

DESCRIPTION

The UDT23C08L01 of transient voltage suppressors are designed to protect low voltage, state-of-the-art CMOS semiconductors from transients caused by electrostatic discharge(ESD), cable discharge events(CDE), lightning and other induced voltage surges. The device is constructed using EPD process technology. The EPD process provides low standoff voltages with significant reductions in leakage currents and capacitance over silicon avalanche diode processes. The device features integrated low capacitance compensation diodes that reduce the typical capacitance to 1.5pF per line. This combined with low leakage current, means signal integrity is preserved in high-speed applications such as 10/100/1000 Ethernet.

The device may be used to protect two high-speed line pairs. The "flow-thru" design minimizes trace inductance and reduces voltage overshoot associated with ESD events. The low clamping voltage of the device minimizes the stress on the protected IC. The device TVS diodes will meet the surge requirements of IEC61000-4-2, Level 4.

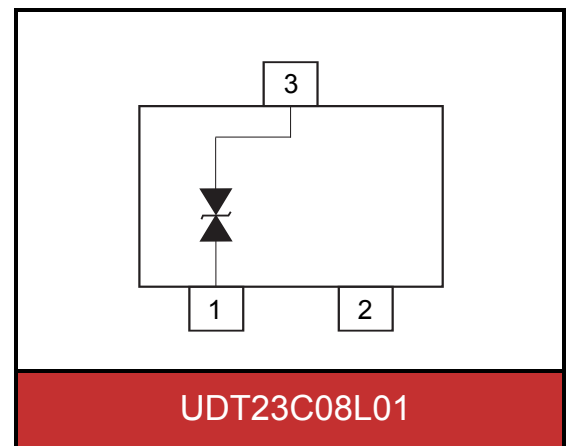


HBM : ±8kV
Air Mode : ±15kV



SPECIFICATION FEATURES

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOT-23 surface mount package
- Protects one I/O line
- Peak power dissipation of 350W under 8/20µs waveform
- Working voltage: 8V
- Low leakage current
- Low operating and clamping voltages
- Solid-state silicon avalanche technology
- Lead Free/RoHS compliant



APPLICATIONS

- High-speed data lines
- Microprocessor based equipment
- LAN / WAN equipment
- Desktops PC and servers
- Notebook, Laptop and Palmtop computers
- Portable instrumentation
- Peripherals
- Universal serial bus (USB) port protection

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak pulse power (tp=8/20μs waveform)	P _{PP}	350	W
ESD voltage (Contact discharge)	V _{ESD}	±8	kV
ESD voltage (AIR contact)		±15	
Lead soldering temperature	T _L	260	°C
Storage & operating temperature range	T _{STG} , T _J	-55~+150	°C

ELECTRICAL CHARACTERISTICS (T_J=25°C)

UDT23C08L01 (Marking: B D8)

Rating	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	V _{RWM}				8	V
Reverse breakdown voltage	V _{BR}	I _{BR} =1mA	8.5		10	V
Reverse leakage current	I _R	V _R =8V			1	μA
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =1A			13	V
Clamping voltage (tp=8/20μs)	V _C	I _{PP} =12A			25	V
Off state junction capacitance	C _J	0Vdc, f=1MHz Between I/O pins and GND		1.5		pF

TYPICAL CHARACTERISTICS CURVES

Figure 1. Power Derating Curve

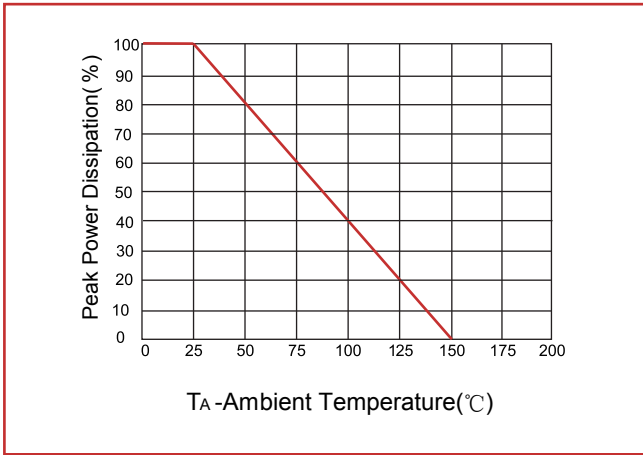


Figure 2. Pulse Waveforms

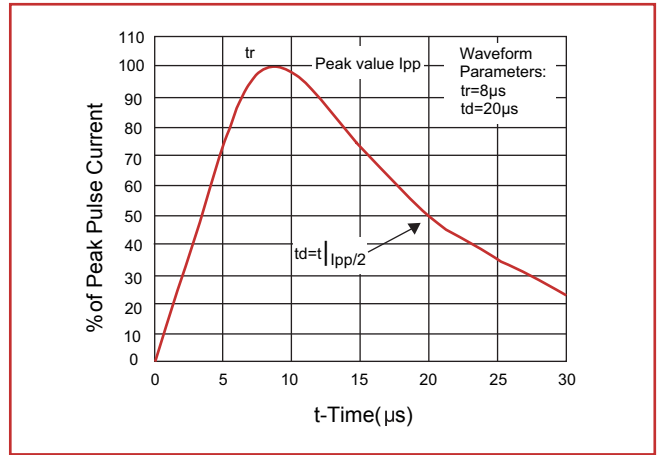


Figure 3. Non-Repetitive Peak Pulse vs Pulse Time

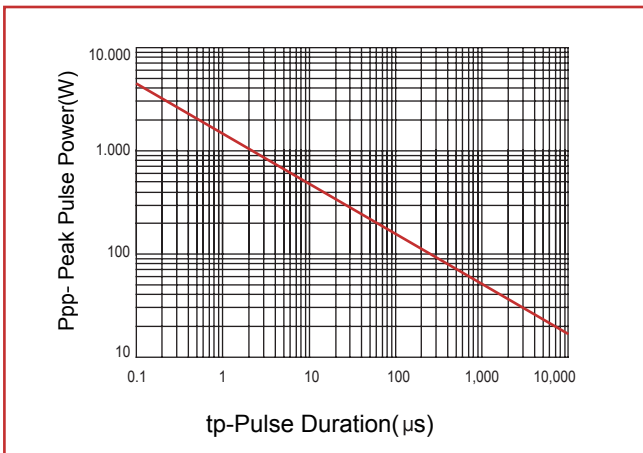
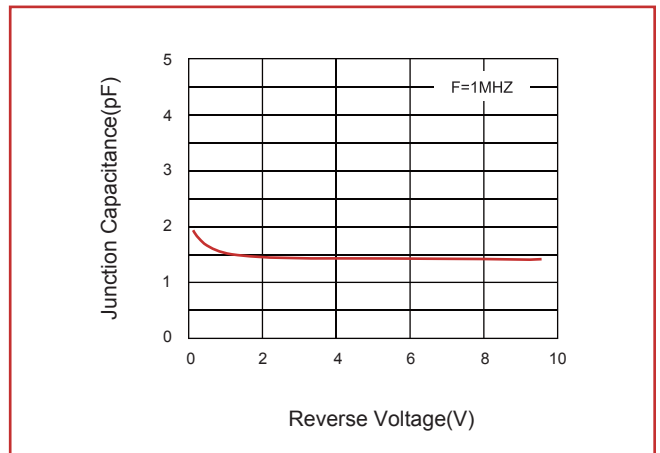
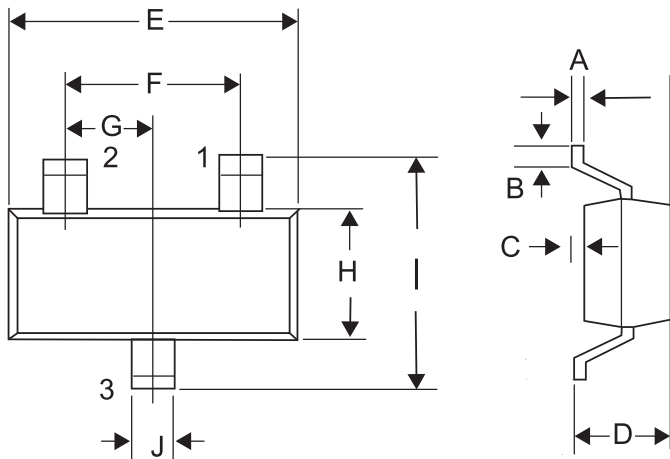


Figure 4. Normalized Capacitance vs. Reverse Voltage



PACKAGE AND SUGGESTED PAD LAYOUT DIMENSION

SOT-23(unit:mm)



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

