

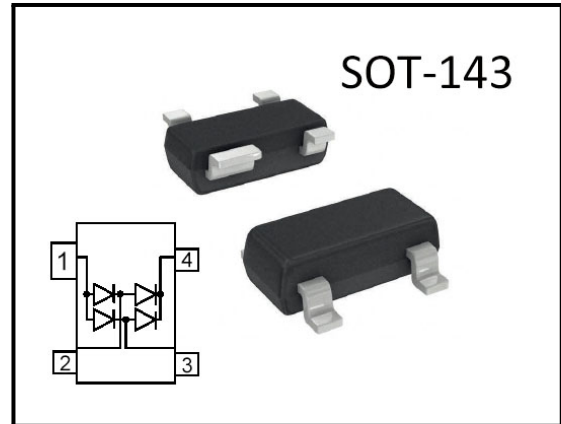
BSR70

Transient Voltage Suppressor

Features

- Protects two I/O lines
- operating voltage: 70V
- Low capacitance(5pF typical) for high-speed interfaces
- Solid-state technology
- IEC 61000-4-2 ±8kV contact ; ±15kV air
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 20A (8/20μs)

Package



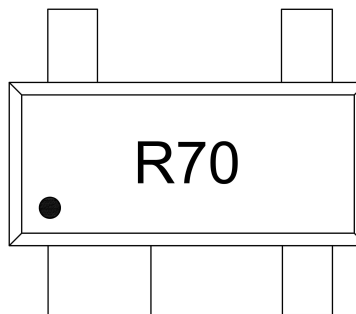
Applications

- 10/100 Ethernet
- FireWire & USB
- Sensitive Analog Inputs
- Portable Electronics
- LAN/WAN equipment
- Video Line Protection
- Microcontroller Input Protection

Mechanical Characteristics

- JEDEC SOT-143 package
- Marking : Making Code
- Packaging : Tape and Reel per EIA 481
- RoHS Compliant

Marking



Ordering information

Order code	Package	Base qty	Delivery mode
BSR70	SOT-143	3k	Tape and reel

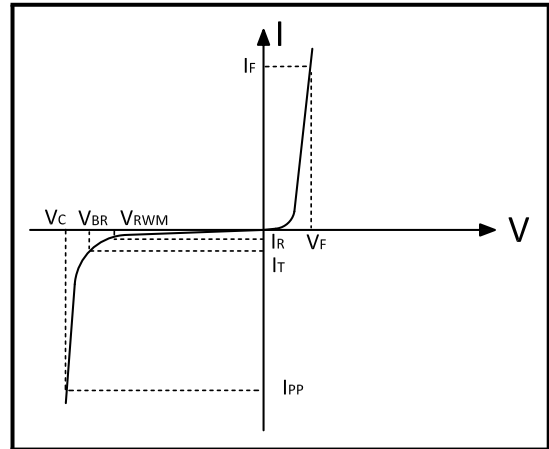


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Transient Voltage Suppressor

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

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



Note: 8/20us pulse Waveform.

Absolute Maximum Rating

Rating	Symler	Value	Units
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	300	Watts
Peak Pulse Current ($t_p = 8/20\mu\text{s}$) (note1)	I_{PP}	20	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	15	KV
ESD per IEC 61000-4-2 (Contact)		8	
Lead Soldering Temperature	T_L	260(10seconds)	$^\circ\text{C}$
Junction Temperature	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to + 150	$^\circ\text{C}$

Electrical Characteristics

Parameter	Symler	Conditions	Min.	Typical	Max.	Units
Reverse Stand-Off Voltage	V_{RWM}	-	-	-	70	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1\text{mA}$	80	-	-	V
Reverse Leakage Current	I_R	$V_{RWM}=70\text{V}, T=25^\circ\text{C}$	-	-	2	μA
Clamping Voltage	V_C	$I_{PP}=1\text{A}, t_p = 8/20\mu\text{s}$	-	1.5	3	V
		$I_{PP}=10\text{A}, t_p = 8/20\mu\text{s}$	-	4	6	
		$I_{PP}=18\text{A}, t_p = 8/20\mu\text{s}$	-	6.5	8	
		$I_{PP}=20\text{A}, t_p = 8/20\mu\text{s}$	-	10.5	14	
Junction Capacitance	C_j	IO-GND $V_R=0\text{V}, f=1\text{MHZ}$	-	5	10	pF
		I/O -IO $V_R=0\text{V}, f=1\text{MHZ}$	-	3	6	



Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

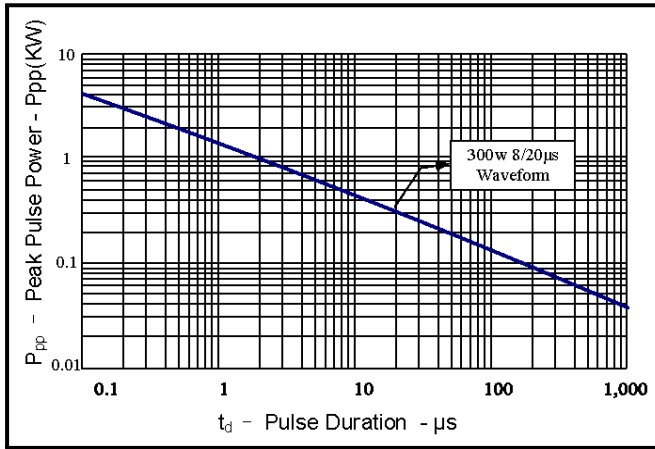


Figure 2: Power Derating Curve

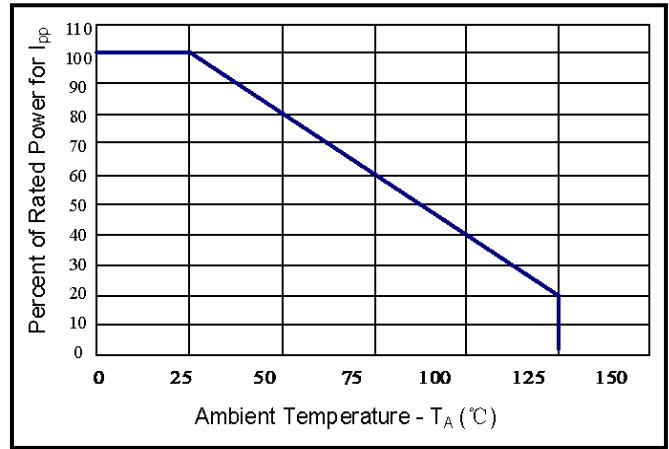


Figure 3: Pulse Waveform

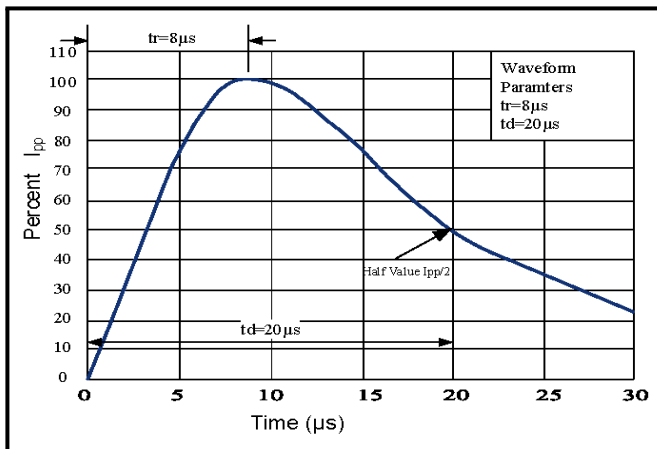
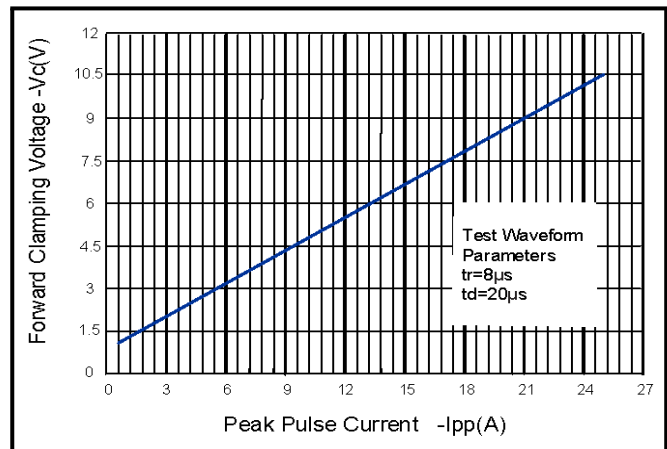
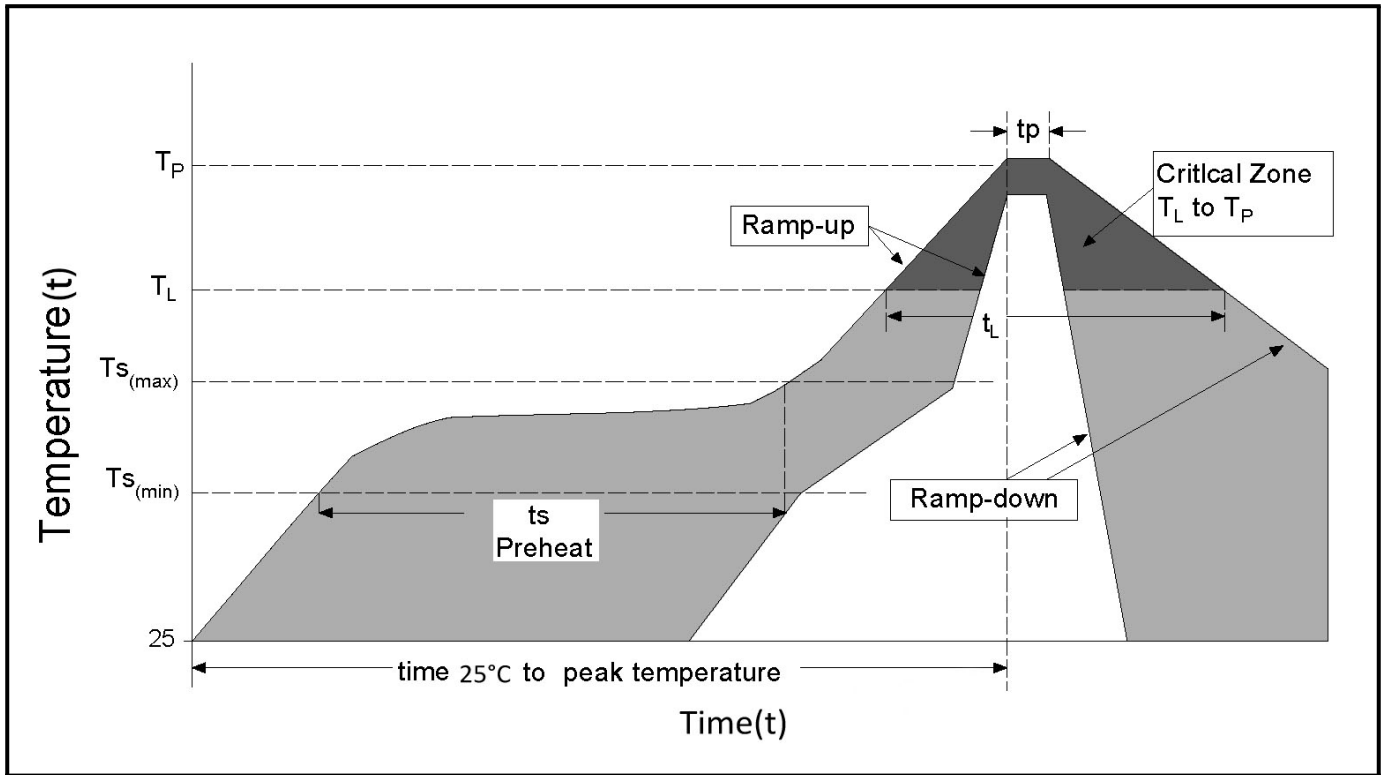


Figure 4: Clamping Voltage vs. I_{pp}



Soldering Parameters



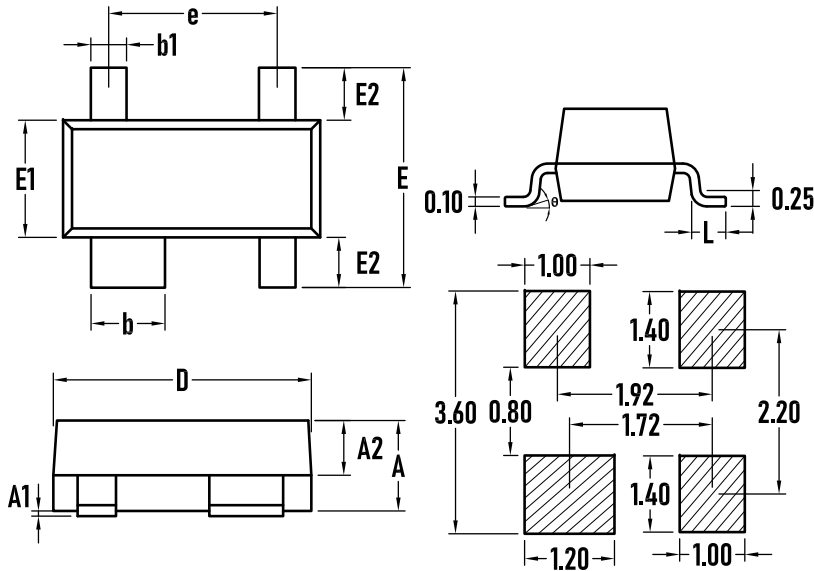
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{S(min)}$)	150°C
	- Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 - 150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 secs
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C



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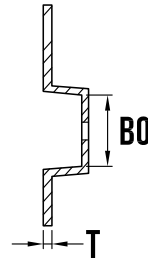
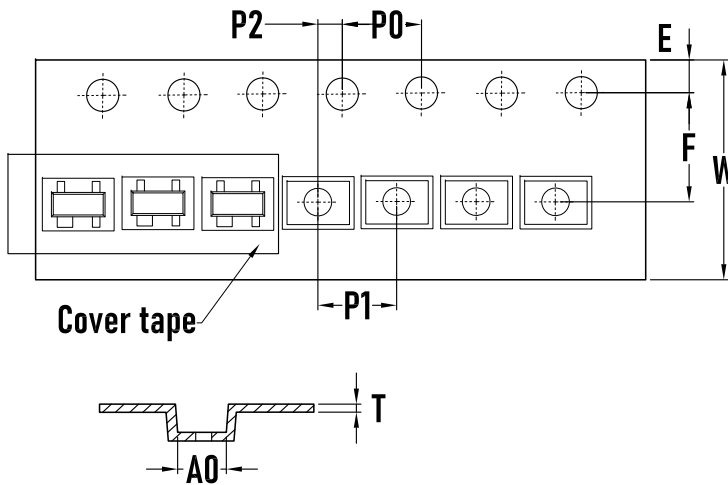
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Outline Drawing - SOT-143



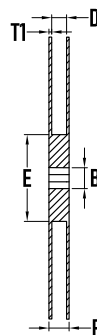
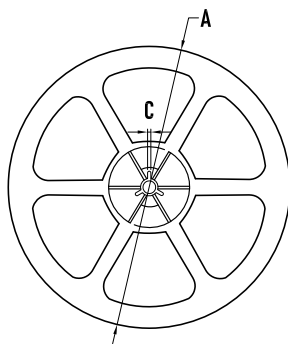
SYMBOL	MILLIMETER		
	MIN.	Typ.	MAX.
A	0.95	1.00	1.02
A1	0.02	0.06	0.10
A2	0.55	0.60	0.55
D	2.85	2.90	2.95
b	0.80	0.83	0.86
b1	0.37	0.40	0.43
E	2.35	2.40	2.45
E1	1.25	1.30	1.35
E2	0.50	0.55	0.60
e	1.85	1.90	1.95
L	0.35	0.40	0.48
θ	0	-	6°

Packaging Tape - SOT-143



SYMBOL	MILLIMETER
A0	3.15±0.10
B0	2.75±0.10
d0	1.55±0.10
d1	1.10±0.05
E	1.75±0.10
F	3.50±0.10
K0	1.20±0.10
P2	2.00±0.10
P0	4.00±0.10
P1	4.00±0.10
W	8.00±0.10
T	0.20 ±0.02

Packaging Reel



SYMBOL	MILLIMETER
A	177.8±0.2
B	3.1
C	13.50
D	9.6±0.3
E	75±0.2
F	12.3±0.3
T1	1.0±0.2
Quantity	3000PCS

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Specifications are subject to change without notice.

Please refer to <http://www.born-tw.com> for current information.

Revision: 2022-Jan-1-A

