

Low Capacitance TVS Diode Array

FEATURES

- ◆600W peak pulse power(8/20μs)
- ◆Ultra low leakage: nA level
- ◆Operating voltage: 5V
- ◆Low capacitance for high-speed data line
- ◆Low clamping voltage
- ◆Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: ±30kV
Contact discharge: ±30kV
 - IEC61000-4-4 (EFT) 40A (5/50ns)
 - IEC61000-4-5 (Lightning) 30A (8/20μs)

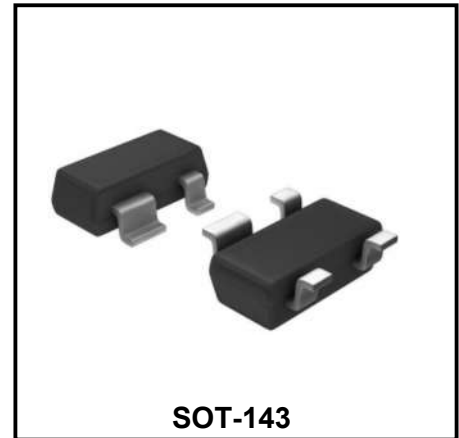
◆RoHS Compliant

Applications

- ◆Video Line Protection
- ◆Wireless Systems
- ◆Ethernet 10BaseT
- ◆I2C Bus Protection
- ◆Portable Instrumentation
- ◆LAN/WAN equipment
- ◆High-Speed Data Lines
- ◆Multi-Protocol Serial Transceivers
- ◆ISDN S/T Interface

Mechanical Characteristics

- ◆Package: SOT-143
- ◆Lead Finish: Matte Tin
- ◆Case Material: “Green” Molding Compound.
- ◆UL Flammability Classification Rating 94V-0
- ◆Moisture Sensitivity: Level 3 per J-STD-020



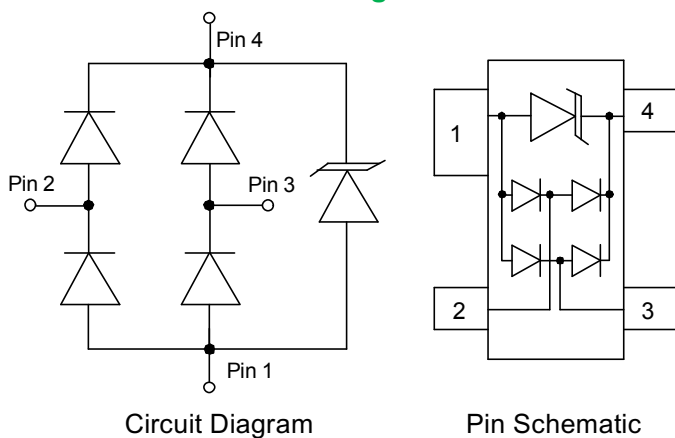
SOT-143

Marking Code

SR05

R05

Dimensions and Pin Configuration



Circuit Diagram

Pin Schematic

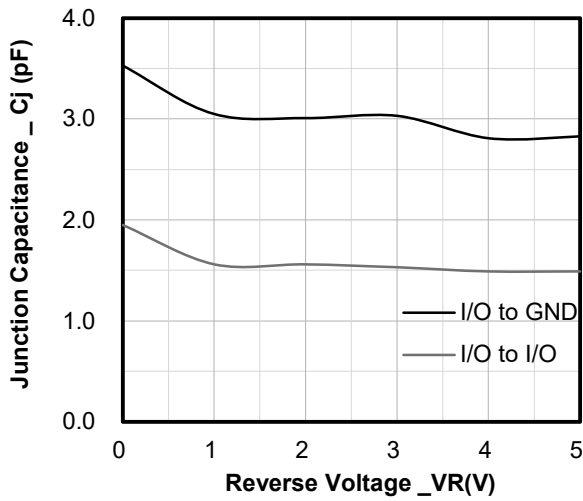
Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power(8/20 μs)	P_{pk}	600	W
Peak Pulse Current(8/20 μs)	I_{PP}	30	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD}	± 30 ± 30	kV
Operating Temperature Range	T_J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

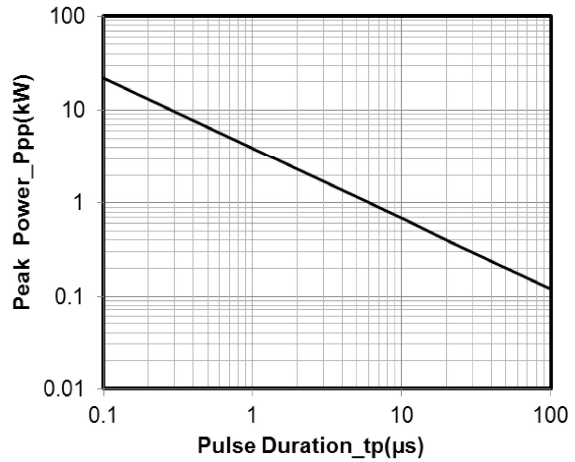
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Reverse Working Voltage		V_{RWM}	-	-	5	V
Punch-Through Voltage	$I_T = 1\text{mA}$	V_{BR}	6	-	-	V
Reverse Leakage Current	$V_{RWM} = 5\text{V}$	I_R	-	-	0.5	μA
Clamping Voltage	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse), between I/O pins and GND	V_C	-	-	10	V
Clamping Voltage	$I_{PP} = 15\text{A}$ (8 x 20 μs pulse), between I/O pins and GND	V_C	-	-	13	V
Clamping Voltage	$I_{PP} = 30\text{A}$ (8 x 20 μs pulse), between I/O pins and GND	V_C	-	-	18	V
Junction Capacitance	$V_R=0$, $f=1\text{MHz}$, between I/O pins and GND	C_J	-	-	4.0	pF
Junction Capacitance	$V_R=0$, $f=1\text{MHz}$, between I/O pins	C_J	-	-	2.0	pF

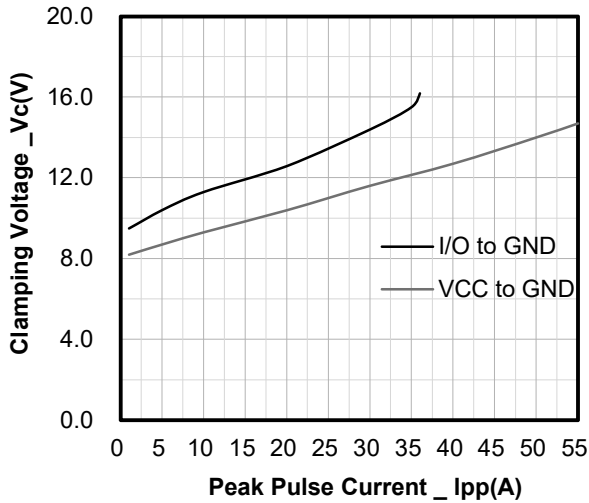
Typical Performance Characteristics (T_A=25°C unless otherwise Specified)



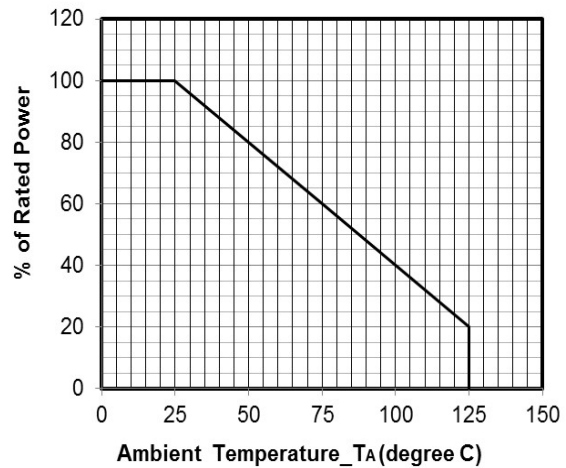
Junction Capacitance vs. Reverse Voltage



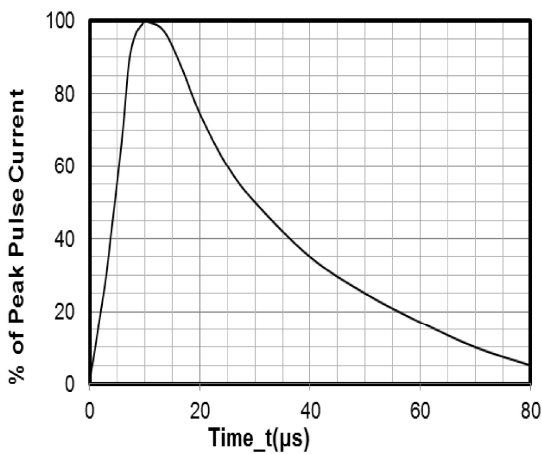
Peak Pulse Power vs. Pulse Time



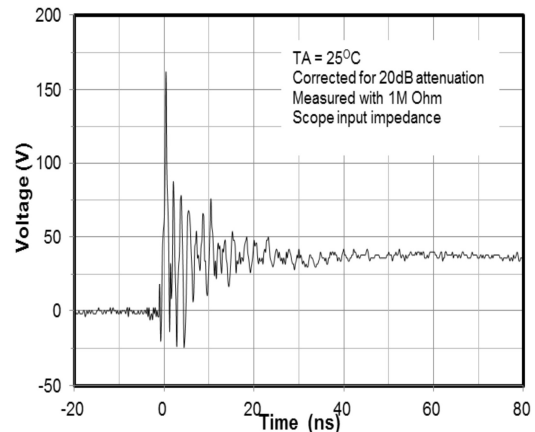
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



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

Ordering information

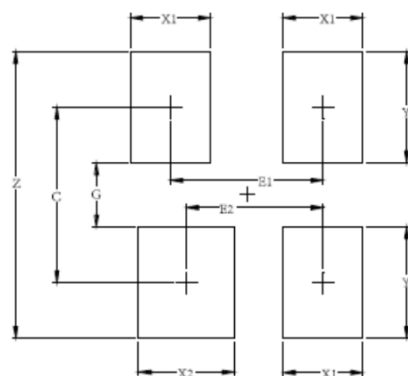
Package	Packing Description	Packing Quantity
SOT-143	Tape/Reel,7"reel	3000PCS/Reel 120000PCS/Carton

Package Dimensions

SOT-143

Dim.	Millimeter(mm)		Inches	
	Min.	Max.	Min.	Max.
A	0.80	1.22	0.031	0.048
A1	0.013	0.15	0.000	0.006
A2	0.75	1.07	0.029	0.042
b	0.30	0.51	0.011	0.020
b1	0.76	0.94	0.029	0.037
c	0.08	0.20	0.003	0.008
D	2.80	3.04	0.110	0.120
E	2.10	2.64	0.082	0.104
E1	1.20	1.40	0.047	0.055
e	1.92 BSC		0.075	
e1	0.20 BSC		0.008	
L	0.40	0.60	0.015	
L1	TYP0.54		TYP 0.021	
N	4		4	
Φ	0°C	8°C	0°C	8°C
aaa	0.15		0.006	
bbb	0.20		0.008	
ccc	0.10		0.004	

The recommended mounting pad size



Dim.	Millimeter(mm)
	TYP
C	2.20
E1	1.92
E2	1.72
G	0.80
X1	1.00
X2	1.20
Y	1.40
Z	3.60

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