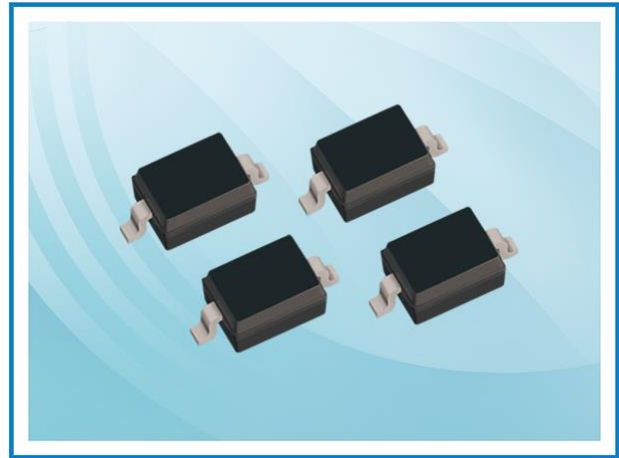


APT05D5BC – ESD Protection Diode

Feature

- 75 Watts peak pulse power (8/20 μ s)
- Bidirectional configurations
- Solid state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- IEC61000-4-2 (ESD) \pm 25 kV (Air), \pm 25 kV (Contact)
- IEC61000-4-4 (EFT) 40 A (5/50 ns)
- IEC61000-4-5 (Lightning): 5A (8/20 μ s)
- AEC-Q101 qualified



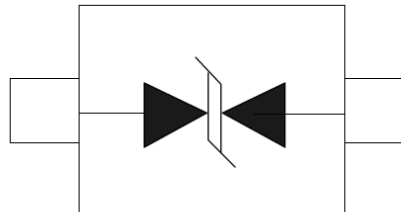
Applications

- Microprocessor based equipment
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Personal Digital Assistant (PDA)
- Pagers Peripherals

Mechanical Data

- SOD523 package
- Molding compound flammability rating: UL94 V-0
- Tape and Reel Packaging
- RoHS/WEEE Compliant

Schematic and PIN Configuration



SOD-523

Maximum Rating

Parameter	Symbol	Limit	Unit
IEC61000-4-2 ESD Voltage – Air Mode	$V_{ESD}^{(1)}$	\pm 25	kV
IEC61000-4-2 ESD Voltage – Contact Mode		\pm 25	
Peak Pulse Power	$P_{PP}^{(2)}$	75	W
Peak Pulse Current	$I_{PP}^{(2)}$	5	A
Maximum Lead Solder Temperature (10 seconds duration)	T_L	260	$^{\circ}$ C
Junction Temperature	T_J	-55~150	$^{\circ}$ C
Storage Temperature Range	T_{stg}	-55~150	$^{\circ}$ C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20 μ 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.

APT05D5BC – ESD Protection Diode

Electrical Characteristics

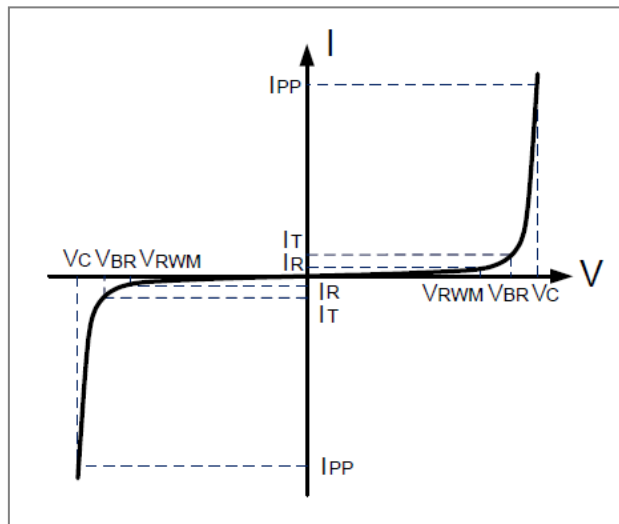
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1 \text{ mA}$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 5 \text{ V}$			0.2	μA
Clamping Voltage	$V_C^{(2)}$	$I_{PP} = 5 \text{ A}$		12	15	V
Junction Capacitance	C_J	$V_R = 0 \text{ V}, f = 1 \text{ MHz}$		5.0	8.0	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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

Electrical Parameters

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



APT05D5BC – ESD Protection Diode

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

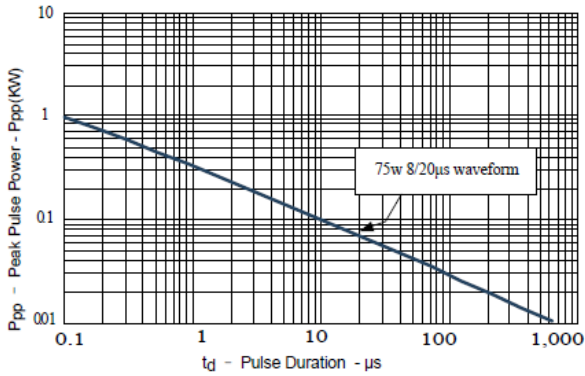


Figure 2: Power Derating Curve

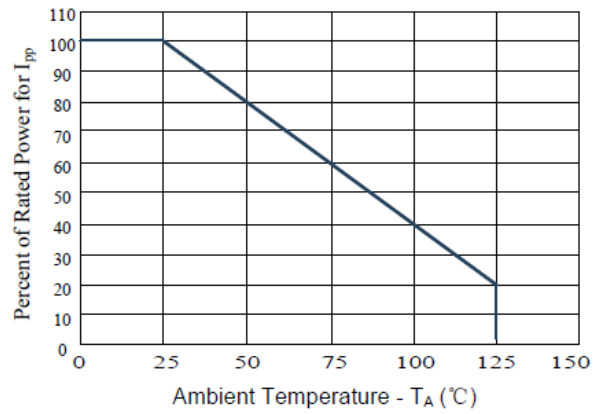


Figure3: Pulse Waveform

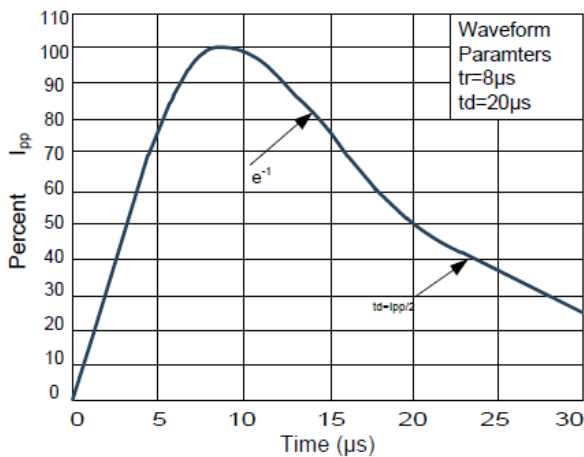
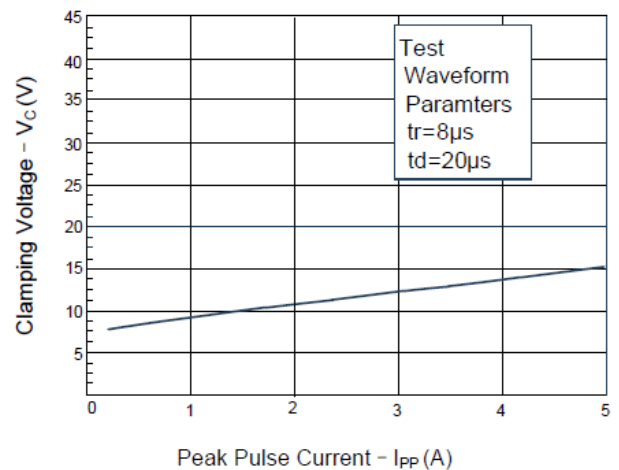
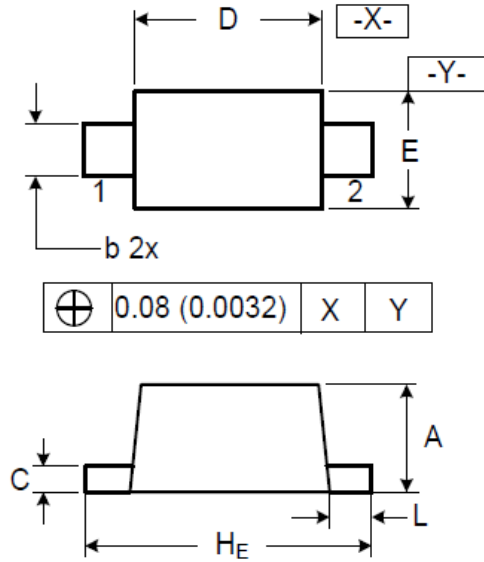


Figure 4: Clamping Voltage vs.Ipp



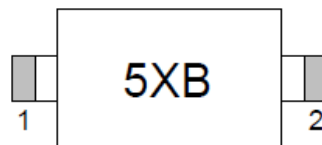
APT05D5BC – ESD Protection Diode

SOD523 Package Outline Dimensions



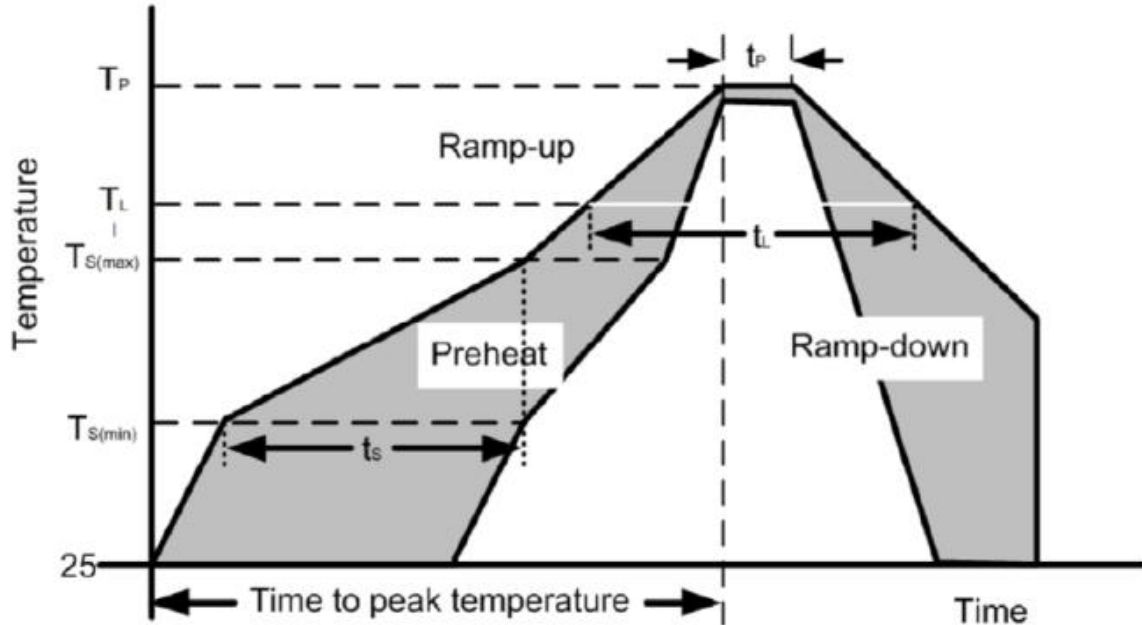
Symbol	Dimensions (mm)	
	Min	Max
A	0.500	0.700
b	0.250	0.350
C	0.070	0.200
D	1.100	1.300
E	0.700	0.900
H _E	1.500	1.700
L	0.150	0.250

Marking



APT05D5BC – ESD Protection Diode

Soldering Parameters

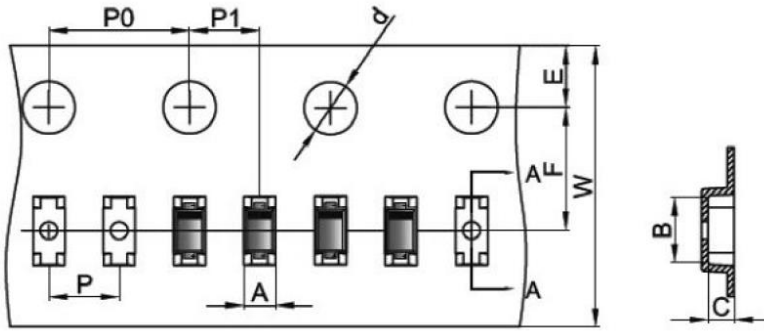


Reflow Condition	Pb-Free assembly
Pre Heat Temperature Min (Ts (min)) 150°C	Temperature Min (Ts (min)) 150°C
Pre Heat Temperature Min (Ts (max)) 200°C	Temperature Min (Ts (max)) 200°C
Pre Heat Time (min to max) (ts) 60-190 secs	Time (min to max) (ts) 60-190 secs
Average ramp up rate (Liquidus Temp) (TL) to peak	5°C/seconds max
Ts(max)to TL—Ramp-up Rate	5°C/seconds max
Reflow Temperature (TL) (Liquidus)	217°C
Reflow Temperature (tl)	60-150 seconds
Peak Temperature (Tp)	260+0/-5°C
Time within actual peak Temperature (tp)	20-40 seconds
Ramp-down Rate	5°C/seconds max
Time 25°C to peak Temperature (Tp)	8 minutes Max.
Do not exceed	280°C

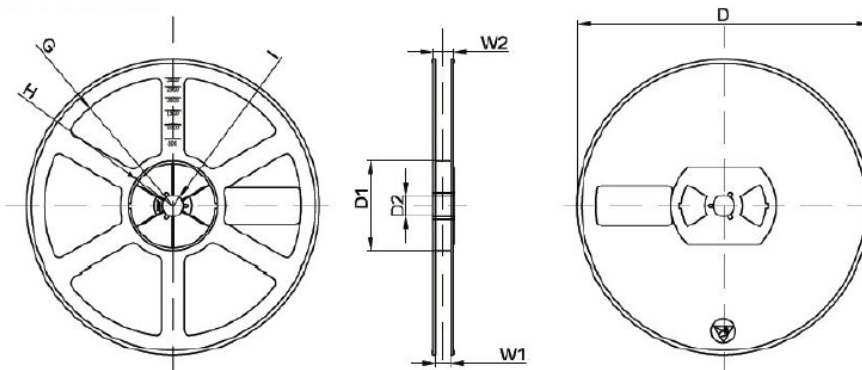
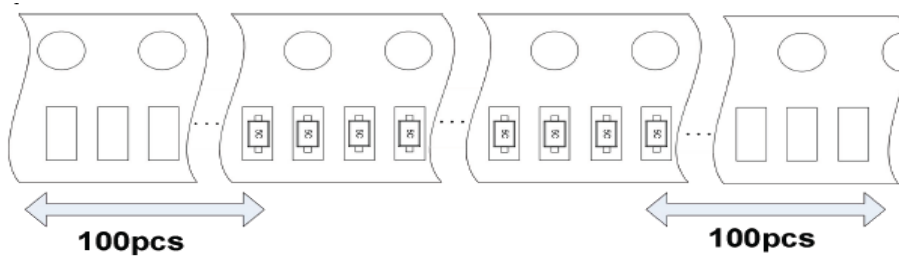
APT05D5BC – ESD Protection Diode

Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
PT05D5BC	SOD523	7 inch	5,000



Symbol	Dimension (mm)
A	0.90±0.05
B	1.94±0.05
C	0.73±0.035
D	∅1.50±0.10
E	1.75±0.10
F	3.50±0.10
P0	4.00±0.10
P	2.00±0.10
P1	2.00±0.10
W	8.00+0.3/-0.1



Symbol	Dimension (mm)
D	∅178±2
D1	54.4±1
D2	13.0±1
G	R78±1
H	R25.6±1
I	R6.5±1
W1	9.5±1
W2	12.3±1