



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**80V NPN SILICON PLANAR DARLINGTON TRANSISTOR
IN SOT89**

Features

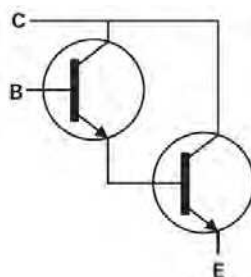
- $BV_{CEO} > 80V$
- High current gain
- Max Continuous Current $I_C = 500mA$
- Fast switching
- **Lead Free, RoHS Compliant (Note 1)**
- **Halogen and Antimony Free, "Green" Device (Note 2)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

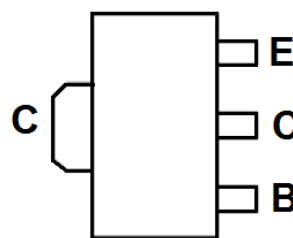
- Case: SOT89
- Moisture Sensitivity: Level 1 per J-STD-020
- UL Flammability Rating 94V-0
- Terminals: Matte Tin Finish
- Weight: 0.052 grams (Approximate)



Top View



Device symbol



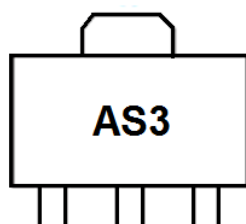
Top View
Pin-out

Ordering Information (Note 3)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BST52TA	AS3	7	12	1,000

- Notes:
1. No purposefully added lead.
 2. Halogen and Antimony Free. Diodes Inc's "Green" Policy can be found on our website at <http://www.diodes.com>
 3. For packaging details, go to our website at <http://www.diodes.com>

Marking Information



AS3 = Product Type Marking Code

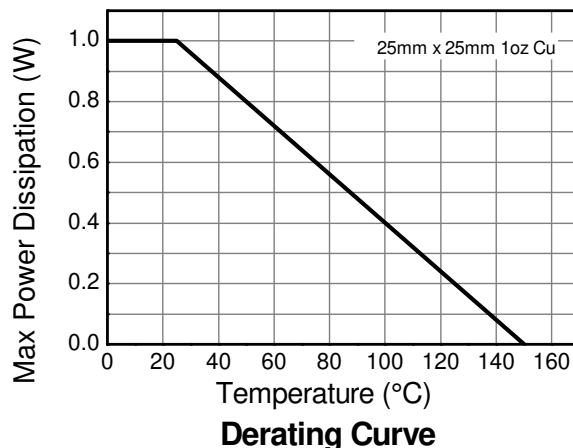
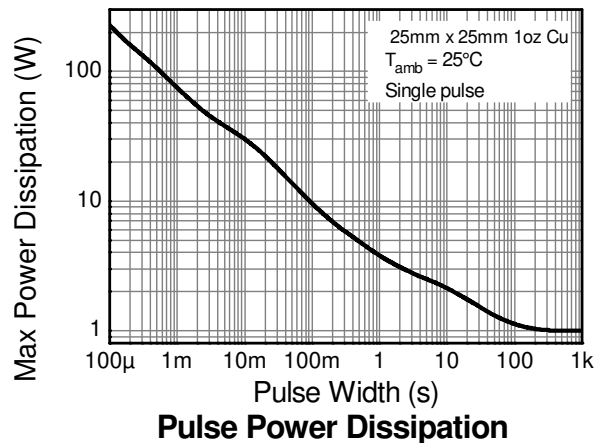
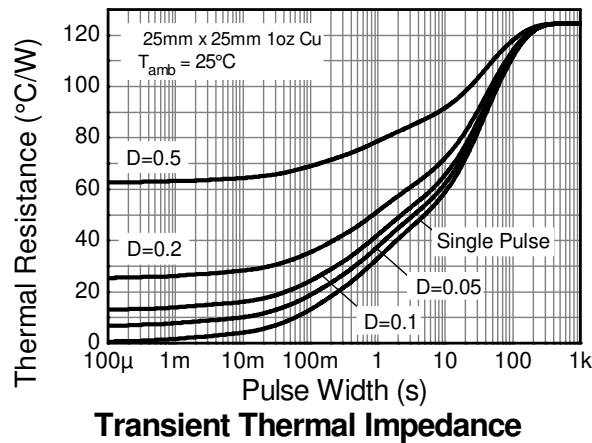
Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	90	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	10	V
Continuous Collector Current	I_C	500	mA
Peak Pulse Current	I_{CM}	1.5	A
Base Current	I_B	100	mA

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 4)	P_D	1	W
Thermal Resistance, Junction to Ambient (Note 4)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads (Note 5)	$R_{\theta JL}$	8.66	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 4. For a device surface mounted on 25mm X 25mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 5. Thermal resistance from junction to solder-point (on the exposed collector pad).

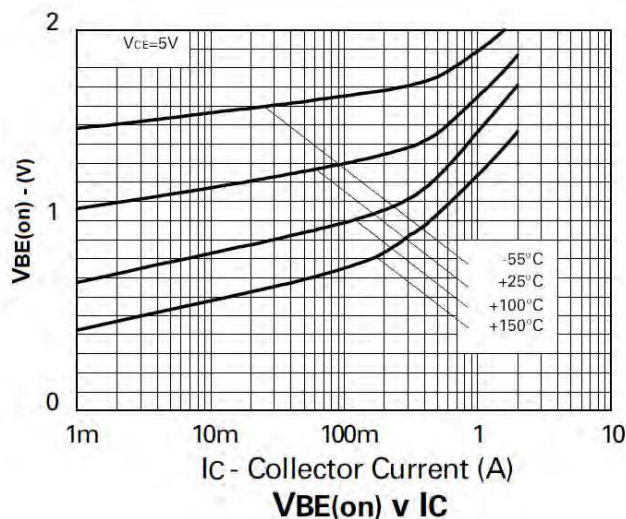
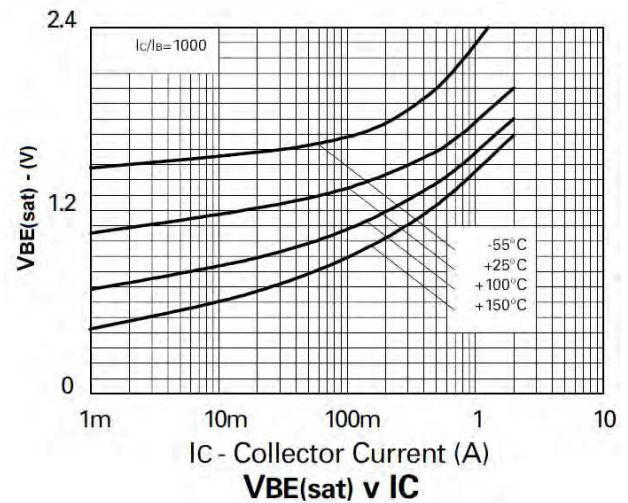
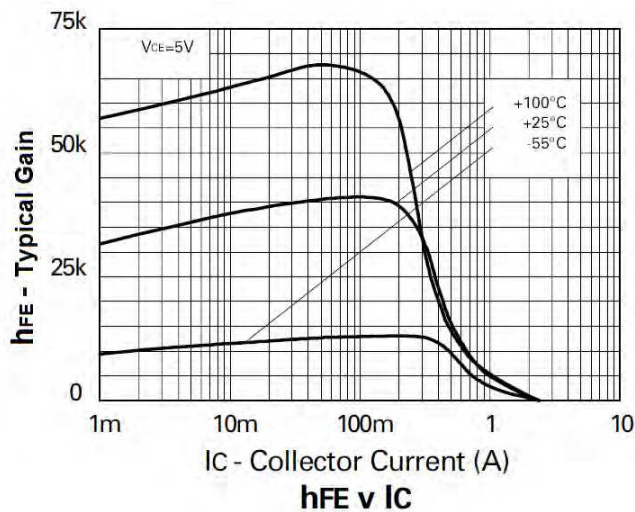
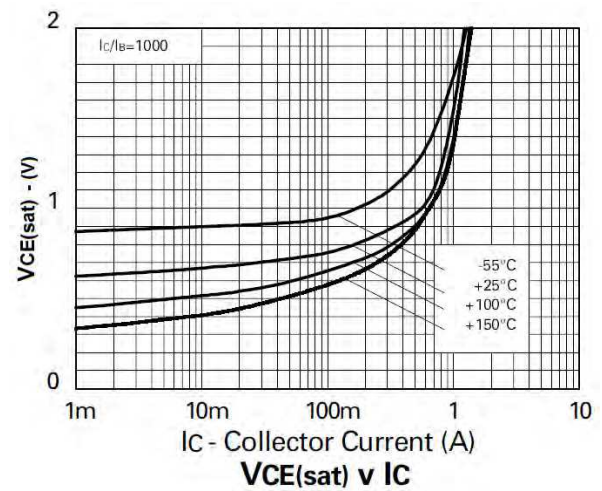
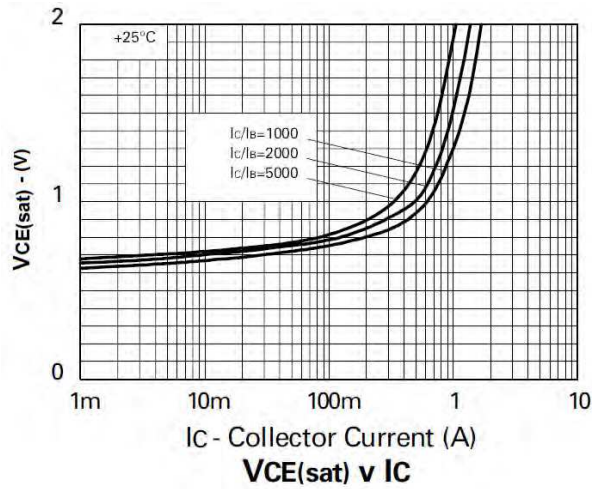
Thermal Characteristics


Electrical Characteristics @T_A = 25°C unless otherwise specified

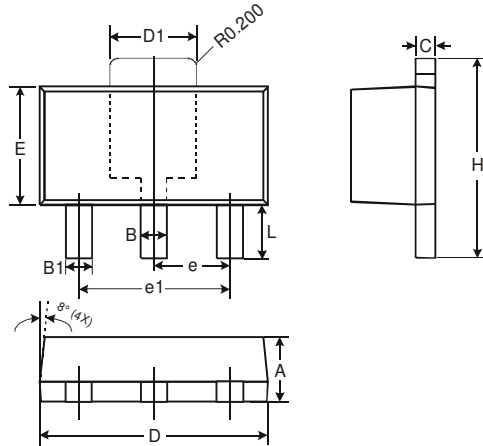
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	90	-	-	V	I _C = 10μA
Collector-Emitter Breakdown Voltage (Notes 6)	BV _{CEO}	80	-	-	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	10	-	-	V	I _E = 10μA
Collector Cutoff Current	I _{CES}	-	-	10	μA	V _{CE} = 80V
Emitter Cutoff Current	I _{EBO}	-	-	10	μA	V _{EB} = 8V
DC current transfer Static ratio (Notes 6)	h _{FE}	1000 2000	-	-		I _C = 150mA, V _{CE} = 10V I _C = 500mA, V _{CE} = 10V
Collector-Emitter Saturation Voltage (Notes 6)	V _{CE(sat)}	-	-	1.3 1.3	V	I _C = 500mA, I _B = 0.5mA I _C = 500mA, I _B = 0.5mA, T _J = 150°C
Base-Emitter Saturation Voltage (Notes 6)	V _{BE(sat)}	-	-	1.9	V	I _C = 500mA, I _B = 0.5mA
Turn On Time	t _{ON}	-	0.4	-	μs	I _C = 500mA, I _{Bon} = I _{Boff} = 0.5mA
Turn Off Time	t _{OFF}		1.5			

Notes: 6. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics

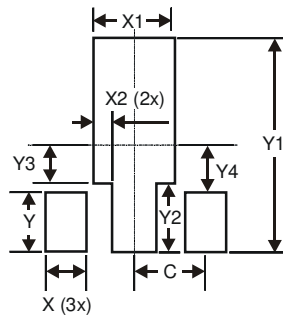


Package Outline Dimensions



SOT89		
Dim	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.43
D	4.40	4.60
D1	1.52	1.83
E	2.29	2.60
e	1.50 Typ	
e1	3.00 Typ	
H	3.94	4.25
L	0.89	1.20
All Dimensions in mm		

Suggested Pad Layout



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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