L054BT26L6

List

L054BT26L6

4-Line SMD Low Capacitance TVS for ESD Protection 5.0V

Features

- low operating and clamping voltage
- Low leakage current
- Small package
- IEC 61000-4-2 (ESD) ±30kV (Air)
  ±30kV (Contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 12A (8/20μs)
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. L054BT26L6-H

Applications

- USB2.0 power and data line protection
- Digital visual interfaces(DVI)
- 10/100/1000M ethernet interfaces
- Desktops, servers and notebooks
- SIM ports
- Monitors and flat panel displays
- Video graphics cards

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOT-23-6
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Mounting Position : Any
- Weight : Approximated 0.013 gram

Package outline

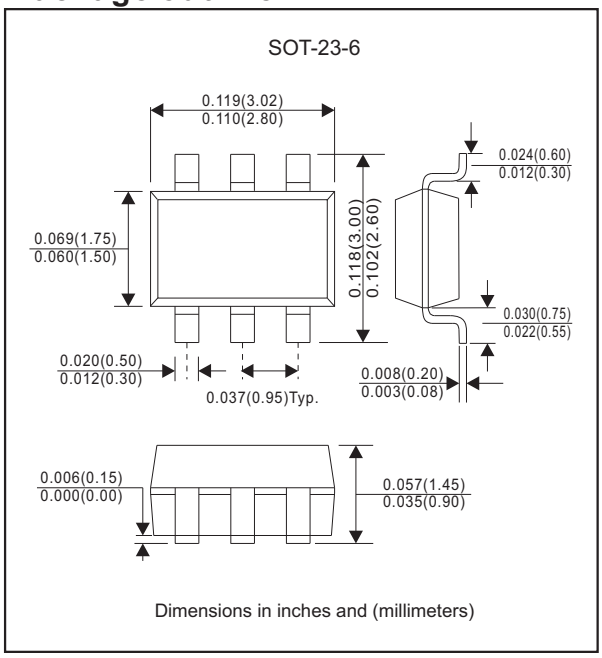


Fig. 1A

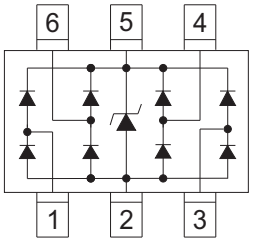
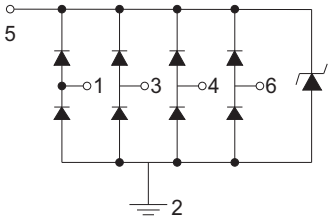


Fig. 1B



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

Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	±30 ±30	kV
Peak pulse current (tp=8/20μs)	I_{PP}	12	A
Peak pulse power (tp=8/20μs)	P_{PP}	200	W
Operating junction temperature range	T_J	-55 to +125	°C
Storage temperature range	T_{STG}	-55 to +150	°C

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

Parameter		Symbol	MIN.	TYP.	MAX.	Unit
Reverse stand-off voltage		V_{RWM}			5	V
Reverse breakdown voltage	I_T=1mA	V_{BR}	6			V
Reverse leakage current	V_{RWM}=5V, T_J=25°C	I_R		10	100	nA
Junction capacitance	V_R=0V, f=1MHz,I/O pin to GND	C_J			2.0	pF
	V_R=0V, f=1MHz,Between I/O pins				1.0	pF
Clamping voltage	I_{PP}=1A, tp=8/20μs,Between I/O pin and GND	V_C			11	V
	I_{PP}=12A, tp=8/20μs,Between I/O pin and GND				16	V

Rating and characteristic curves (L054BT26L6)

Fig.1 VOLTAGE SWEEPING OF I/O TO GND

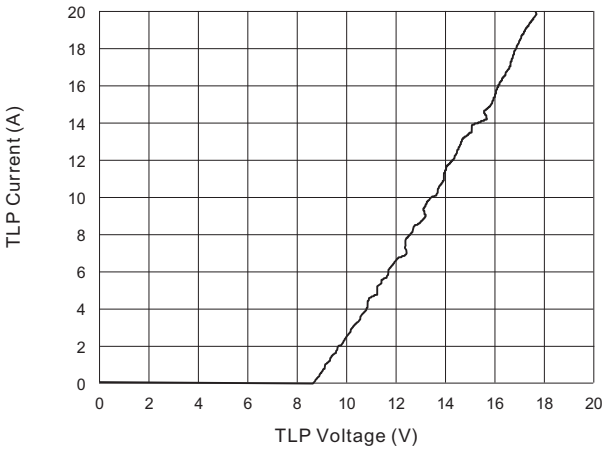


Fig.2 INSERTION LOSS S21 of I/O to GND

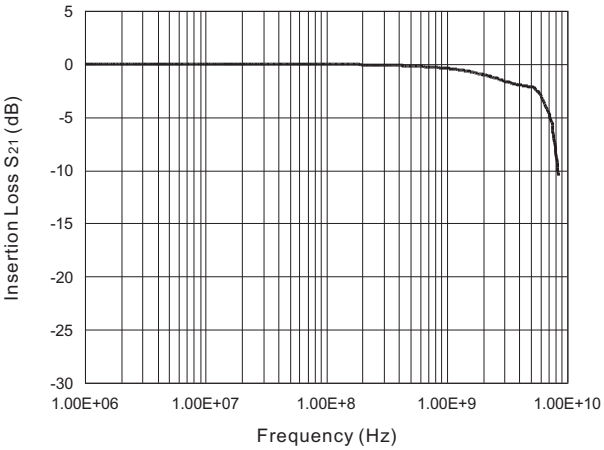


Fig.3 CAPACITANCE VS. REVERSE VOLTAGE

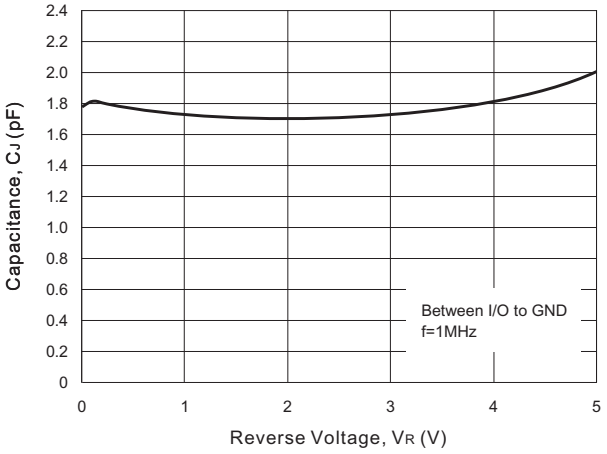


Fig.4 NORMALIZED CAPACITANCE VS. REVERSE VOLTAGE

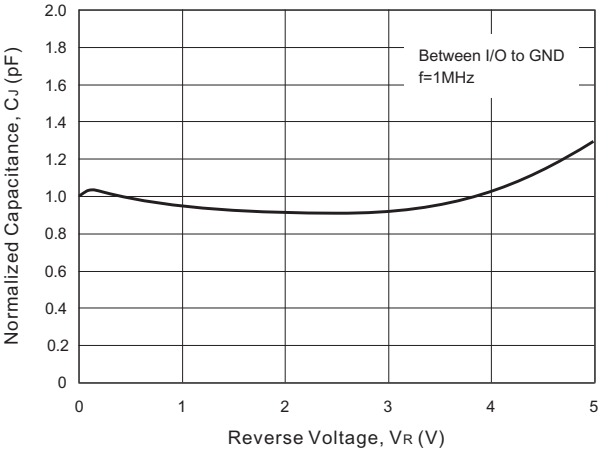


Fig.5 ESD CLAMPING OF I/O TO GND
(+8KV CONTACT PER IEC 61000-4-2)

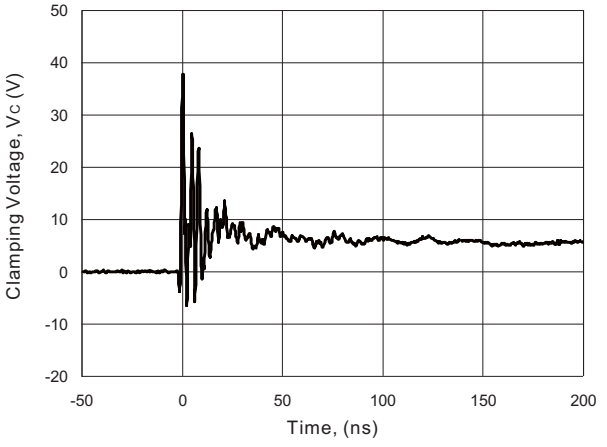
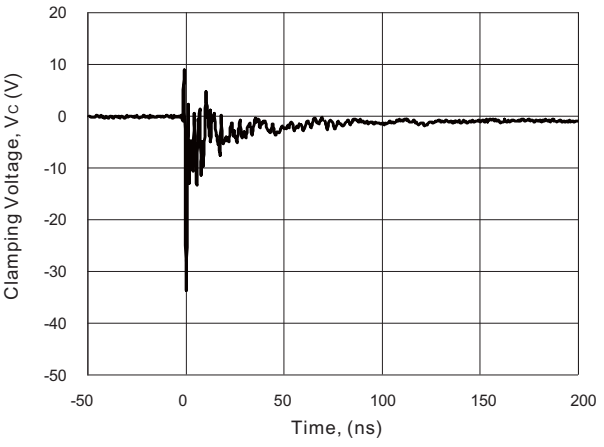


Fig.6 ESD CLAMPING OF I/O TO GND
(-8KV CONTACT PER IEC 61000-4-2)



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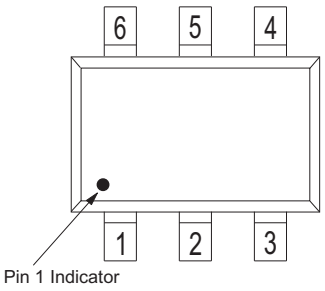
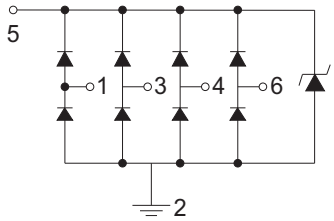
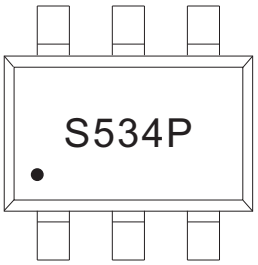
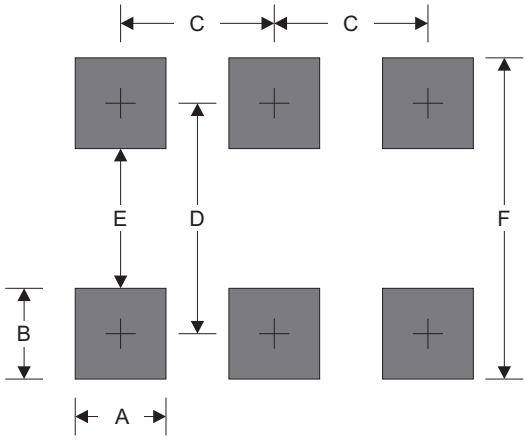
Pinning information

Pin Configuration	Simplified outline	Circuit Diagram
1, 3, 4, 6 I/O 5 Vcc 2 GND		

Marking

Type number	Marking code
L054BT26L6	

Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C	D	E	F
SOT-23-6	0.024 (0.60)	0.043 (1.10)	0.037(0.95)	0.098(2.50)	0.055(1.40)	0.142(3.60)

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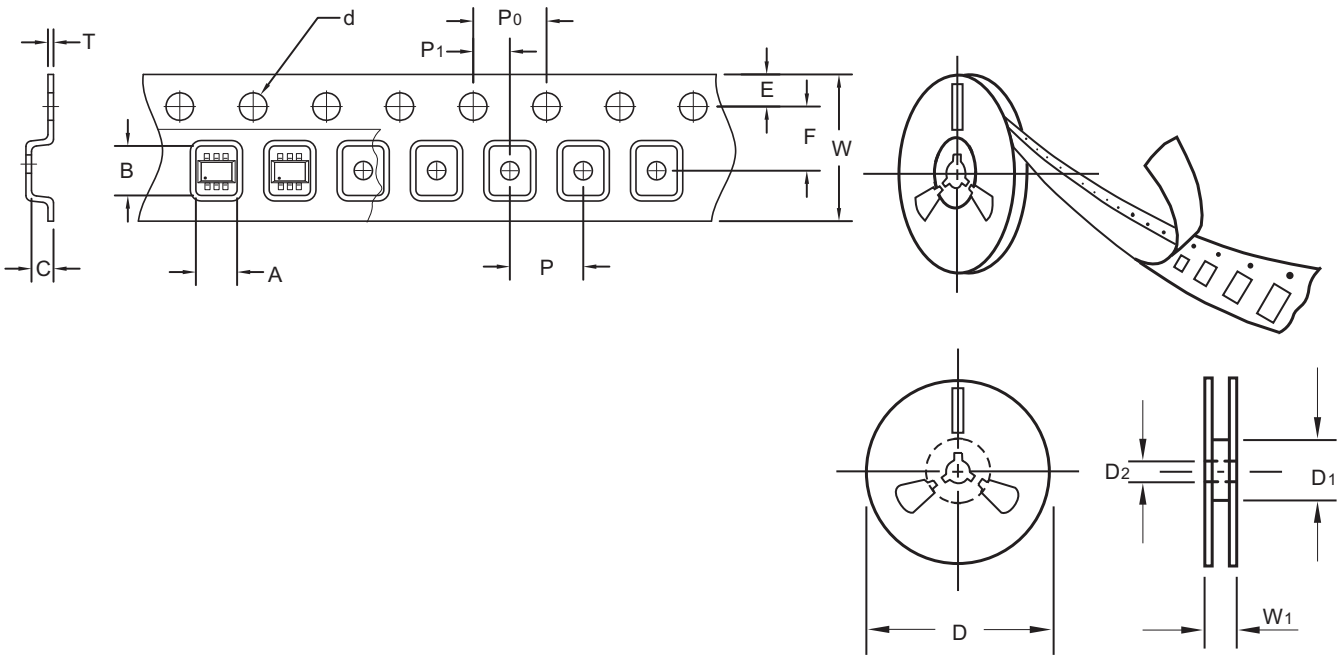
Packing information



unit:mm

Item	Symbol	Tolerance	SOT-23-6
Carrier width	A	0.1	3.23
Carrier length	B	0.1	3.17
Carrier depth	C	0.1	1.37
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	60.00
Feed hole diameter	D_2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.05	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P_0	0.1	4.00
Embossment center	P_1	0.05	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.00
Reel width	W_1	max	14.40

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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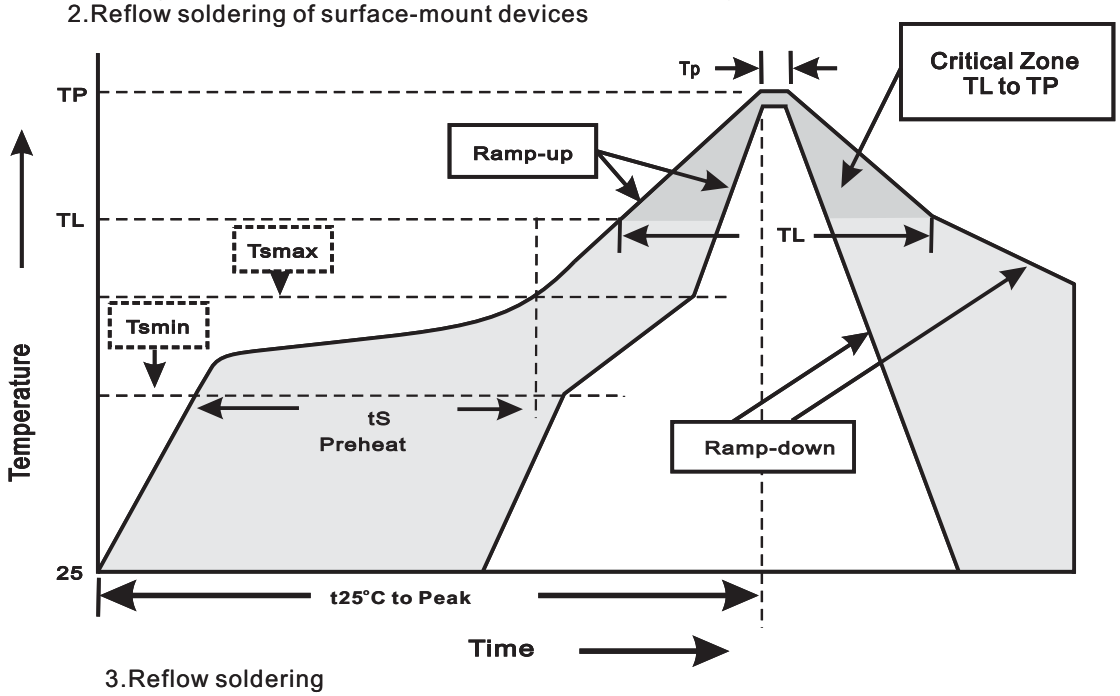
Reel packing

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)	APPROX. GROSS WEIGHT (kg)
SOT-23-6	7"	3,000	4.0	30,000	183*123*183	178	382*257*387	240,000	9.50

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

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	V_{BR}= V_{BR} Min * 80% at T_J=125°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Pressure Cooker	15P_{SIG} at T_A=121°C for 4 hrs.	JESD22-A102
5. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
6. Humidity	at T_A=85°C, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
7. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031