

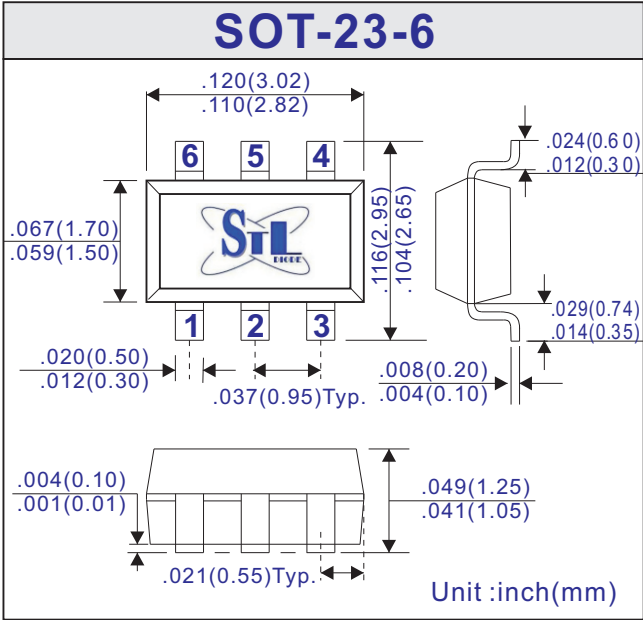


L054BT26

4-Line SMD Transient Voltage Suppressor Array - 5.0V



FEATURES
<ul style="list-style-type: none"> • Low voltage clamping due to integrated zener diode • 4-Line arrangement with ultra low input capacitance • Designed to protect components which are connected to data and transmission lines from over voltages caused by electrostatic discharge (ESD), electrical fast transients (FET), and induced lightning • Transient protection for data lines to IEC 61000-4-2 (ESD) 15KV(air), 8KV(contact) IEC 61000-4-4 (EFT) 40A (tp=5/50nS) • General purpose downstream ESD protection high frequency analog signals and high-speed serial data transmission for ports inside: <ul style="list-style-type: none"> • PC-/Notebook USB2.0/IEEE 1394 ports • Cellular phone and PCS mobile handsets • DVI interfaces • Cordless telephones/Wireless data (WAN/LAN) systems • PDAs



MECHANICAL DATA
<ul style="list-style-type: none"> • Case: Molded plastic SOT-23-6 • Epoxy: UL94-V0 rated flame retardant • Terminals: Solderable per MIL-STD-750 Method 2026 • Schematic pin configuration, see Fig. 1A • Circuit diagram, see Fig. 1B • Mounting Position: Any • Weight: 0.016 grams (approximate)

Fig. 1A

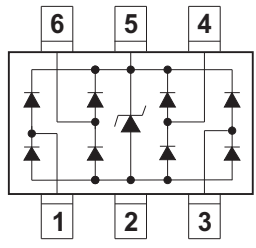
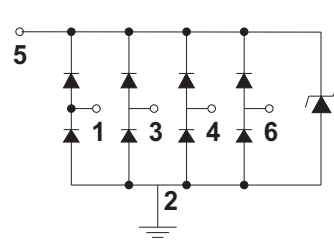


Fig. 1B



MAXIMUM RATING AND ELECTRICAL CHARACTERISTICS
 Ratings at 25°C ambient temperature unless otherwise specified

	Symbols	Min.	Typ.	Max.	Units
DC Input Voltage Range	V _{I/O}	0	-	5.5	Volts
Electrostatic Discharge (All Pins) IEC 61000-4-2, Level 4, Contact	ESD	-8	-	+8	KV
Pin Capacitance, Pins 1, 3, 4, 6 to Ground V _{DC} =0V; f=1.0MHz; Pin 5 = +3.0V	C _{I/O}	-	1,0	-	pF
Diode Reverse Leakage Current, Pin 1, 3, 4, 6 to Ground	I _R	-	-	100	nA
Typical Zener Diode Capacitance to Ground, Pin 5 to 2	C _Z	-	40	-	pF
Zener Diode breakdown Voltage, Pin 5 to 2, I=1mA	V _{BR}	6	-	9	Volts
Forward Voltage	V _F	-	0.7	-	Volts
Operation Temperature Range	T _J	-55	-	+125	°C
Storage Temperature Range	T _{STG}	-55	-	+150	°C



Fig.2 - Non-Repetitive Peak Pulse Power

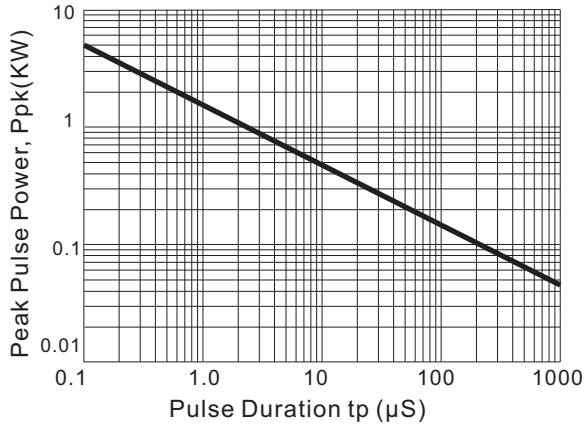


Fig. 3 - Power Derating Curve

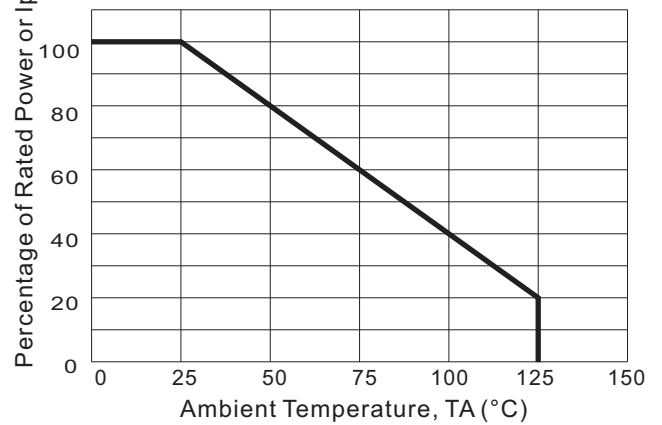


Fig. 4 - Pulse Waveform

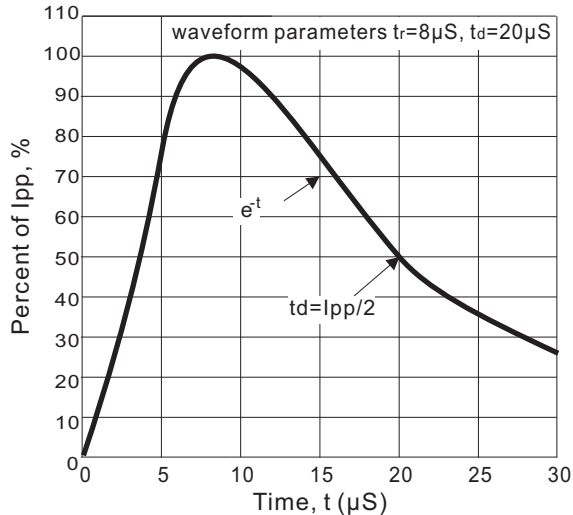


Fig. 5 - Clamping Voltage vs Peak Pulse Current

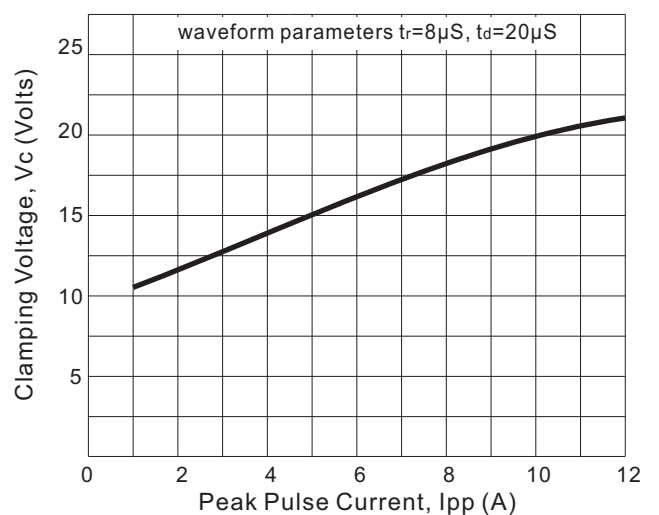


Fig. 6 - Typical Junction Capacitance

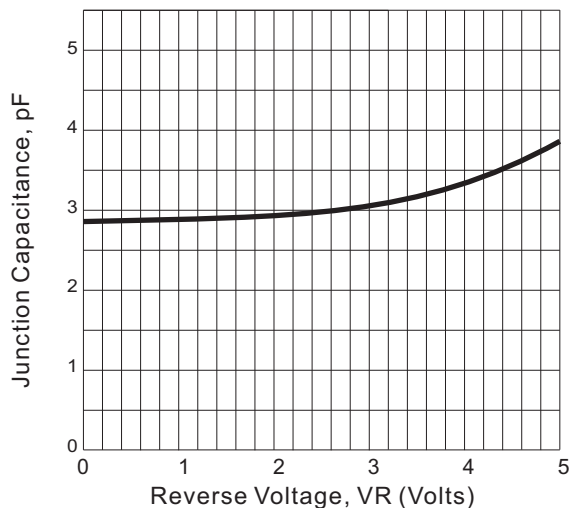
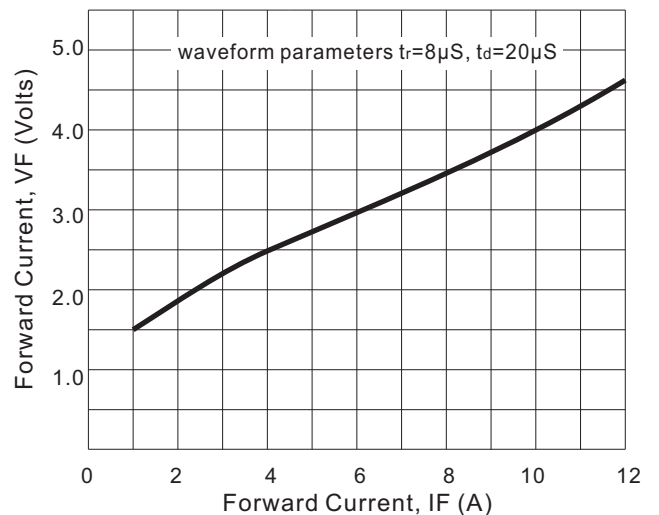


Fig. 7 - Typical Forward Characteristics

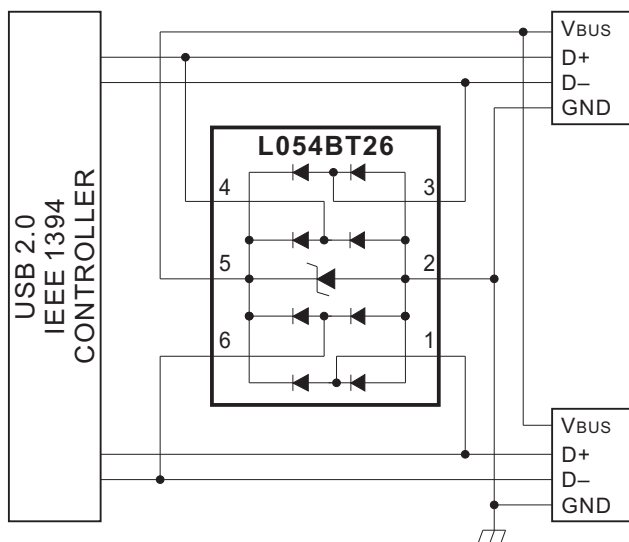


1.0 Universal Serial Bus (USB) ESD Protection

The **L054BT26** can be used to protect the USB ports on mobile phones, monitors, PCs, peripherals and other portable systems (please refer to schematic diagram below Fig. 8A). In typical applications, the voltage bus (VBUS) of USB ports are connected to the power pin (pin 5) of the device. Each data line (D+/D-) of the USB ports is connected to the ESD protection pin of the device

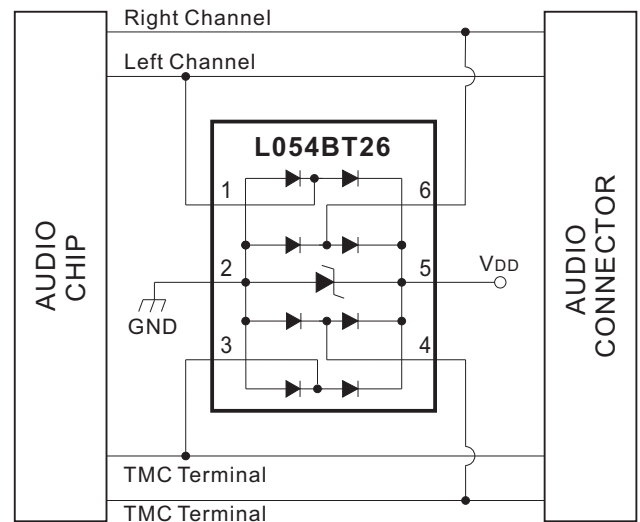
When an electrostatic discharge (ESD) pulse appears on the data line, the ESD pulse current will be conducted by the **L054BT26** away from the USB controller chip. In addition, the ESD pulse current can also be conducted by the device away from the USB controller chip when the ESD voltage pulse appears on the voltage bus (VBUS) of any of the USB ports. Therefore, the data lines (D+/D-) and voltage bus (VBUS) of the two USB ports are complementally protected with the **L054BT26** device.

Fig. 8A - The Application of the L054BT26



Typical Universal Serial Bus 2.0 Serial Application

Fig. 8B - The Application of the L054BT26



Typical Audio Interface Application

2.0 Audio Interface EDS Protection

Another typical application of the **L054BT26** is ESD protection of the Right/Left channel and TMC terminals of an audio interface. Referring to the schematic diagram Fig. 8B above, the Right and Left channels of the audio connector are connected to the ESD protection pins (such as pin 1 and pin 6) of the **L054BT26**. In addition, the TMC terminals of the audio connector are also connected to the ESD protection pins (such as pin 3 and pin 4) of the device. Regarding the power pin (pin 5) of the device, this should be directly connected to the VDD power supply.

In this configuraton, when an electrostatic discharge (ESD) voltage pulse appears on the Right or Left channel or TMC terminals of audio connector, the ESD pulse current will automatically be discharged by the **L054BT26**. Therefore, the Right/Left channel and TMC terminals of the audio chip are complementally protected with an **L054BT26** device.