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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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80V NPN MEDIUM POWER TRANSISTOR IN SOT89
Features

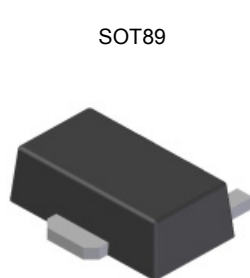
- $BV_{CEO} > 80V$
- $I_C = -1A$ High Continuous Current
- Low saturation voltage $V_{CE(sat)} < 250mV @ 150mA$
- Complementary type BSR33
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP capable (Note 4)**

Application

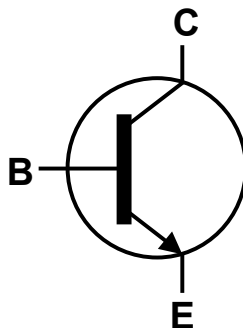
- Load management functions
- Solenoid, relay and actuator drivers
- DC – DC modules

Mechanical Data

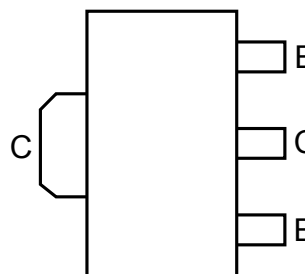
- Case: SOT89
- Case Material: Molded Plastic, "Green" Molding Compound
UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish, Solderable per MIL-STD-202,
Method 208 **(e3)**
- Weight: 0.052 grams (Approximate)



Top View



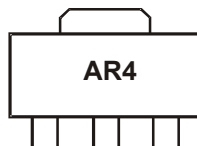
Device Symbol


 Top View
 Pin-Out

Ordering Information (Notes 4 & 5)

Product	Compliance	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BSR43TA	AEC-Q101	AR4	7	12	1,000
BSR43QTA	Automotive	AR4	7	12	1,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. Automotive products are AEC-Q10x qualified and are PPAP capable. Automotive, AEC-Q10x and standard products are electrically and thermally the same, except where specified. For more information, please refer to http://www.diodes.com/quality/product_compliance_definitions/.
 5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>

Marking Information


AR4 = Product Type Marking Code

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	90	V
Collector-Emitter Voltage	V _{CEO}	80	V
Emitter-Base Voltage	V _{EBO}	5	V
Continuous Collector Current	I _C	1	A
Peak Pulse Current	I _{CM}	2	A
Peak Base Current	I _{BM}	200	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

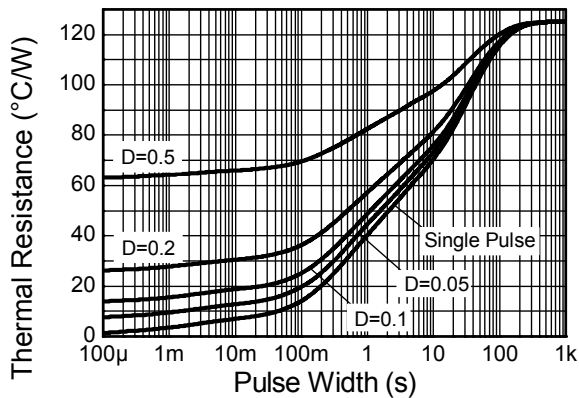
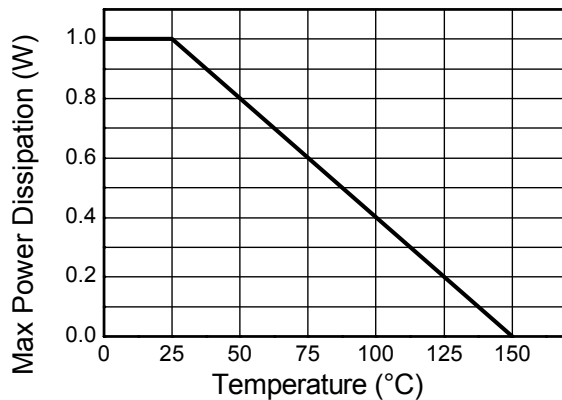
Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	1	W
		1.5	
		2.1	
Thermal Resistance, Junction to Ambient Air	R _{θJA}	125	°C/W
		83	
		60	
Thermal Resistance, Junction to Lead	R _{θJL}	13	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

ESD Ratings (Note 9)

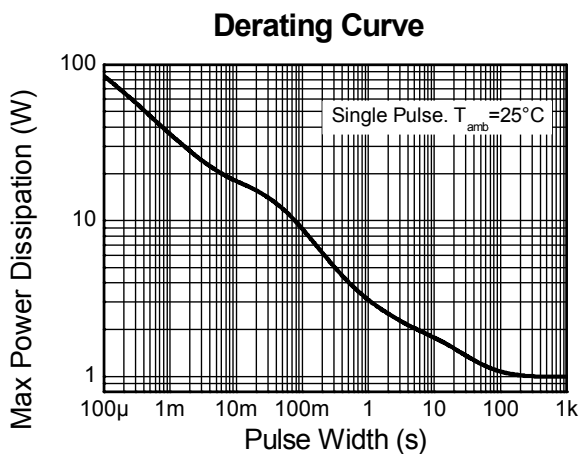
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

- Notes:
- For a device mounted with the exposed collector pad on 15mm x 15mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
 - Same as note (5), except the device is mounted on 25mm x 25mm 1oz copper.
 - Same as note (5), except the device is mounted on 50mm x 50mm 1oz copper.
 - Thermal resistance from junction to solder-point (on the exposed collector pad).
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

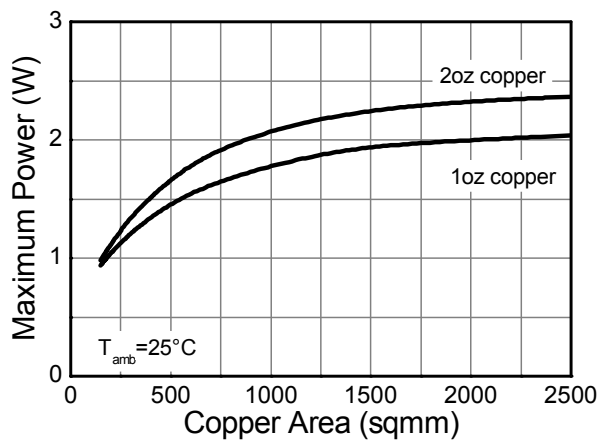
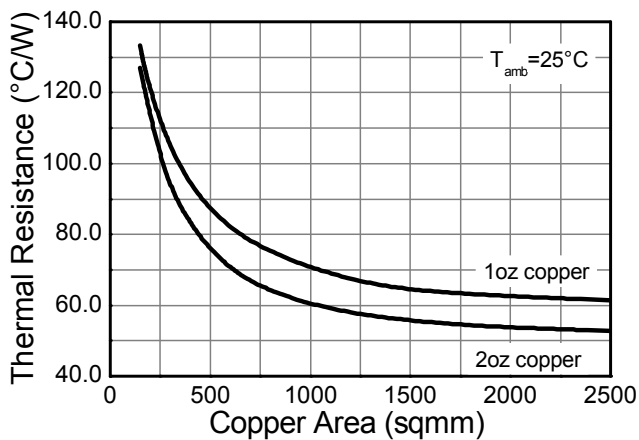
Thermal Characteristics and Derating Information



Transient Thermal Impedance



Pulse Power Dissipation

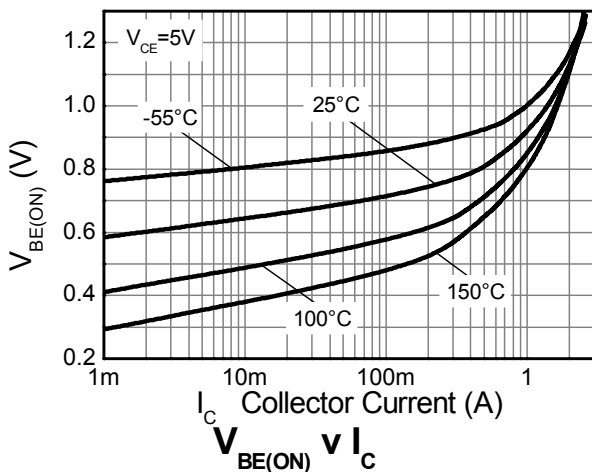
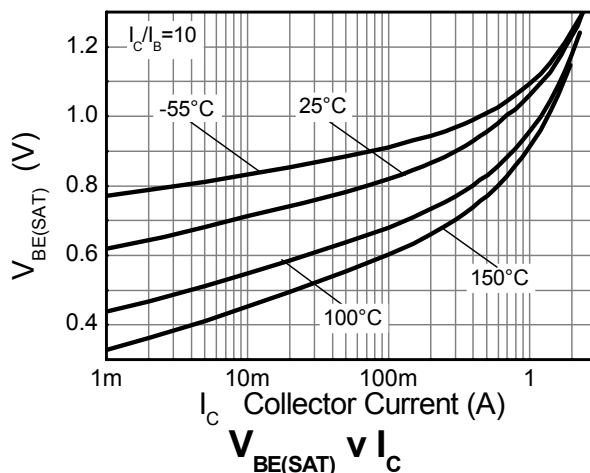
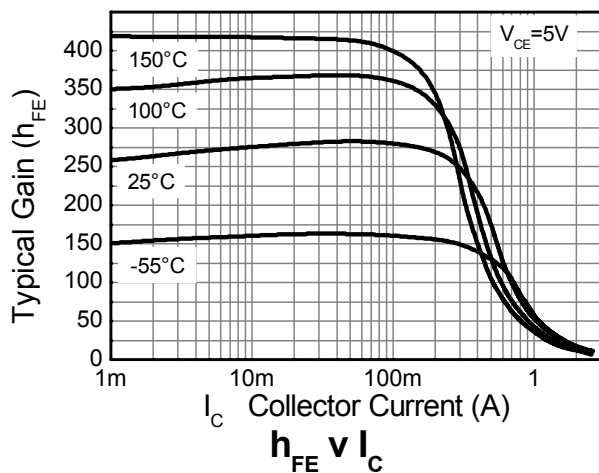
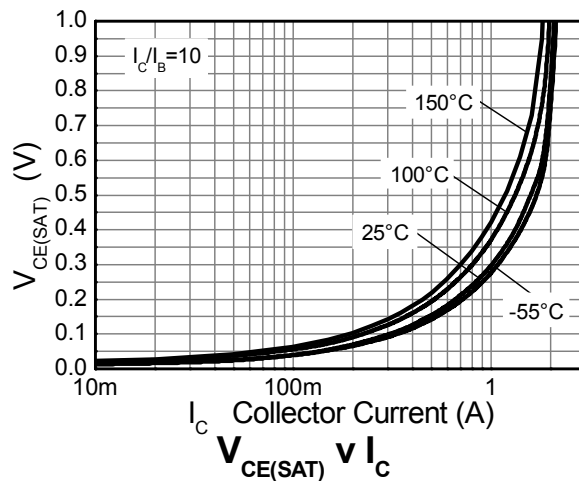
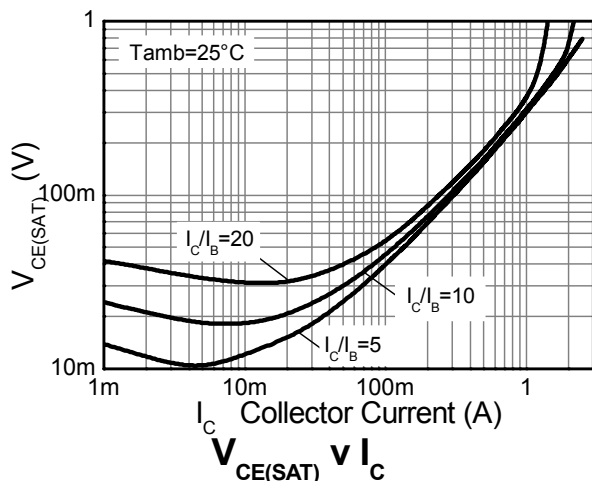


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	90	—	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	80	—	—	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	5	—	—	V	I _E = 100μA
Collector Cutoff Current	I _{CBO}	—	—	100 50	nA μA	V _{CB} = 60V V _{CB} = 60V, T _J = +150°C
DC current transfer Static ratio (Note 11)	h _{FE}	30 100 50	— — —	— 300 —	—	I _C = 100μA, V _{CE} = 5V I _C = 100mA, V _{CE} = 5V I _C = 500mA, V _{CE} = 5V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	— —	— —	0.25 0.5	V	I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	—	—	1.0 1.2	V	I _C = 150mA, I _B = 15mA I _C = 500mA, I _B = 50mA
Transitional Frequency	f _T	100	—	—	MHz	I _C = 50mA, V _{CE} = 10V f = 35MHz
Output capacitance	C _{obo}	—	—	12	pF	V _{CB} = 10V, f = 1MHz
Input Capacitance	C _{ibo}	—	—	90	pF	V _{CB} = 0.5V, f = 1MHz
Turn-On Time	T _{on}	—	—	250	ns	V _{CC} = 20V, I _C = 100mA
Turn-Off Time	T _{off}	—	—	1000	ns	I _{B1} = I _{B2} = 5mA

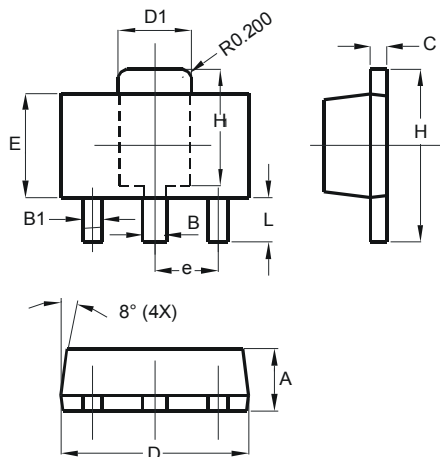
Note: 11. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



Package Outline Dimensions

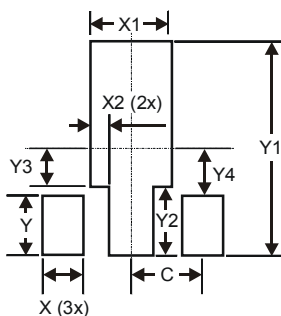
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



SOT89		
Dim	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
X	0.900
X1	1.733
X2	0.416
Y	1.300
Y1	4.600
Y2	1.475
Y3	0.950
Y4	1.125
C	1.500

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