

SM15C ESD Protection Diode

Feature

- Bi-directional ESD protection of two lines
- 270 Watts peak pulse power ($t_p = 8/20\mu s$)
- Working voltage: 15V
- Junction capacitance: 40pF(Typ)
- Low clamping voltage
- Low leakage current
- IEC 61000-4-2 $\pm 30kV$ contact $\pm 30kV$ air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 9A (8/20 μs)

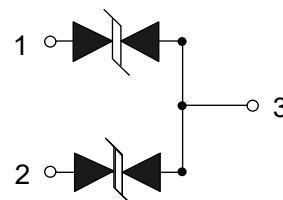
Application

- Dataline
- Automatic Teller Machines
- Net works
- Power line

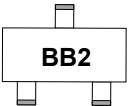
Mechanical Data

- Package: SOT-23
- Molding compound flammability rating: UL 94V-0
- RoHS/WEEE Compliant

Schematic & PIN Configuration



Ordering Information

Part Number	Package	Marking	Packing	Reel Size
SM15C	SOT-23		3000 Tape & Reel	7 inches



Absolute Maximum Rating ($T_A = 25^\circ\text{C}$ unless otherwise noted)

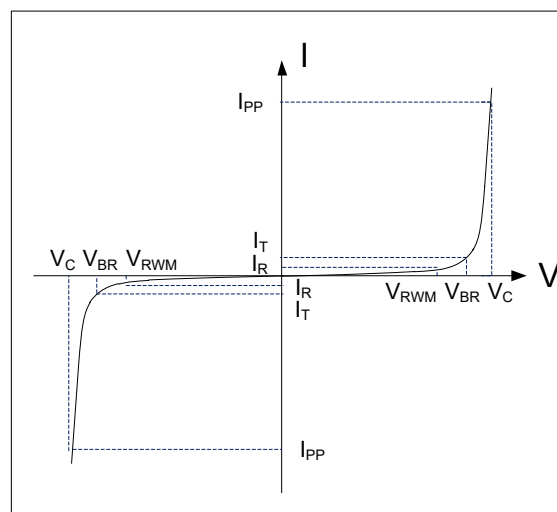
Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	270	Watts
Peak Pulse Current ($t_p = 8/20\mu\text{s}$) (note1)	I_{pp}	9	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	30 30	kV
Lead Soldering Temperature	T_L	260(10seconds)	$^\circ\text{C}$
Junction Temperature	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to + 125	$^\circ\text{C}$

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typical	Max	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	16.7	18.5		V
Reverse Leakage Current	I_R	$V_{RWM} = 15\text{V}, T = 25^\circ\text{C}$		0.1	0.5	μA
Peak Pulse Current	I_{PP}	$t_p = 8/20\mu\text{s}$			9	A
Clamping Voltage	V_C	$I_{PP} = 9\text{A}, t_p = 8/20\mu\text{s}$		30		V
Junction Capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		40		pF

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



Note: 8/20 μs pulse waveform.



Typical Characteristic ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Figure 1: Peak Pulse Power vs. Pulse Time

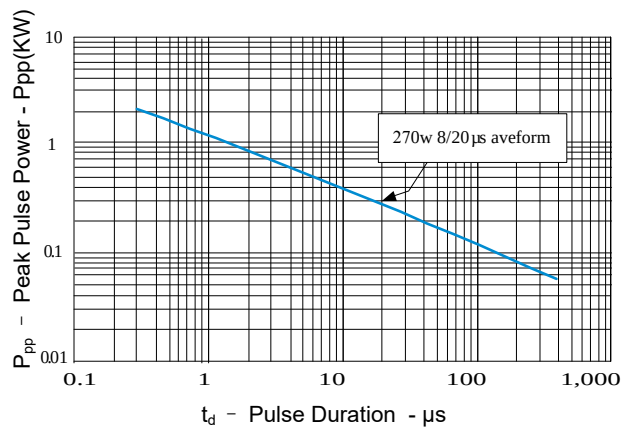


Figure 2: Power Derating Curve

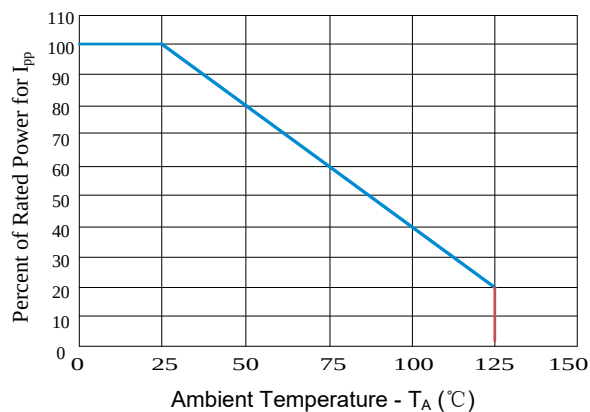


Figure3: Pulse Waveform

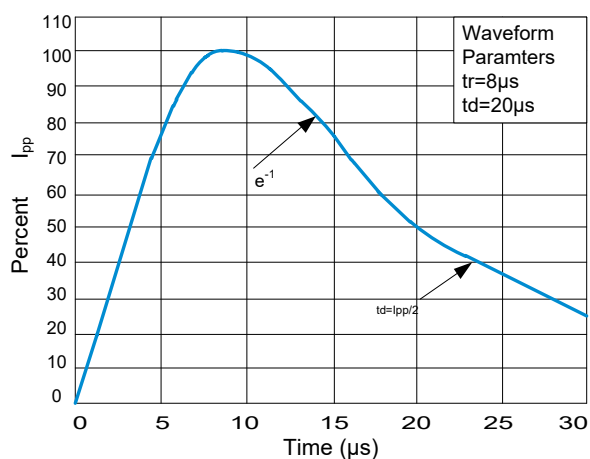
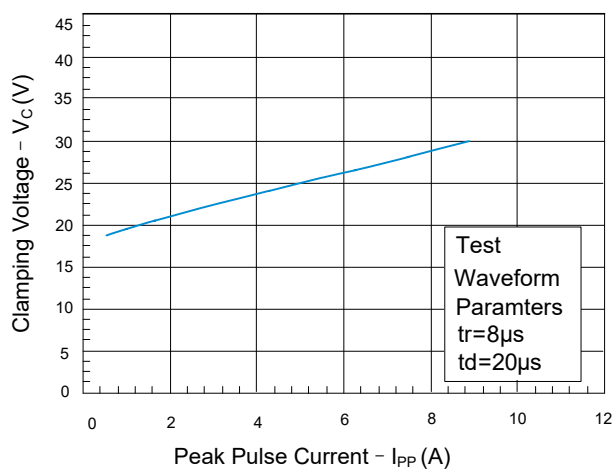
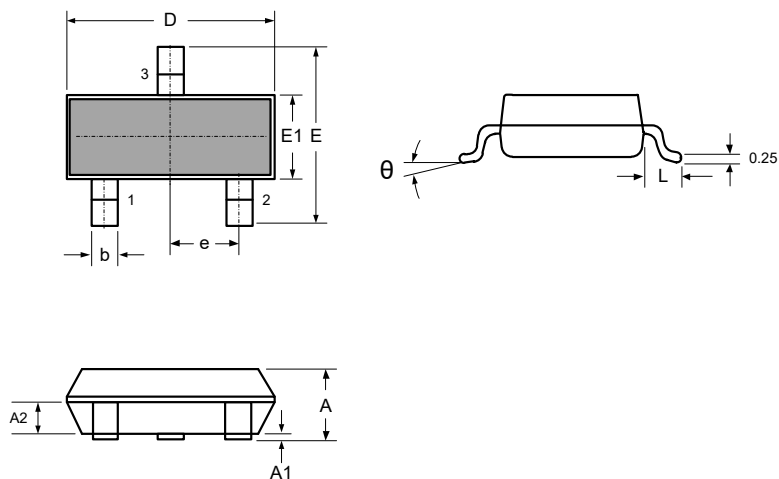


Figure 4: Clamping Voltage vs. Ipp



Outline Drawing –SOT-23



Symbol	Dimensions			
	Millimeter		Inches	
	MIN	MAX	MIN	MAX
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	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
θ	0	8°	0	8°