L032BT143

List

L032BT143

350W Surface Mount TVS Array For ESD Protection-3.3V

Features

- 350Watts peak pulse power per (t_p=8/20μs).
- Package optimized for high-speed lines.
- Low clamping voltage.
- Provide transient protection:
  IEC 61000-4-2 (ESD) Level 4, ±30KV(Air), ±30KV(Contact).
  IEC 61000-4-4 (EFT) 40A (5/50ns).
  Cable discharge event (CDE).
- Each I/O pin can withstand over 1000 ESD strikes for ±8KV contact discharge.
- We declare that the material of product compliance with RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex.L032BT143-H.

Applications

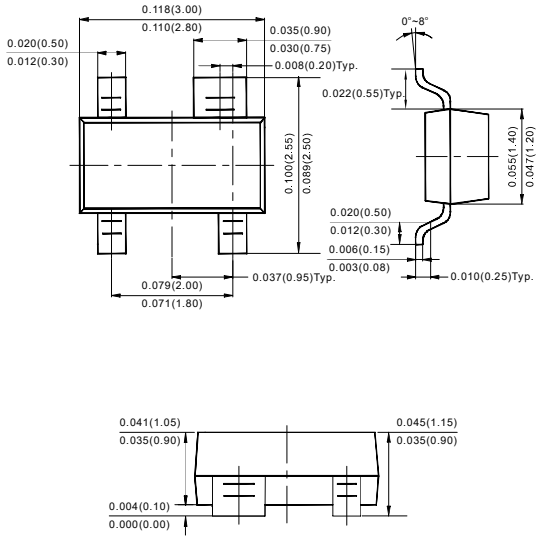
- Cell phone handsets and accessories.
- Microprocessor based equipment.
- Personal digital assistants (PDA's).
- Notebooks, desktops, and servers.
- Portable instrumentation.
- Networking and telecom.
- Serial and parallel ports.
- Peripherals.

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-143
- Lead Finish : Lead free
- Mounting Position : Any
- Weight : Approximated 0.010 gram

Package outline

SOT-143



Dimensions in inches and (millimeters)

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

Parameter	Symbol	Value	Unit
Peak pulse power (tp=8/20μs)	P_{PP}	350	W
Peak pulse current (tp=8/20μs)	I_{PP}	20	A
ESD Per IEC 61000-4-2 (Air)	V_{ESD}	±30	KV
ESD Per IEC 61000-4-2 (Contact)		±30	
Operating temperature	T_{OPT}	+125	℃
Storage temperature	T_{STG}	-55 to +150	℃

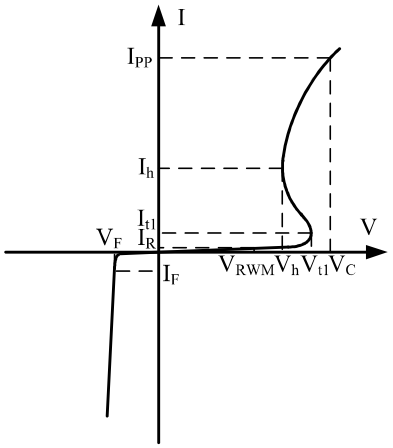
L032BT143

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

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Reverse stand-off voltage		V_{RWM}			3.3	V
Reverse leakage current	V_{RWM}=3.3V (Between I/O and GND)	I_R		0.01	0.1	μA
Trigger voltage	Between I/O and GND	V_{t1}	6.0		7.5	V
	Between VCC and GND		5.5		7.0	
Holding voltage	Between I/O and GND	V_h	4.0		5.5	V
	Between VCC and GND		3.5		5.0	
Clamping voltage	I_{PP}=1A, t_p=8/20μs (Between I/O and I/O)	V_C			11	V
	I_{PP}=20A, t_p=8/20μs (Between I/O and I/O)				17	V
Junction capacitance	V_R=0V, f=1MHz (Between I/O and GND)	C_{ESD}		2.5	4.0	pF
	V_R=0V, f=1MHz (Between I/O and I/O)			1.5	2.5	

Electrical Parameters (T_A=25℃)

Symbol	Parameter
V_{RWM}	Nominal Reverse Working Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{t1}	Trigger Voltage
I_{t1}	Trigger Current @ V_{t1}
V_h	Holding Voltage
I_h	Holding Current @ V_h
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Peak Pulse Current
V_F	Forward Voltage @ I_F
C_{ESD}	Parasitic Capacitance

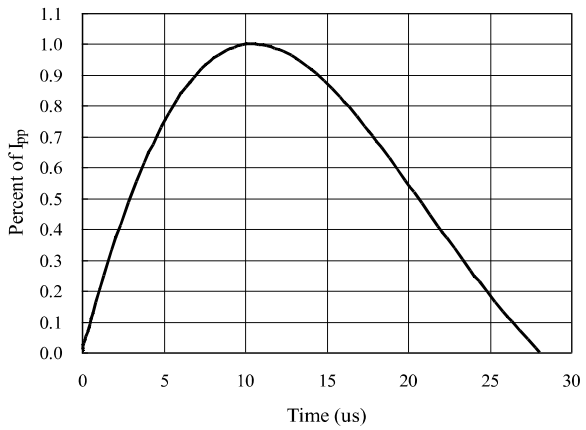


Uni-Directional TVS

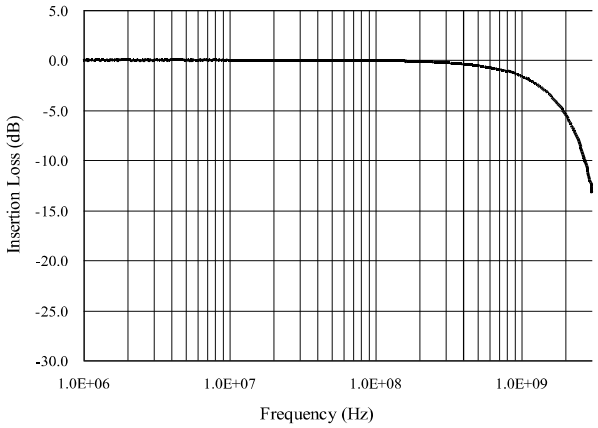
L032BT143

Rating and characteristic curves

8/20μs Pulse Waveform

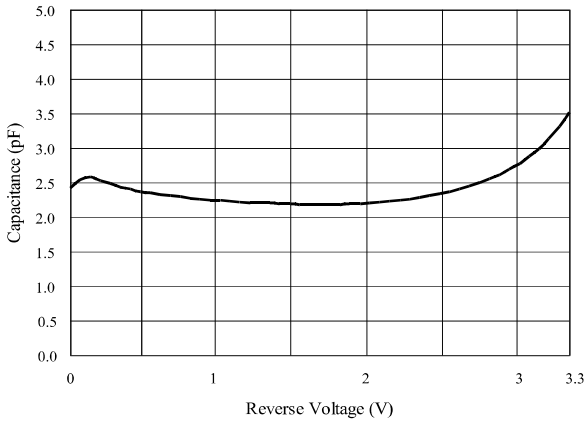


Insertion Loss S21 of I/O to GND

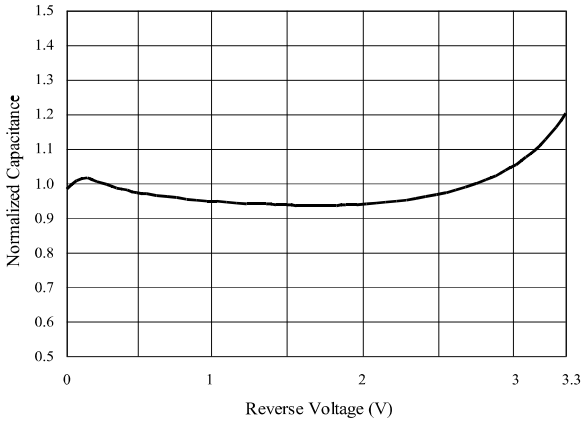


Capacitance vs. Voltage of I/O to GND (f = 1MHz)

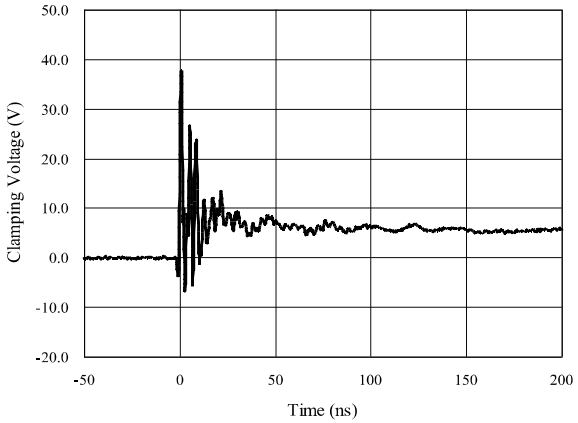
Capacitance vs. Reverse Voltage



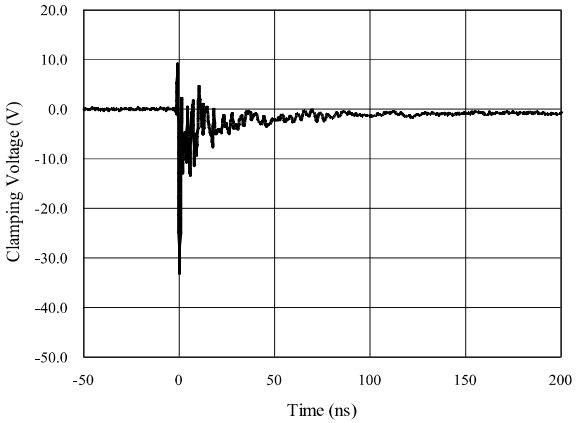
Normalized Capacitance vs. Reverse Voltage



ESD Clamping of I/O to GND (+8kV Contact per IEC 61000-4-2)

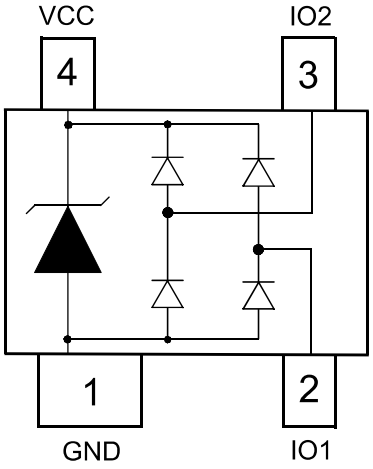


ESD Clamping of I/O to GND (-8kV Contact per IEC 61000-4-2)

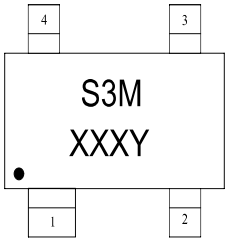


L032BT143

Pinning information



Marking code

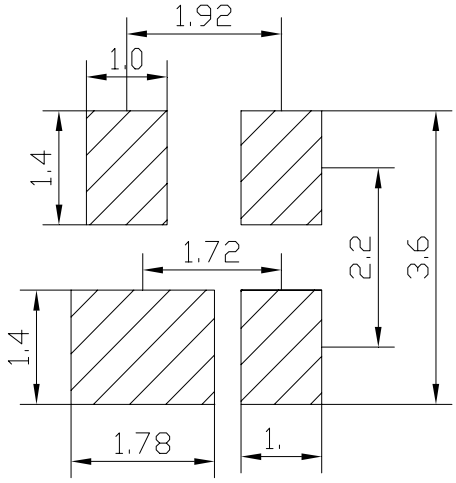


Note:

(1) "S3M" is part number,fixed.

(2) "XXX" is the last 3 characters of the wafer's Lot No.,
"Y" is the internal code.

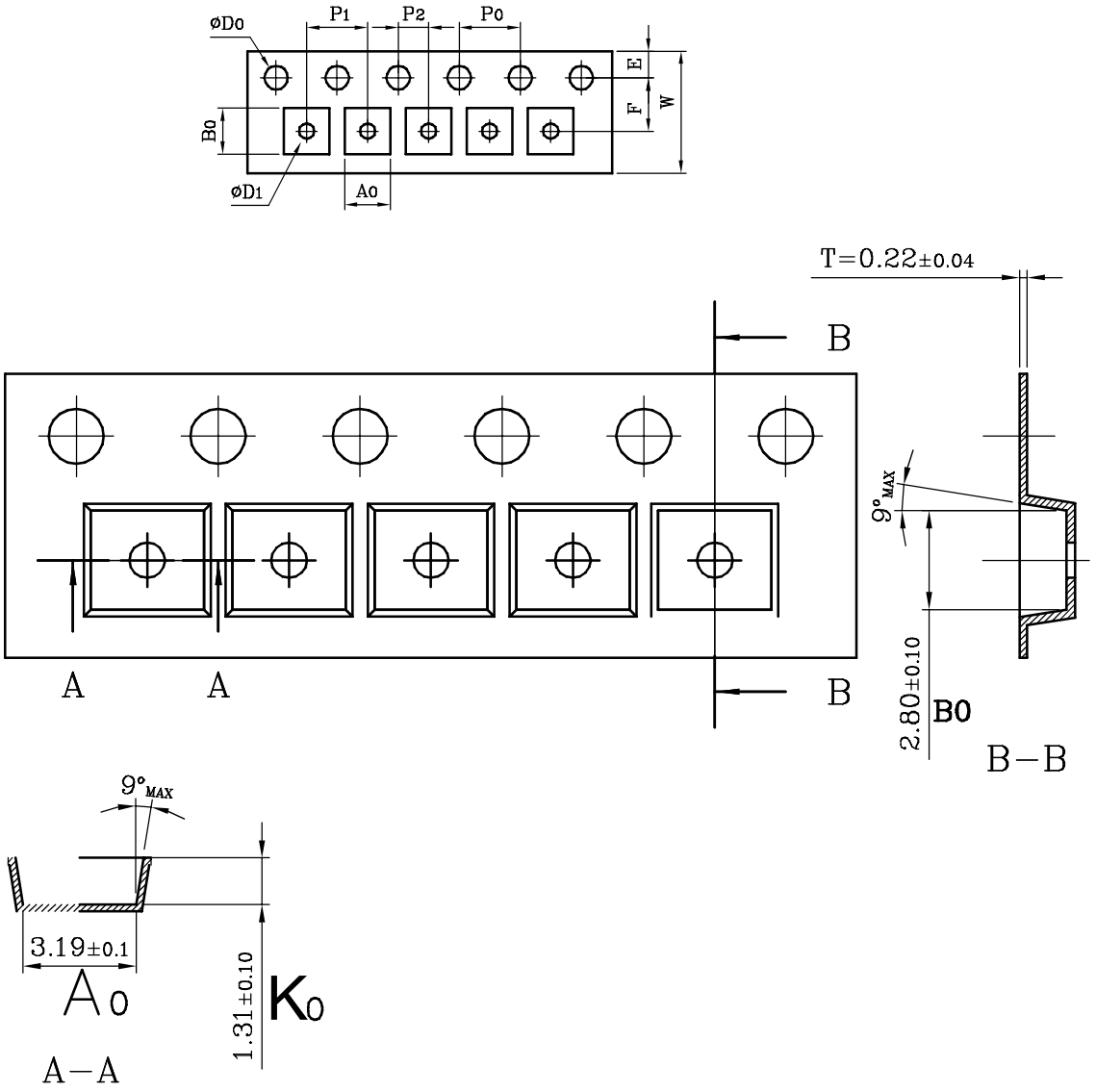
Suggested solder pad layout



Dimensions in millimeters

L032BT143

Packing information



(UNIT:mm)

Symbol	W	P1	E	F	D0	D1	P0	P2	10P0
Dimensions	$8.00^{+0.30}_{-0.10}$	4.0±0.1	1.75±0.1	3.5±0.10	$1.5^{+0.10}_{-0}$	$1.0^{+0.10}_{-0.05}$	4.0±0.1	2±0.05	40±0.2
Symbol	A0	A1	B0	B1	K0	K1	T		
Dimensions	3.19±0.10		2.80±0.10		1.31±0.10		0.22±0.04		

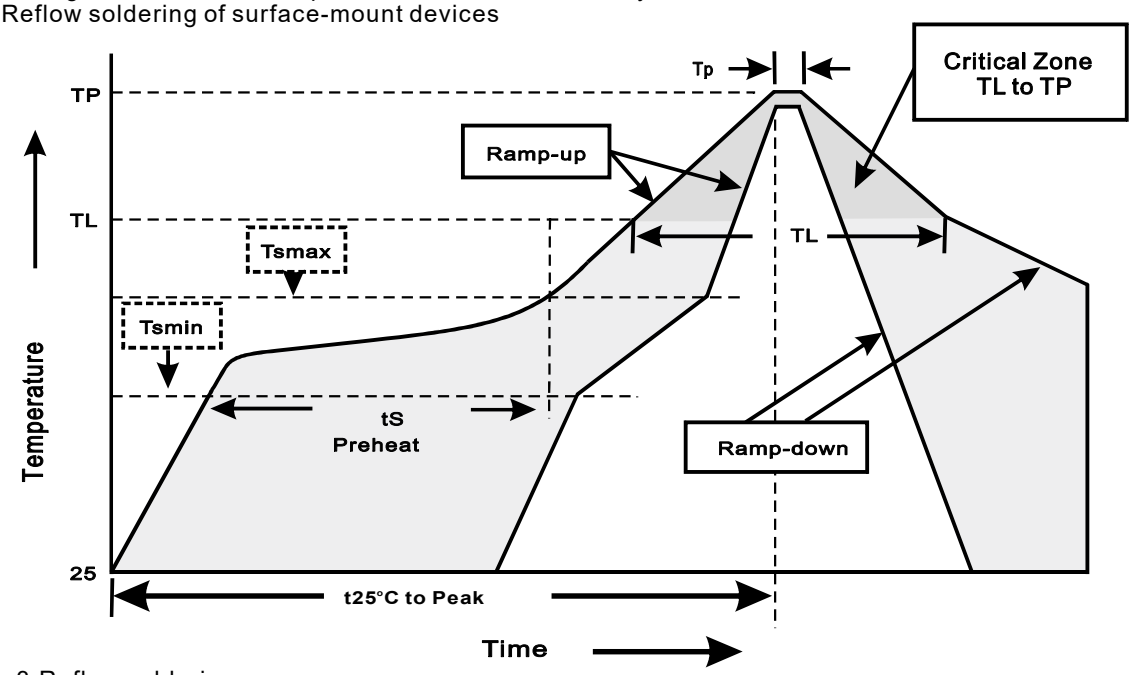
L032BT143

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)
SOT-143	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°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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