

L02V84BT8B

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L02V84BT8B

4-Line SMD Ultra Low Capacitance TVS For ESD Protection : 2.8V

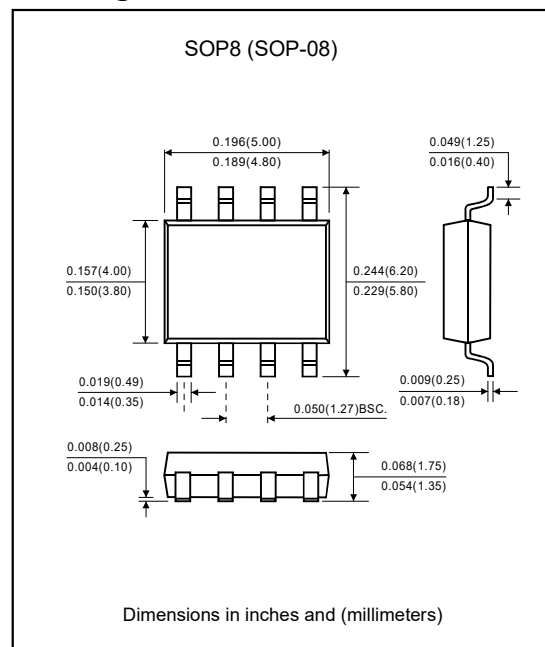
Features

- Package optimized for high-speed lines.
- Provides protection for two line pairs.
- Each I/O pin can withstand over 1000 ESD strikes for $\pm 8\text{kV}$ contact discharge.
- IEC 61000-4-2, $\pm 30\text{KV(Air)}$, $\pm 30\text{KV(Contact)}$.
- IEC 61000-4-4 (EFT) 40A (5/50 ns).
- IEC 61000-4-5 (Lightning) 25A (8/20 μs).
- Suffix "-H" indicates Halogen-free parts, ex. L02V84BT8B-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOP8 (SOP-08).
- Terminals : Plated terminals, solder able per MIL-STD-750, Method 2026.
- Mounting Position : Any.
- Weight: Approximated 0.08 gram.

Package outline



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

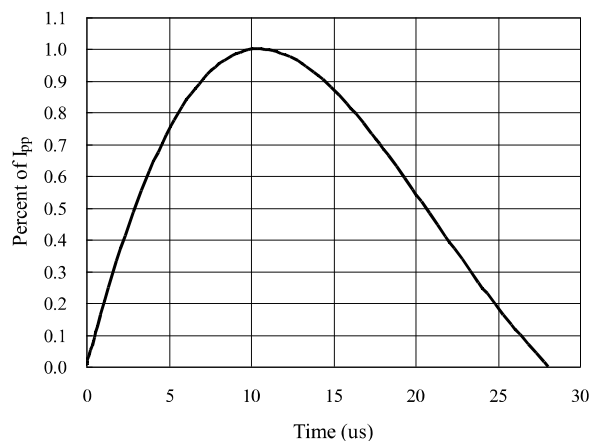
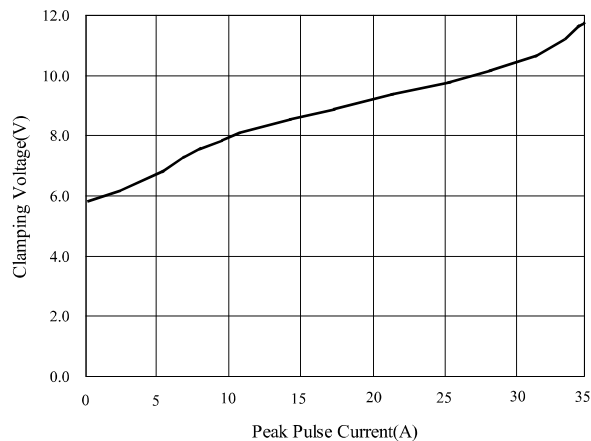
Parameter	Symbol	Value	Unit
Peak pulse current (8 / 20 μs)	I_{PP}	25	A
ESD Per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD Per IEC 61000-4-2 (Contact)		± 30	
Operating temperature	T_{OPT}	-55 to +125	$^\circ\text{C}$
Storage temperature	T_{STG}	-55 to +150	$^\circ\text{C}$
Lead soldering temperature	T_L	260 (10 seconds)	$^\circ\text{C}$

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

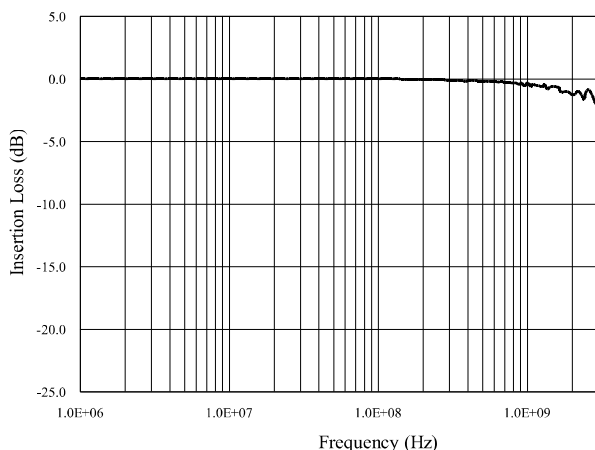
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Nominal Reverse working voltage	V_{RWM}				2.8	V
Reverse leakage current	I_R	$V_{RWM} = 2.8\text{V}$		10	100	nA
Trigger voltage	V_{t1}	$I_{t1} = 1\text{mA}$	6.0		10.0	V
Holding voltage	V_h	$I_h = 30\text{mA}$	2.0		3.0	V
Clamping voltage 1	V_{C1}	$I_{PP} = 5\text{A}$ (8 x 20 μs Pulse)			6.0	V
Clamping voltage 2	V_{C2}	$I_{PP} = 25\text{A}$ (8 x 20 μs Pulse)			9.0	V
Junction capacitance	C_{ESD}	$V_R = 1\text{V}$, $f = 1\text{MHz}$ (Each Line)		1.0		pF

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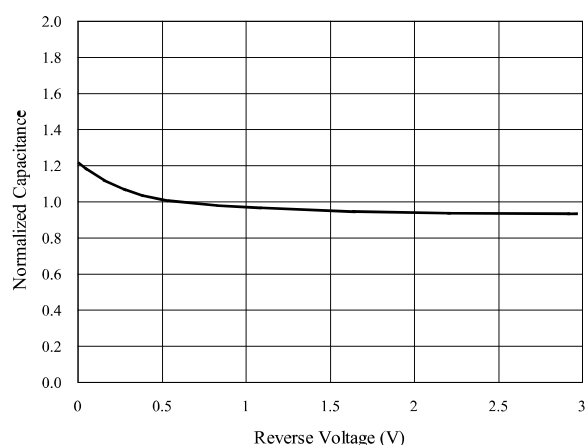
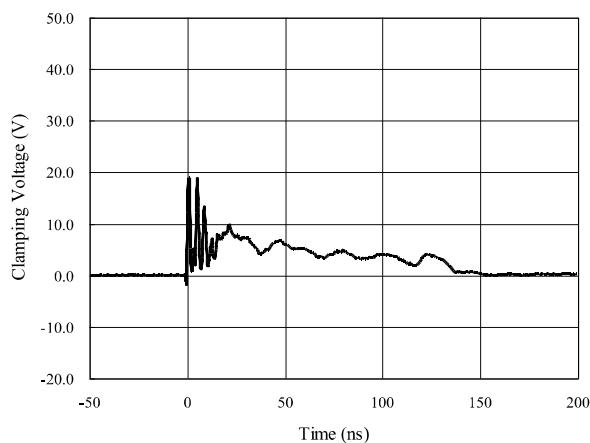
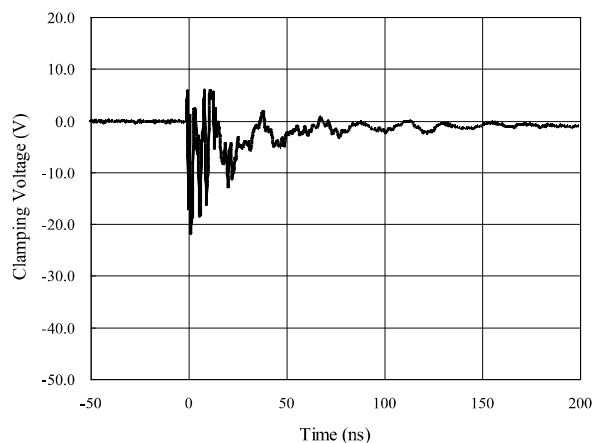
Rating and characteristic curves

8/20 μ s Pulse WaveformClamping Voltage V_C vs. Current I_{PP} 

Insertion Loss S21



Normalized Capacitance vs. Voltage

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

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Pinning information

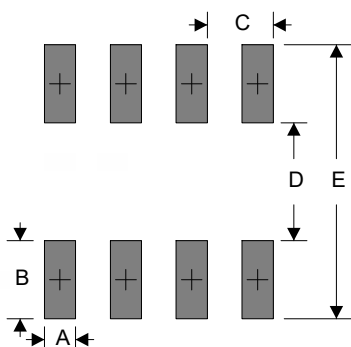
Pin Configuration	Simplified outline	Circuit Diagram

Marking

Type number	Marking code
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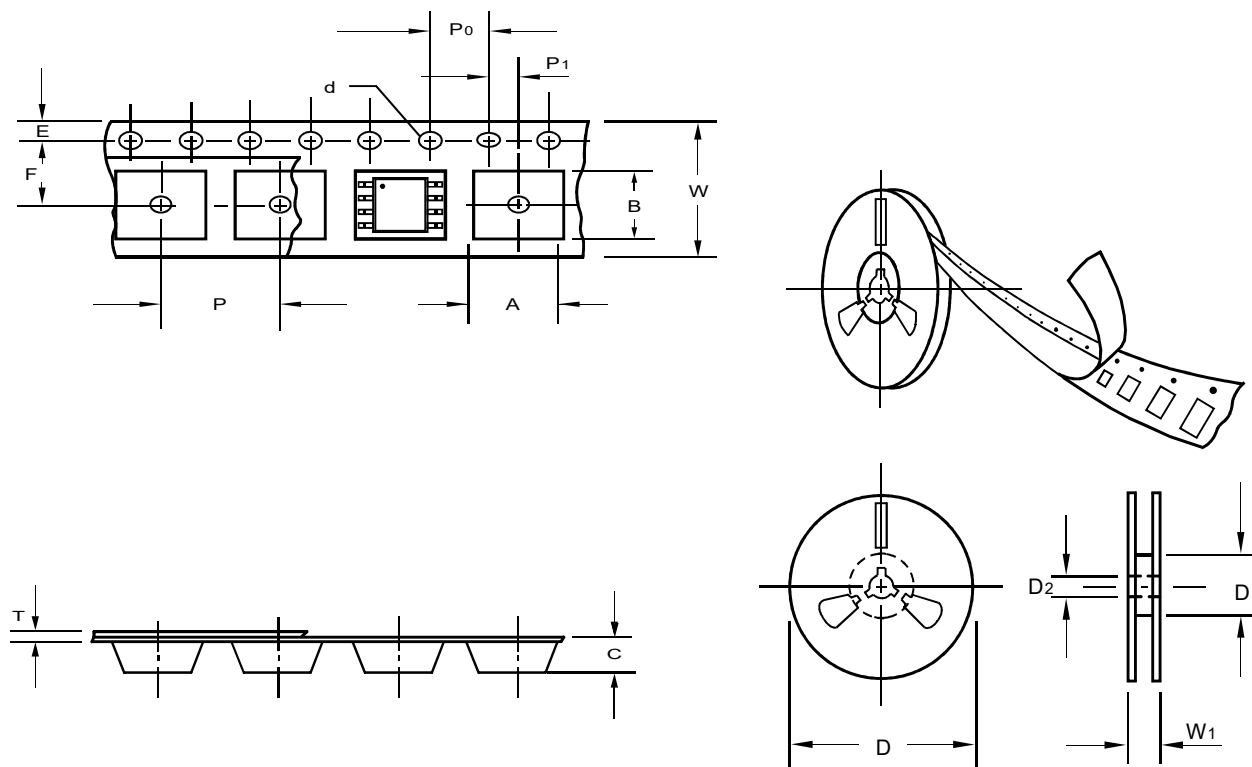
"ΣΣΣΣ" : is the identification number.

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C	D	E
SOP8(SOP-08)	0.024 (0.60)	0.043 (1.10)	0.037(0.95)	0.098(2.50)	0.055(1.40)

L02V84BT8B**Packing information**

unit:mm

Item	Symbol	Tolerance	SOP8(SOP-08)
Carrier width	A	0.20	6.40
Carrier length	B	0.20	5.40
Carrier depth	C	0.1	1.80
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D ₁	min	150.00
7" Reel outside diameter	D	2.0	-
7" Reel inner diameter	D ₁	min	-
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.80
Punch hole position	F	0.1	5.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.22
Tape width	W	0.3	12.00
Reel width	W ₁	1.0	12.50

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

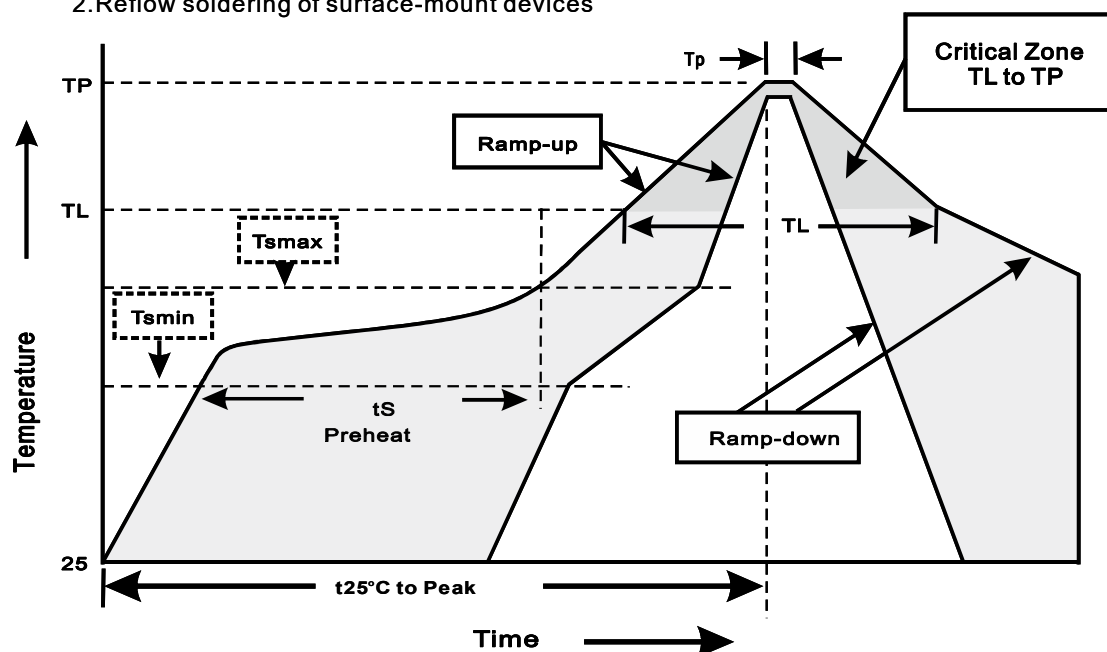
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Reel packing

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)
SOP8(SOP-08)	13"	4,000	8.0	8,000	355*340*50	330	385*300*370	50,000

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