



### Features

- Small Body Outline Dimensions
- 300 Watts peak pulse power ( $t_p=8/20\mu s$ )
- Protects one I/O or power line
- Low clamping voltage
- Working voltage: 5V
- Low leakage current

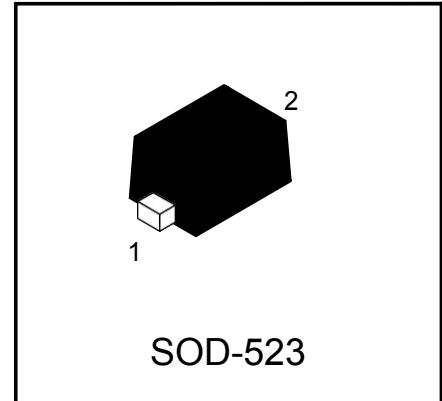
### IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD)  $\pm 30kV$  (air),  $\pm 30kV$  (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 20A (8/20 $\mu s$ )

### Mechanical Characteristics

- SOD-523 package
- Marking : Marking Code
- Packaging : Tape and Reel
- RoHS Compliant

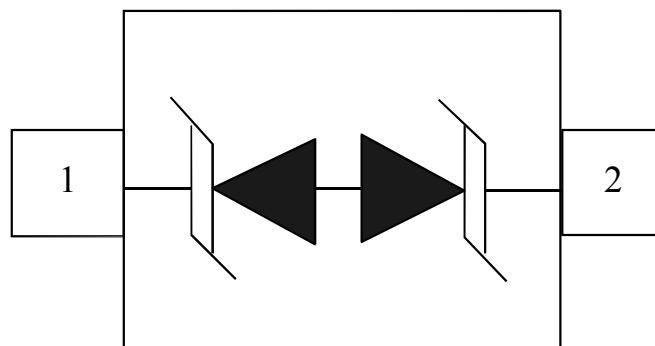
### Transient Voltage Suppressor



### Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- MP3 players

### Schematic & PIN Configuration



SOD-523 (Top View)

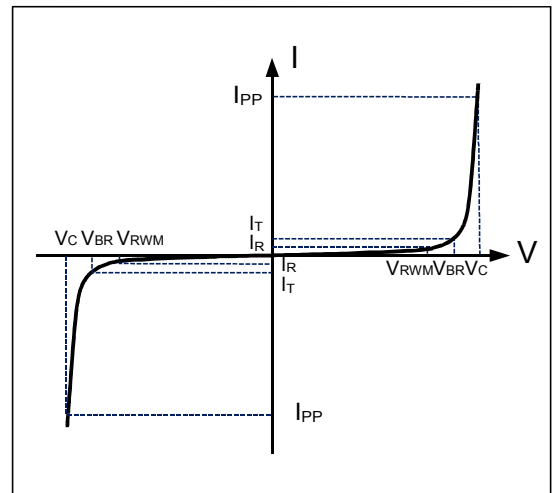


### Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ( $t_p = 8/20\mu s$ )	$P_{PP}$	300	Watts
Peak Pulse Current ( $t_p = 8/20\mu s$ )	$I_{PP}$	20	A
Operating Temperature	$T_J$	-55 to + 125	$^{\circ}C$
Storage Temperature	$T_{STG}$	-55 to +150	$^{\circ}C$

### Electrical Parameters (T=25 $^{\circ}C$ )

Symbol	Parameter
$V_{RWM}$	Reverse Stand-Off Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_{PP}$	Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$I_T$	Test Current



### Electrical Characteristics

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	$V_{RWM}$				5	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	6		9	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5V, T = 25^{\circ}C$			500	nA
Clamping Voltage	$V_C$	$I_{PP} = 20A, t_p = 8/20\mu s$		12	15	V
Dynamic Resistance <sup>1,2</sup>	$R_{DYN}$	TLP=0.2/100ns		0.15		$\Omega$
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 4A, t_p = 0.2/100ns$ (TLP)		8		V
ESD Clamping Voltage <sup>1</sup>	$V_C$	$I_{PP} = 16A, t_p = 0.2/100ns$ (TLP)		10		V
Junction Capacitance	$C_j$	$V_R = 0V, f = 1MHz$		40	50	pF

Notes : 1 - TLP Setting :  $t_p = 100ns, t_r = 0.2ns, I_{TLP}$  and  $V_{TLP}$  sample window:  $t_1 = 70ns$  to  $t_2 = 90ns$ .

2 - Dynamic resistance calculated from  $I_{PP} = 4A$  to  $I_{PP} = 16A$  using 'Best Fit'.



### Typical Characteristics

Figure 1: Peak Pulse Power Vs Pulse Time

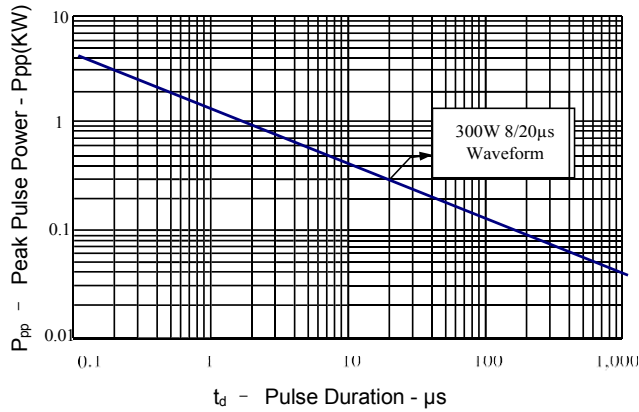


Figure 2: Power Derating Curve

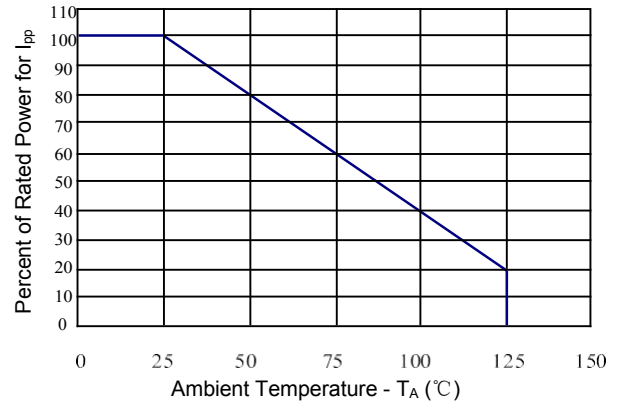


Figure 3: Clamping Voltage vs. Peak Pulse Current

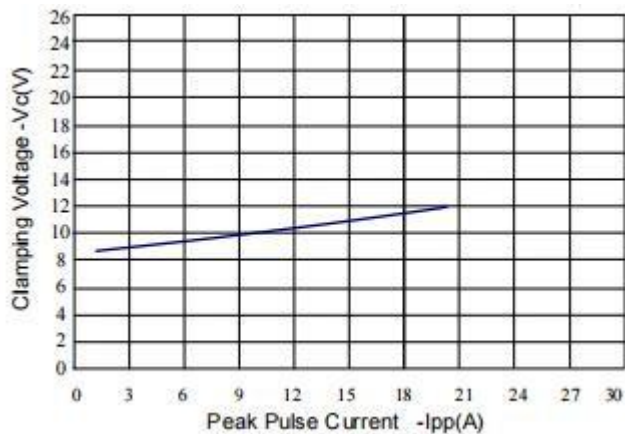


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

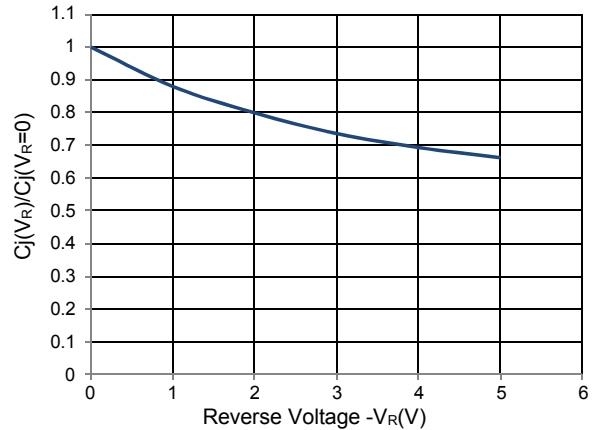


Figure 5: TLP Positive I-V Curve

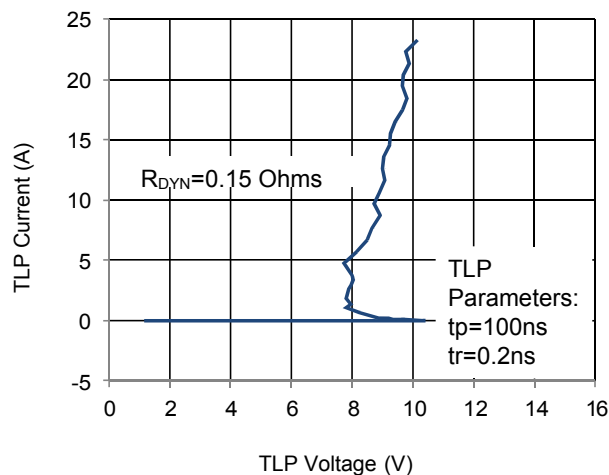
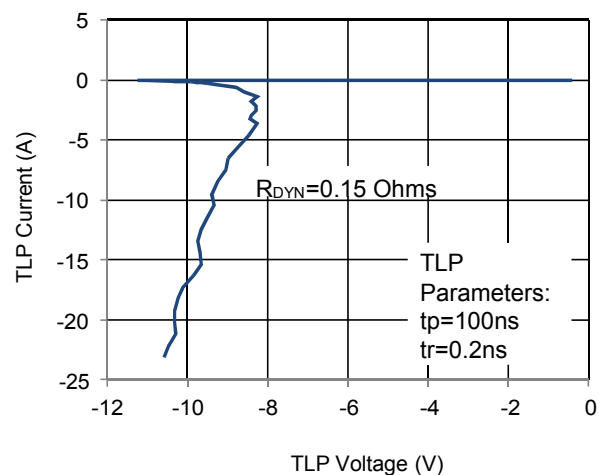


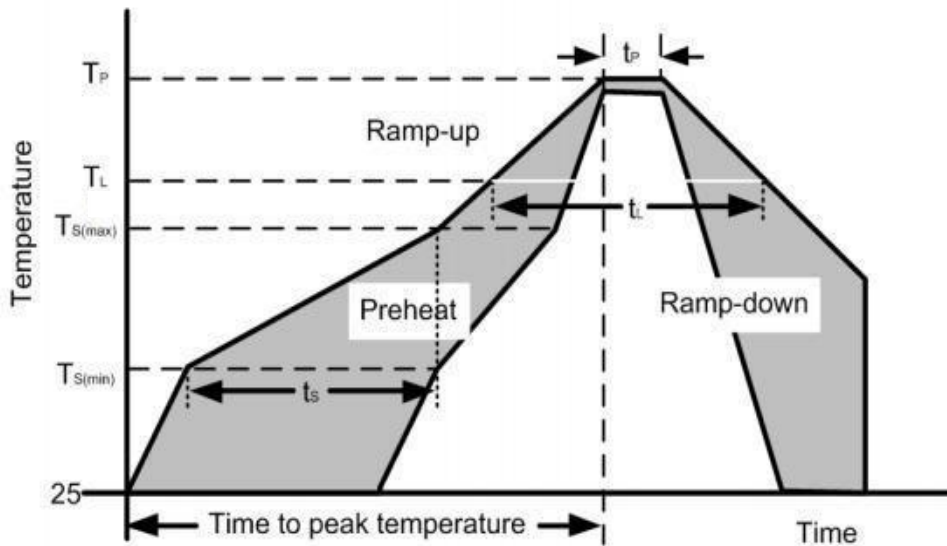
Figure 6: TLP Negative I-V Curve





## Soldering Parameters

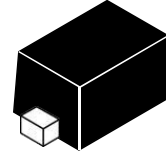
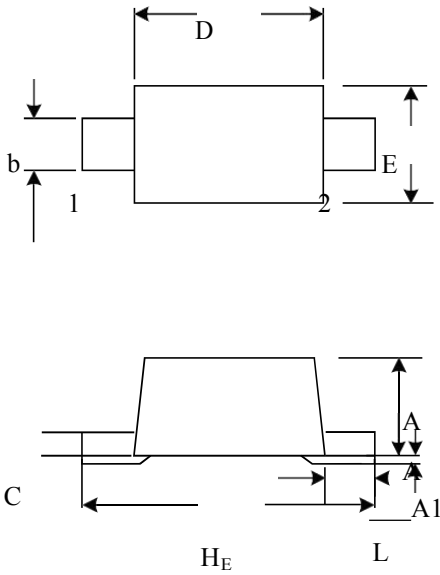
Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ( $T_{s(min)}$ )	150°C
	Temperature Max ( $T_{s(max)}$ )	200°C
	Time (min to max) ( $t_s$ )	60 – 190 secs
Average ramp up rate (Liquidus Temp) ( $T_L$ ) to peak		5°C/second max
$T_{s(max)}$ to $T_L$ — Ramp-up Rate		5°C/second max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Temperature ( $t_L$ )	60 – 150 seconds
Peak Temperature ( $T_P$ )		260±0/-5 °C
Time within actual peak Temperature ( $t_p$ )		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes Max.
Do not exceed		280°C





### Outline Drawing – SOD-523

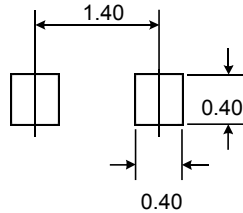
#### PACKAGE OUTLINE



SOD-523

#### DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.50	0.70	0.020	0.028
A1	0.00	0.07	0.000	0.003
b	0.25	0.35	0.010	0.014
C	0.07	0.20	0.003	0.008
D	1.10	1.30	0.043	0.051
E	0.70	0.90	0.028	0.035
$H_E$	1.50	1.70	0.059	0.067
L	0.15	0.25	0.006	0.010



DIMENSIONS: MILLIMETERS

**Notes:**  
Controlling Dimension: Millimeter.

### Marking Codes

