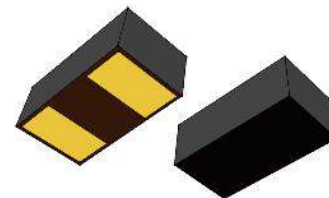


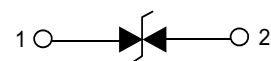
Descriptions

Due to its extremely small package, ultra-fast response time is suitable for most portable electronic devices; it can be used for high-speed signals (such as USB3.0, MIPI, HDMI, etc.) due to its ultra-low junction capacitance. The low clamp voltage can effectively prevent the IO port or the post-stage circuit from being disturbed by ESD when the ESD event occurs.



Features

1. Lead free type.
2. Compact size for 0603(0201)
3. Insulator over coat keeps excellent low and stable leakage current.
4. Quick response time(<1ns).
5. Low Clamping Voltage.
6. Meet IEC 61000-4-2 standard.
 - Contact discharge mode: typical $\pm 8\text{kV}$
 - Air discharge mode: typical $\pm 15\text{kV}$



Circuit diagram

Applications

Application for Mother Board, Notebook, cellular Phone, PDA, handheld device, DSC, DV, Scanner, and Set-Top Box etc.

Part Numbering

<u>CVR</u>	<u>0603E</u>	<u>3V3</u>	<u>001</u>	<u>T</u>
(1)	(2)	(3)	(4)	(5)

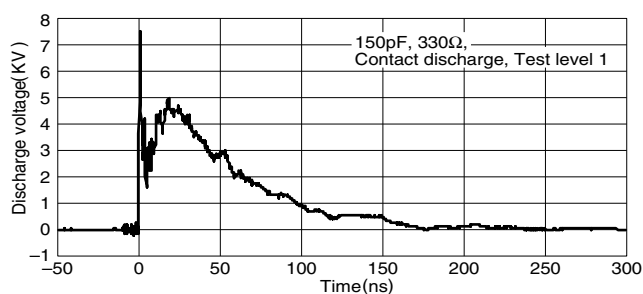
- (1) CVR : Series Name
- (2) Size: 0603(0201)
- (3) 3.3: V_{DC} 3.3V
- (4) 001 : 0.05PF~0.15PF
- (5) Packing: Tape & Reel

Specifications

Part Number	Continuous Operating Voltage V_{DC} (V) Max	Clamping Voltage V_C (V) Typ	Trigger Voltage V_T (V) Typ	Leakage Current I_L (nA) Max	Capacitance C_J (pF) Typ
CVR0603E03001T	3.3	40.0	450.0	100.0	0.05
CVR0603E05001T	5.0	40.0	450.0	100.0	0.05
CVR0603E07001T	7.0	40.0	450.0	100.0	0.05
CVR0603E12001T	12.0	40.0	450.0	100.0	0.05
CVR0603E15001T	15.0	40.0	450.0	100.0	0.05
CVR0603E18001T	18.0	40.0	450.0	100.0	0.05
CVR0603E24001T	24.0	40.0	450.0	100.0	0.05
CVR0603E30001T	30.0	40.0	450.0	100.0	0.05
CVR0603E36001T	36.0	40.0	450.0	100.0	0.05

Electrostatic absorption characteristic

Discharge voltage waveform



Current wave parameter [IEC61000-4-2]

level	ESD Charging voltage (kV)	Discharge 1 peak current (A)	Rise time (ns)
1	2	7.5	0.7 to 1.0
2	4	15	0.7 to 1.0
3	6	22.5	0.7 to 1.0
4	8	30	0.7 to 1.0

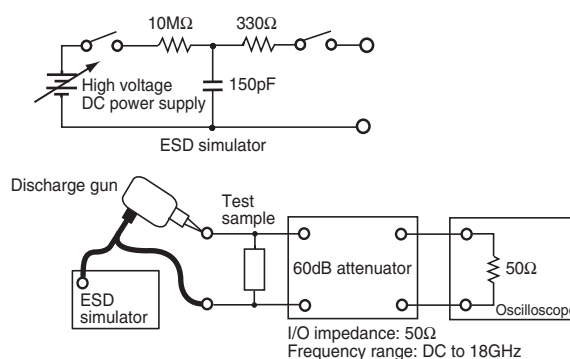
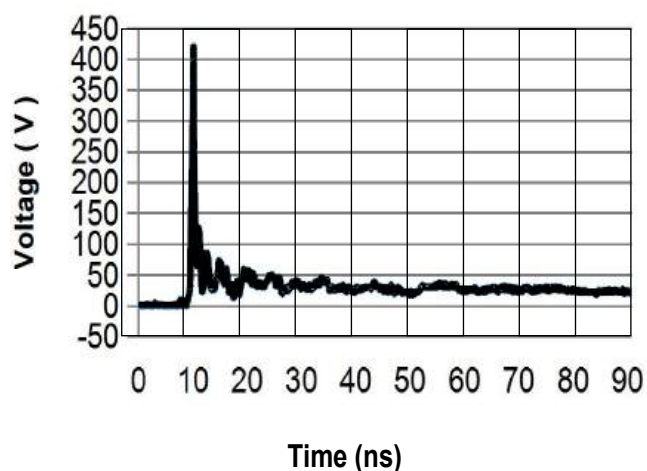
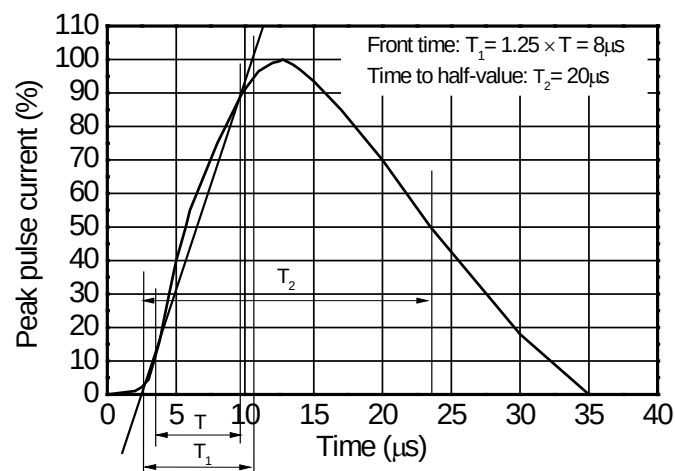
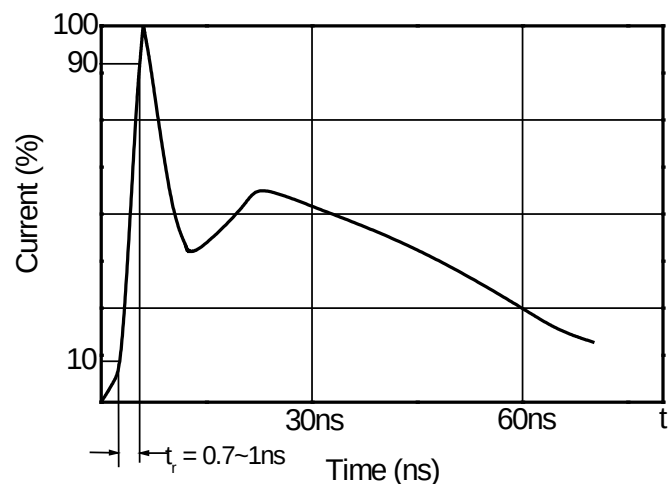


Fig.1 Typical ESD Response
(IEC 61000-4-2, 8kV contact discharge)

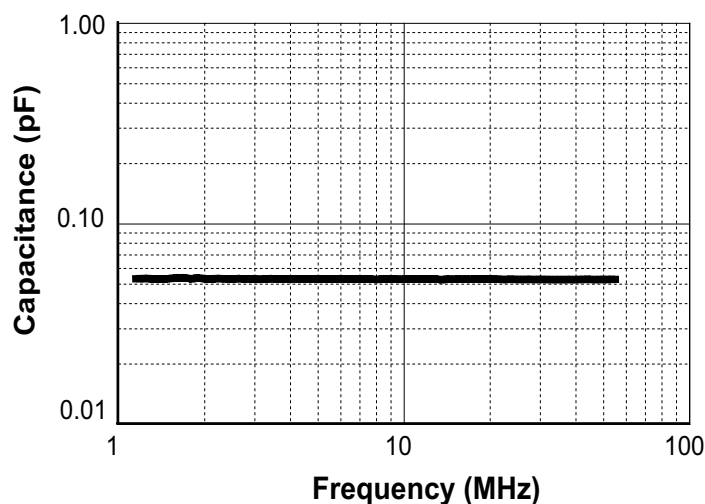
Typical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)



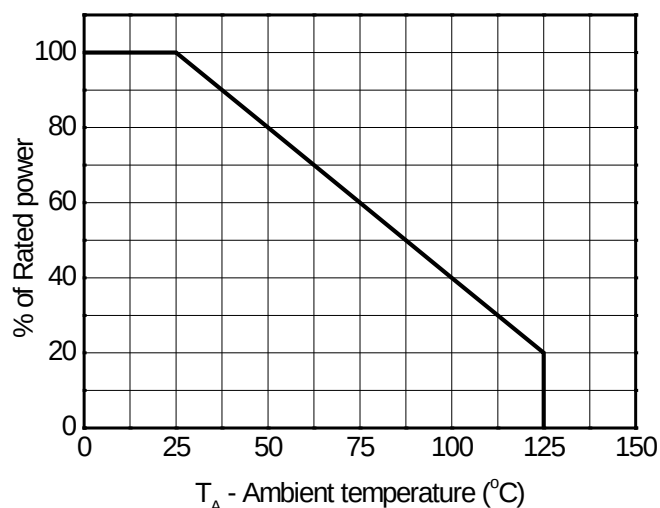
8/20 μs waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

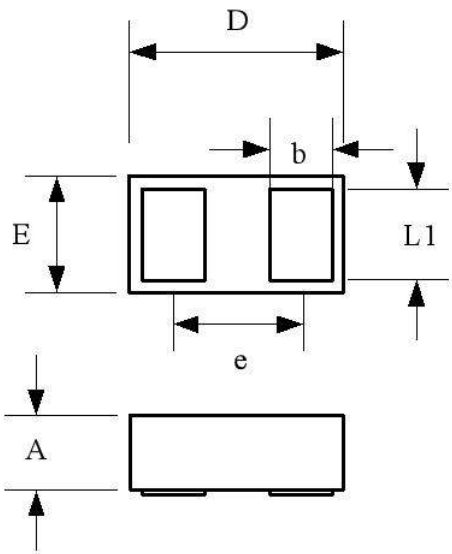


Capacitance vs. Reverses voltage



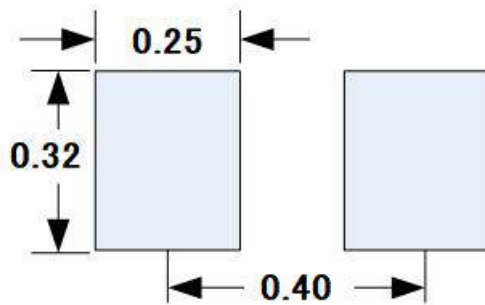
Power derating vs. Ambient temperature

PAD Dimension



Dimension	Unit: Millimeters	
	Min.	Max.
A	0.25	0.35
b	0.18	0.22
D	0.55	0.65
E	0.25	0.35
e	0.38BSC	
L1	0.20	0.30

Recommended Solder Pad Footprint



***Sizes in mm**

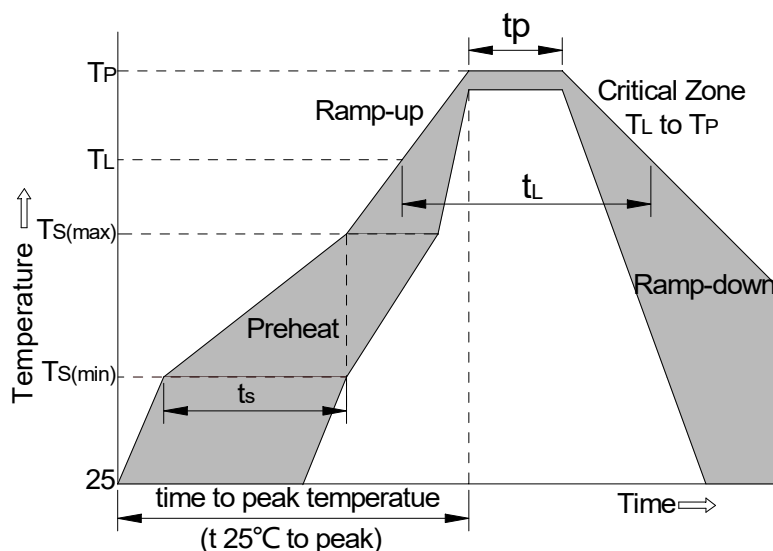
Environmental Performance

Item	Specifications	Test Condition
Bias Humidity	$\Delta V_v / V_v \leq \pm 10\%$	90%RH, 40°C, Working Voltage, 1000hrs
Thermal Shock		-55°C to 125°C, 30min.cycle, 5 cycles
Full Load Voltage		Working Voltage, 125°C, 1000hrs
Solder Leach Resistance	(1) $\Delta V_v / V_v \leq \pm 10\%$ (2) $I_L \leq 1nA$ at Working Voltage (3) Solder Wetting Area $\geq 95\%$	260±5°C, 10 ±1sec.

Package

Size	0603
Standard Packing Quantity(pcs / reel)	15,000

Soldering Parameters



Reflow Condition		Pb-Free Assembly
Pre-heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (t_s)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
xTime 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C