ESD3Z15CA-Q1-H

List

ESD3Z15CA-Q1-H

360W Bi-Directional TVS For ESD Protection : 15V

Features

- High temperature soldering guaranteed: 260°C/10 seconds at terminals.
- Protection one data/power line to:
  - ISO10605-4-2 ±15kV (Contact), ±25kV (Air).
  - IEC 61000-4-4 (EFT) 40A (5/50ns).
  - IEC 61000-4-5 (Lightning) 12A (8/20μs).
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.

Applications

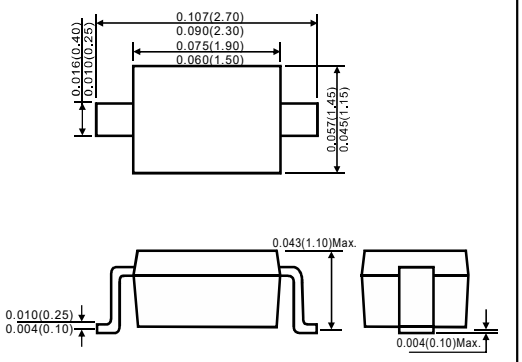
- Cellular handsets and accessories.
- Computers, notebook and peripherals.
- Communication systems.
- Portable electronics.
- Audio and video equipment.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOD-323F.
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026.
- Mounting Position : Any.

Package outline

SOD-323F



Dimensions in inches and (millimeters)

Maximum ratings (At T_A=25°C unless otherwise noted)

Parameter	Symbols	Ratings	Unit
Peak pulse power (8/20μs)	P_{PK}	360	W
Peak Pulse Current (8/20μs)	I_{PP}	12	A
ESD discharge per IOS 10605 (Contact)	V_{ESD}	±15	kV
ESD discharge per IOS 10605 (Air)		±25	
Operating temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-55 to +150	°C

Electrical characteristics (At T_A=25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse working voltage	V_{RWM}				15	V
Breakdown voltage	V_{BR}	I_T = 1mA	16.7	17.5		V
Reverse leakage current	I_R	V_R = 15V			1	μA
Clamping voltage (IEC 61000-4-5)	V_C	I_{PP} = 12A		30		V
Junction capacitance	C_J	V_R = 0V, f =1.0MHz		30		pF

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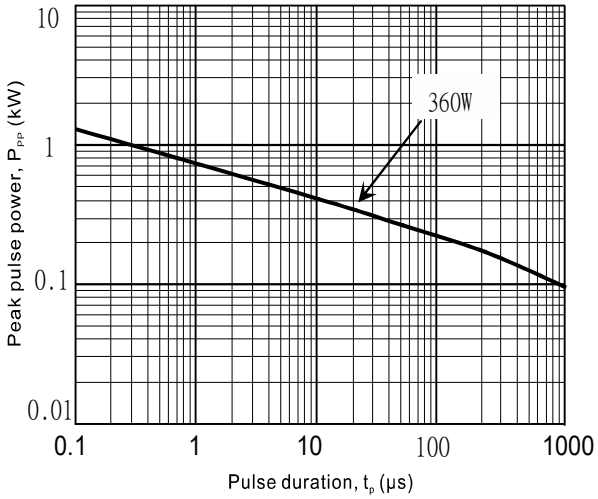
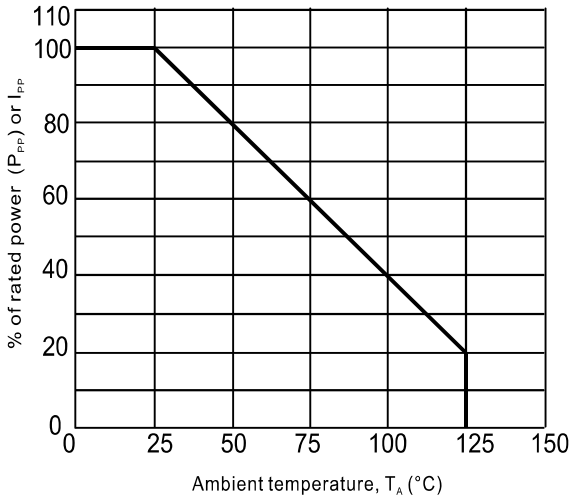
Rating and characteristic curves

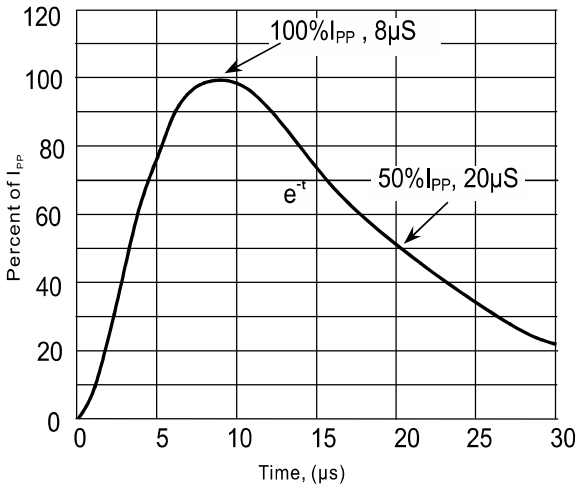
Peak Pulse Power Rating Curve



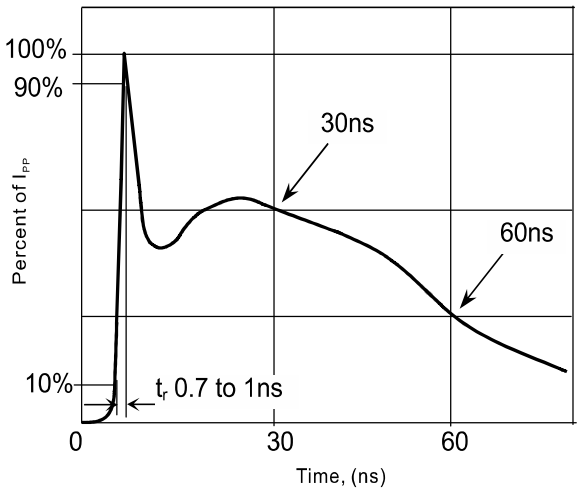
Pulse Derating Curve



Pulse Waveform-8/20μs



Pulse Waveform-ESD(IEC61000-4-2)



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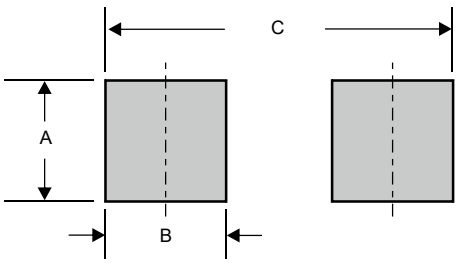
Pinning information

Pin	Simplified outline	Symbol
Bi-directional		

Marking

Type number	Marking code
ESD3Z15CA-Q1-H	15B

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.031 (0.80)	0.031 (0.80)	0.120 (3.15)

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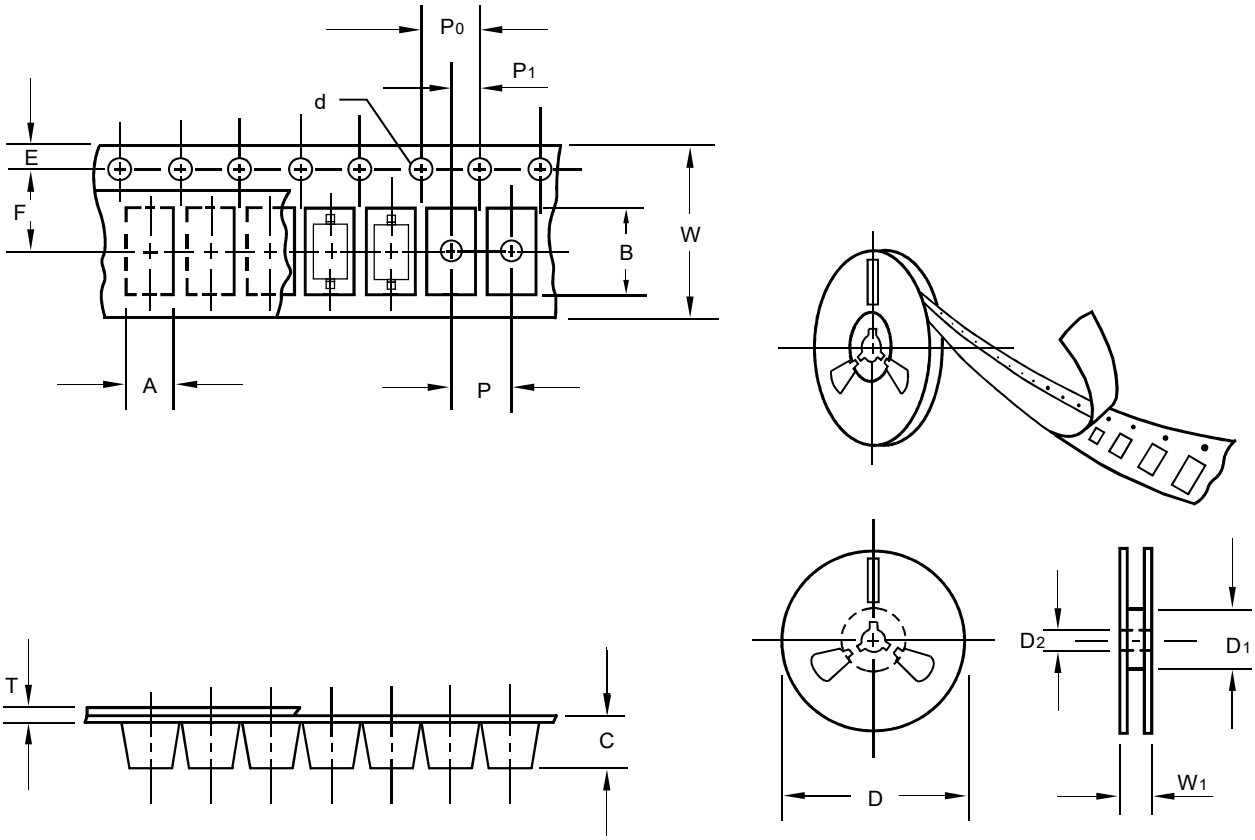
Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323F
Carrier width	A	0.1	1.46
Carrier length	B	0.1	2.90
Carrier depth	C	0.1	1.25
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D_1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D_1	min	55.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W_1	1.0	9.50

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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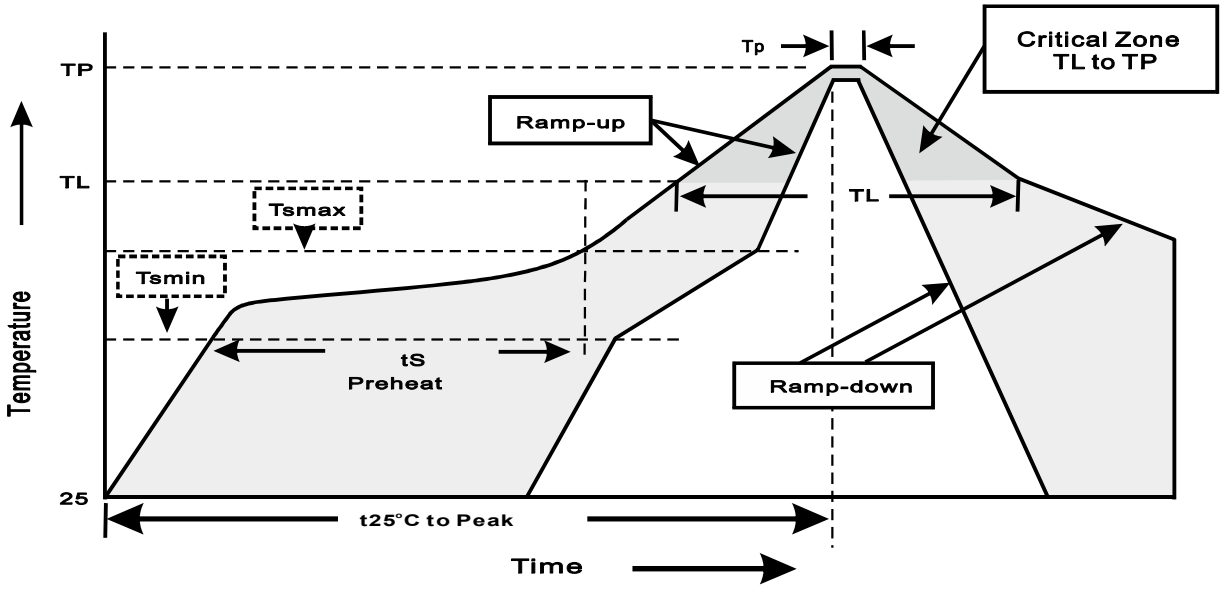
Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)
SOD-323F	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%RH+3xIR@260°C+1flux immersion+alcohol+DI H2O rinse	JESD22-A113
2. High Temperature Reverse Bias	V_{BR}=$V_{BR\ MIN}$*80% (T_J=T_J max.)Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	Ta=150°C Test Duration:1000hrs	JESD22 A-103
4. Temperature Cycle	-55°C(15min) to 150°C(15min)Test Cycles:1000cycles	JESD22 A-104
5. Autoclave	P=2atm Ta=121°C RH=100% Test Duration:96hrs	JESD22 A-102
6. Solderability	245±5°C for 5sec	J-STD-002
7. Moisture Resistance	Ta=85°C/85% Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
8. Resistance To Solder Heat	260±5°C for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	Ta=85°C, 85%RH, with device reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber Test Duration:1000hrs	JESD22-A101