

SOT-143 Plastic-Encapsulate Diodes

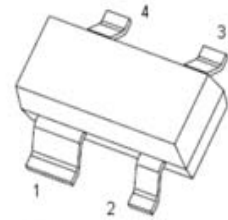
SR05 Uni-directional Suppressor

SOT-143

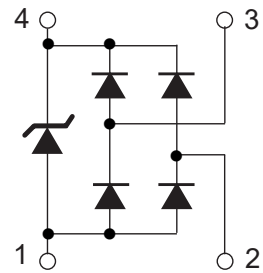
RoHS
COMPLIANT

Features

- 60Watts peak pulse power ($t_p = 8/20\mu s$)
- Unidirectional configuration
- Solid-state silicon-avalanche technology
- Low clamping voltage
- Low leakage current
- Low capacitance ($C_j = 0.35pF$ typ I/O to I/O.)
- Protection one power line to:
- IEC 61000-4-2 (ESD): $\pm 20KV$ (Contact); $\pm 20KV$ (Air);
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 5A (8/20 μs)



Equivalent circuit



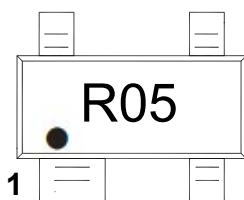
Applications

- USB2.0 power & data line protection
- WLAN/LAN equipment
- Mobile phone
- Video line protection
- Microcontroller input Protection
- ISDN S/T Interface
- Communication systems

Mechanical Characteristics

- Molding compound flammability Rating: UL 94V-0
- SOT-143 package
- Packaging: Tape and Reel
- RoHS/WEEE Compliant

Marking



R05 = Device code

Front side

Absolute Maximum Ratings (TA=25°C unless otherwise specified)

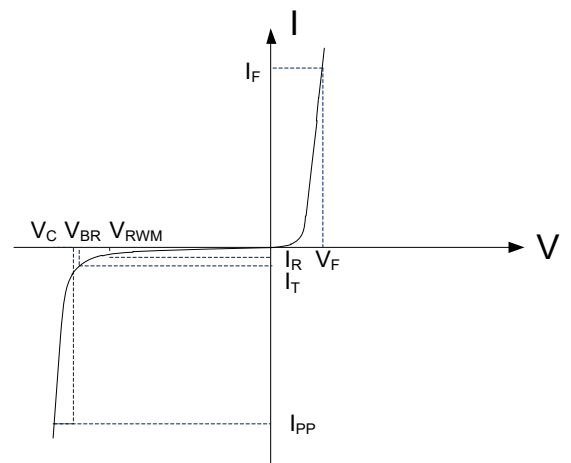
Parameter	Symbol	Value	Unit
ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 20 ± 20	KV
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{PP}	60	W
Peak Pulse Current ($t_p = 8/20\mu s$) (note1)	I_{PP}	5	A
Junction Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +125	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260(10 sec.)	°C

Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	V_{RWM}				5.0	V
Reverse Breakdown Voltage	V_{BR}	$I_T = 1mA$	6.0	6.7		V
Reverse Leakage Current	I_R	$V_{RWM} = 12.0V$, $T = 25^\circ C$			500	nA
Clamping Voltage	$V_C(I_O - GND)$	$I_{PP} = 5A$, $t_p = 8/20\mu s$ I_O to I_O		12.5		V
Junction Capacitance	C_J	$V_R = 0V$, $f = 1MHz$ I_O to I_O		0.45		pF
		$V_R = 0V$, $f = 1MHz$ I_O to GND		0.95		pF
		$V_R = 0V$, $f = 1MHz$ V_{CC} to GND		1.0		pF

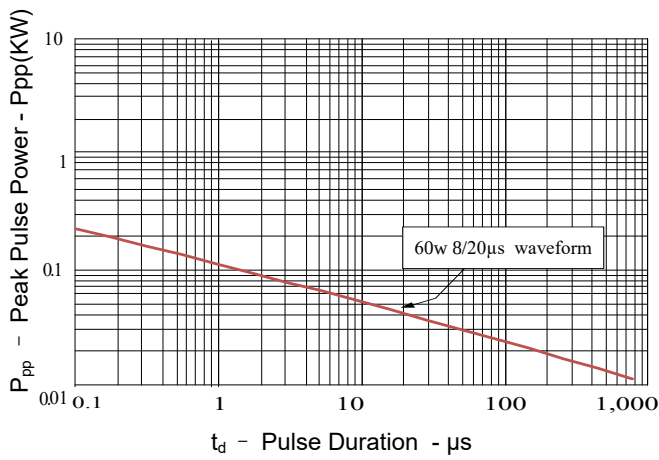
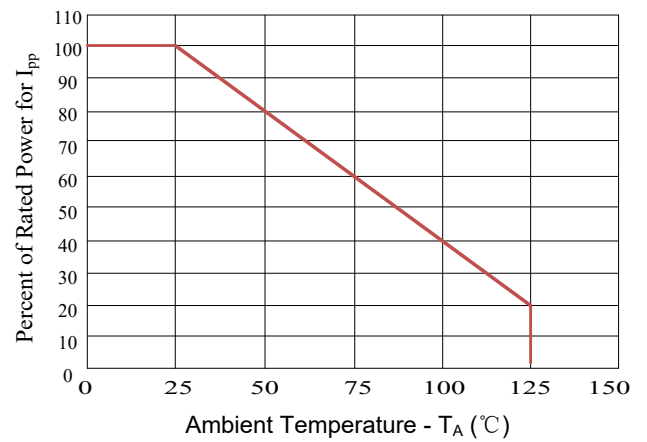
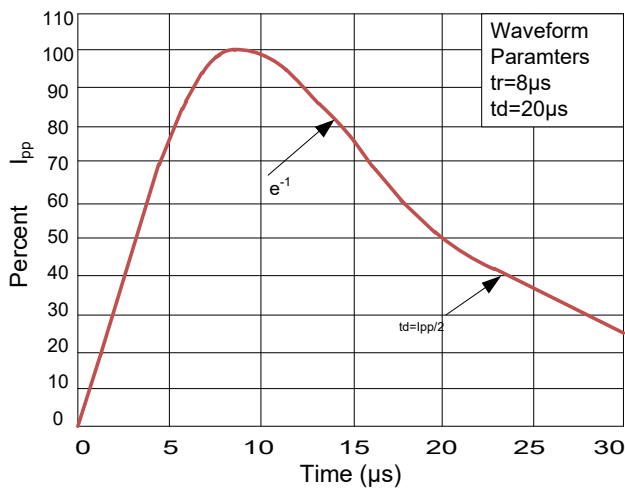
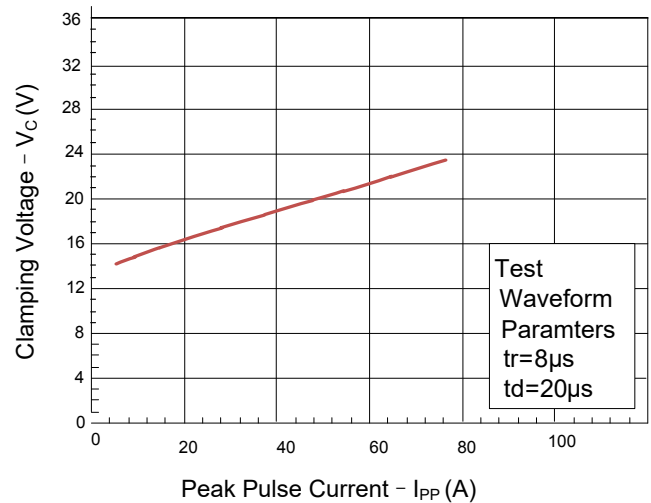
Electrical Parameters (TA = 25°C unless otherwise noted)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
V_F	Forward Voltage @ I_F
I_F	Forward Current

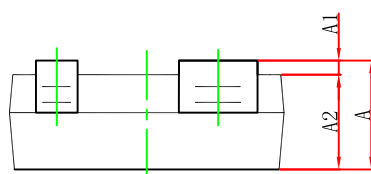
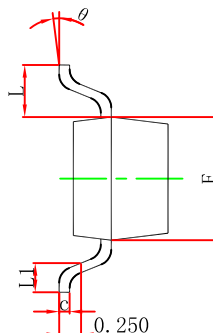
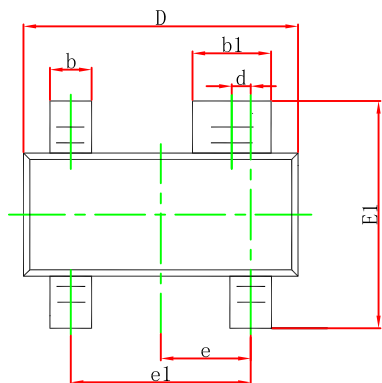


Note: 8/20μs pulse waveform.

Typical Characteristics

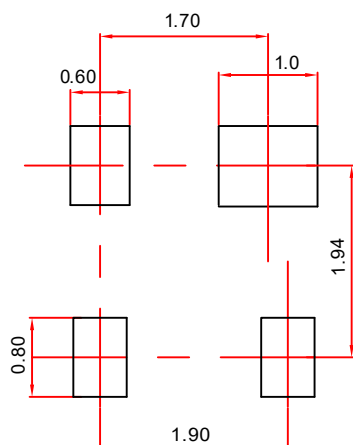
Figure 1: Peak Pulse Power vs. Pulse Time

Figure 2: Power Derating Curve

Figure3: Pulse Waveform

Figure 4: Clamping Voltage vs. I_{pp}


SOT-143 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
b1	0.750	0.900	0.030	0.035
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
d	0.200 TYP.		0.008 TYP.	
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Package and Ordering Information

Package	Outline	Reel Size	Reel DIA. (mm)	Q'TY/Reel (pcs)
SOT-143	TAPING	7"	330	3000