150V NPN SILICON PLANAR MEDIUM POWER TRANSISTOR IN SOT89

Features

- BV_{CEO} > 150V
- High Current Capability Maximum Continuous Current I_C = 1A
- Low Saturation Voltage $V_{CE(sat)}$ < 300mV @ 0.5A
- **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**

Mechanical Data

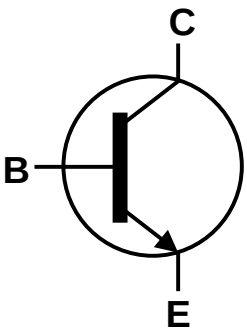
- Case: SOT89
- Case Material: Molded Plastic, "Green" Molding Compound
- Moisture Sensitivity: Level 1 per J-STD-020
- UL Flammability Rating 94V-0
- Terminals: Matte Tin Finish e3
- Weight: 0.052 grams (Approximate)

Application

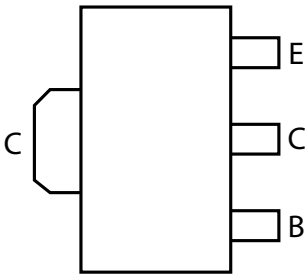
- Power MOSFET Gate Driving
- Low Loss Power Switching

SOT89

Top View



Device symbol



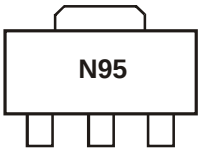
Top View
Pin-Out

Ordering Information (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FCX495TA	N95	7	12	1000
FCX495TC	N95	13	12	4000

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 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. For packaging details, go to our website at http://www.diodes.com.

Marking Information



N95 = Product Type Marking Code

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

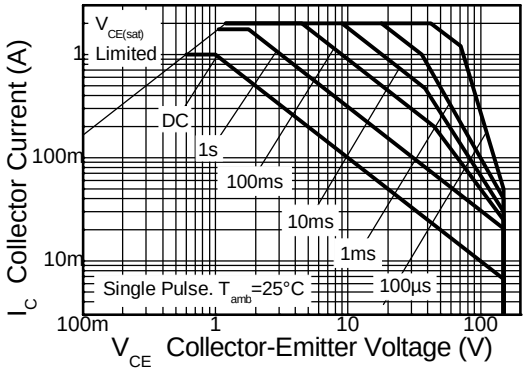
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	170	V
Collector-Emitter Voltage	V_{CEO}	150	V
Emitter-Base Voltage	V_{EBO}	6	V
Continuous Collector Current	I_C	1	A
Peak Pulse Current	I_{CM}	2	A
Continuous Base Current	I_B	200	mA

Thermal Characteristics

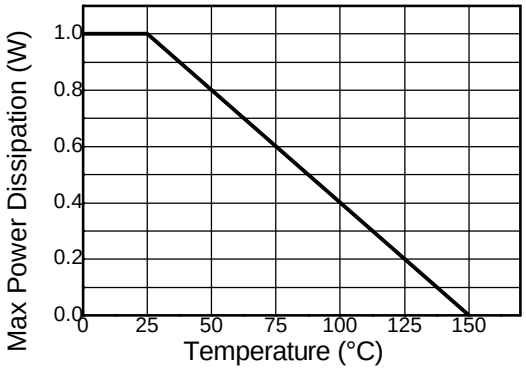
Characteristic	Symbol	Value	Unit
Collector Power Dissipation	P_D	1	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	10.01	°C/W
Operating and Storage Temperature Range	T_J,T_{STG}	-65 to +150	°C

Notes: 5. For the device mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.
6.Thermal resistance from junction to solder-point (on the exposed collector pad).

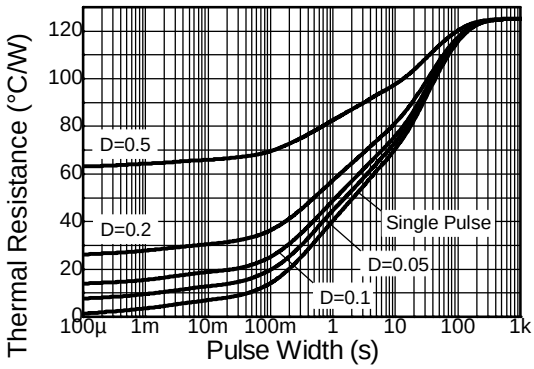
Thermal Characteristics



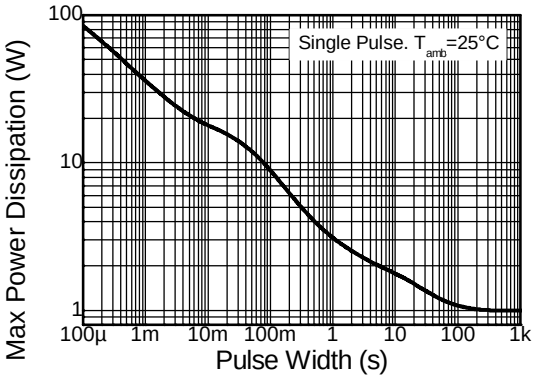
Safe Operating Area



Derating Curve



Transient Thermal Impedance



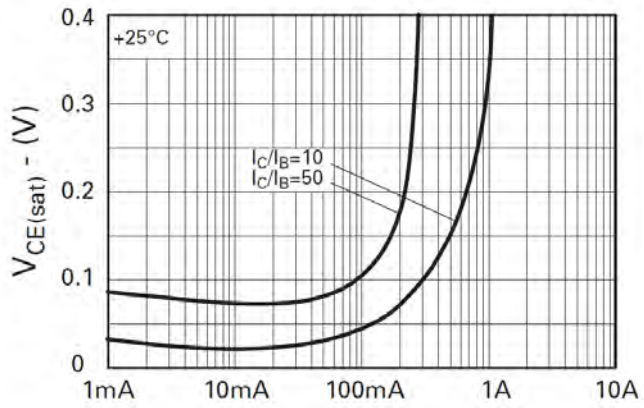
Pulse Power Dissipation

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

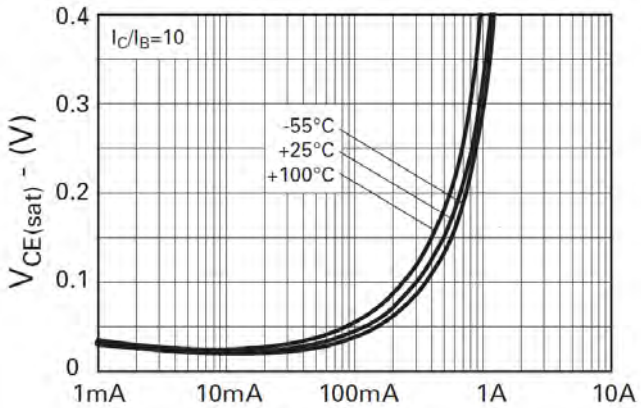
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	170	—	—	V	I_C = 100µA
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	150	—	—	V	I_C = 10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	6	—	—	V	I_E = 100µA
Collector Cutoff Current	I_{CBO}	-	—	100	nA	V_{CB} = 150V
Emitter Cutoff Current	I_{EBO}	-	—	100	nA	V_{EB} = 5V
Emitter Cutoff Current	I_{CES}	-	—	100	nA	V_{CE} = 150V
DC current transfer Static ratio (Note 7)	h_{FE}	100 100 50 10	— — — —	— 300 — —	— — — —	I_C = 1mA, V_{CE} = 10V I_C = 250mA, V_{CE} = 10V I_C = 500mA, V_{CE} = 10V I_C = 1A, V_{CE} = 10V
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	— —	— —	0.2 0.3	V	I_C = 250mA, I_B = 25mA I_C = 500mA, I_B = 50mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	—	—	1.0	V	I_C = 500mA, I_B = 50mA
Base-Emitter Turn-on Voltage (Note 7)	$V_{BE(on)}$	—	—	1.0	V	I_C = 500mA, V_{CE} = 10V
Transitional Frequency	f_T	100	—	-	MHz	I_C = 50mA, V_{CE} = 10V f = 100MHz
Output capacitance	C_{obo}	—	—	10	pF	V_{CB} = 10V, f = 1MHz,

Notes: 7. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle ≤ 2%.

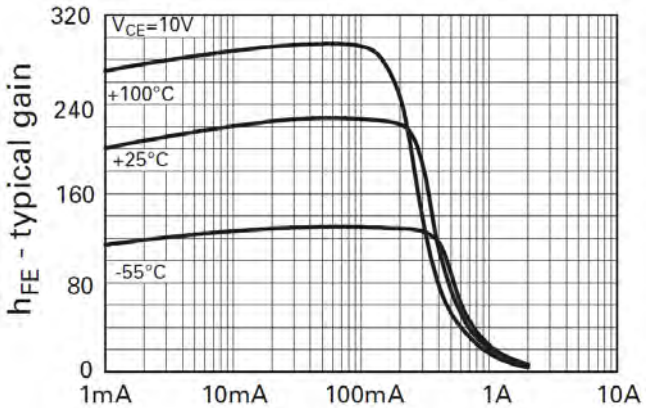
Typical Characteristics



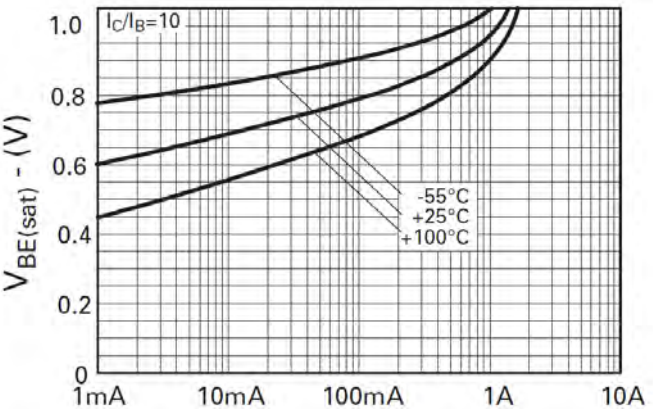
$V_{CS(sat)}$ vs. I_C



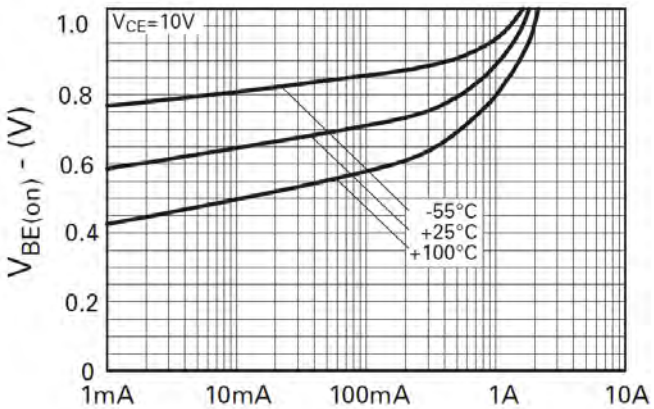
$V_{CS(sat)}$ vs. I_C



h_{FE} vs. I_C

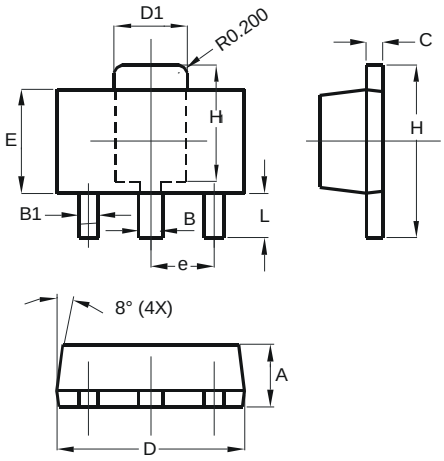


$V_{BE(sat)}$ vs. I_C



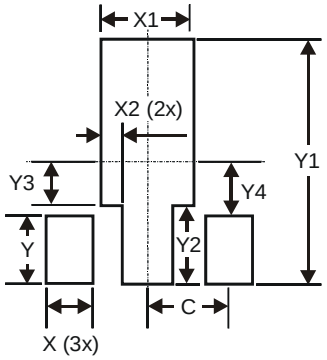
$V_{BE(on)}$ vs. I_C

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	0.44
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



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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