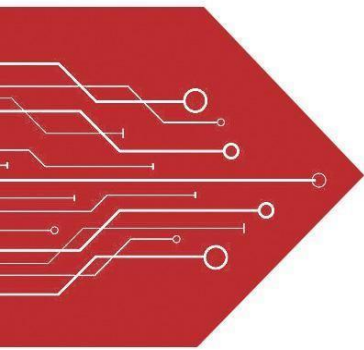


# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

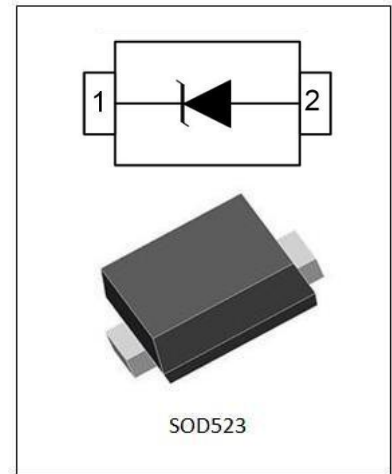
Product data sheet

## Features

- ◆ 250 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- ◆ Transient protection for high speed data lines to IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)
- ◆ Protects One Power or I/O Port
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology

## Applications

- ◆ Notebooks, Desktops, Servers and Video Graphics Cards
- ◆ USB Power & Data Line Protection
- ◆ Monitors and Flat Panel Displays
- ◆ I<sup>2</sup>C Bus Protection
- ◆ Portable Instrumentation
- ◆ Set Top Box



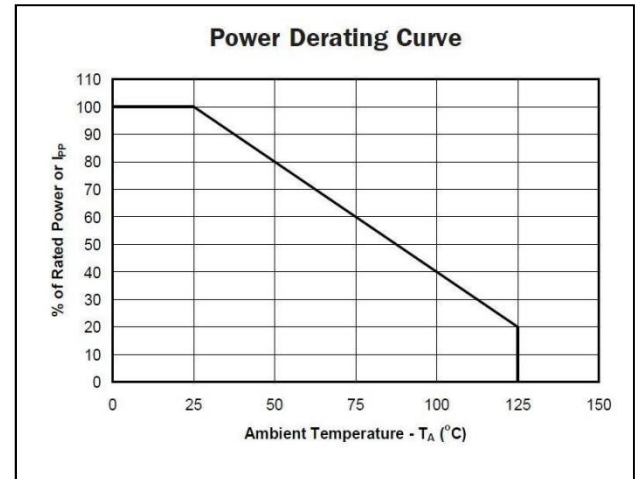
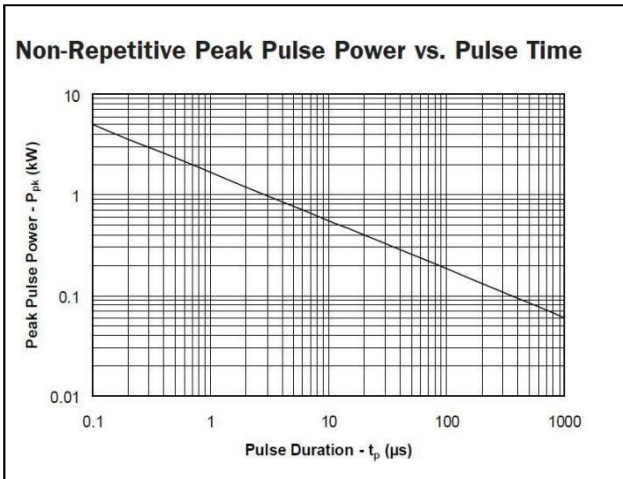
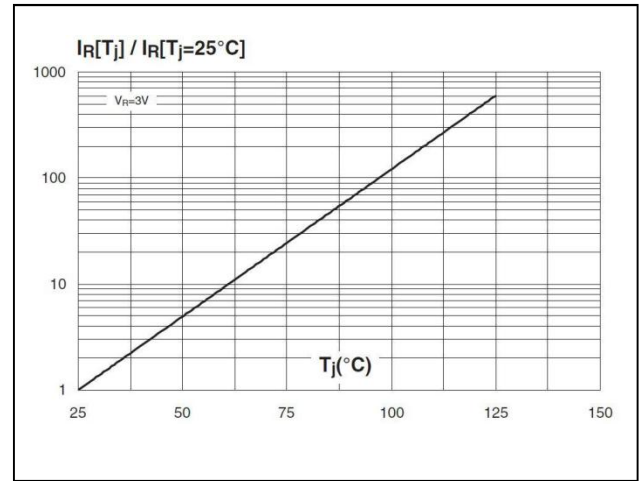
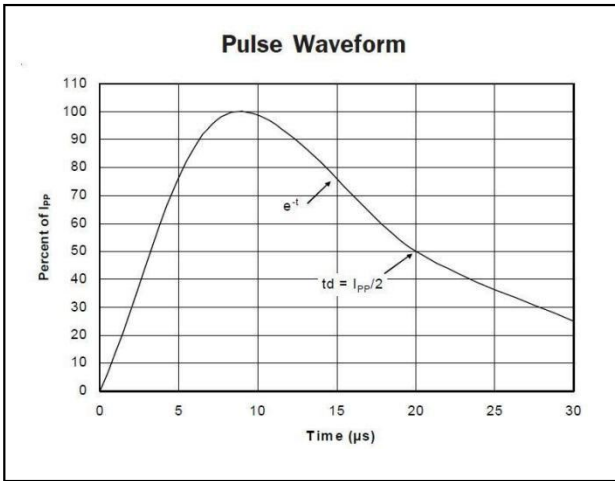
## Electrical Characteristics @ $T_a = 25^\circ C$ unless otherwise

P/N	VRWM @IR		VBR@ImA	Vc@1	Vc@IPP		CJ
	V	$\mu A$	V	V	V	A	pF
		MAX	MIN	MAX	MAX		MAX
ESD3V3S1UB-MS	3.3	1	4	9.8	13	12	120
ESD5V0S1UB-MS	5	1	5.8	11.8	15	10	100
ESD7V0S1UB-MS	7	1	7.5	14	19	8	80
ESD12VS1UB-MS	12	1	13.3	19	25	6	70
ESD15VS1UB-MS	15	1	16.5	24	33	5	50
ESD24VS1UB-MS	24	1	26.1	44	54	3	30
ESD36VS1UB-MS	36	1	38.2	62	80	3	30

## Maximum Rating @ $T_a = 25^\circ C$ unless otherwise specified

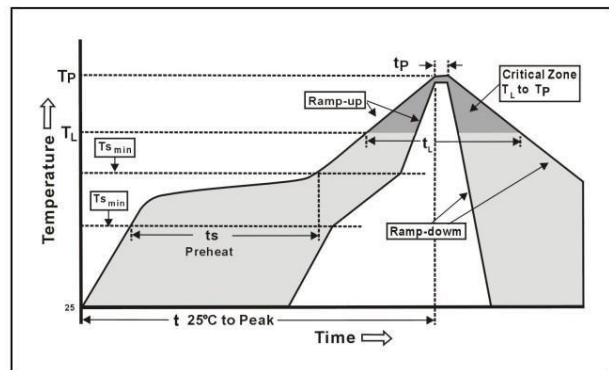
Symbol	Parameter	Ratings	Units
$P_{PK}$	Peak Pulse Power ( $t_p = 8/20\mu s$ )	250	Watts
$T_L$	Lead Soldering Temperature	260(10sec.)	$^\circ C$
$T_J$	Operating Temperature	-55 to +125	$^\circ C$
$T_{STG}$	Storage Temperature	-55 to +150	$^\circ C$

Typical Characteristics@ Ta=25°C unless otherwise specified

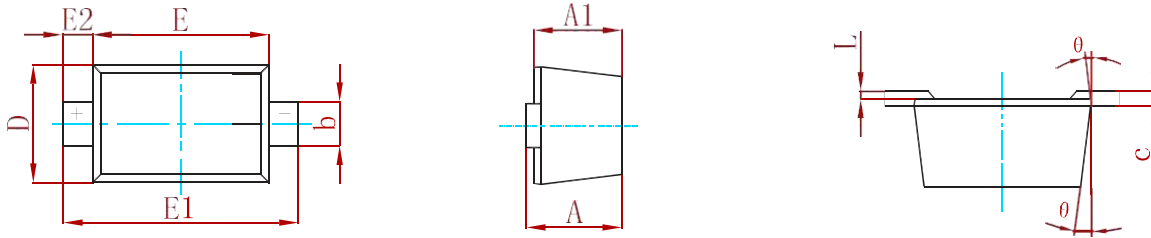


Soldering Parameters

Reflow Condition		Fb – Free assembly
Pre Heat	- Temperature Min ( $T_{s(Min)}$ )	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
	- Temperature ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_p$ )		250 <sup>+0/-5</sup> °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

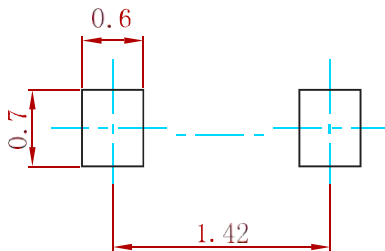


**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.510	0.770	0.020	0.031
A1	0.500	0.700	0.020	0.028
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	0.750	0.850	0.030	0.033
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
E2	0.200 REF		0.008 REF	
L	0.010	0.070	0.001	0.003
θ	7° REF		7° REF	

**Suggested Pad Layout**



- Note:
1. Controlling dimension: in millimeters.
  2. General tolerance: ± 0.05mm.
  3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
ESDXXXS1UB-MS	SOD-523	3000

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