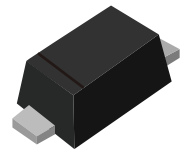


## FEATURES

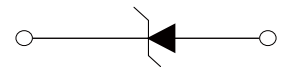
- | IEC61000-4-2 Level 4 ESD Protection
- | Protects one directional I/O line
- | Low clamping voltage
- | Working voltages : 3.3V, 5V,7V,12V
- | Low leakage current

## APPLICATIONS

- | Cell Phone Handsets and Accessories
- | Microprocessor based equipment
- | Personal Digital Assistants (PDA' s)
- | Notebooks, Desktops, and Servers
- | Portable Instrumentation
- | Peripherals
- | Pagers



SOD-523



Schematic Symbol

## APPROVALS

<b>RoHS</b>	Compliance with 2011/65/EU
<b>HF</b>	Compliance with IEC61249-2-21:2003

## ABSOLUTE MAXIMUM RATING

Symbol	Parameter	Value	Unit
$V_{ESD}$	ESD per IEC 61000-4-2 (Air)	$\pm 30$	KV
$V_{ESD}$	ESD per IEC 61000-4-2 (Contact)	$\pm 30$	KV
ESD	ESD Voltage per human body model	16	KV
ESD	ESD Voltage per machine model	400	V
$P_D$	Total Power Dissipation on FR-5 Board (Note 1) @ $T_a=25^\circ\text{C}$	150	mW
$T_J, T_{STG}$	Junction and Storage Temperature	-55~+150	$^\circ\text{C}$
$T_L$	Lead Solder Temperature – Maximum (10 Second Duration)	260	$^\circ\text{C}$

These ratings are limiting values above which the serviceability of the diode may be impaired

Note 1. FR-5=1.0x0.75x0.62 in.

## ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

Part Number	Marking	$V_{RWM}$ (V)	$I_R$ ( $\mu\text{A}$ )	$V_B$ (V)	$I_T$	$V_C@5A$ (V)	$V_C$ (V)		$P_{PK}$ (W)	$C_j$ (pF)
		Max.	Max.	Min.	mA	Max.	Max.	(@A)	Max.	Typ.
ESD5Z3.3	ZE	3.3	0.90	5.0	1.0	9.4	14.1	11.2	158	105
ESD5Z5.0	ZF	5.0	0.08	6.2	1.0	11.6	18.6	9.4	174	80
ESD5Z7.0	ZH	7.0	0.03	7.5	1.0	13.5	22.7	8.8	200	65
ESD5Z12	ZM	12.0	0.02	14.1	1.0	23.0	29.0	6.0	174	35

## ELECTRICAL CHARACTERISTICS CURVE

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

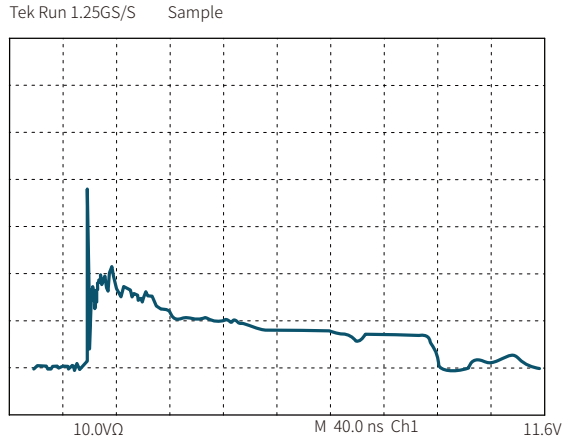
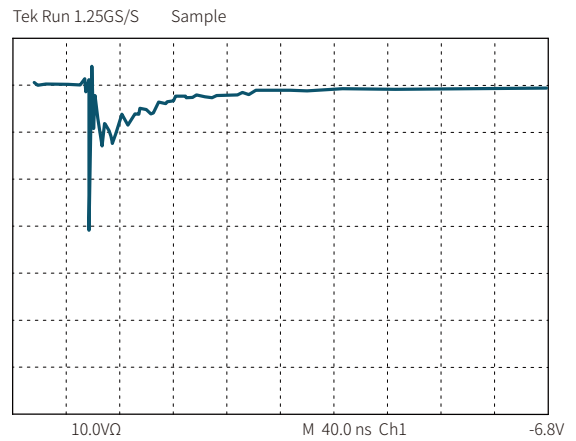
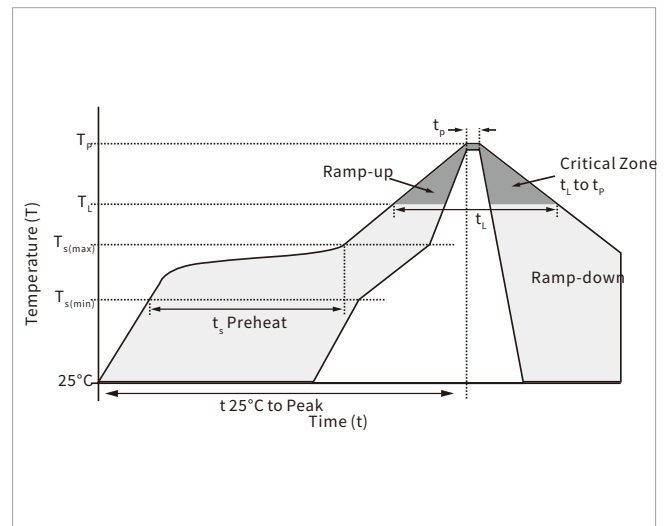


Figure 2. ESD Clamping Voltage Screenshot  
Negative 8 KV contact per IEC 61000-4-2

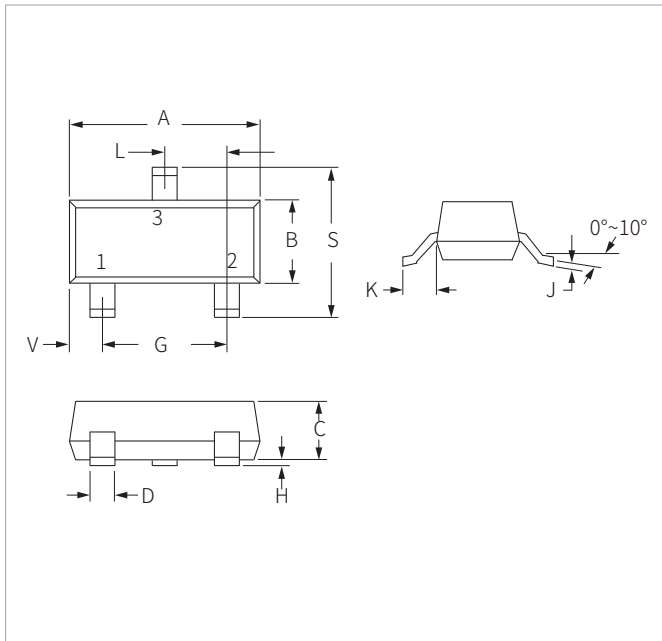


## SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 – 180 secs
Average ramp up rate (Liquidus Temp ( $T_L$ ) to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Time (min to max) ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		260°C
Time within 5°C of actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature ( $T_p$ )		8 minutes max.
Do not exceed		260°C

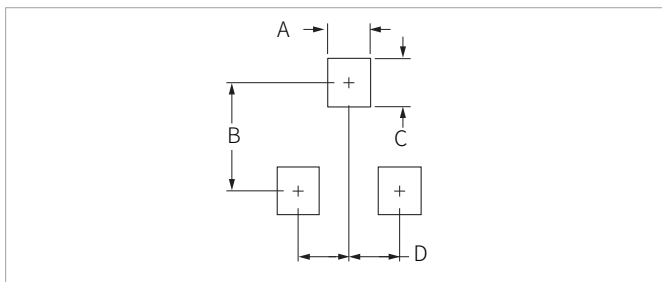


## SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.04	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.89	1.11	0.035	0.044
D	0.37	0.50	0.015	0.020
G	1.78	2.04	0.070	0.081
H	0.01	0.10	0.001	0.004
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.64	0.083	0.104
V	0.45	0.60	0.018	0.024

## RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

## ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
ESD5Z3.3-ESD5Z12	SOT-23	3000PCS	7"

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