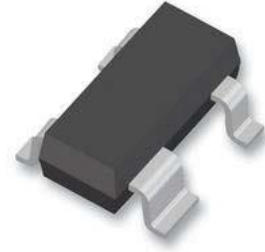


Transient Voltage Suppressor

Features

- IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 12A (8/20 μs)
- 204Watts peak pulse power per line (tp=8/20 μs)
- Low leakage current 1 μA (Max)at 5V
- Low capacitance: 3 pF (Max)
- Moisture sensitivity level: Level 3
- Small package: SOT-143

Exterior

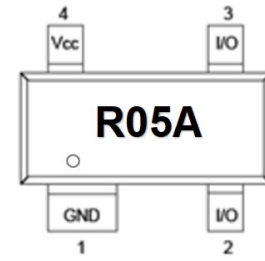


SOT-143

Application Information

- USB Power & Data Line Protection
- Ethernet 10BaseT
- I²C Bus Protection
- Video Line Protection
- T1/E1 secondary IC Side Protection
- ISDN S/T interface
- WAN/LAN Equipment

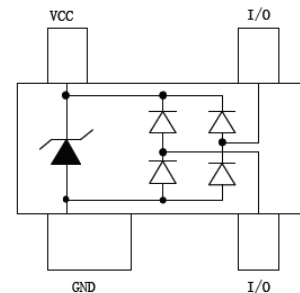
Package (top view)



Agency Approvals

Icon	Description
RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003
	Mean lead free

Schematic Symbol



Part Number and Electrical Parameter

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{①}@I_{\text{R}}$		$V_{\text{c}}@I_{\text{pp}}^{②}$		$R_{\text{DYN}}@ \text{TLP}^{③}$	$V_{\text{c}}@I_{\text{pp}} \text{TLP}^{③}$		$C_{\text{o}}^{④}$
	μA	V	V	mA	V	A	Ω	V	A	pF
	MAX		MIN		TYP		TYP	TYP		MAX
BV-SR05-A	1.0	5.0	6.0	1.0	17	12	0.4	15	16	3

Absolute maximum ratings measured at $T = 25^{\circ}\text{C}$ RH = 45%-75% (unless otherwise noted).

① V_{BR} is measured at $I_{\text{R}}=1\text{mA}$;

② Surge Waveform: 8/20 μs . Pin 2, 3 to Pin 1;

③ TLP parameter: $Z_0 = 50\Omega$, $t_p = 100\text{ns}$, $t_r = 1\text{ns}$, R_{DYN} is calculated from 4A to 16A

④ Off-state capacitance is measured in $V_{\text{DC}}=0\text{V}$, $f=1\text{MHz}$. any I/O-GND;

Transient Voltage Suppressor

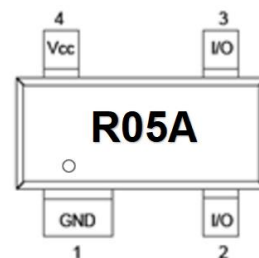
Version: A0 2022-08-01

Part Numbering System

Mark

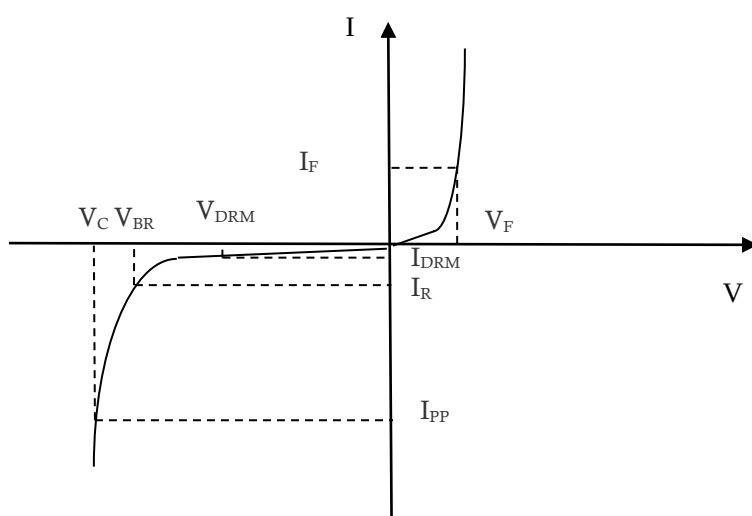
BV SR05-A
(1) (2)

(1) Bencent Transient Voltage Suppressor
(2) Series: SR05-A etc.



V-I Curve

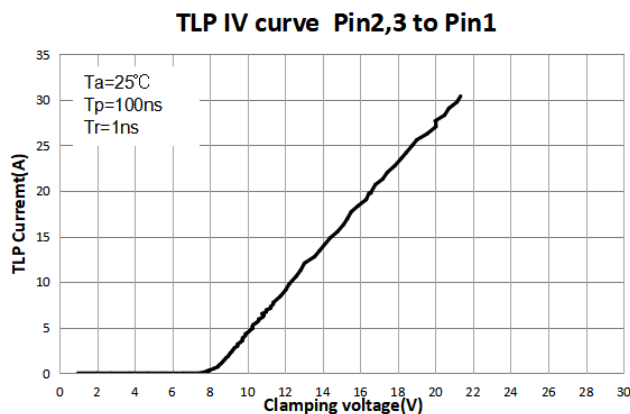
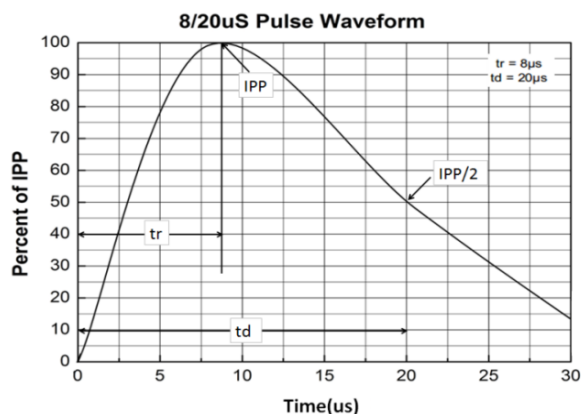
Parameters	Definition
V_C	Clamping Voltage
I_{PP}	Surge Waveform 8/20 μ s
V_{DRM}	Stand-off Voltage
V_{BR}	Breakdown Voltage
I_{DRM}	Reverse Leakage Current
I_R	Test Current
V_F	Forward On-state Voltage
P_{pp}	Peak Pulse Power Dissipation



Thermal Considerations

symbol	Parameter	Value	Unit
T_J	Operating Junction Temperature Range	-55 to +150	°C
T_S	Storage Temperature Range	-55 to +150	°C

Typical Characteristics



Transient Voltage Suppressor

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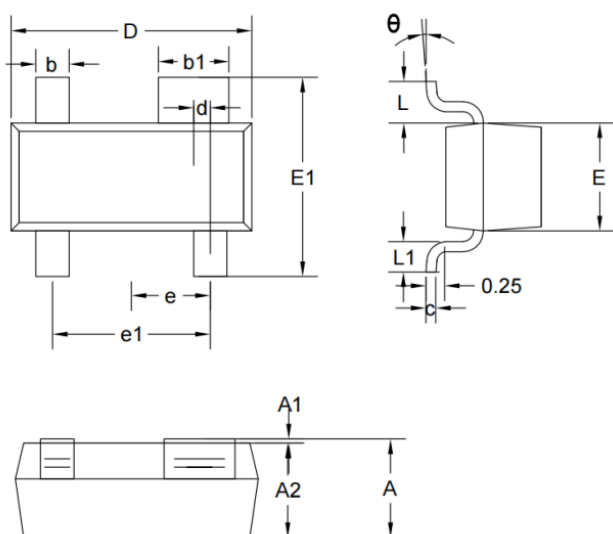
Environmental Characteristics

Testing items	Technical standards
High Temperature Reverse Bias Test	Temperature: $150\pm5^{\circ}\text{C}$ Bias= $80\%V_{\text{DRM}}$. Time:168H
High Temperature Storage Test	Temperature: 150°C Time:168H
High-low Temperature Cycle test	Temperature: From -40°C to 125°C Dwell time : 30min,100cycles
High Temperature &High Humidity Test	Temperature: 85°C Humidity:85% Time:168H
Pressure cooker Test	Temperature: 121°C , 2atm. Humidity:100% Time:24H
Resistance of soldering heat	Temperature: $260\pm5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

Note: The above testing items can be specified by customer's special request

Product Dimensions

SOT-143



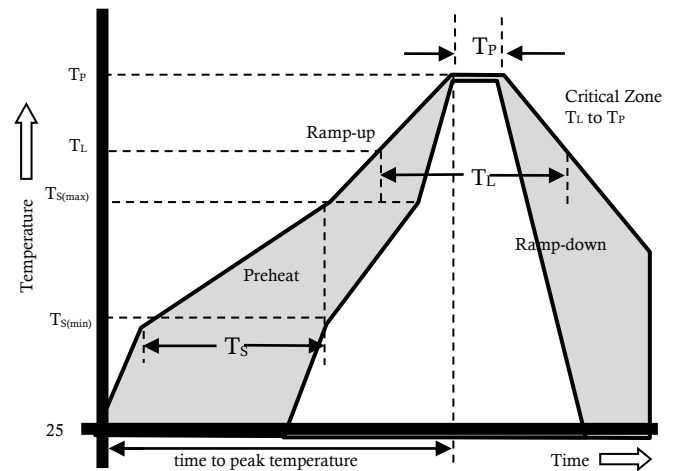
编号	尺寸 (mm)		
	Min	TYP	Max
A	0.950	1.125	1.300
A1	0.000	0.050	0.100
A2	0.900	1.050	1.200
b	0.300	0.400	0.500
b1	0.750	0.850	0.950
c	0.080	0.115	0.150
D	2.800	2.900	3.000
d	0.200TYP		
E	1.200	1.300	1.400
E1	2.250	2.400	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550TYP		
L1	0.300	0.400	0.500
θ	0°	4°	8°

Transient Voltage Suppressor

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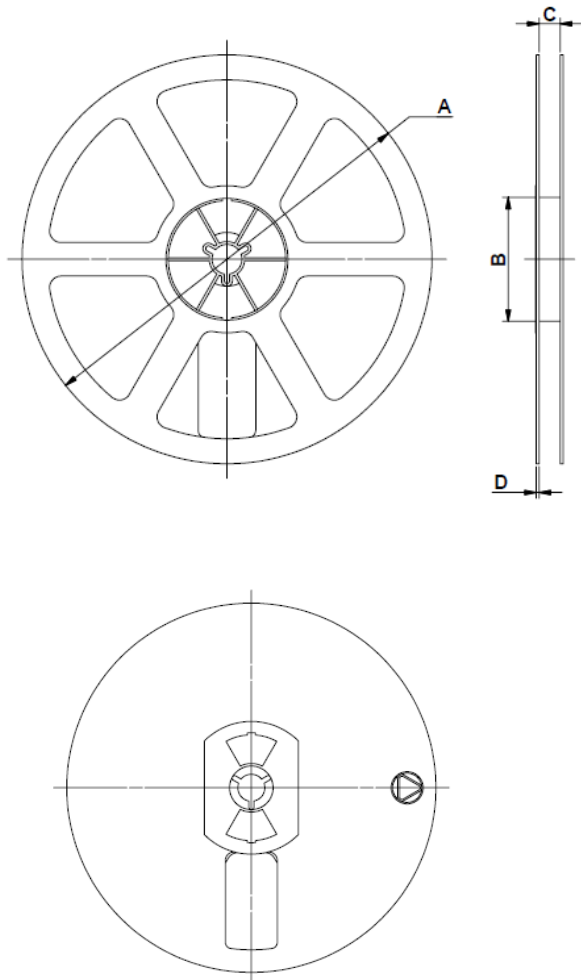
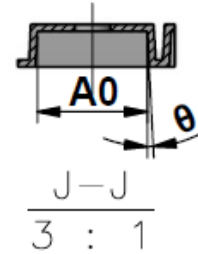
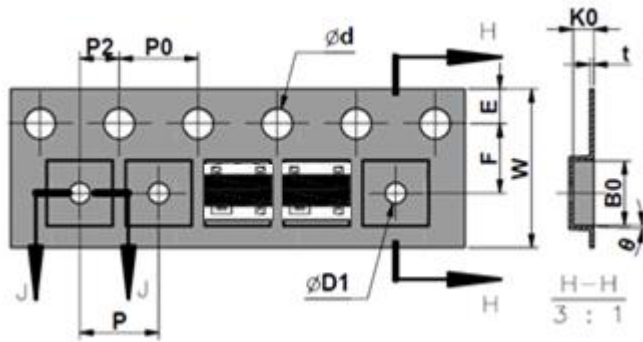
Reflow Profile

Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (Min to Max)	60 – 180 secs
Average ramp up rate (Liquid) T _{amp} (T _L) to peak		3°C/s Max
T _S (max) to T _L - Ramp-up Rate		3°C/s Max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 150 secs
Peak Temperature (T _P)		260+0/-5 °C
Time within 5°C of actual peak Temperature (T _P)		30secs
Ramp-down Rate		6°C/s Max
Time 25°C to peak Temperature (T _P)		8 mins Max.
Do not exceed		260°C



Transient Voltage Suppressor

Package Reel Information



REF	mm	inch
A0	3.20 ± 0.20	0.126 ± 0.008
B0	2.80 ± 0.20	0.110 ± 0.008
t	0.20 ± 0.02	0.008 ± 0.001
K0	1.30 ± 0.10	0.051 ± 0.004
d	1.55 ± 0.10	0.061 ± 0.004
D1	1.00 ± 0.10	0.039 ± 0.004
P	4.00 ± 0.10	0.157 ± 0.004
P0	4.00 ± 0.10	0.157 ± 0.004
P2	2.00 ± 0.05	0.079 ± 0.002
E	1.75 ± 0.10	0.069 ± 0.004
F	3.5 ± 0.05	0.138 ± 0.002

REF	mm	inch
W	8+0.30/-0.10	0.315+0.012/-0.004
A	178±1.0	7.008±0.039
B	54.5REF	2.146REF
C	9.4±1.5	0.370±0.059
D	1.5±0.3	0.059±0.012

OUTLINE	REEL (PCS)	PER CARTON (PCS)	REEL DIAMETERS (mm)	CARTON SIZE(mm)		
				L	W	H
TAPING	3000	90,000	178	390	370	220