

S23T05C – ESD Protection Diode

Feature

- 400 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) 22A (8/20μs)



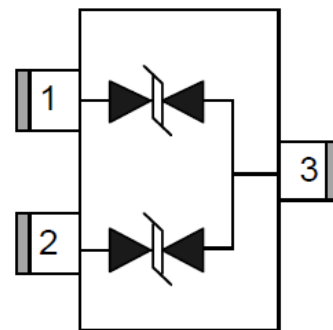
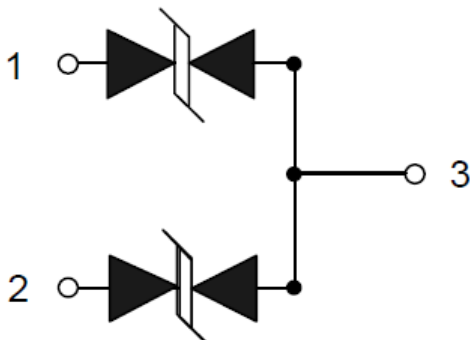
Applications

- 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 _{ESD} ⁽¹⁾	±30	kV
IEC61000-4-2 ESD Voltage – Contact Mode		±30	
Peak Pulse Power	P _{PP} ⁽²⁾	400	W
Maximum Lead Solder Temperature (10 seconds duration)	T _L	260	°C
Junction Temperature	T _J	-55~125	°C
Storage Temperature Range	T _{stg}	-55~125	°C

S23T05C – ESD Protection Diode

Electrical Characteristics (T=25°C)

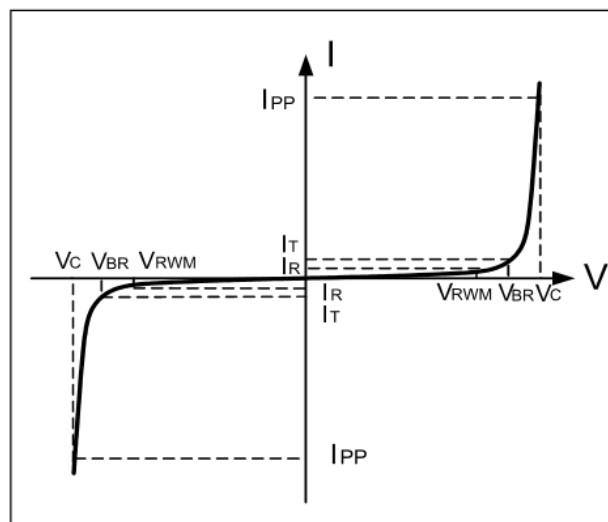
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1mA$	6.0	7.0	8.5	V
Reverse Leakage Current	I_R	$V_{RWM} = 5V$		0.1	0.5	μA
Peak Pulse Current	I_{PP}				22	A
Clamping Voltage	V_C	$I_{PP} = 22A$			20	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$ (pin 1 to pin 3)		65	75	pF

Note:

1. Other voltages available upon request.
2. Non-repetitive current pulse 8/20 μs 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



S23T05C – ESD Protection Diode

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

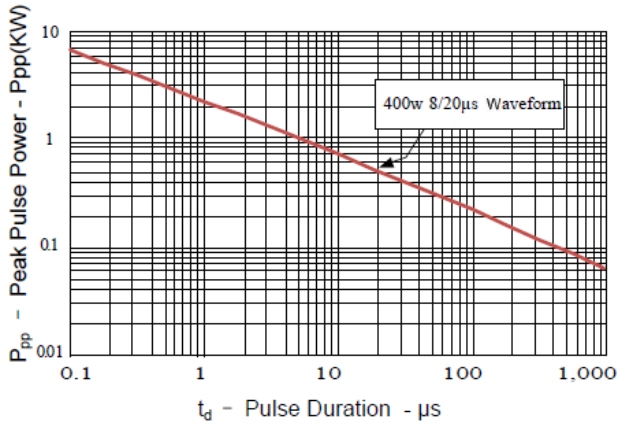


Figure 2: Power Derating Curve

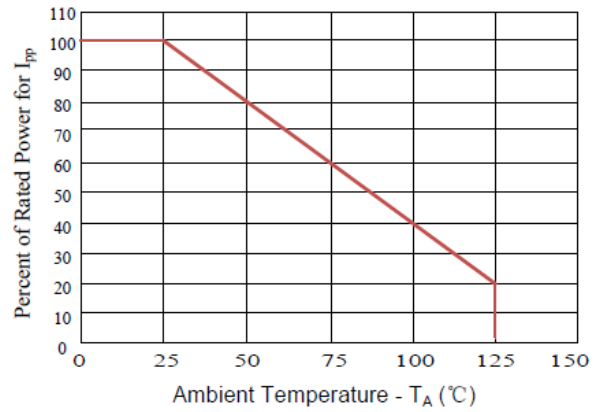


Figure3: Pulse Waveform

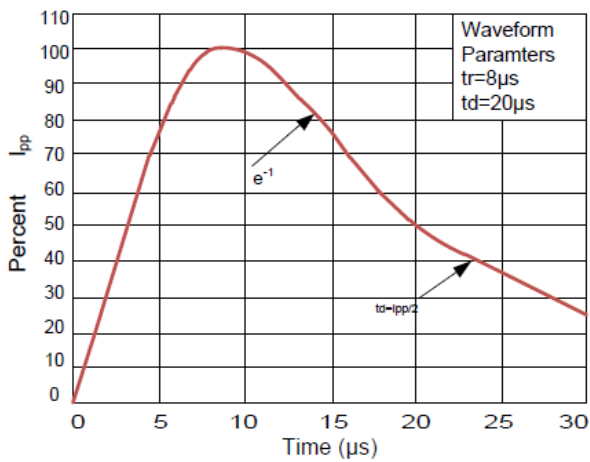
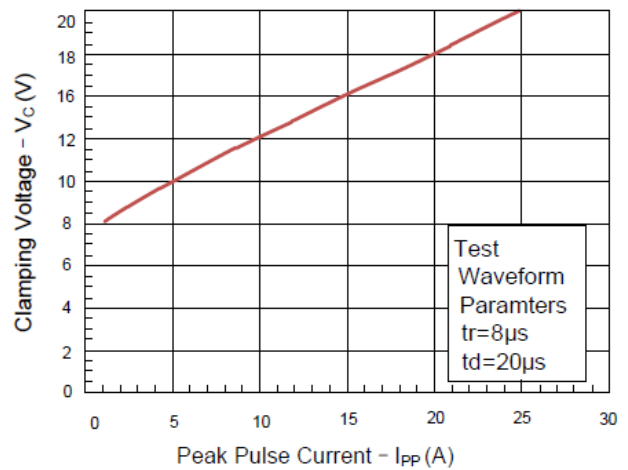
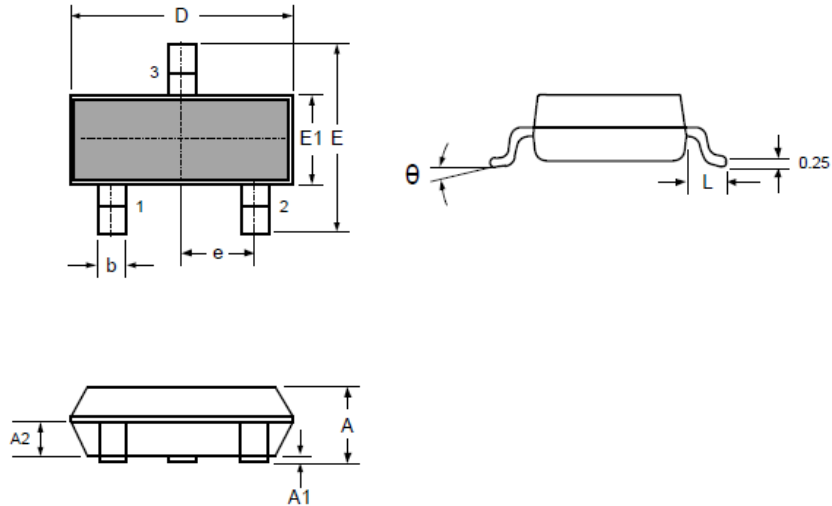


Figure 4: Clamping Voltage vs. Ipp



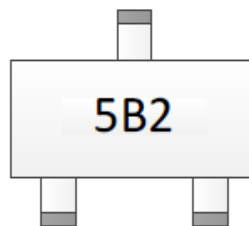
S23T05C – ESD Protection Diode

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
θ	0°	8°	0°	8°

Marking



Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
S23T05C	SOT-23	7 inch	3,000