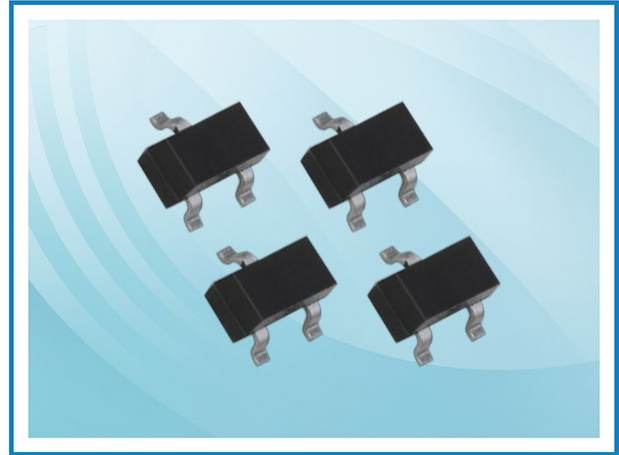


AS23T24C – ESD Protection Diode

Feature

- 360 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) 9A (8/20μs)
- AEC-Q101 qualified



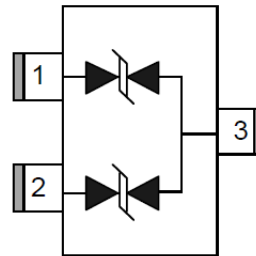
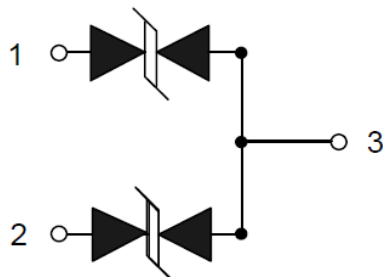
Applications

- Data lines
- Automatic Teller Machines
- Net works
- Power line
- CAN/LIN bus protection

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⁾	360	W
Peak Pulse Current	I _{PP}	9	A
Maximum Lead Solder Temperature (10 seconds duration)	T _L	260	°C
Junction Temperature	T _J	-55~150	°C
Storage Temperature Range	T _{stg}	-55~150	°C

Note:

1. Device stressed with ten non-repetitive ESD pulses.
2. Non-repetitive current pulse 8/20μs exponential decay waveform according to IEC61000-4-5.
3. All ratings are measured at environmental temperature of TA = 25 °C unless otherwise noted.

AS23T24C – ESD Protection Diode

Electrical Characteristics (T=25°C)

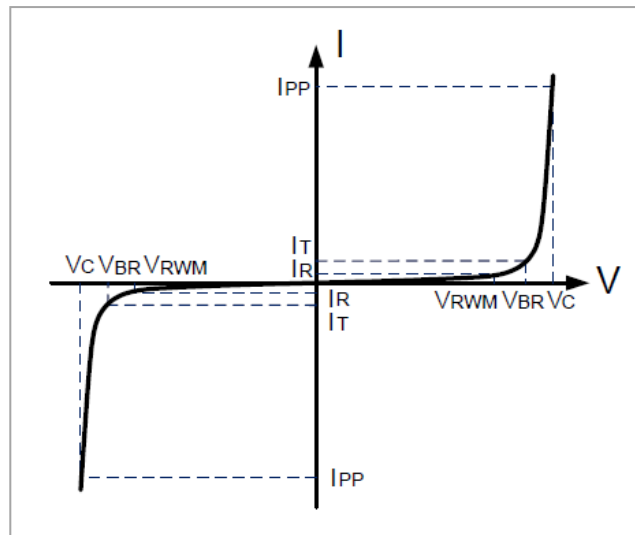
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Reverse Stand-off Voltage	$V_{RWM}^{(1)}$				24	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1mA$	26.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 24V$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 9A$		40	48	V
Junction Capacitance	C_J	$V_R = 0V, f = 1MHz$		18	25	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



AS23T24C – ESD Protection Diode

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

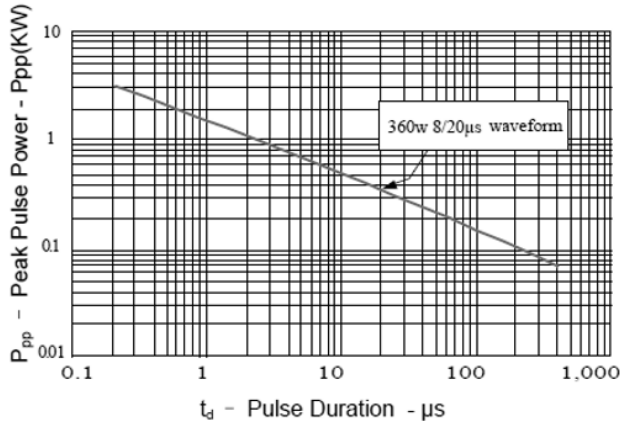


Figure 2: Power Derating Curve

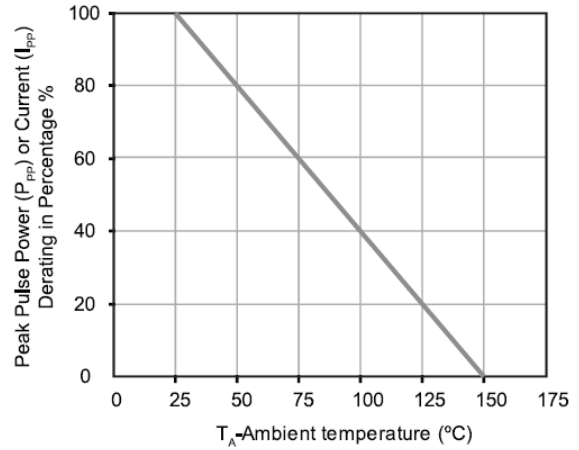


Figure 3: Pulse Waveform

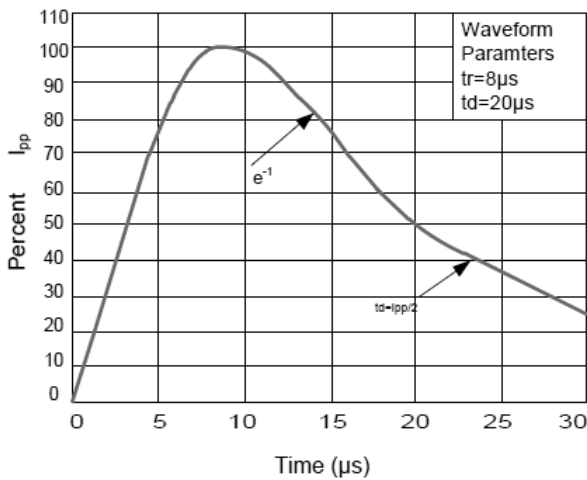
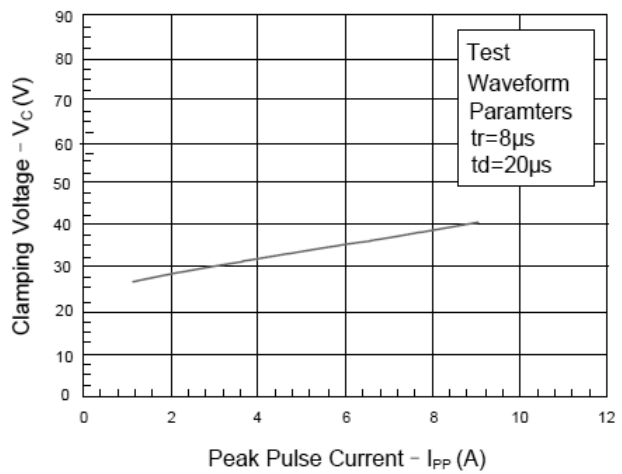
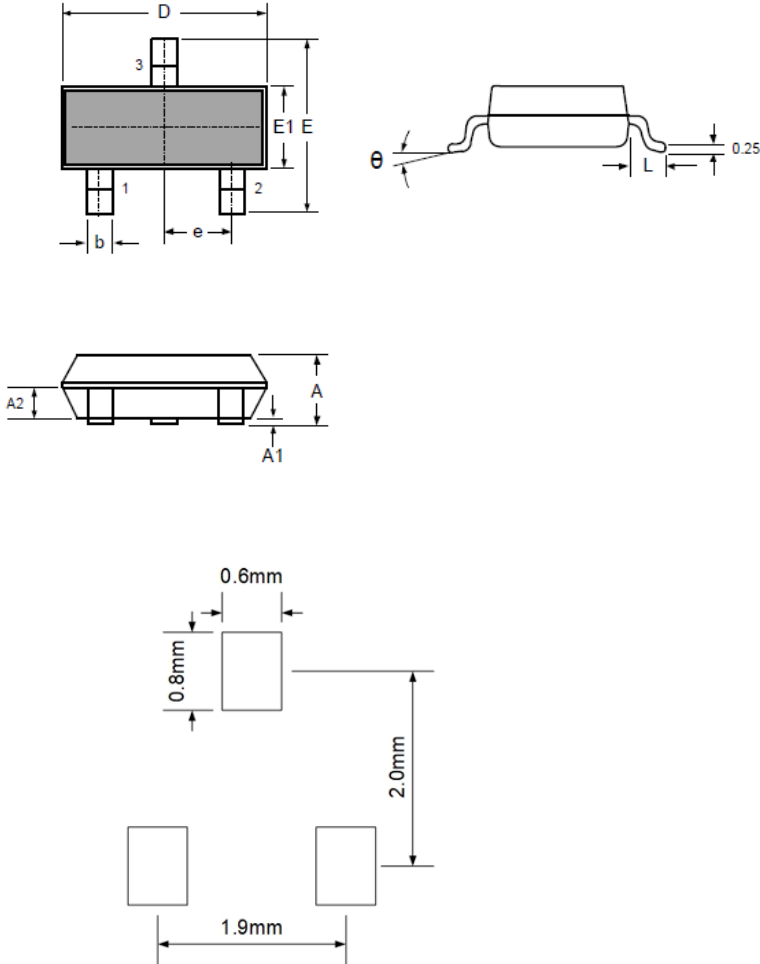


Figure 4: Clamping Voltage vs. I_pp



AS23T24C – ESD Protection Diode

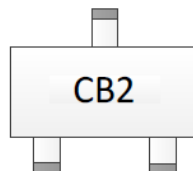
SOT-23 Package Outline Dimensions



Symbol	Dimensions (mm)	
	Min	Max
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
D	2.80	3.00
E	2.25	2.55
E1	1.20	1.40
e	0.95 BSC	
L	0.30	0.50
θ	0°	8°

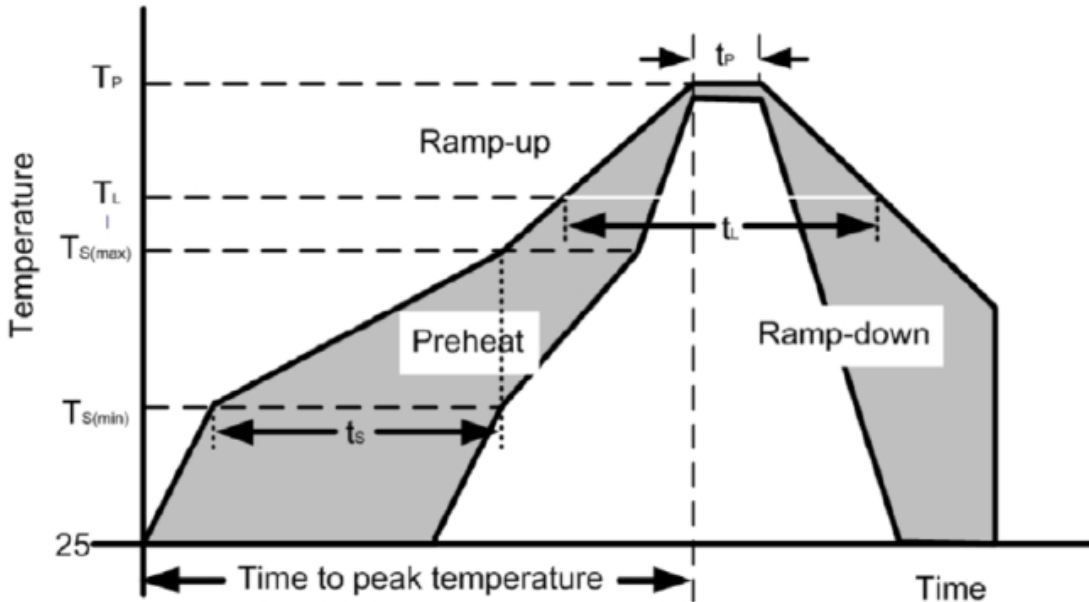
Recommended Pad Layout (mm):

Marking



AS23T24C – ESD Protection Diode

Soldering Parameters

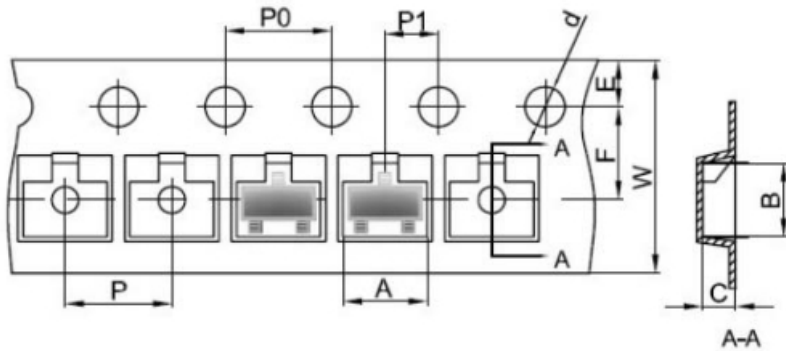


Reflow Condition	Pb-Free assembly
Pre Heat Temperature Min (Ts (min)) 150°C	Temperature Min (Ts (min)) 150°C
Pre Heat Temperature Min (Ts (max)) 200°C	Temperature Min (Ts (max)) 200°C
Pre Heat Time (min to max) (ts) 60-190 secs	Time (min to max) (ts) 60-190 secs
Average ramp up rate (Liquidus Temp) (TL) 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

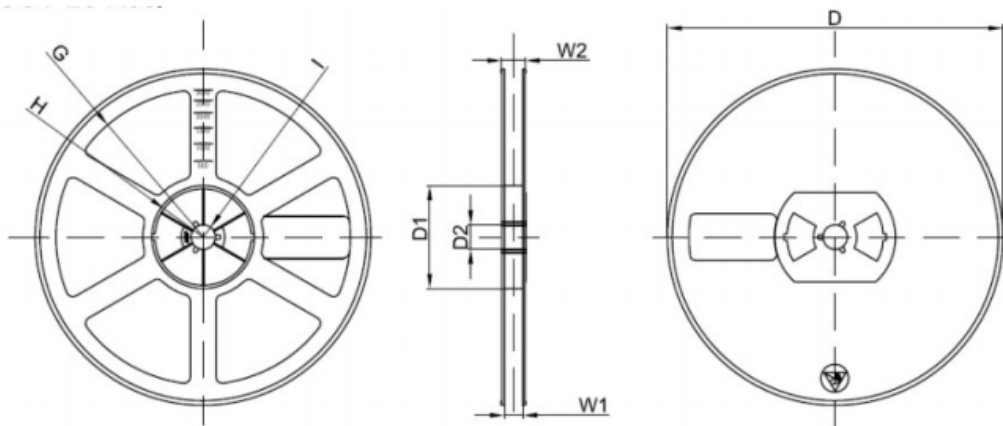
AS23T24C – ESD Protection Diode

Packaging Information

Order Code	Packaging	Reel Size	PCS/Reel
AS23T24C	SOT-23	7 inch	3,000



Symbol	Dimension (mm)
A	3.15±0.1
B	2.77±0.1
C	1.22±0.1
d	Ø1.50±0.1
E	1.75±0.1
F	3.50±0.1
P0	4.00±0.1
P	4.00±0.10
P1	2.00±0.1
W	8.00+0.3/-0.1



Symbol	Dimension (mm)
D	Ø178±2
D1	54.40±1
D2	13.00±1
G	R78.00±1
H	R25.60±1
I	R6.50±1
W1	9.50±1
W2	12.30±1