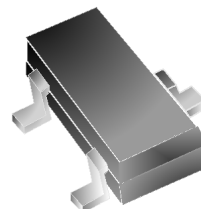


Features

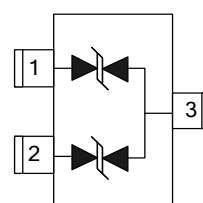
- Response Time is Typically < 1 ns
- Protects one bidirectional line or two unidirectional lines
- Working Voltages: 24V
- Low clamping voltages
- AEC-Q101 Qualified



SOT-23

IEC Compatibility (EN61000-4)

- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 8A (8/20 μs)



SOT-23 (Top View)

Mechanical Characteristics

- JEDEC SOT-23 package
- Molding compound flammability rating:UL 94V-0
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Applications

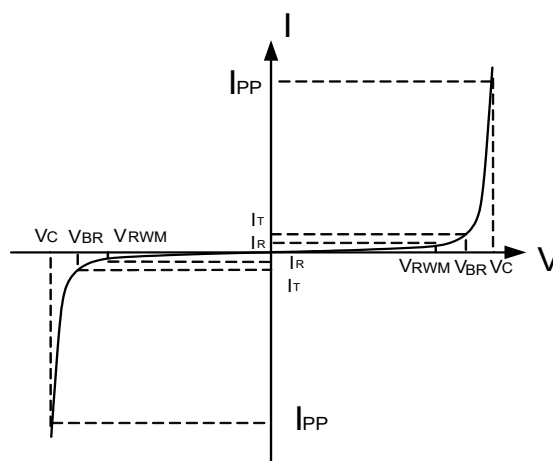
- Automotive Networks
- Control & Monitoring Systems
- Portable Electronics
- Set-Top Box
- Servers, Notebook, and Desktop PC
- Wireless Bus Protection

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PP}	450	Watts
Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	8	A
Operating Temperature	T_J	-55 to + 125	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25°C)

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



Electrical Characteristics

Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	26.7			V
Reverse Leakage Current	I_R	$V_{RWM}=24V, T=25^\circ C$			200	nA
Clamping Voltage	V_C	$I_{PP}=8A, t_p=8/20\mu s$		50	54	V
Dynamic Resistance ^{1,2}	R_{DYN}	$TLP=0.2/100ns$		0.4		Ω
ESD Clamping Voltage ¹	V_C	$I_{PP} = 4A, t_p = 0.2/100ns (TLP)$		38.0		V
ESD Clamping Voltage ¹	V_C	$I_{PP} = 16A, t_p = 0.2/100ns (TLP)$		43.0		V
Junction Capacitance	C_j	Pin 1 to 3 or Pin 2 to 3 $V_R = 0V, f = 1MHz$		25	35	pF

Notes : 1.TLP Setting : $t_p=100ns, t_r=0.2ns, I_{TLP}$ and V_{TLP} sample window: $t_1=70ns$ to $t_2=90ns$.

2.Dynamic resistance calculated from $I_{PP}=4A$ to $I_{PP}=16A$ using "Best Fit"

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

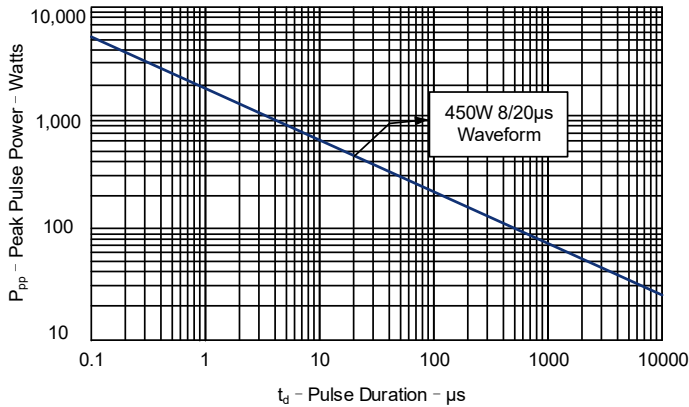


Figure 2: Power Derating Curve

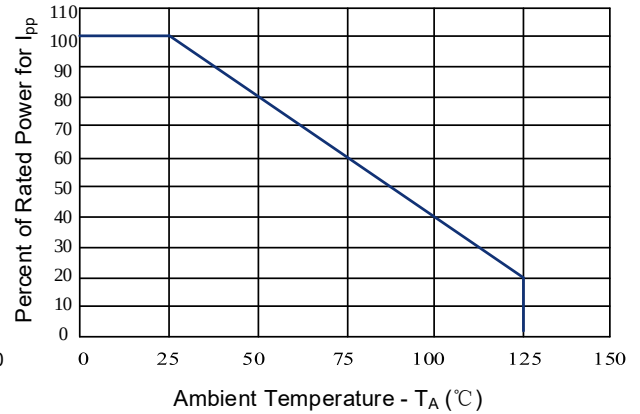


Figure 3: Clamping Voltage vs. Peak Pulse Current

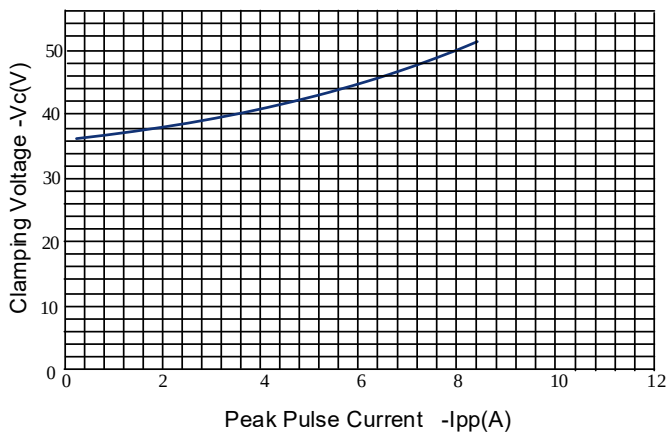


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

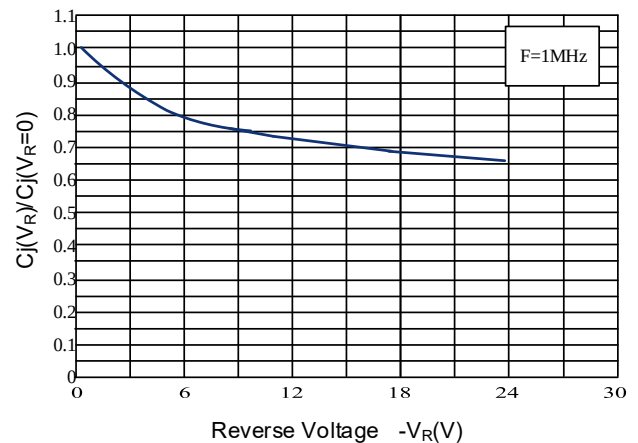


Figure 5: 8/20μs Pulse Waveform

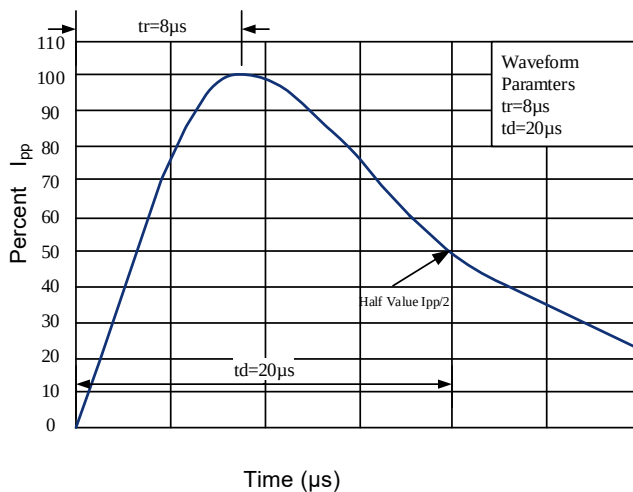
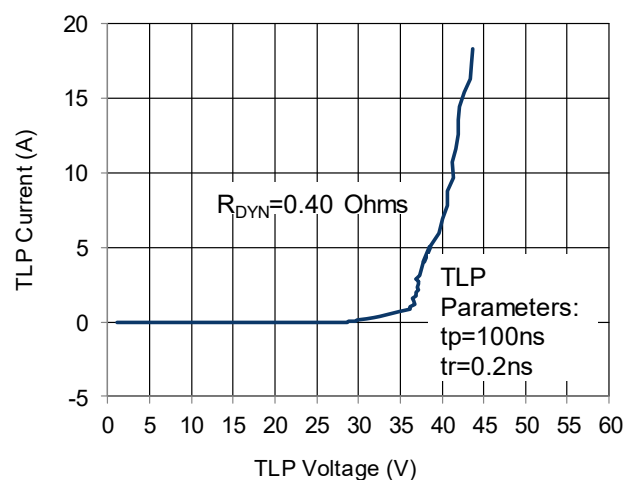
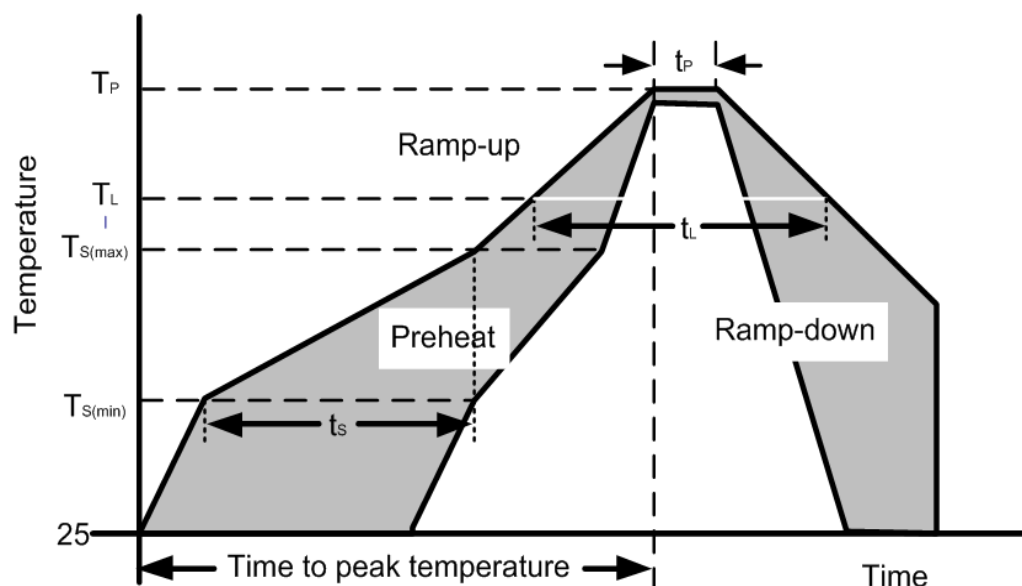


Figure 6: TLP I-V Curve



Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{s(max)}$ to T_L ——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Outline Drawing – SOT-23

PACKAGE OUTLINE

Top view labels: D, E, E1, 1, 2, 3, e, e1, b.

Side view labels: A, A2.

Lead view labels: 0.25, θ , L, c.

SOT-23

DIMENSIONS

SYMBOL	MILLIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.60	0.70	0.0236	0.0275
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	2.25	2.55	0.089	0.100
E1	1.20	1.40	0.047	0.055
e	0.95 BSC		0.0374 BSC	
e1	1.80	2.00	0.071	0.079
L	0.30	0.50	0.012	0.020
θ	0	8	0	8°

DIMENSIONS

DIM	INCHES	MILLIMETERS
M	0.0795	2.02
C	0.0315	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.9 BSC
b	0.0315	0.80

Notes

- 1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
- 2. Controlling Dimension: Inches
- 3. Pin 3 is the cathode (Unidirectional Only).
- 4. Dimensions are exclusive of mold flash and metal burrs.

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