

# Transient Voltage Suppressors Array for ESD Protection

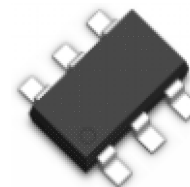
Low Capacitance

## SR05-4B

### Description

The SR05-4B is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

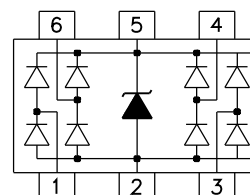
### SOT-26



### Feature

- u 350 Watts Peak Pulse Power per Line (tp=8/20μs)
- u Protects four I/O lines
- u Low clamping voltage
- u Working voltages : 5V
- u Low leakage current
- u IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- u IEC61000-4-4 (EFT) 40A (5/50ns)
- u IEC61000-4-5 (Lightning) 3A (8/20μs)

### Functional Diagram



### Applications

- u USB 2.0 Power and Data Line Protection
- u Video Graphics Cards
- u Monitors and Flat Panel Displays
- u Digit Video Interface (DVI)
- u 10/100/1000 Ethernet
- u Notebook Computers
- u SIM Ports
- u ATM Interfaces

### Mechanical Characteristics

- u JEDEC SOT-26 Package
- u Molding Compound Flammability Rating : UL 94V-0
- u Weight 16.0 Milligrams (Approximate)
- u Quantity Per Reel : 3,000pcs
- u Reel Size : 7 inch
- u Lead Finish : Lead Free

### Mechanical Characteristics

Symbol	Parameter	Value	Units
T <sub>L</sub>	Lead Soldering Temperature	260 (10sec)	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to +150	°C
T <sub>OP</sub>	Operating Temperature Range	-55 to +150	°C
	IEC61000-4-2 (ESD)	Air Discharge Contact Discharge	±15 ±8 KV

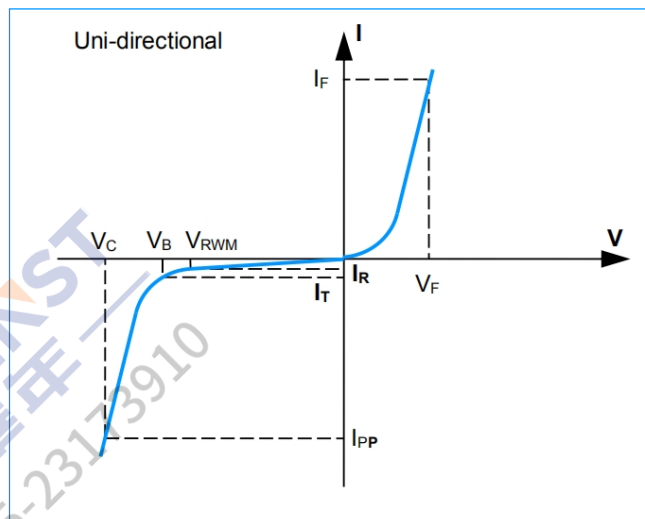
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### Electrical Characteristics (@ 25°C Unless Otherwise Specified)

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
$I_F$	Forward Current
$V_F$	Forward Voltage @ $I_F$

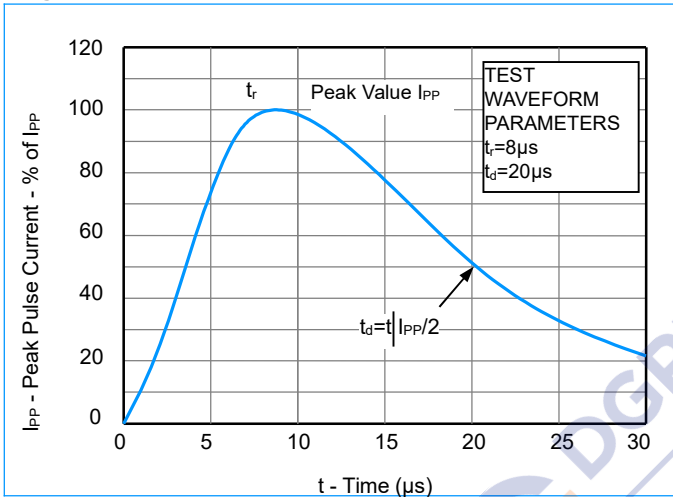


### Electrical Characteristics (@ 25°C Unless Otherwise Specified)

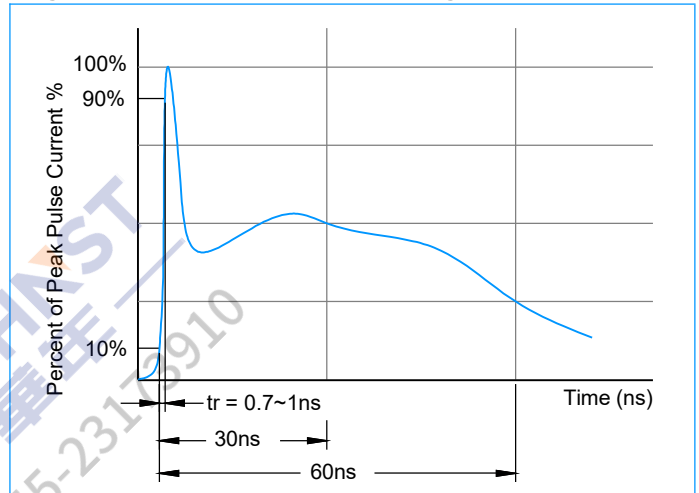
Symbol	Test Condition	Minimum	Typical	Maximum	Units
$V_{RWM}$	—	—	—	5.0	V
$I_R$	$V_{RWM} = 5V, T = 25^\circ C$ Between I/O and GND	—	—	1.0	$\mu A$
$V_{BR}$	$I_T = 1mA$ Between I/O and GND	6.0	—	—	V
$V_{C1}$	$I_{PP} = 1A, t_p = 8/20\mu s$ Between I/O and GND	—	8.5	12	V
$V_{C1}$	$I_{PP} = 5A, t_p = 8/20\mu s$ Between I/O and GND	—	12	16	V
$V_{C2}$	$I_{PP} = -1A, t_p = 8/20\mu s$ Between I/O and GND	—	1.8	—	V
$V_{C2}$	$I_{PP} = -5A, t_p = 8/20\mu s$ Between I/O and GND	—	5.0	—	V
$C_{J1}$	$V_R = 0V, f = 1MHz$ Between I/O and I/O	—	0.5	—	pF
$C_{J2}$	$V_R = 0V, f = 1MHz$ Between I/O and GND	—	1.0	—	pF

#### Characteristic Curves

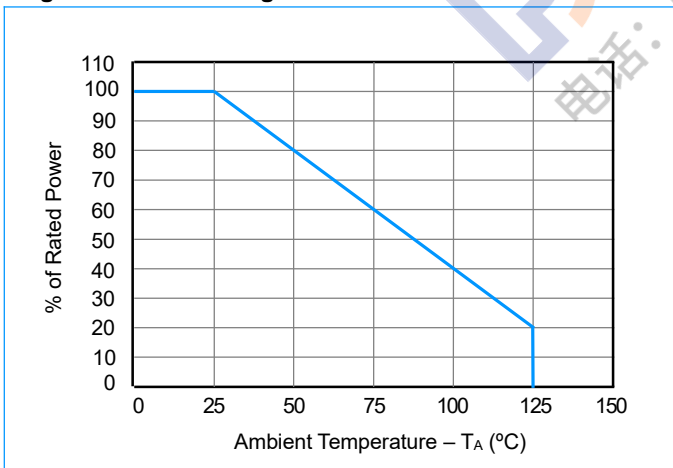
**Fig1. 8/20 $\mu$ s Pulse Waveform**



**Fig2. ESD Pulse Waveform (according to IEC 61000-4-2)**



**Fig3. Power Derating Curve**

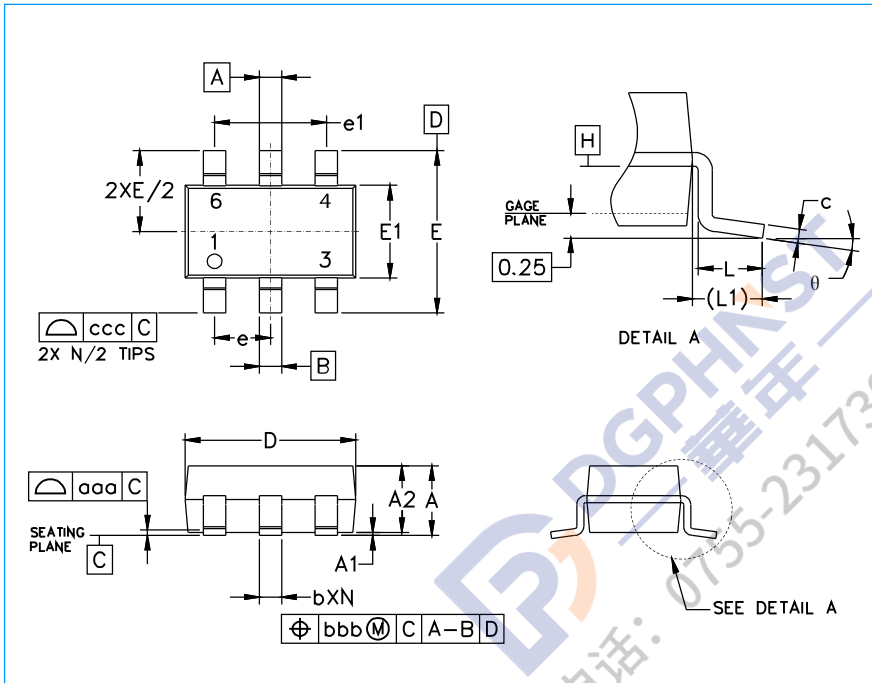


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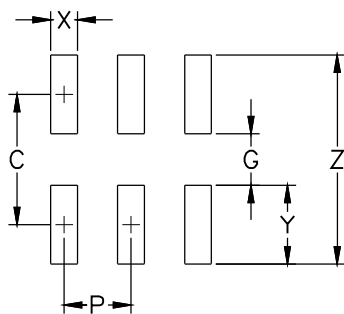
## SR05-4B

### SOT-26 Package Outline & Dimensions



Symbol	Inches			Millimeters		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.035	-	0.057	0.90	-	1.45
A1	0.000	-	0.006	0.00	-	0.15
A2	0.035	0.045	0.051	0.90	1.15	1.30
b	0.010	-	0.020	0.25	-	0.50
c	0.003	-	0.009	0.08	-	0.22
D	0.110	0.114	0.122	2.80	2.90	3.10
E1	0.060	0.063	0.069	1.50	1.60	1.75
E	0.110 BSC			2.80 BSC		
e	0.037 BSC			0.95 BSC		
e1	0.075 BSC			1.90 BSC		
L	0.012	0.018	0.024	0.30	0.45	0.60
L1	(0.024)			(0.60)		
$\theta$	0°	-	10°	0°	-	10°
aaa	0.004			0.10		
bbb	0.008			0.20		
ccc	0.008			0.20		

### Soldering Footprint



Symbol	Inches	Millimeters
C	(0.098)	(2.50)
G	0.055	1.40
P	0.037	0.95
X	0.024	0.60
Y	0.043	1.10
Z	0.141	3.60