

## S23T12C – ESD Protection Diode

### Feature

- 350 Watts Peak Pulse Power per Line (tp=8/20µs)
- Solid-state silicon-avalanche technology
- Bidirectional configurations
- Low leakage current
- Low clamping voltage
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 12A (8/20µs)



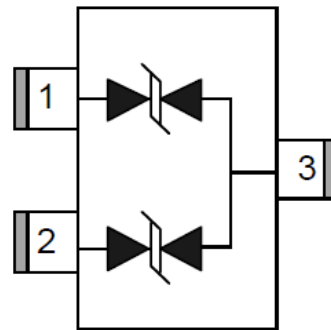
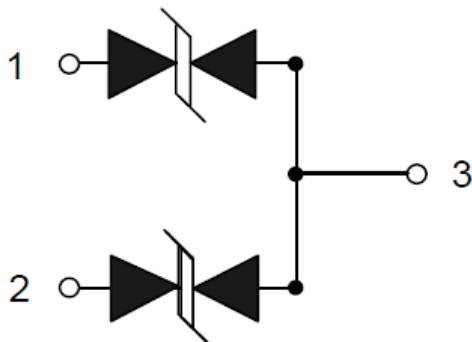
### Applications

- Data lines
- Automatic Teller Machines
- Net works
- Power line

### Mechanical Data

- SOT-23 package
- Molding compound flammability rating: UL94V-0
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant

### Schematic and PIN Configuration



SOT-23 (Top View)

### Maximum Rating

Parameter	Symbol	Limit	Unit
IEC61000-4-2 ESD Voltage – Air Mode	V <sub>ESD</sub> <sup>(1)</sup>	±30	kV
IEC61000-4-2 ESD Voltage – Contact Mode		±30	
Peak Pulse Power	P <sub>pp</sub> <sup>(2)</sup>	350	W
Maximum Lead Solder Temperature (10 seconds duration)	T <sub>L</sub>	260	°C
Junction Temperature	T <sub>J</sub>	-55~125	°C
Storage Temperature Range	T <sub>stg</sub>	-55~125	°C

## S23T12C – ESD Protection Diode

### Electrical Characteristics (T=25°C)

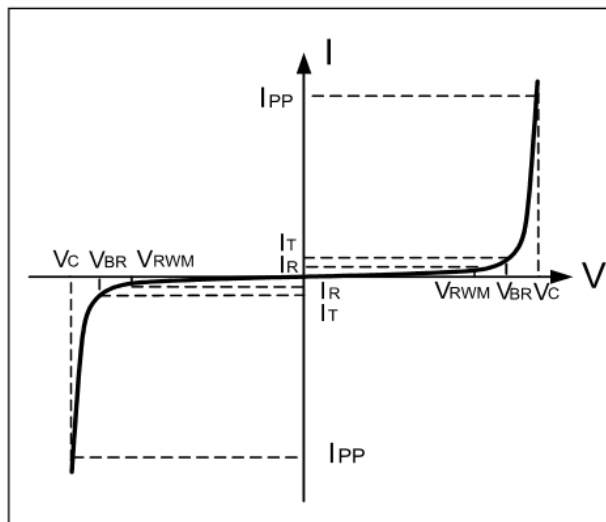
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				12	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T = 1mA$	13.3	15.0	17.0	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12V$		0.1	0.5	$\mu A$
Peak Pulse Current	$I_{PP}$				12	A
Clamping Voltage	$V_C$	$I_{PP} = 12A$			30	V
Junction Capacitance	$C_J$	$V_R = 0V, f = 1MHz$		45	50	pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 $\mu s$  exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of  $T_A = 25^\circ C$  unless otherwise noted

### Electrical Parameters

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



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### Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

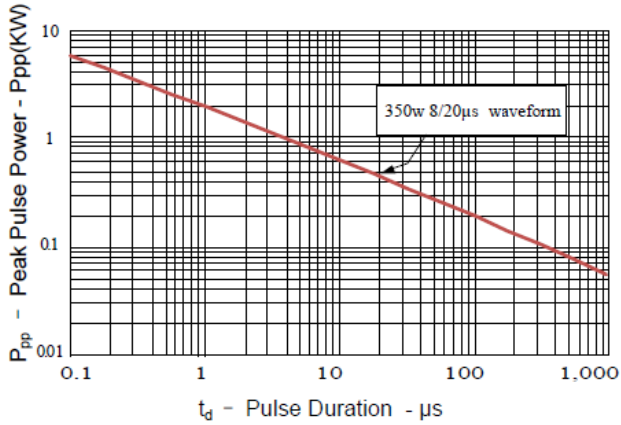


Figure 2: Power Derating Curve

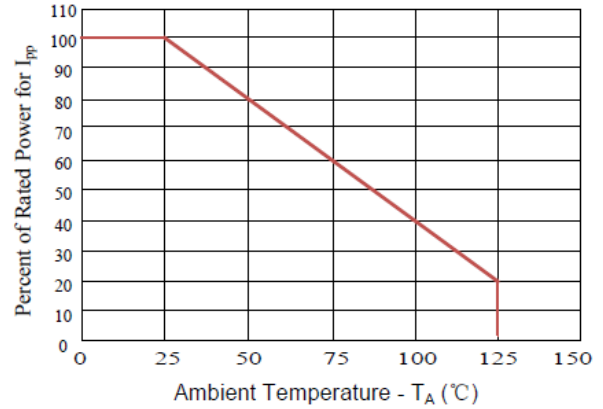


Figure 3: Pulse Waveform

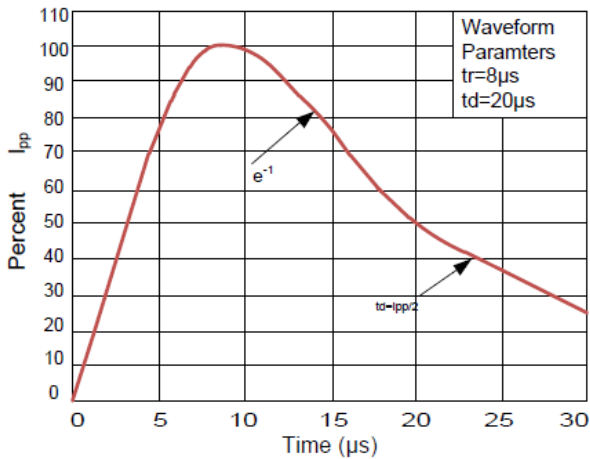
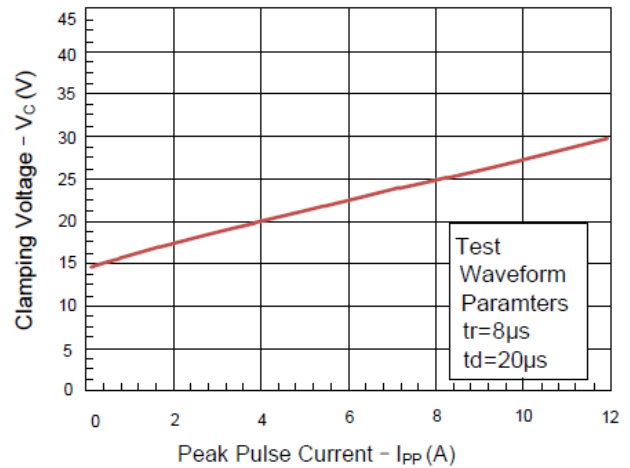
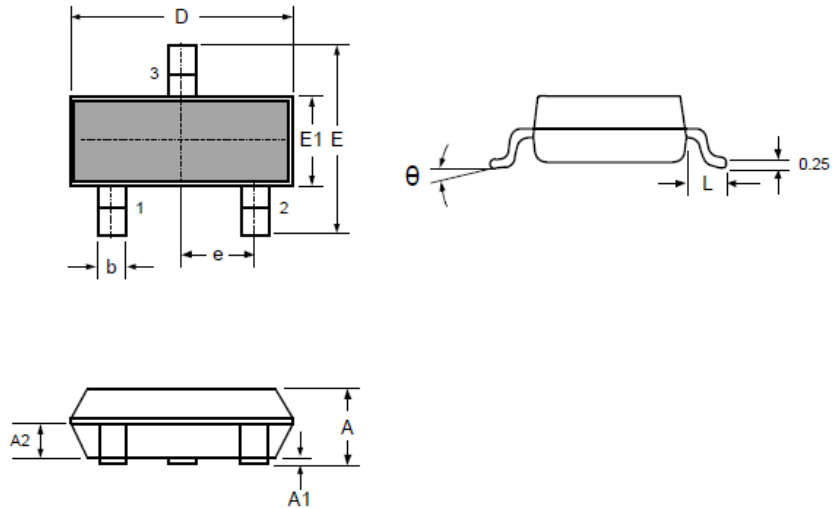


Figure 4: Clamping Voltage vs. Ipp



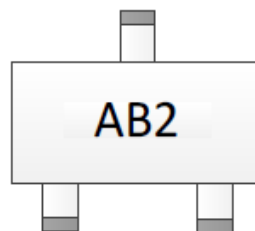
## S23T12C – ESD Protection Diode

### SOT-23 Package Outline Dimensions



Symbol	Dimensions (mm)		Dimensions (inch)	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1		0.100		0.004
A2	0.900	1.050	0.035	0.041
D	2.800	3.000	0.110	0.118
b	0.300	0.500	0.012	0.020
E	2.250	2.550	0.089	0.100
E1	1.200	1.400	0.047	0.055
e	0.950 BSC		0.037 BSC	
L	0.300	0.500	0.012	0.020
$\theta$	0°	8°	0°	8°

### Marking



### Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
S23T12C	SOT-23	7 inch	3,000