



Features

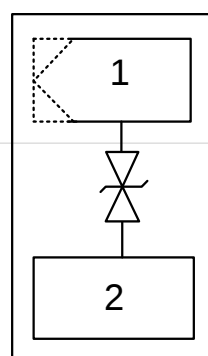
- Ultra small package: 0.6x0.3x0.3mm
- Low capacitance
- Protects one data or power line
- Ultra low leakage: nA level
- Low operating voltage: 5V
- Low clamping voltage
- 2-pin leadless package
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 30\text{kV}$
Contact discharge: $\pm 30\text{kV}$
 - IEC 61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN0603-2 (0.6x0.3x0.3mm)
- Lead Finish: NiPdAu
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See symbol
- Marking Information: Refer to customer approval list

**DFN0603-**

Marking information

**Bi-directional****SYMBOL**

Absolute Maximum Ratings (T_A=25°C, RH=45%-75%, unless otherwise noted)

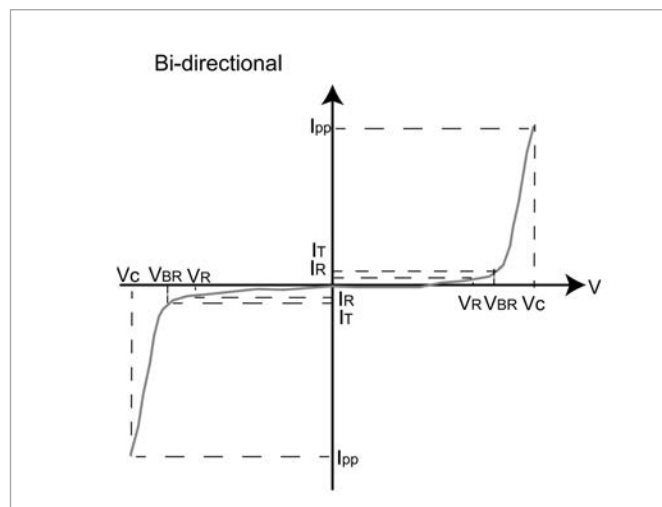
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{PK}	60	W
Peak Pulse Power (8/20 μs)	I _{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +125	°C
Storage Temperature Range	T _{stg}	-55 to +150	°C



Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	6		9	V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.2	μA	$V_{RWM} = 5\text{V}$
Clamping Voltage	V_C			8	V	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	V_C			12	V	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	C_J		8		pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

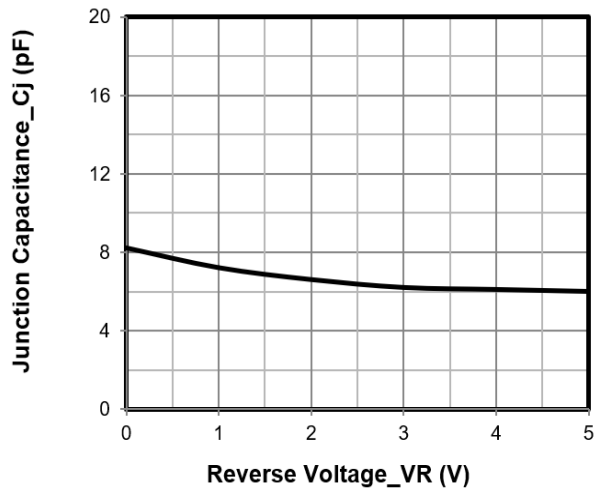
I-V Curve Characteristics



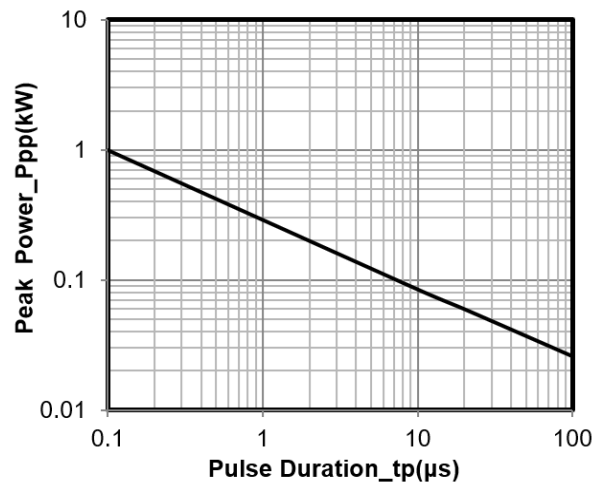
P_{PPM}	Peak Pulse Power Dissipation -----	Max power dissipation
V_R	Stand-off Voltage -----	Maximum voltage that can be applied to the TVS without operation
V_{BR}	Breakdown Voltage -----	Maximum voltage that flows though the TVS at a specified test current (I_T)
V_C	Clamping Voltage -----	Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
I_R	Reverse Leakage Current -----	Current measured at V_R
V_F	Forward Voltage Drop for Uni-directional	



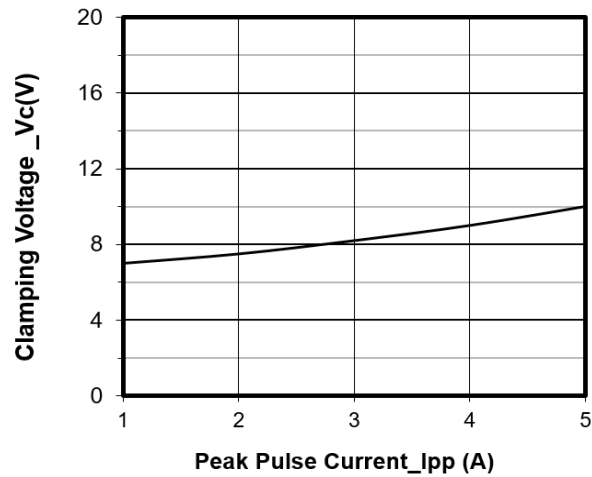
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



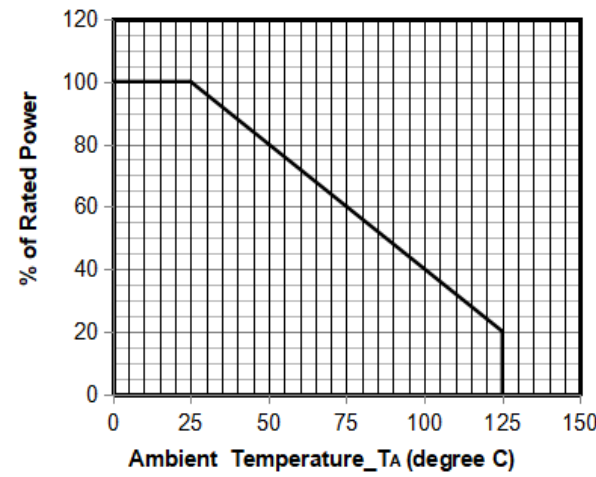
Junction Capacitance vs. Reverse Voltage



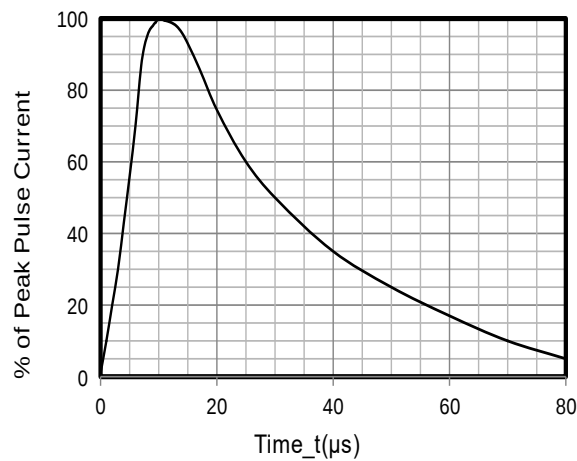
Peak Pulse Power vs. Pulse Time



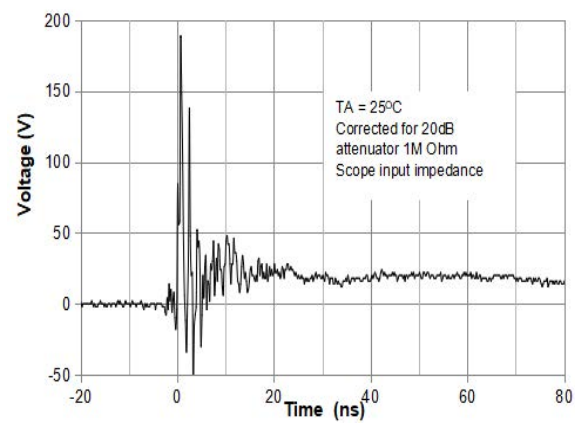
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



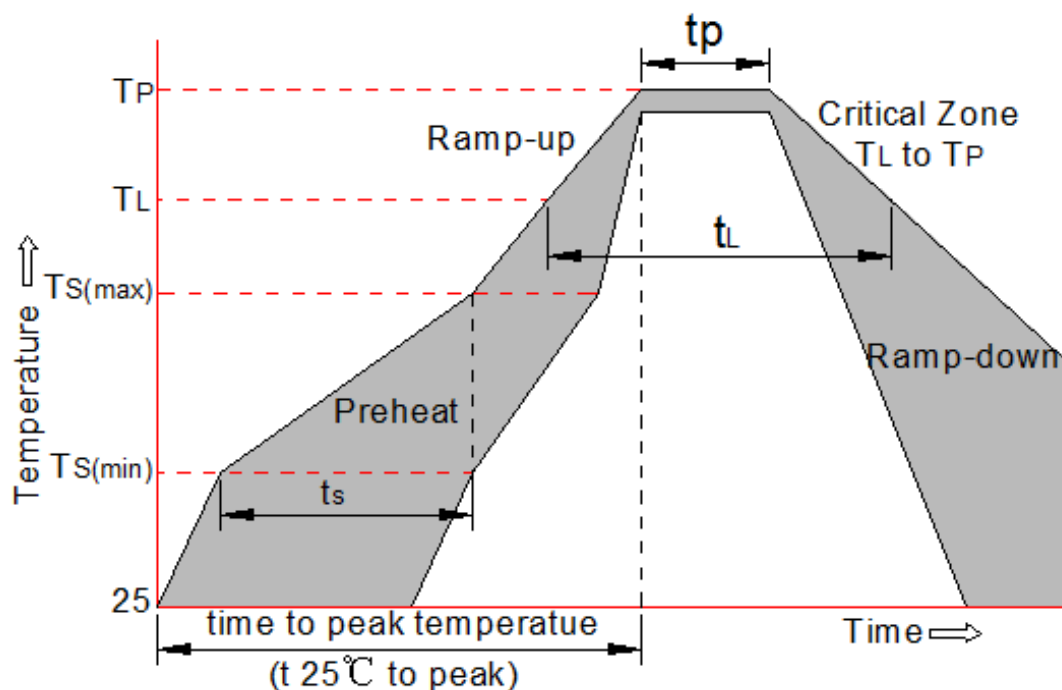
8 X 20μs Pulse Waveform



ESD Clamping Voltage
8 kV Contact per IEC61000-4-2



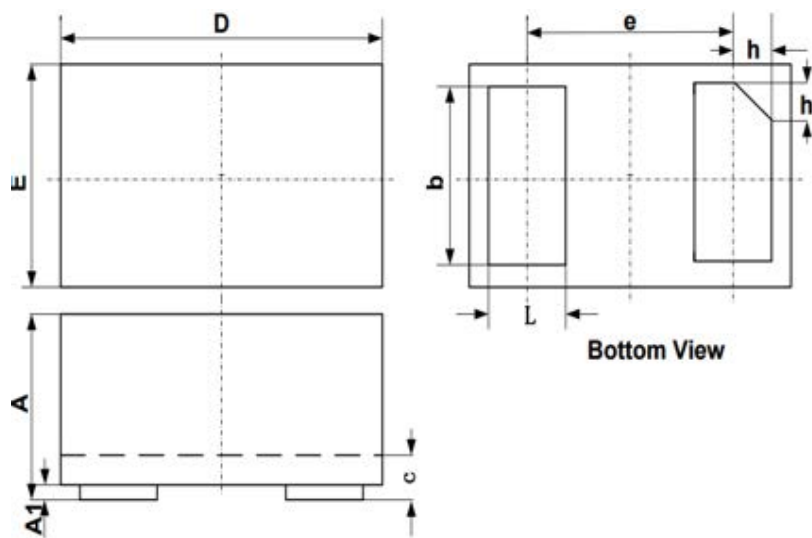
Soldering Parameters



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
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

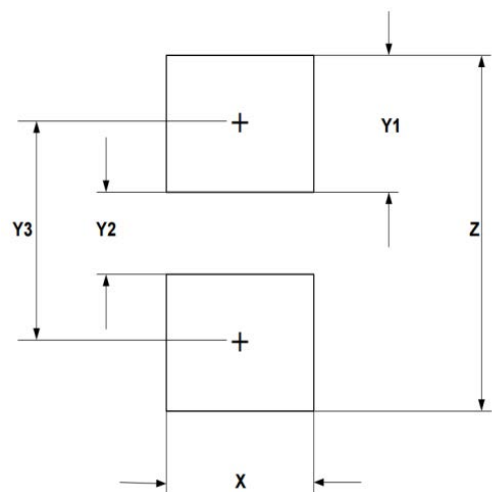


Package Outline Dimensions



SYM	DIMENSIONS		
	MILLIMETERS		
	MIN	NOM	MAX
A	0.230		0.330
A1	0.000	0.020	0.050
b	0.215	0.245	0.275
c	0.120	0.150	0.180
D	0.550	0.600	0.650
e	0.355 BSC		
E	0.250	0.300	0.350
L	0.160	0.190	0.220
h	0.079 BSC		

Suggested PAD Layout



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	0.30	0.012
Y1	0.25	0.010
Y2	0.15	0.006
Y3	0.40	0.016
Z	0.65	0.026

Ordering Information

Part Number	Package	Weight	Base qty	Reel Size	Delivery mode
		grams(approx.)	(pcs)	(inch)	
ESDKR5V0BSC	DFN0603		10000	7	Tape and Reel