

ESDA3L03CB Thru ESDA3L24CB

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ESDA3L03CB Thru ESDA3L24CB**300W Low Capacitance Bi-Directional
TVS For ESD Protection Array : 3.0V~24V****Features**

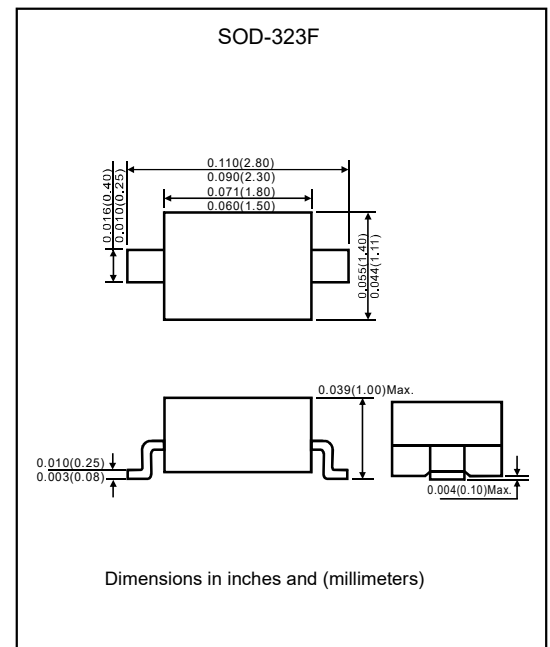
- 300 Watts peak pulse power ($t_p=8/20\mu s$).
- Low clamping voltage.
- Low leakage current.
- Response time is $< 1ns$.
- Protects one I/O line. (bi-directional)
- High temperature soldering guaranteed: $260^{\circ}C/10seconds$.
- Complies with following standards:
IEC 61000-4-2(ESD) $\pm 15kV$ (Air), $\pm 8kV$ (Contact).
IEC 61000-4-4(EFT) 40A (5/50ns).
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. ESDA3L03CB-H.

Applications

- Cellular handsets, accessories and microprocessor based equipment.
- Personal digital assistants(PDA'S).
- Notebooks, desktops and servers .
- Portable instrumentation, peripherals and USB interface .

Mechanical data

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

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

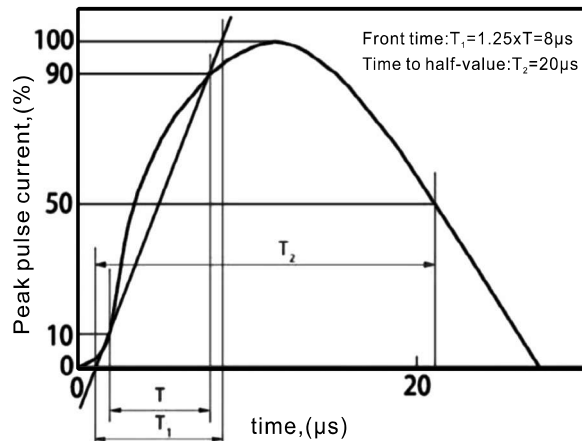
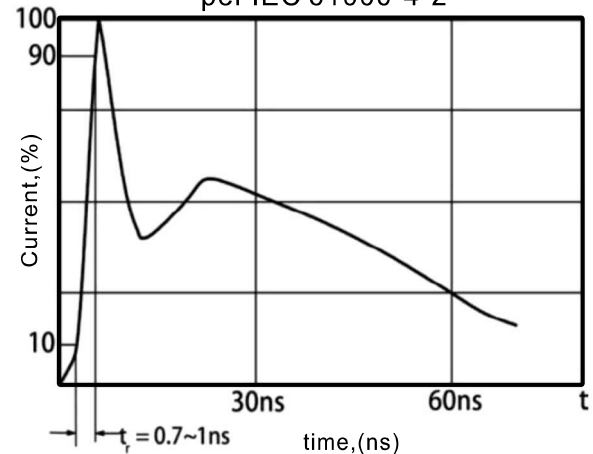
Parameter	Symbols	Ratings	Units
Peak pulse power	P_{PK}	300	W
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 8	
Lead soldering temperature	T_L	260	$^{\circ}C$
Operating temperature	T_J	+150	$^{\circ}C$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}C$

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

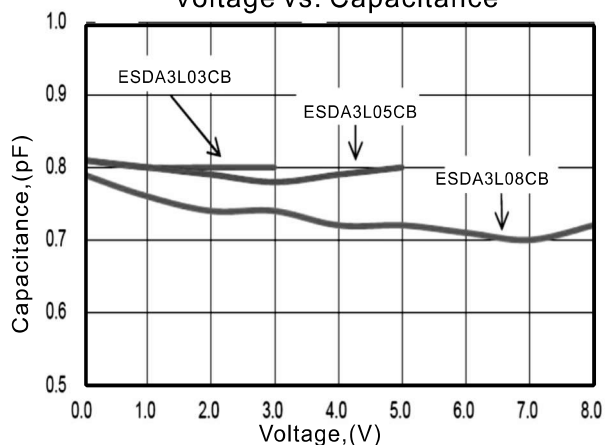
Part No.	Reverse wroking voltage $V_{RWM}@I_R$		Breakdown voltage $V_{BR}@I_T=1mA$	Clamping voltage $V_C@I_{PP}=1A$	Clamping voltage $V_C@I_{PP}$		Capacitance C_T
	V(Max.)	μA (Max.)	V(Min.)	V(Max.)	V(Max.)	A	pF(Typ.)
ESDA3L03CB	3	2	4	7	13.9	8	0.8
ESDA3L05CB	5	1	6	9.8	18.3	8	0.8
ESDA3L08CB	8	1	8.5	13.4	18.5	8	0.8
ESDA3L12CB	12	1	13.3	19	28.6	6	0.8
ESDA3L15CB	15	1	16.7	24	31.8	5	0.8
ESDA3L24CB	24	1	26.7	43	56	3	0.8

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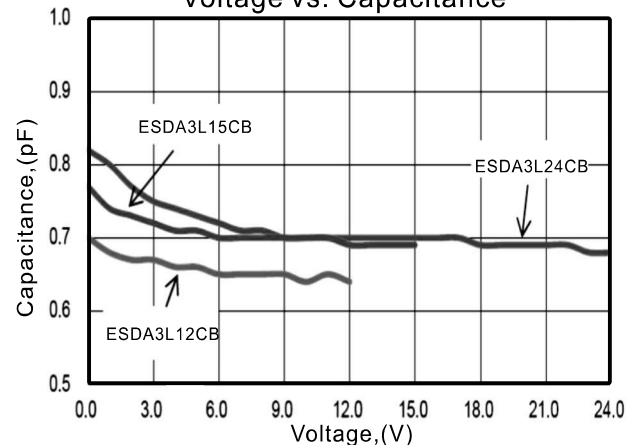
Rating and characteristic curves

8/20 μ s waveform per IEC61000-4-5Contact discharge current waveform
per IEC 61000-4-2

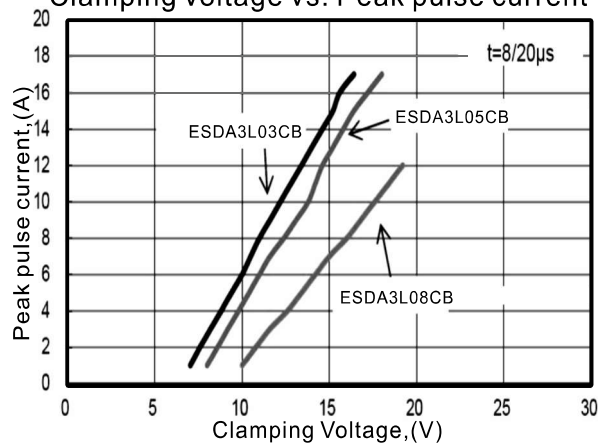
Voltage vs. Capacitance



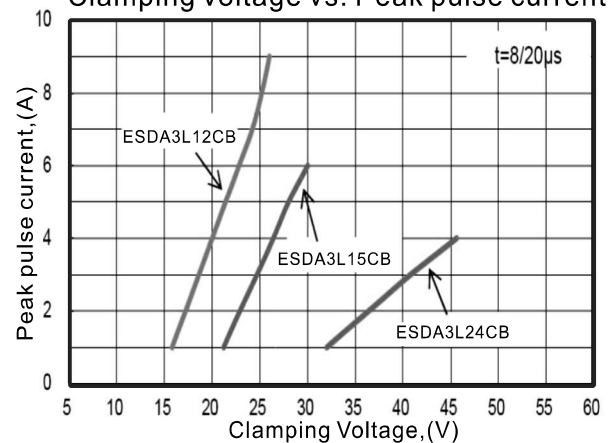
Voltage vs. Capacitance



Clamping voltage vs. Peak pulse current

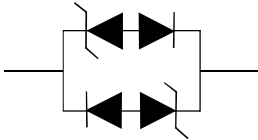


Clamping voltage vs. Peak pulse current



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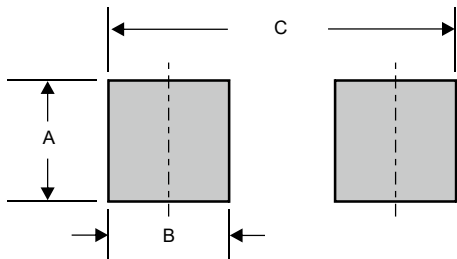
Pinning information

Pin	Simplified outline	Symbol
Bi-Directional		

Marking

Type number	Marking code
ESDA3L03CB	CC
ESDA3L05CB	AC
ESDA3L08CB	BC
ESDA3L12CB	DC
ESDA3L15CB	EC
ESDA3L24CB	HC

Suggested solder pad layout

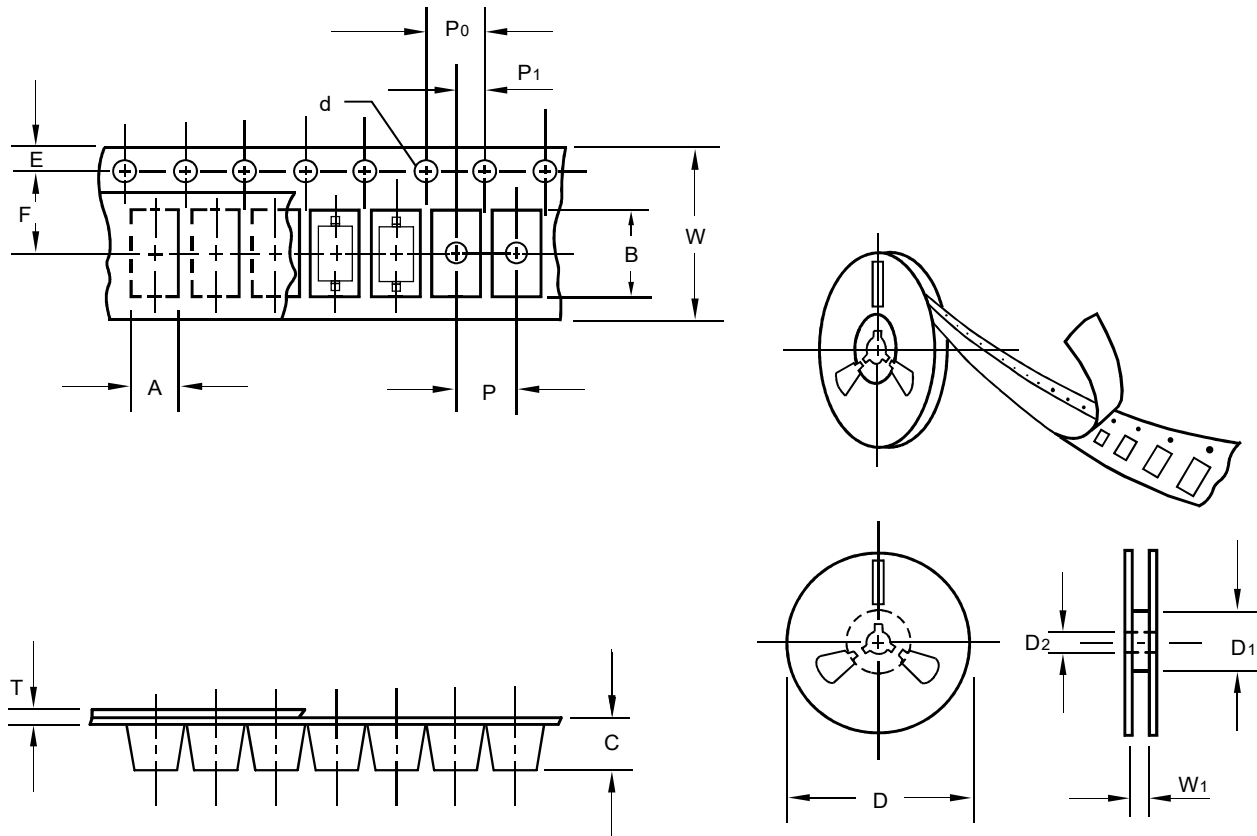


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323F	0.033 (0.85)	0.025 (0.63)	0.112 (2.85)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323F
Carrier width	A	0.5	1.48
Carrier length	B	0.5	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.

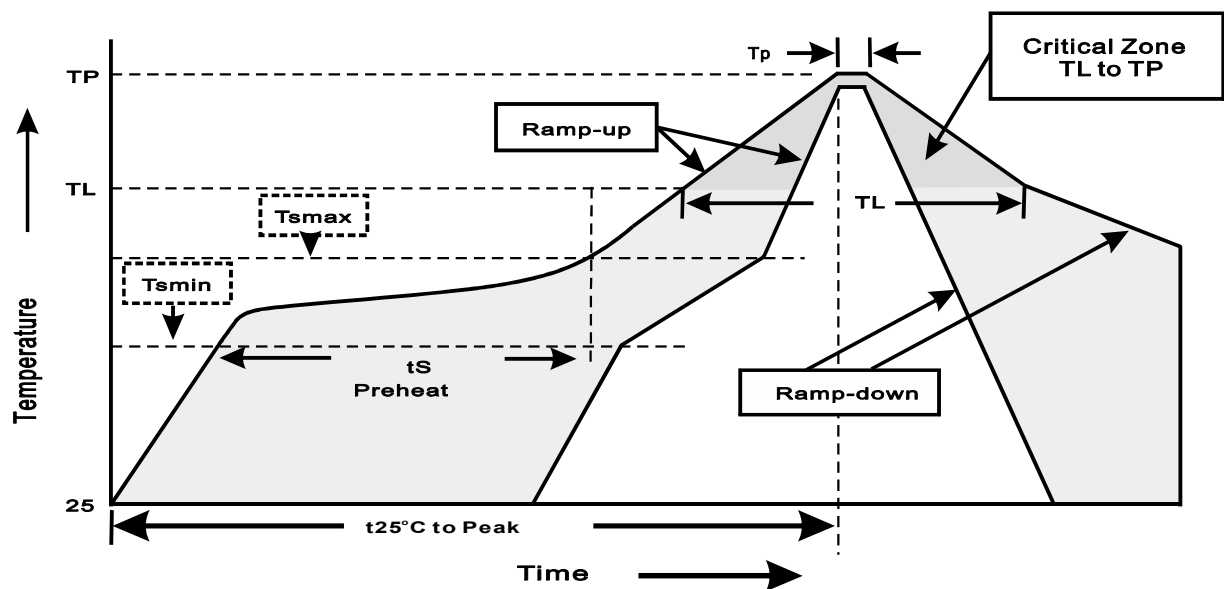
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Reel packing

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)	$<3^{\circ}\text{C/sec}$
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	$<3^{\circ}\text{C/sec}$
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	$<6^{\circ}\text{C/sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$