

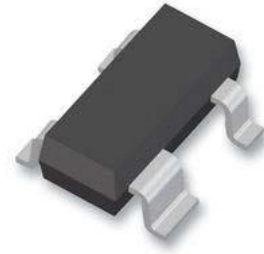
Transient Voltage Suppressor

Version: A3 2023-2-7

Features

- IEC 61000-4-2(ESD) $\pm 15\text{KV}$ (air), $\pm 10\text{KV}$ (contact)
- IEC61000-4-5(Lightning) 5A (8/20 μs)
- 125Watts peak pulse power per line (tp=8/20 μs)
- Low leakage current 1 μA (Max)at 5V
- Low capacitance: 0.85 pF (Typical)
- Moisture sensitivity level: Level 1
- Small package: SOT-143

Exterior

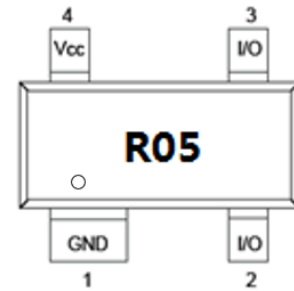


SOT-143

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

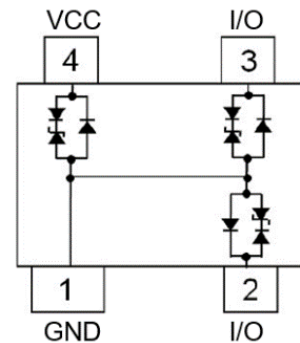
Package (top view)



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	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{BR}}^{①}@I_{\text{R}}$		$V_{\text{C}}@I_{\text{pp}}^{②}$		$V_{\text{C}}@I_{\text{pp}}^{②}$		$C_{\text{O}}^{③}$	
	μA	V	V	mA	V	A	V	A	pF	
	MAX		MIN		MAX		MAX		TYP	MAX
BV-SR05	1.0	5.0	6.0	1.0	15.0	1.0	25.0	5.0	0.85	1.20

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

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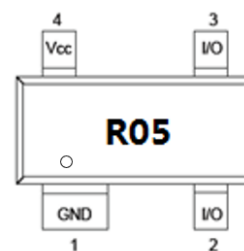
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Part Numbering System

Mark

BV SR05
(1) (2)

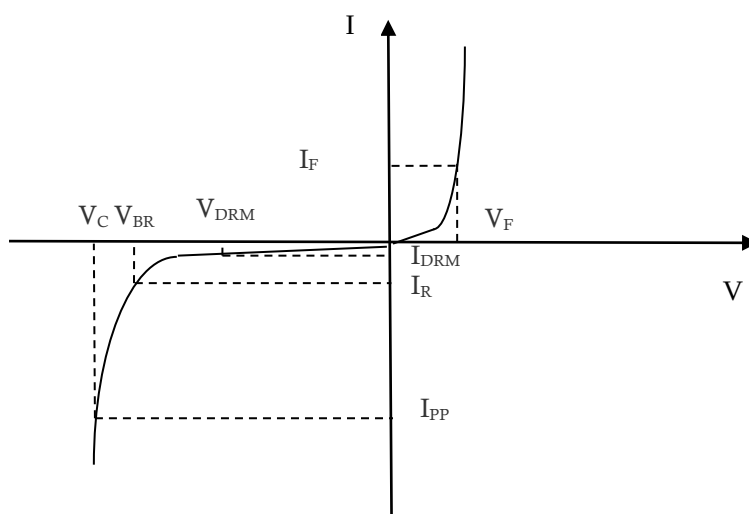
(1) Bencent Transient Voltage Suppressor
(2) Series: SR05 etc.



R05: Part Number

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	$^{\circ}\text{C}$
T_S	Storage Temperature Range	-55 to +150	$^{\circ}\text{C}$

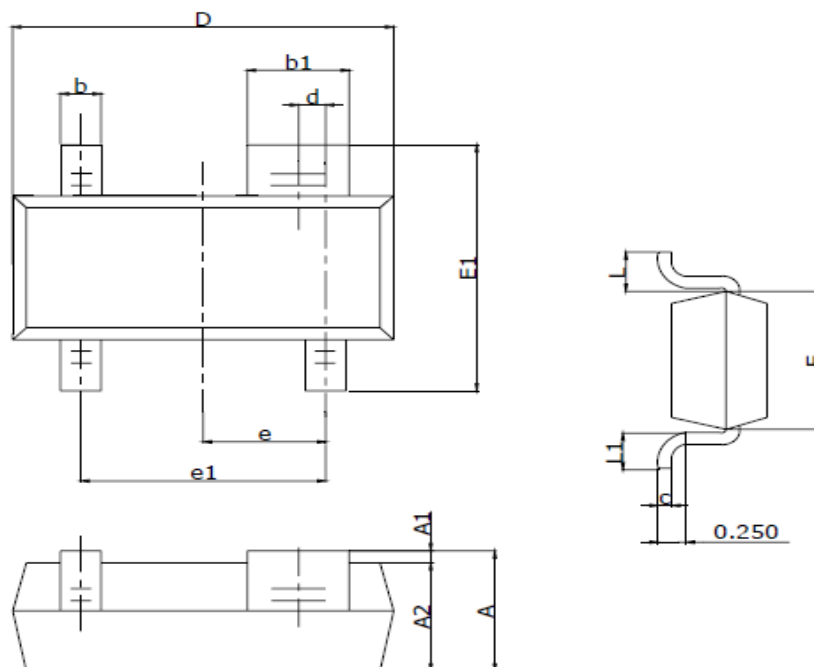
Environmental Characteristics

Testing items	Technical standards
High Temperature Reverse Bias Test	Temperature: $150 \pm 5^{\circ}\text{C}$ Bias= $80\%V_{DRM}$. 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: $260 \pm 5^{\circ}\text{C}$ Time of dip soldering: 10s, 3times

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

Product Dimensions

SOT-143

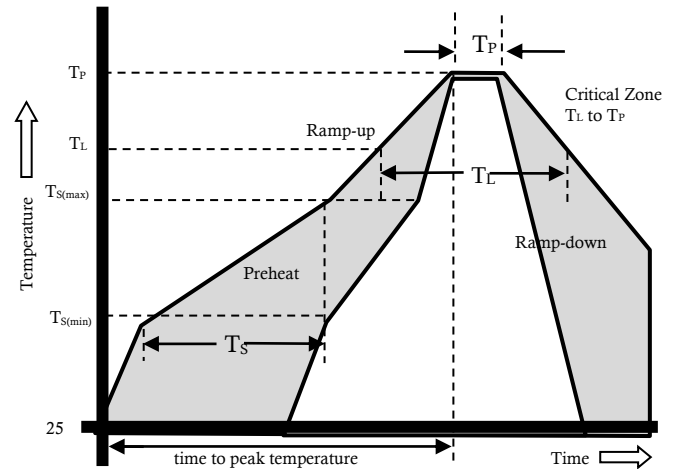


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	MIN	MAX
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
b1	0.75	0.90	0.030	0.035
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
d	0.20TYP		0.008TYP	
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.10
e	0.95TYP		0.037TYP	
e1	1.80	2.00	0.071	0.079
L	0.55REF		0.022REF	
L1	0.30	0.50	0.012	0.020

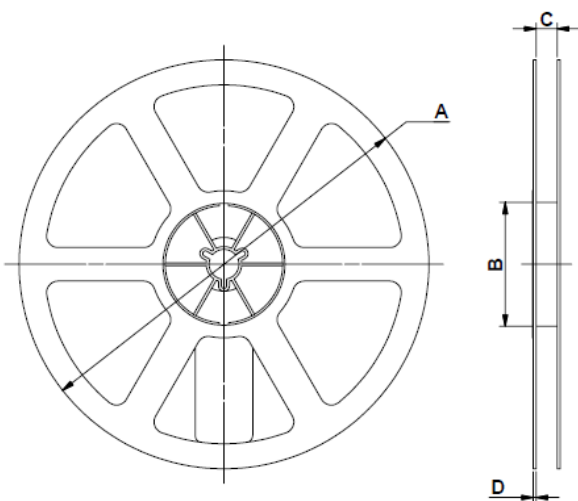
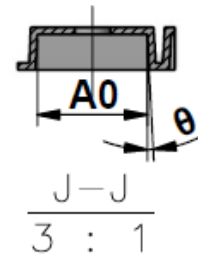
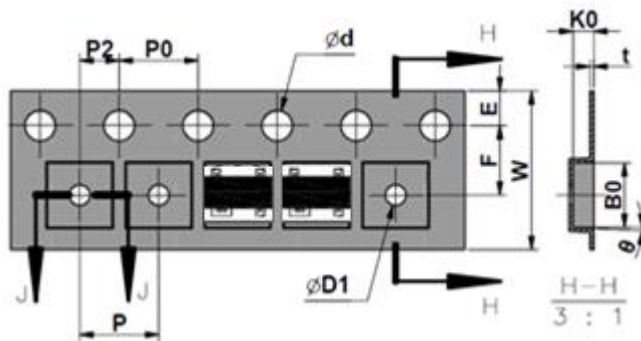
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Reflow Profile

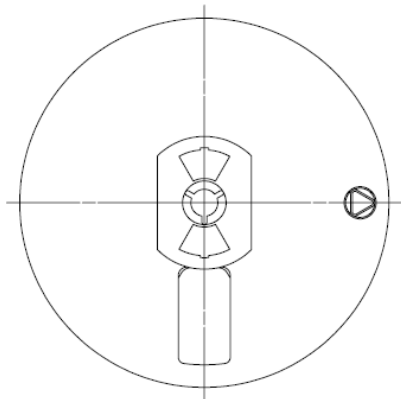
Reflow Condition		Pb-Free assembly
Pre Heat	Temperature Min	150°C
	Temperature Max	200°C
	Time (Min to Max)	60 – 180 secs
Average ramp up rate (Liquid) T _{amp} (T _L) to peak		3°C/s Max
T _s (max) to T _L - Ramp-up Rate		3°C/s Max
Reflow	- Temperature (T _L) (Liquid)	217°C
	- Temperature (T _L)	60 – 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



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