

ESD5Z5.0E

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Uni-Directional TVS For ESD Protection 5.0V

Features

- Ultra low leakage: nA level.
- Low clamping voltage.
- Protects one data or power line.
- Complies with following standards
IEC61000 -4-2 (ESD) $\pm 30\text{kV}$ (Air), $\pm 30\text{kV}$ (Contact).
IEC 61000-4-5 (Lightning) 8A (8/20 μs) .
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates halogen-free part, ex.ESD5Z5.0E-H.

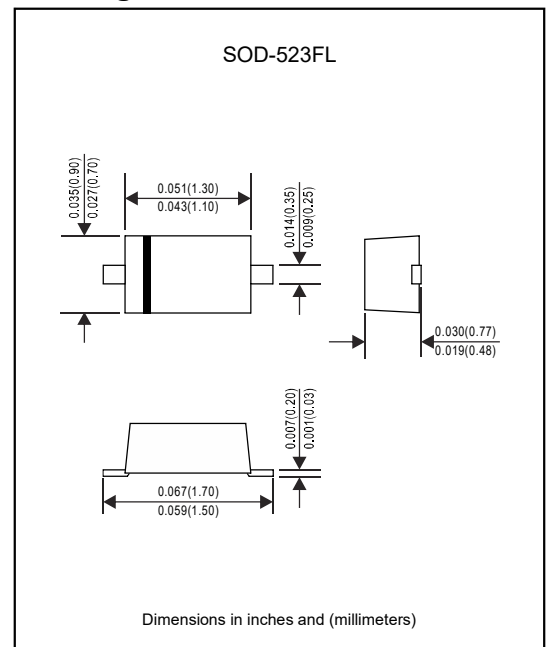
Applications

- Cell phone handsets, accessories, notebook, digital cameras, audio players.
- Personal digital assistants.
- Portable instrumentation and peripherals,
- Keypads, side keys and LCD displays.

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.

Package outline



Maximum ratings (At $T_A=25^\circ\text{C}$ unless otherwise noted)

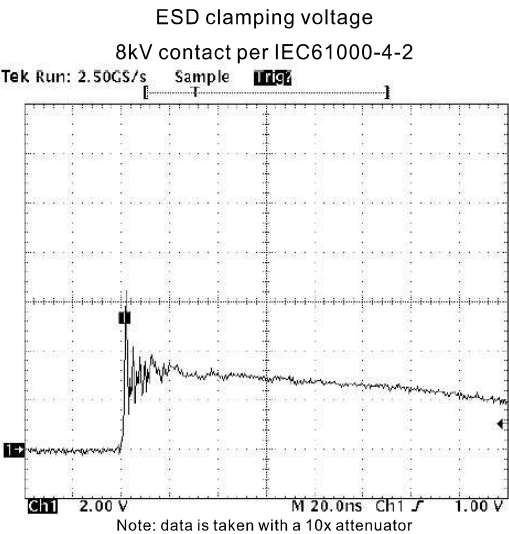
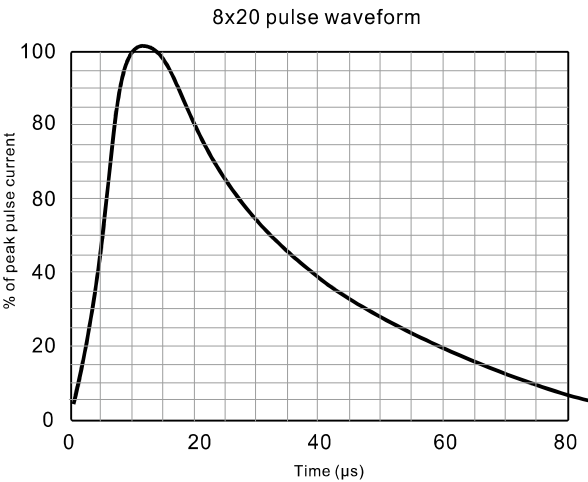
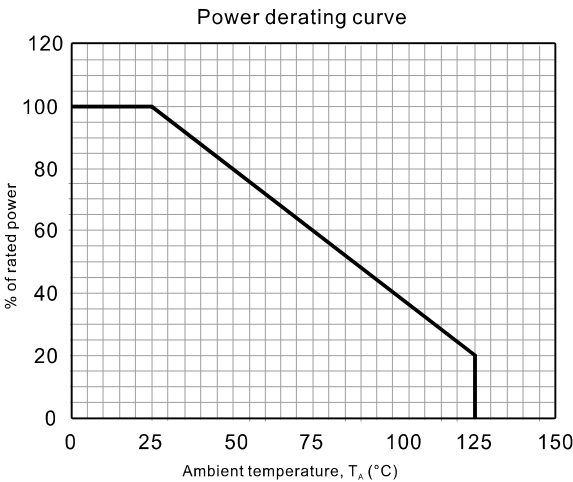
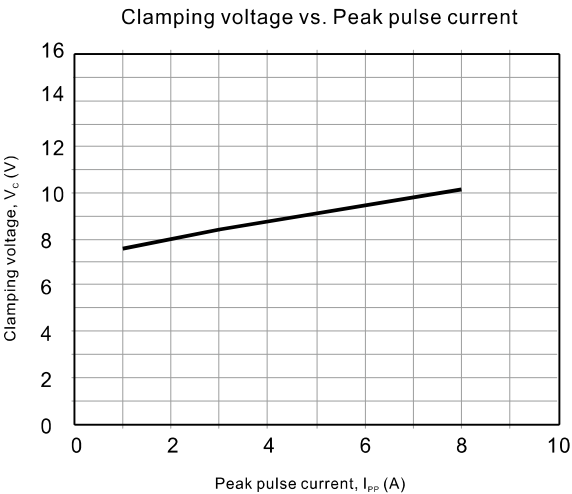
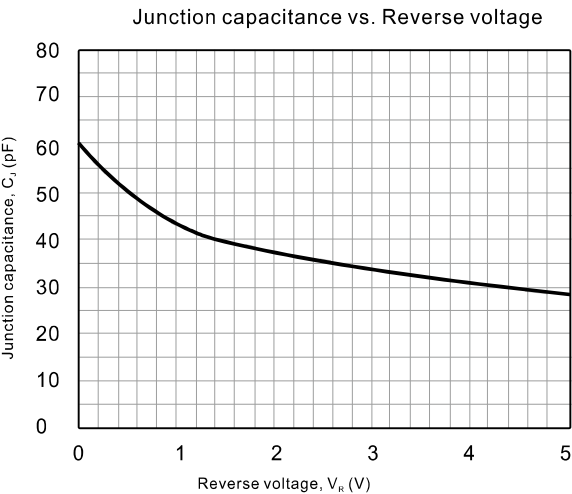
Parameter	Symbol	Value	Unit
Peak pulse current (8/20 μs)	I_{PP}	8	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating junction temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical characteristics (At $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Condition	Symbol	Min.	Typ.	Max.	Unit
Reverse working voltage	Pin1 to pin2	V_{RWM}			5	V
Breakdown voltage	$I_T=1\text{mA}$, Pin1 to pin2	V_{BR}	6		8.5	V
Reverse leakage current	$V_{RWM}=5\text{V}$, Pin1 to pin2	I_R			0.2	μA
Forward voltage	$I_F=10\text{mA}$, Pin2 to pin1	V_F		1	1.2	V
Clamping voltage	$I_{PP}=8\text{A}$ (8x20 μs pulse), Pin1 to pin2	V_C			12	V
Junction capacitance	$V_R=0\text{V}$, $f=1.0\text{MHz}$	C_J		60		pF

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Rating and characteristic curves



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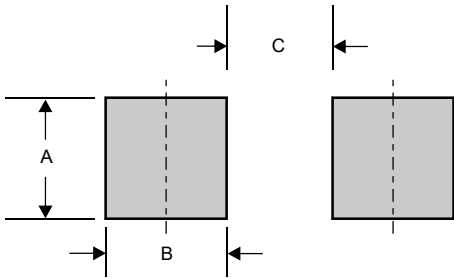
Pinning information

Pin	Simplified outline	Symbol
Pin 1 Cathode Pin 2 Anode		

Marking

Type number	Marking code
ESD5Z5.0E	D5

Suggested solder pad layout

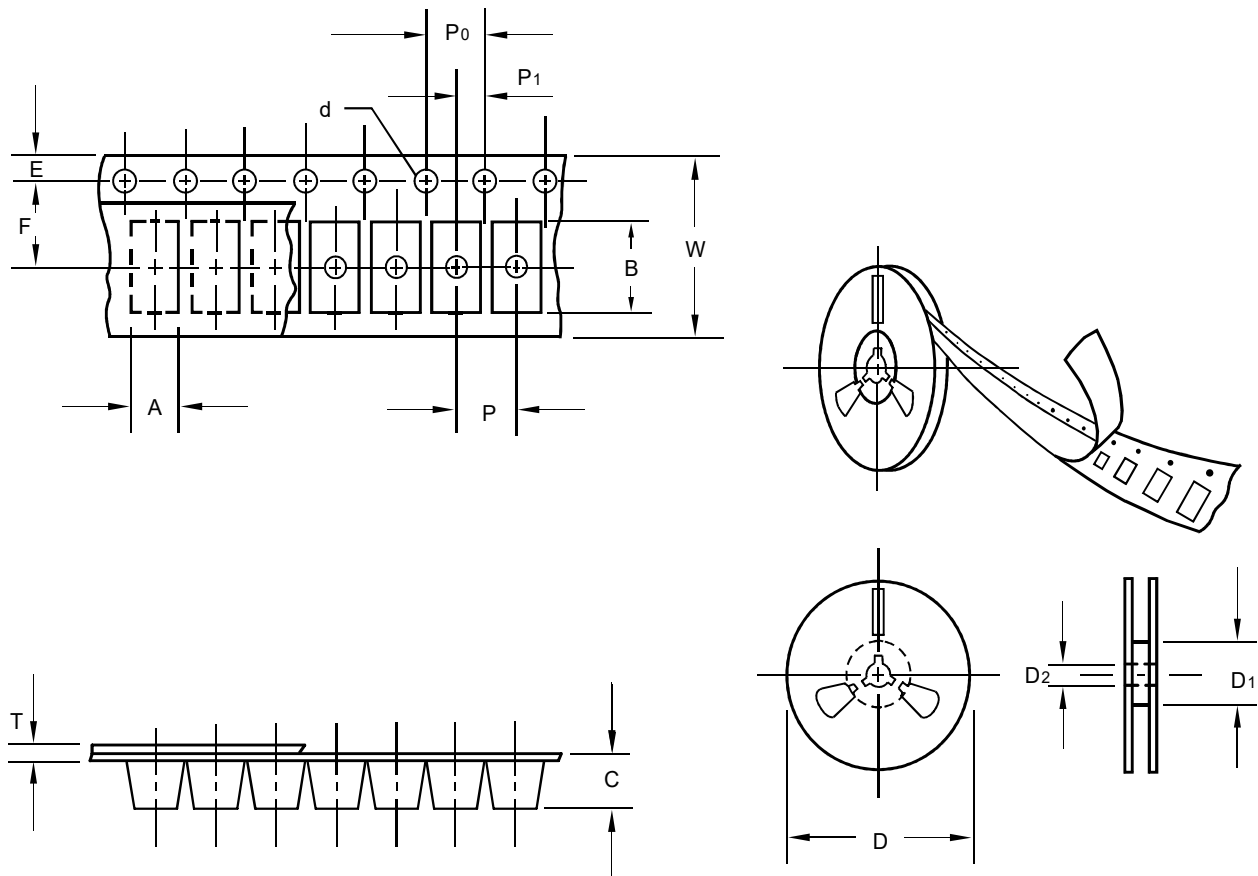


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-523FL	0.028 (0.70)	0.024 (0.60)	0.032 (0.82)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-523FL
Carrier width	A	0.1	0.90
Carrier length	B	0.1	1.94
Carrier depth	C	0.1	0.76
Sprocket hole	d	0.1	1.50
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	50.00
Feed hole diameter	D ₂	0.2	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	2.00
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

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

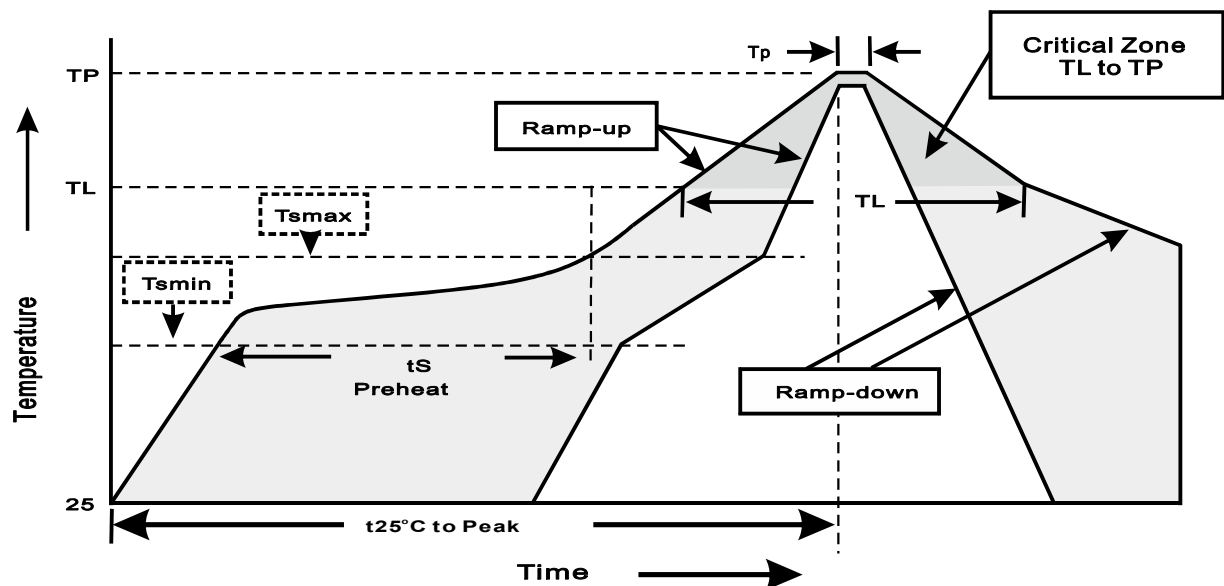
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Reel packing

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-523FL	7"	3,000	2.0	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(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} 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