

ESD5Z3.3C

List

List..... 1

Package outline..... 2

Features..... 2

Mechanical data..... 2

Maximum ratings 2

Electrical characteristics..... 2

Rating and characteristic curves..... 3

Pinning information..... 4

Marking..... 4

Suggested solder pad layout..... 4

Packing information..... 5

Reel packing..... 6

Suggested thermal profiles for soldering processes..... 6

High reliability test capabilities..... 7

ESD5Z3.3C

Surface Mount Bi-Directional TVS For ESD Protection Diode- 3.3V

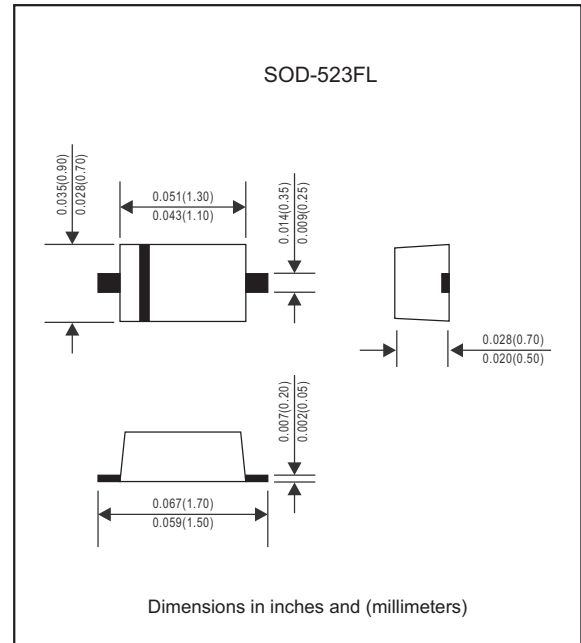
Features

- Working voltages : 3.3V
- 100 Watts Peak Pulse Power per Line (tp=8/20µs)
- Protects one I/O line
- Low clamping voltage
- Low leakage current
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free part, ex.ESD5Z3.3C-H.

Applications

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals
- Pagers

Package outline



Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-523FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.002 gram

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

PARAMETER	CONDITIONS	Symbol	Value	UNIT
Total Power Dissipation	on FR-5 Board, @ T _A = 25°C	P _{PP}	100	W
Lead Solder Temperature -Maximum		T _L	260(10s)	°C
Operating Junction Temperature Range		T _J	-55 to +150	°C
Storage Temperature Range		T _{STG}	-55 to +150	°C

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

Part No.	V _{RWM} (V) Max	I _R (uA) @V _{RWM} Max	V _{BR} (V)@I _T (Note 2)		I _T (mA)	V _C (V)(Note 1) @ I _{PP} =1.0A Max	I _{PP} (Note 1) (A) Max	V _C (V)(Note 1) @Max I _{PP} Max	P _{PK} (W) (Note 1) Max	C _i (pF) V _R =0V and f=1MHz Typ.
			Min.	Max.						
ESD5Z3.3C	3.3	1.0	3.5	4.0	1.0	7.0	8.0	12.0	96	10

Note 1. Surge current waveform per Fig.1

2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C.

ESD5Z3.3C

Rating and characteristic curves

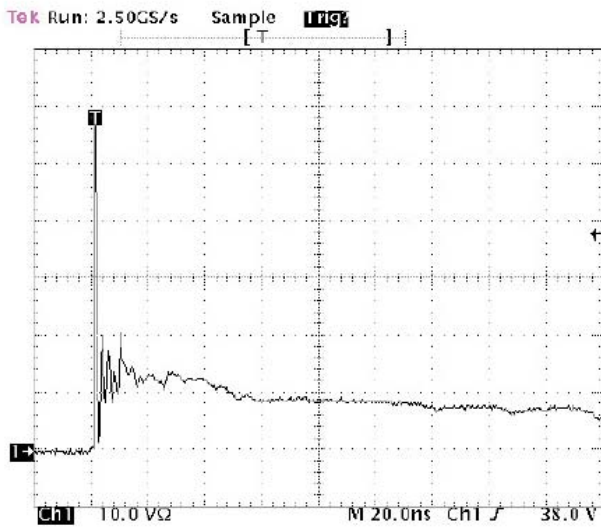
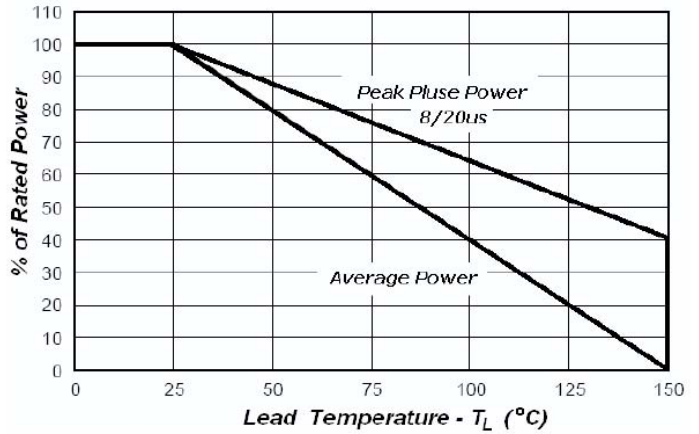
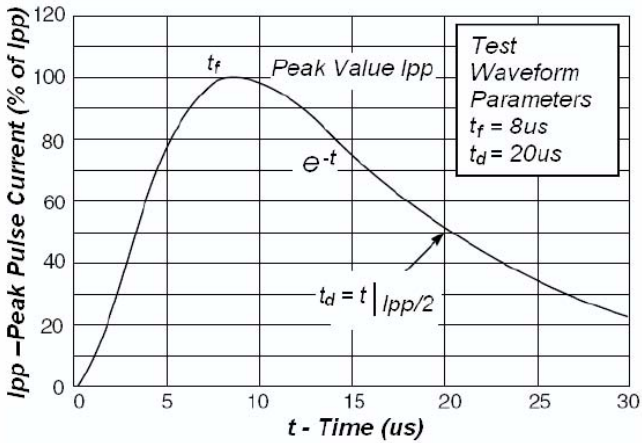


Figure 3. ESD Clamping Voltage Screenshot
Positive 8 kV contact per IEC 61000-4-2

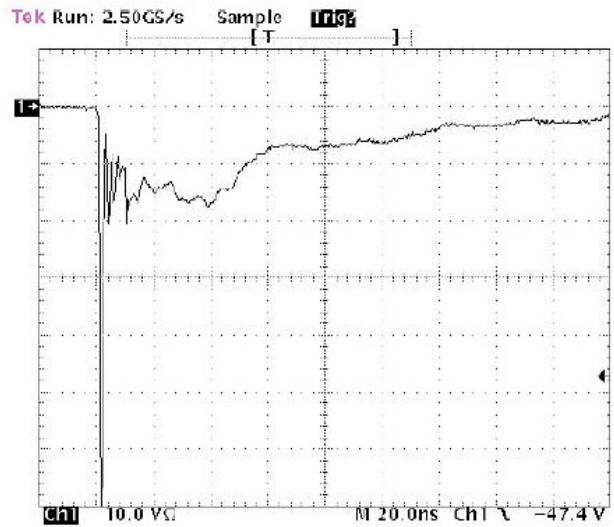




Figure 4. ESD Clamping Voltage Screenshot
Negative 8 kV contact per IEC 61000-4-2

ESD5Z3.3C

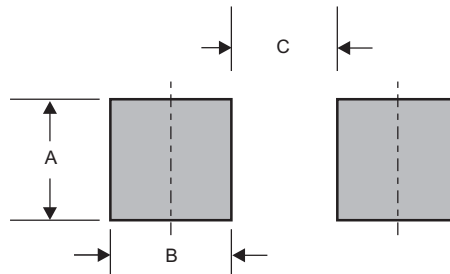
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

Type number	Marking code
ESD5Z3.3C	CT

Suggested solder pad layout

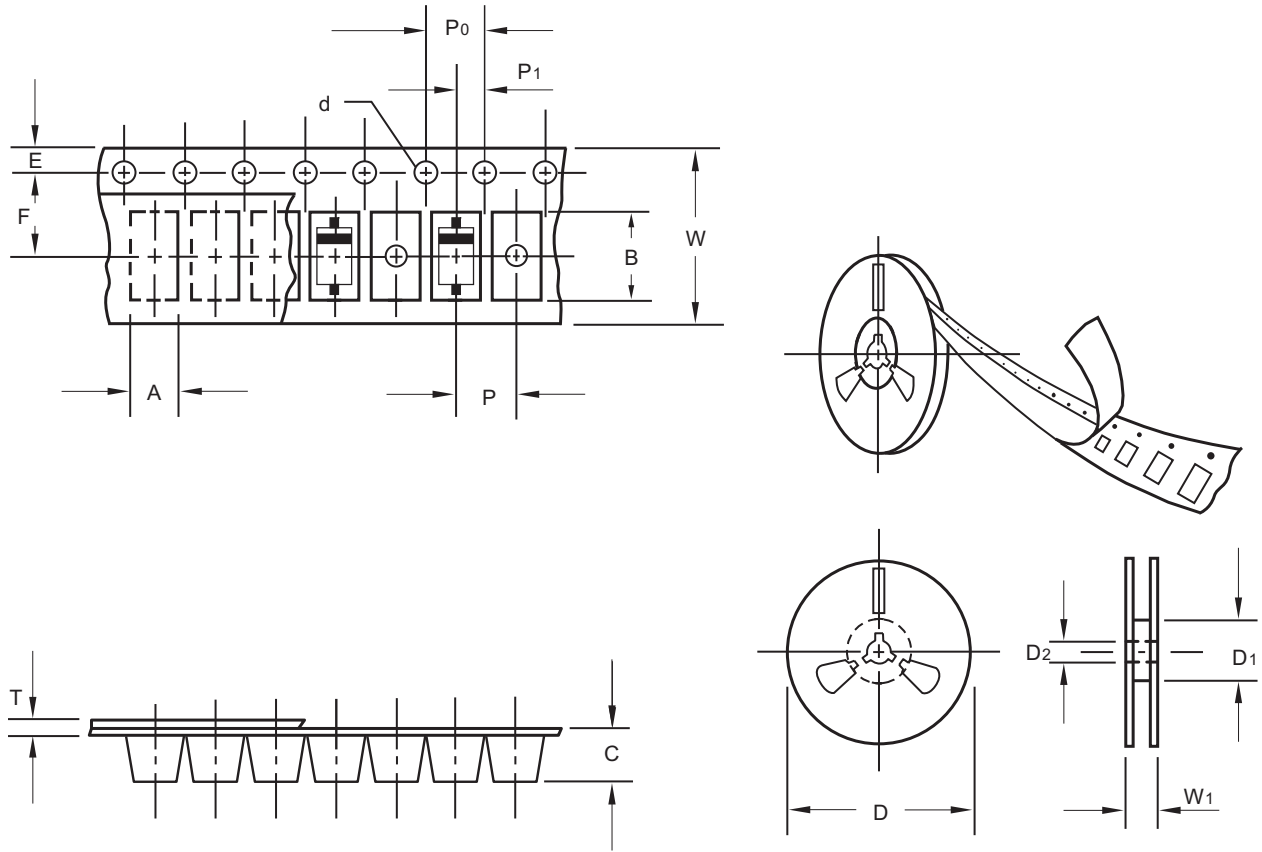


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-523FL	0.032 (0.80)	0.024 (0.60)	0.044 (1.10)

ESD5Z3.3C

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-523FL
Carrier width	A	0.05	0.96
Carrier length	B	0.05	1.94
Carrier depth	C	0.1	0.76
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	1.0	178.00
7" Reel inner diameter	D1	0.4	54.40
Feed hole diameter	D2	0.05	1.30
Sprocket hole position	E	0.01	1.75
Punch hole position	F	0.05	3.50
Punch hole pitch	P	0.05	2.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.05	2.00
Overall tape thickness	T	0.02	0.18
Tape width	W	0.4	8.00
Reel width	W1	0.2	12.30

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

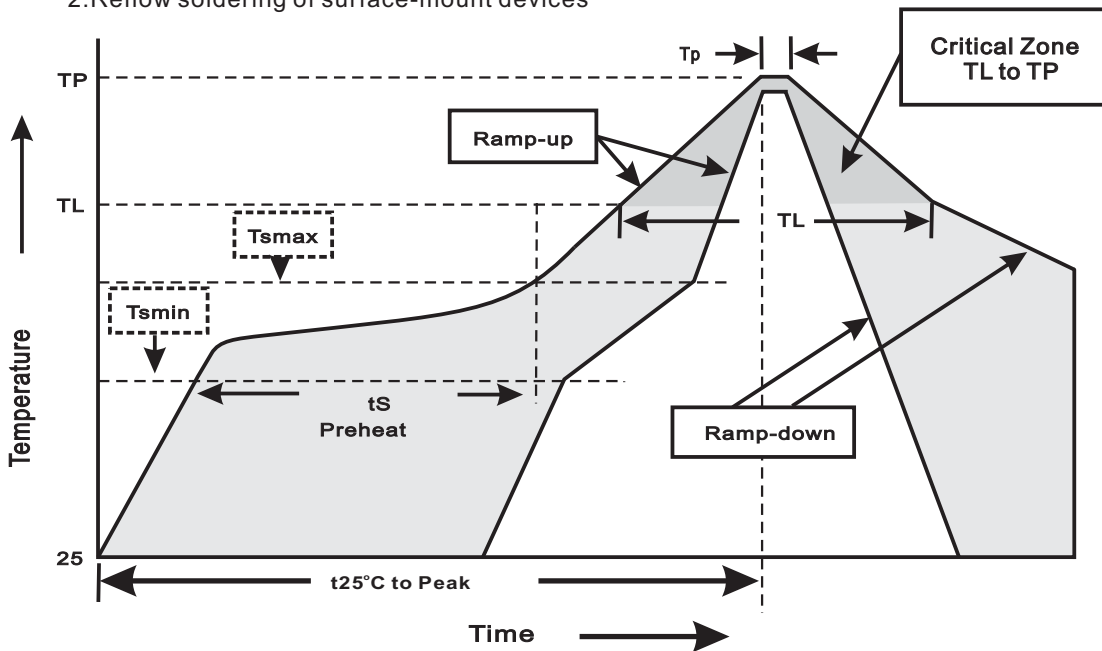
ESD5Z3.3C

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)	APPROX. GROSS WEIGHT (kg)
SOD-523FL	7"	3000	4.0	30,000	183*183*123	178	382*262*387	240,000	9.5

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(T _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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

ESD5Z3.3C**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_{RWM}=80\%$ rate at $T_J=150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{SIG}$ at $T_A=121^\circ\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at $T_A=85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031