

ESD3Z18C

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

ESD3Z18C

Surface Mount Bi-Directional TVS For ESD Protection Diode 18V

Features

- Bi-directional ESD protection of one line
- Reverse stand-off voltage: 18 V
- Low reverse clamping voltage
- Low leakage current
- Provide transient protection:
IEC 61000-4-2 (ESD) level 4
IEC 61000-4-4 (EFT) 80A (5/50ns)
- Lead-free parts meet environmental standards of
MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free part, ex.ESD3Z18C-H.

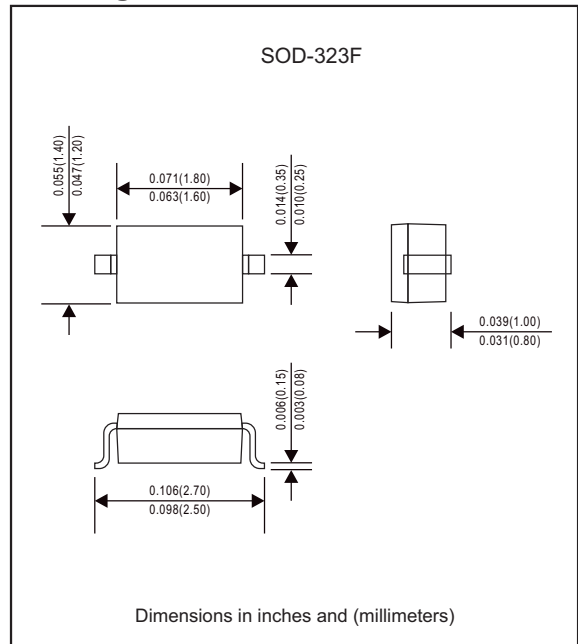
Applications

- Computers and peripherals
- Digital cameras
- Audio and video equipment
- Cellular handsets and accessories
- Portable electronics
- Tablets
- Other electronics equipments communication systems

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
- Weight : Approximated 0.005 gram

Package outline



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

PARAMETER	SYMBOL	Limit	UNIT
Peak pulse power ($t_p = 8/20\mu\text{s}$)	P_{PP}	250	Watt
Peak pulse current ($t_p = 8/20\mu\text{s}$)	I_{PP}	8	A
Lead solder temperature-maximum (10 second duration)	T_L	260	$^{\circ}\text{C}$
IEC 61000-4-2 ESD contact model air model	V_{ESD}	± 25 ± 30	kV
Operating junction temperature range	T_J	-55 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand off voltage		V_{RWM}			18	V
Reverse breakdown voltage	$I_T = 1\text{mA}$,	V_{BR}		20		V
Reverse leakage current	$V_{RWM} = 18\text{V}$	I_R		0.1	1.0	μA
Clamping voltage	$I_{PP} = 1\text{A}$, $t_p = 8/20\mu\text{s}$	V_C			25	V
	$I_{PP} = 6\text{A}$, $t_p = 8/20\mu\text{s}$				30	
Junction capacitance	$V_R = 0\text{V}$, $f = 1\text{MHz}$	C_J		25		pF

Rating and characteristic curves (ESD3Z18C)

Fig.1 PULSE WAVEFORM

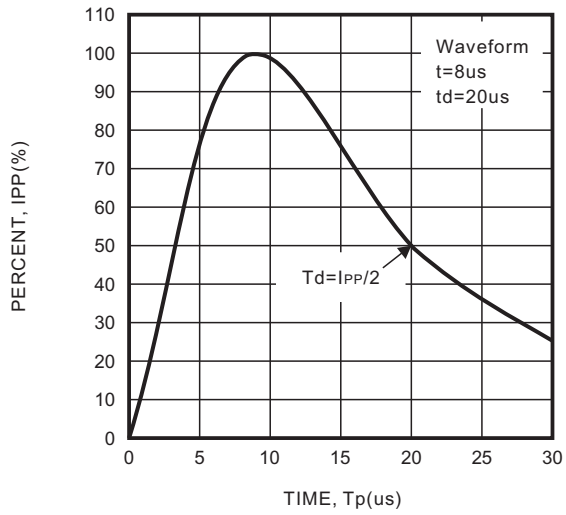
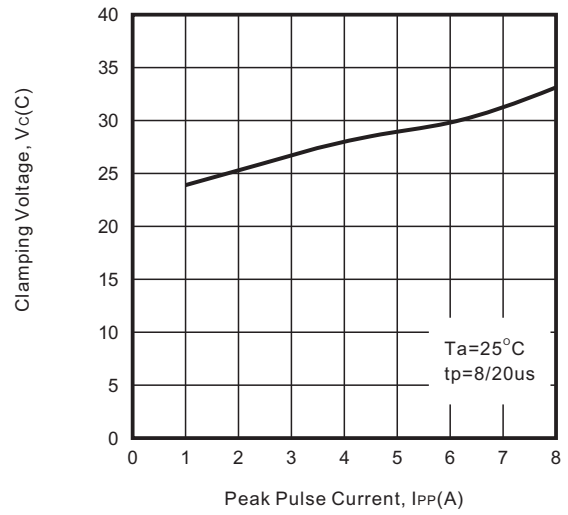


Fig.2 CLAMPING VOLTAGE VS. PEAK PULSE CURRENT

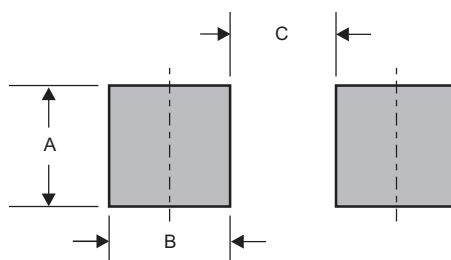


ESD3Z18C**Pinning information**

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

Type number	Marking code
ESD3Z18C	4G

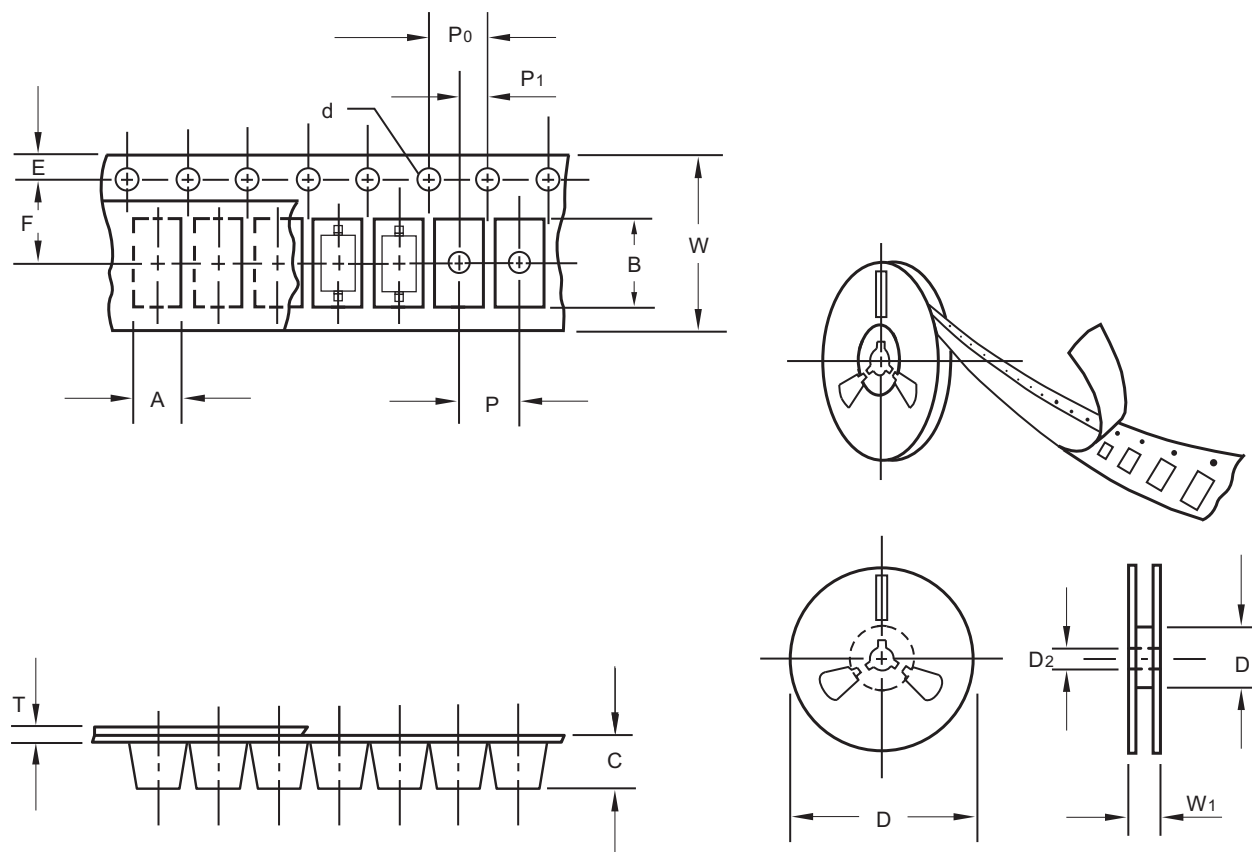
Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.033 (0.83)	0.025 (0.63)	0.063 (1.60)

ESD3Z18C

Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323F
Carrier width	A	0.1	1.48
Carrier length	B	0.1	3.30
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 accordance with EIA standard RS-481-A and specifications listed above.

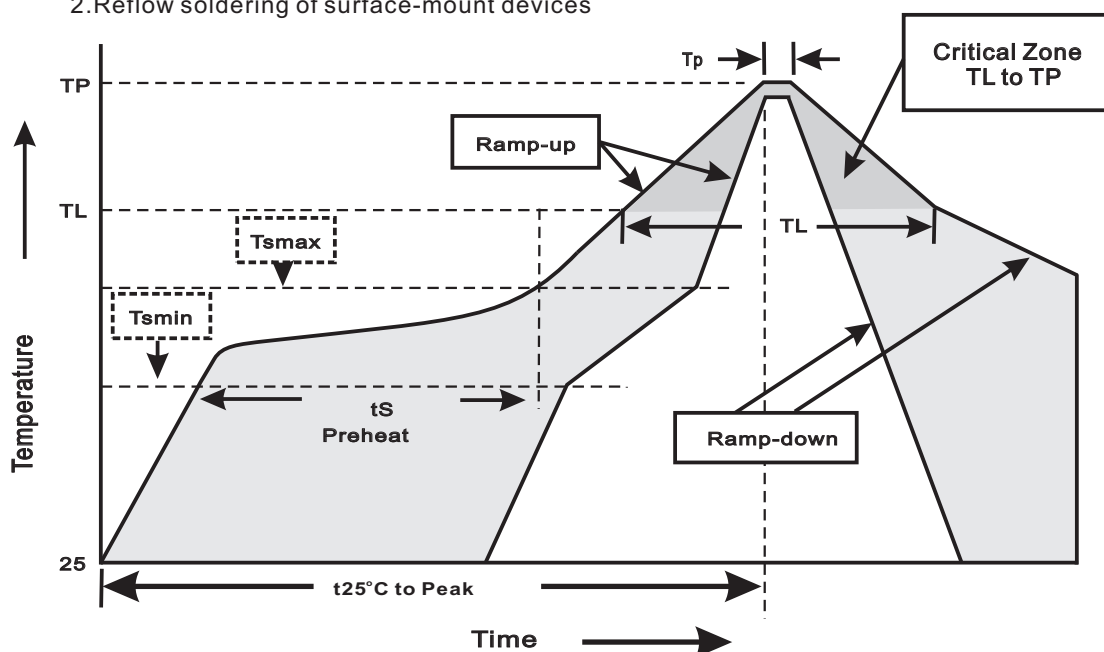
ESD3Z18C

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-323F	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	8.0

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

ESD3Z18C

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_{\text{BR}} = V_{\text{BR Min}} * 80\%$ at $T_J = 150^{\circ}\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	$15P_{\text{SIG}}$ at $T_A = 121^{\circ}\text{C}$ for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to $+125^{\circ}\text{C}$ 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 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031