

DESCRIPTION

Brightking's SDT26AXXL05 series are designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage induced transient events. Each device will protect up to five lines. They are unidirectional devices and may be used on lines where the signal polarities are above ground. They feature large cross sectional area junctions for conducting high transient currents. They offer desirable characteristics for board level protection including fast response time, low operating and clamping voltage and no device degradation. The series may be used to meet the immunity requirements of IEC61000-4-2, level 4.

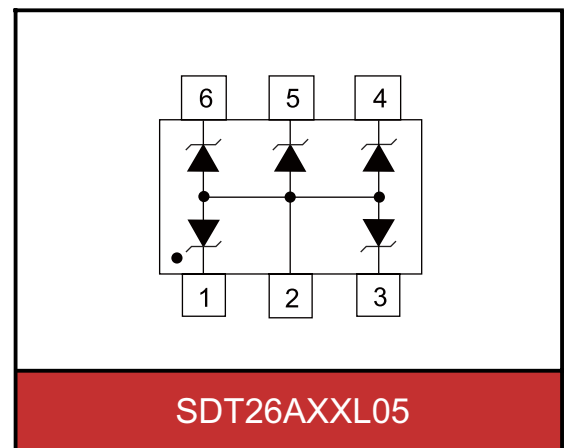


HBM : ±8kV
Air Mode : ±15kV



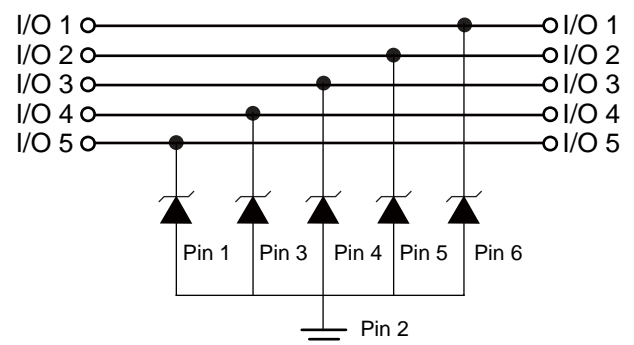
SPECIFICATION FEATURES

- IEC61000-4-2 ESD 15KV Air,8KV contact compliance
- Small SOT23-6L surface mount package
- Protects five data lines
- Peak power dissipation of 350W under 8/20μs waveform
- Working voltage : 5V, 15V and 24V
- Low leakage current
- Low clamping voltage
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant
- Solder reflow temperature: Pure Tin-Sn, 260-270°C
- Flammability rating UL 94V-0



APPLICATIONS

- Cell phone handsets and accessories
- Microprocessor based equipment
- Personal digital assistants (PDA's)
- Notebooks, Desktops and Servers
- Portable instrumentation
- Set Top Box
- Peripherals
- Cordless phones



MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	Ppp	350	W
ESD voltage (HBM contact)	VESD	±8	KV
ESD voltage (AIR contact)		±15	
Storage & operating temperature range	TSTG ,TJ	-55~+150	°C
Lead soldering temperature	TL	260 (10 sec.)	°C

ELECTRICAL CHARACTERISTICS (TJ=25°C)

SDT26A05L05 (Marking : TC5)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	VRWM				5	V
Reverse breakdown voltage	VBR	IBR=1mA	6			V
Reverse leakage current	IR	VR=5V each I/O pin			5	μA
Clamping voltage (tp=8/20μs)	VC	Ipp=5A			9.5	V
Clamping voltage (tp=8/20μs)	VC	Ipp=20A			18	V
Off state junction capacitance	CJ	0Vdc,f=1MHZ between I/O pins			200	pF

ELECTRICAL CHARACTERISTICS (T_J=25°C)

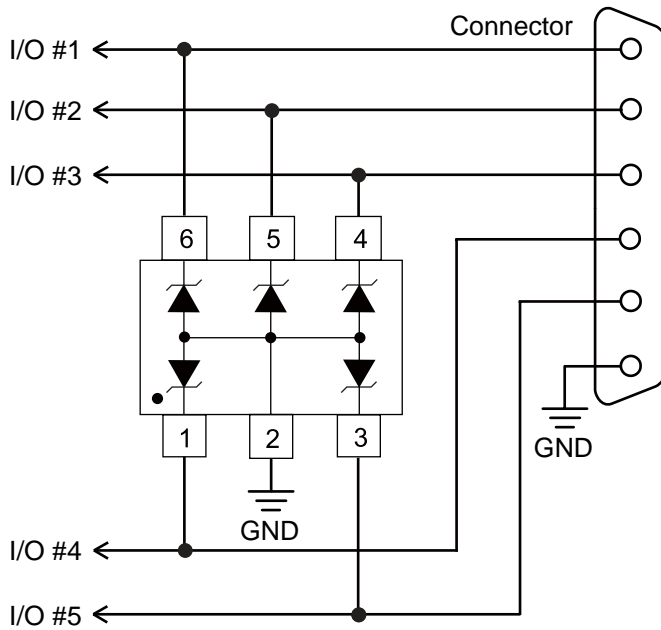
SDT26A15L05 (Marking : TCJ)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				15	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	16.7			V
Reverse leakage current	I _R	V _R =15V each I/O pin			5	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =5A			24	V
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =10A			35	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins			70	pF

SDT26A24L05 (Marking : TCK)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				24	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	26.7			V
Reverse leakage current	I _R	V _R =24V each I/O pin			1	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =5A			40	V
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =7A			50	V
Off state junction capacitance	C _J	0Vdc, f=1MHZ between I/O pins			50	pF

APPLICATIONS INFORMATION



Unidirectional protection of five I/O lines is achieved by connecting pins 1, 3, 4, 5 and 6 to the data lines. Pin 2 is connected to ground. The ground connection should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

Figure 1. Keep short path length.

Good circuit board layout is critical for the suppression of ESD induced transients.

The following guidelines are recommended :

- Place the SDT26AXXL05 near the input terminals or connectors to restrict transient coupling
- Minimize the path length between the SDT26AXXL05 and the protected line
- Minimize all conductive loops including power and ground loops.
- The ESD transient return path to ground should be kept as short as possible.
- Never run critical signals near board edges.
- Use ground planes whenever possible.

TYPICAL CHARACTERISTICS CURVES

Figure 1. Power Derating Curve

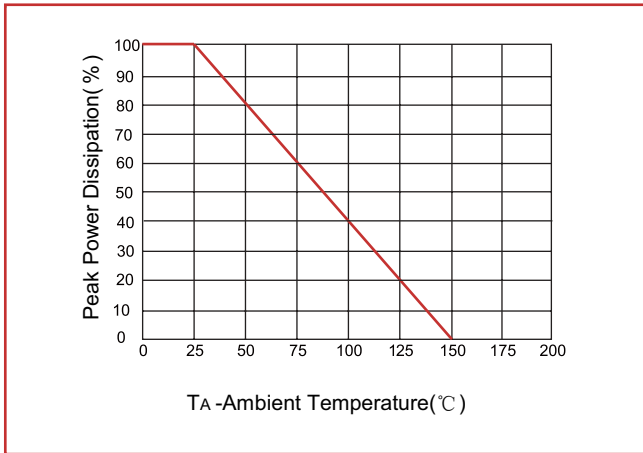


Figure 2. Pulse Waveforms

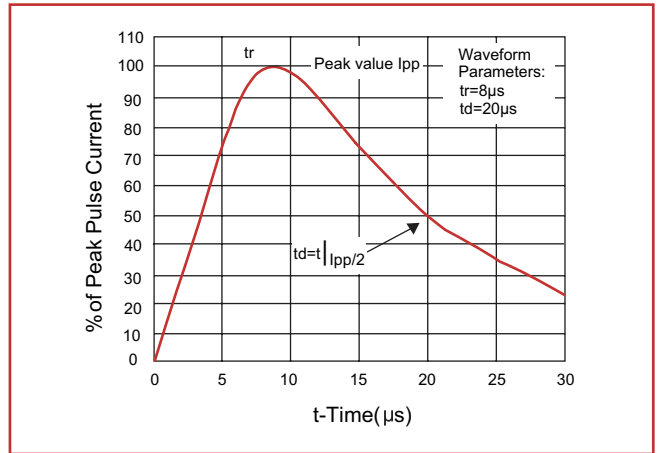


Figure 3. Non-Repetitive Peak Pulse vs Pulse Time

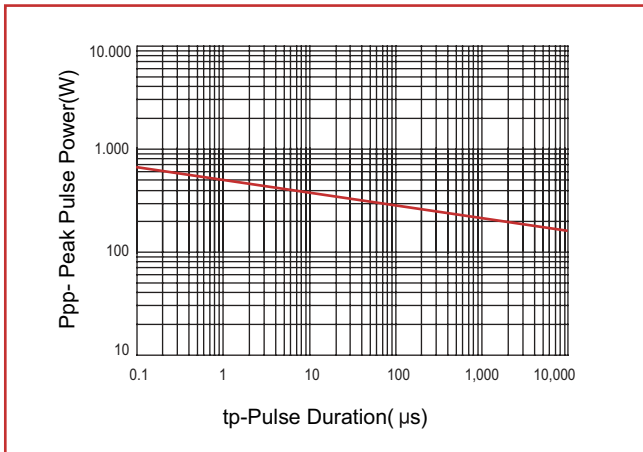
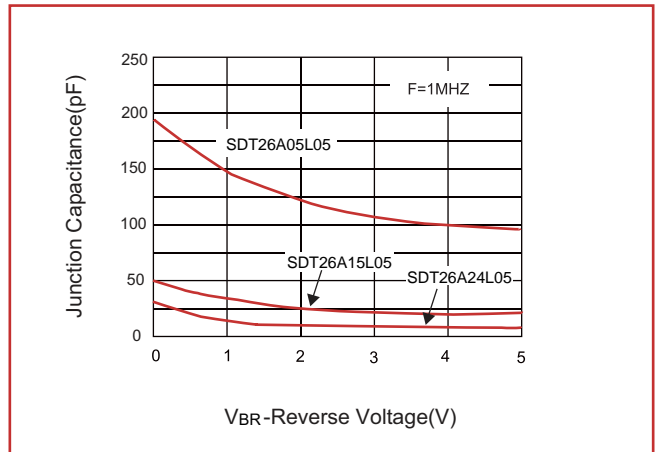
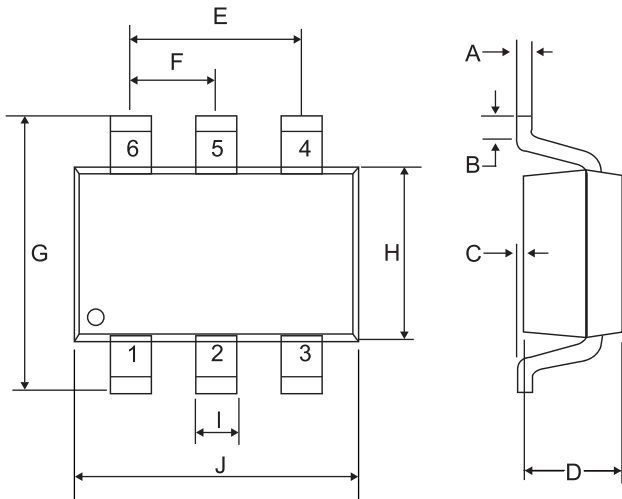


Figure 4. Capacitance vs. Reverse Voltage



PACKAGE AND SUGGESTED PAD LAYOUT DIMENSION

SOT23-6L(unit:mm)



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.007	0.11	0.19
B	0.016	-	0.40	-
C	-	0.004	-	0.10
D	0.039	0.047	1.00	1.20
E	0.074	0.075	1.88	1.92
F	0.037	0.038	0.93	0.97
G	0.102	0.118	2.60	3.00
H	0.059	0.067	1.50	1.70
I	0.016		0.41	
J	0.110	0.118	2.80	3.00

