	0.250	0.400	0.010	0.016
c	0.080	0.150	0.003	0.006
D	0.750	1.000	0.030	0.040
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.150	0.250	0.006	0.010
L	0.000	0.070	0.000	0.003
K	0°	8°	0°	8°

Recommend Pad Layout - Tolerance:  $\pm 0.05\text{mm}$ 

Circuit Diagram



## MECHANICAL CHARACTERISTICS

CASE	FLAMMABILITY RATING	TERMINALS	MARKING
JEDEC SOD-523 molded plastic body	UL 94V-0	High Temperature Soldering Guaranteed: 260°C/ 10s	5S

## ABSOLUTE MAX. RATING & CHARACTERISTICS - $T_A=25^\circ\text{C}$ unless otherwise specified, For Reference Only

PARAMETER	SYMBOLS	VALUE	UNITS
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 15$	KV
ESD per IEC 61000-4-2 (Contact)	VESD	$\pm 8$	KV
Total Power Dissipation on FR-5 Board (Note 1) @ $T_A=25^\circ\text{C}$	PD	150	mW
Operating Temperature Range	TOPT	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature Range	TSTG	$-55 \sim +150$	$^\circ\text{C}$
Lead Solder Temperature- Max. (10 s Duration)	TL	260 /10s	$^\circ\text{C}$

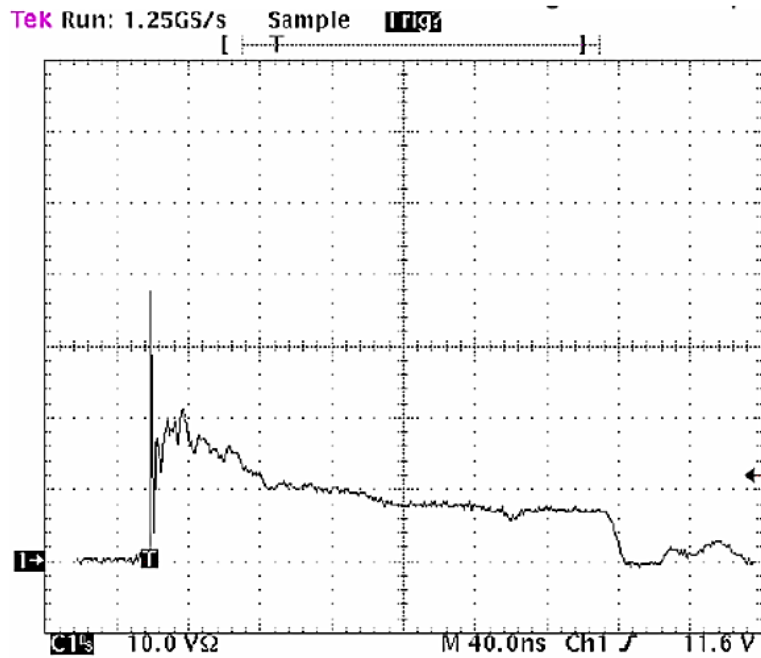
Note:

- 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

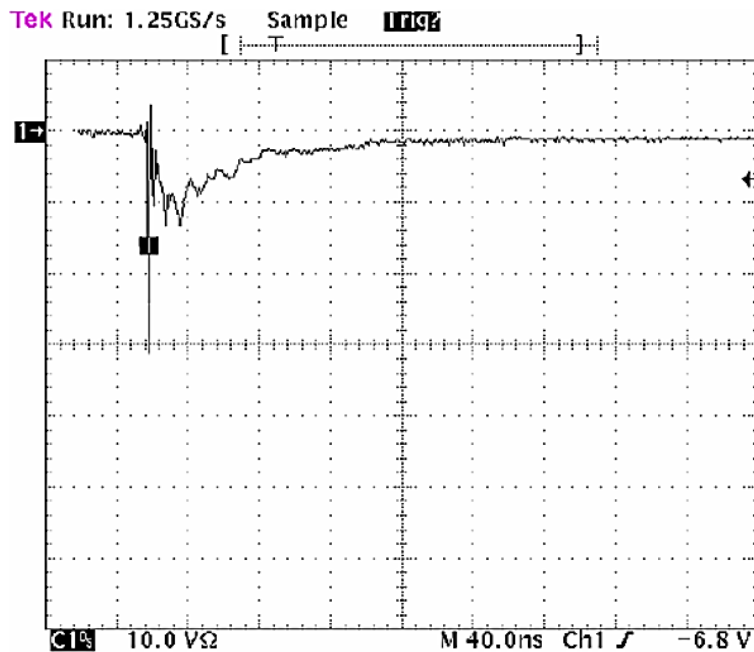
**ELECTRICAL CHARACTERISTICS** - TA=25°C unless otherwise specified, For Reference Only

PARAMETER	TEST CONDITION	SYMBOLS	VALUE			UNITS
			MIN.	TYP.	MAX.	
Reverse Working Voltage		VRWM			24	V
Reverse Breakdown Voltage	IT = 1.0mA	VBR	26			V
Reverse Leakage Current	VRWM = 5.0V	IR			5.0	μA
Clamping Voltage	IPP = 1A, tp = 8/20μs	VC			35	V
Junction Capacitance	VR = 0V, f = 1MHz	Cj			50	pF

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

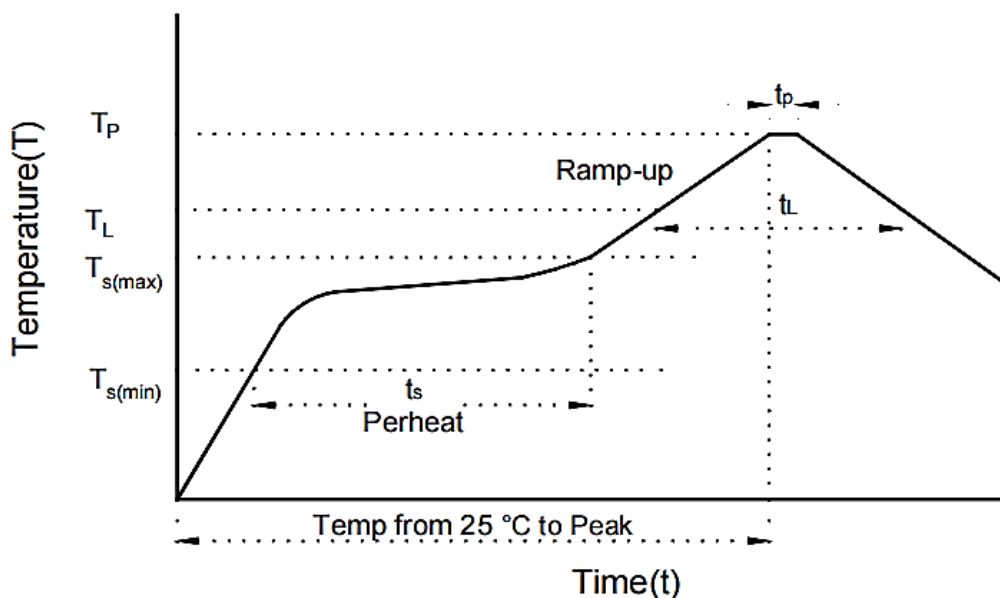


**Figure 1. ESD Clamping Voltage Screenshot**  
**Positive 8 kV contact per IEC 61000-4-2**



**Figure 2. ESD Clamping Voltage Screenshot**  
**Negative 8 kV contact per IEC 61000-4-2**

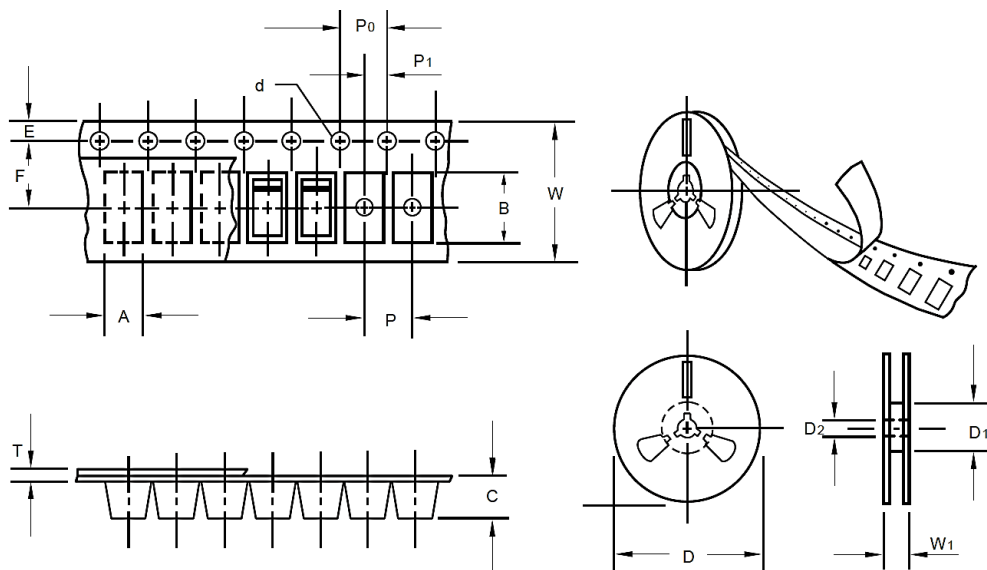
**RECOMMENDED SOLDERING PARAMETERS – FOR REFERENCE ONLY**



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-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 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 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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