

ESD3Z1524C-Q1

List

List.....	1
Package outline.....	2
Features.....	2
Applications.....	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
Package Information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6
High reliability test capabilities.....	7

ESD3Z1524C-Q1

Bi-Directional TVS

For ESD Protection : 15V / 24V

Features

- Working voltages : 15V/24V.
- Low leakage current.
- Protection one data/power line to:
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (Contact), $\pm 30\text{kV}$ (Air).
- Qualified to AEC-Q101 standards for high reliability.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free part, ex.ESD3Z1524C-Q1-H.

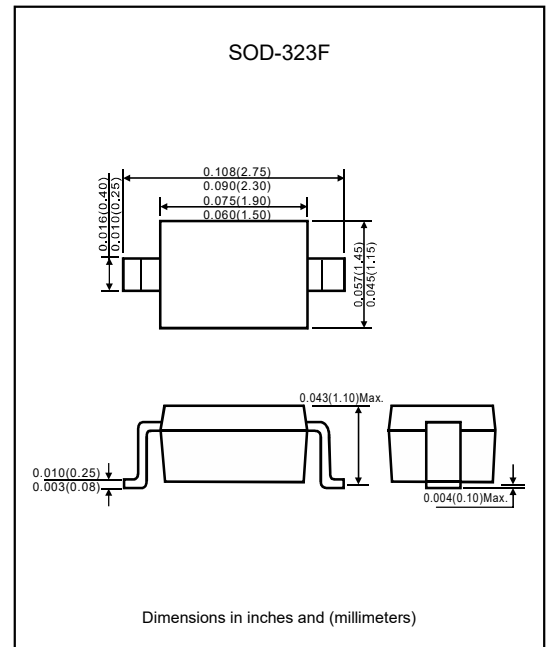
Applications

- Laptop computers.
- Cellular phones.
- Digital cameras.
- Personal digital assistants (PDAs).

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



Maximum ratings (At $T_A=25^\circ\text{C}$, RH=45%~75%, unless otherwise noted)

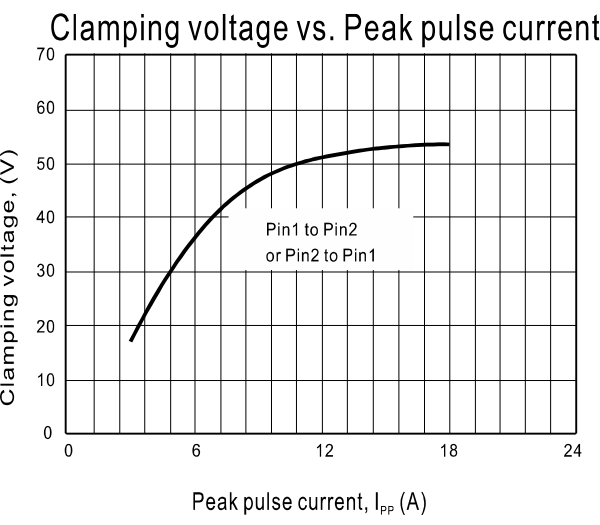
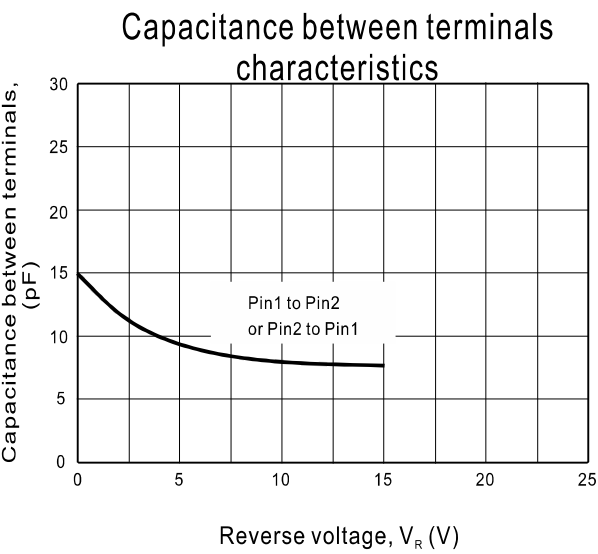
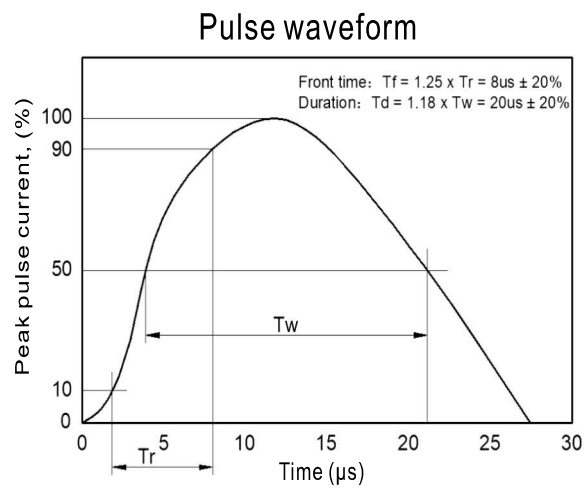
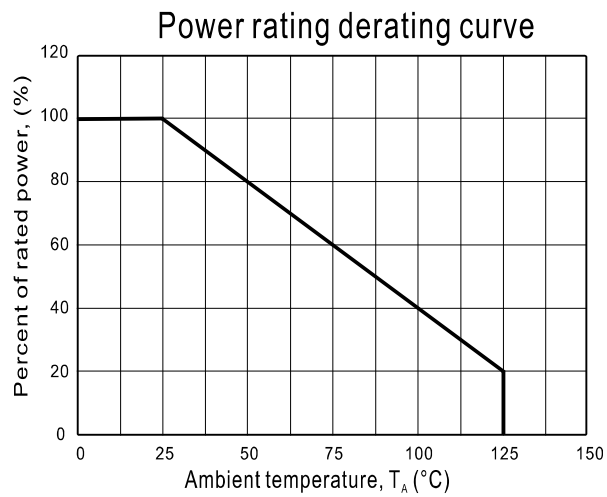
Parameter	Symbols	Ratings	Unit
Peak pulse power (8/20 μs) (Pin1 to Pin2 or Pin2 to Pin1)	P_{PK}	1115	W
Peak Pulse Current (8/20 μs) (Pin1 to Pin2 or Pin2 to Pin1)	I_{PP}	18	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating temperature	T_J	+150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

Electrical characteristics (At $T_A=25^\circ\text{C}$, RH=45%~75%, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ.	Max	Unit
Reverse working voltage (15V)	V_{RWM}				15	V
Reverse working voltage (24V)					24	
Reverse breakdown voltage (15V)	V_{BR}	$I_R = 1\text{mA}$ (Pin1 to Pin2, TVS 15V)	16		22	V
Reverse breakdown voltage (24V)		$I_R = 1\text{mA}$ (Pin2 to Pin1, TVS 24V)	26		34	
Reverse leakage current	I_R	$V_R = 15\text{V}/24\text{V}$ (Pin1 to Pin2 or Pin2 to Pin1)			0.5	μA
Clamping voltage	V_C	$I_{PP} = 18\text{A}$, $T_P = 8/20\mu\text{s}$ (Pin1 to Pin2 or Pin2 to Pin1)			62	V
Junction capacitance	C_J	$V_R = 0\text{V}$, $f = 1.0\text{MHz}$ (Pin1 to Pin2 or Pin2 to Pin1)		15		pF

ESD3Z1524C-Q1

Rating and characteristic curves



ESD3Z1524C-Q1

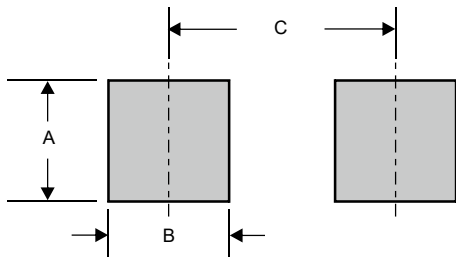
Pinning information

Pin	Simplified outline	Symbol
Bi-directional		

Marking

Type number	Marking code
ESD3Z1524C-Q1	.AS

Suggested solder pad layout

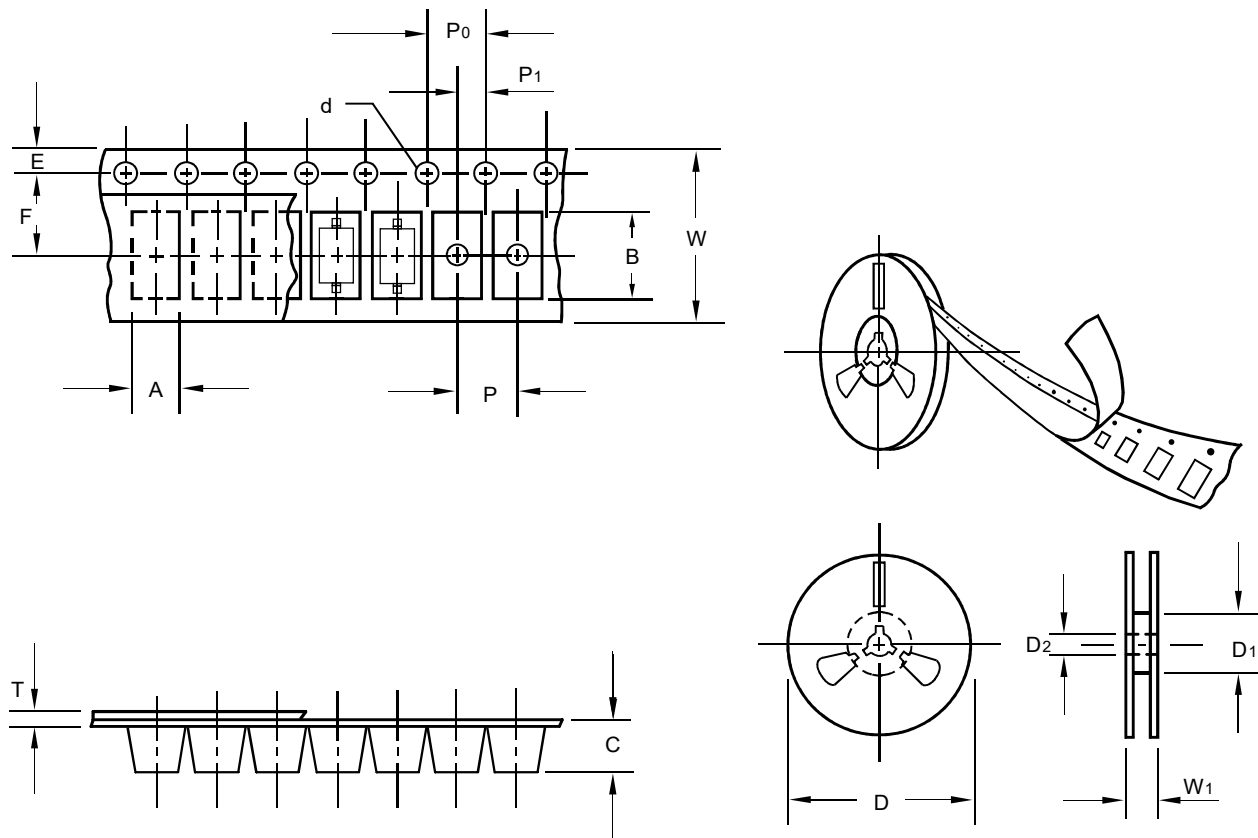


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.031 (0.80)	0.031 (0.80)	0.091 (2.30)

ESD3Z1524C-Q1

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	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	53.40
Feed hole diameter	D2	1.0	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	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	12.30

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

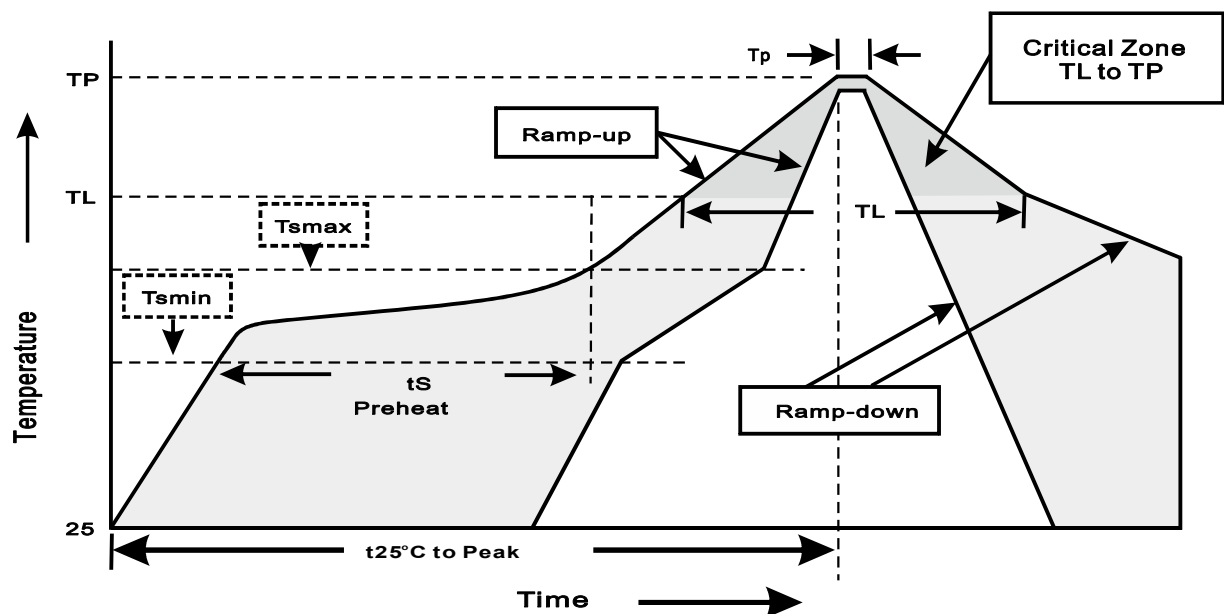
ESD3Z1524C-Q1

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

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



3. Reflow soldering

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

ESD3Z1524C-Q1**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	VBR=VBR 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