


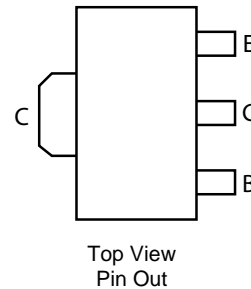
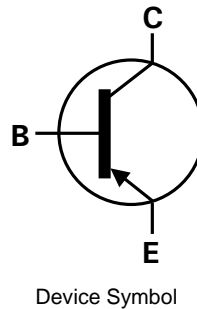
**400V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT89**

**Features**

- $BV_{CEO} > -400V$
- $I_C = -200mA$  high Continuous Current
- Low saturation voltage  $V_{CE(sat)} < -200mV @ -20mA$
- Complementary NPN type: FCX458
- **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.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.05 grams (Approximate)

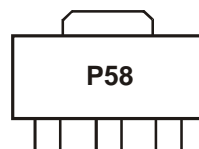


**Ordering Information** (Note 4)

Product	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
FCX558TA	P58	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> 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**



P58 = Product Type Marking Code

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

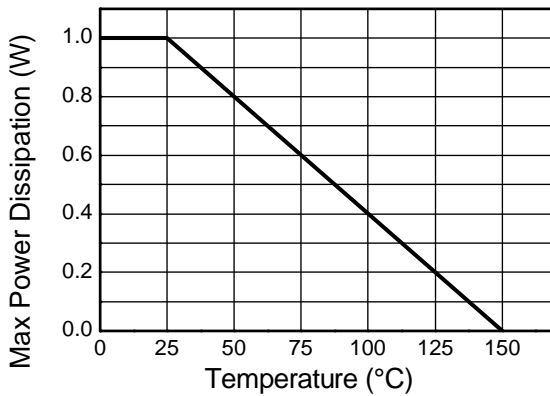
Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CB0}$	-400	V
Collector-Emitter Voltage	$V_{CEO}$	-400	V
Emitter-Base Voltage	$V_{EBO}$	-7	V
Continuous Collector Current	$I_C$	-200	mA
Peak Pulse Current	$I_{CM}$	-500	mA

**Thermal Characteristics**

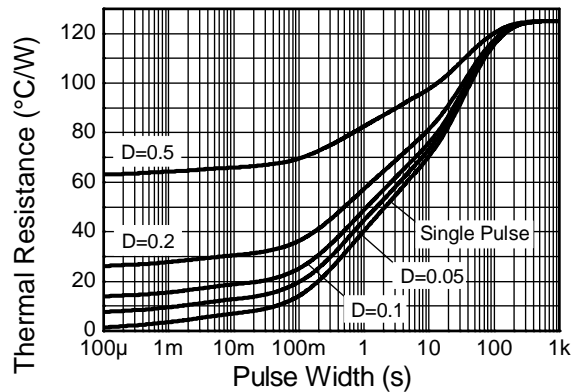
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	$P_D$	1	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	125	$^\circ\text{C/W}$
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	10.01	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$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

- Notes:
- For a device surface mounted on 15mm X 15mm FR4 PCB with high coverage of single sided 1 oz copper, in still air conditions; device measured when operating in steady state condition.
  - Thermal resistance from junction to solder-point (on the exposed collector pad).

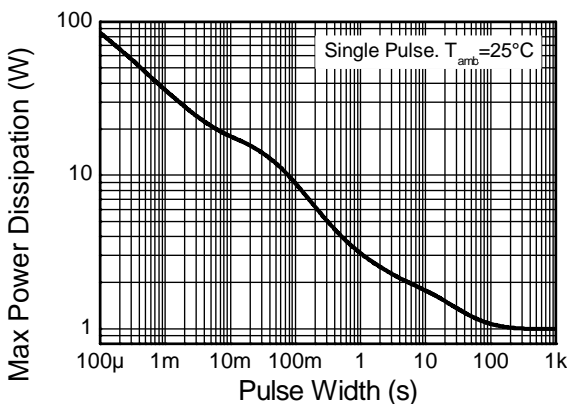
**Thermal Characteristics and Derating Information**



**Derating Curve**



**Transient Thermal Impedance**



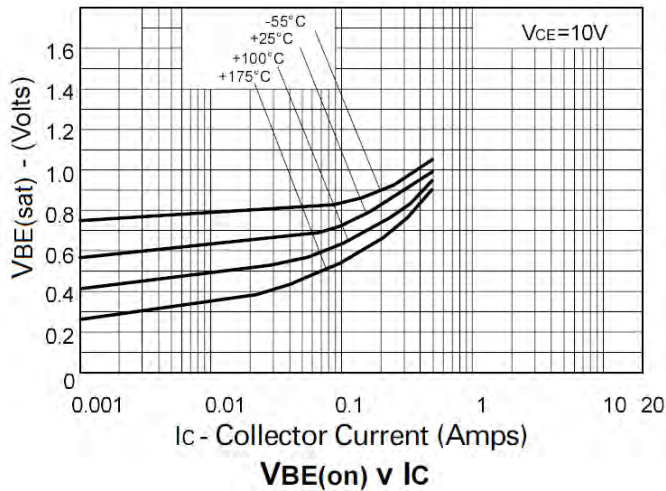
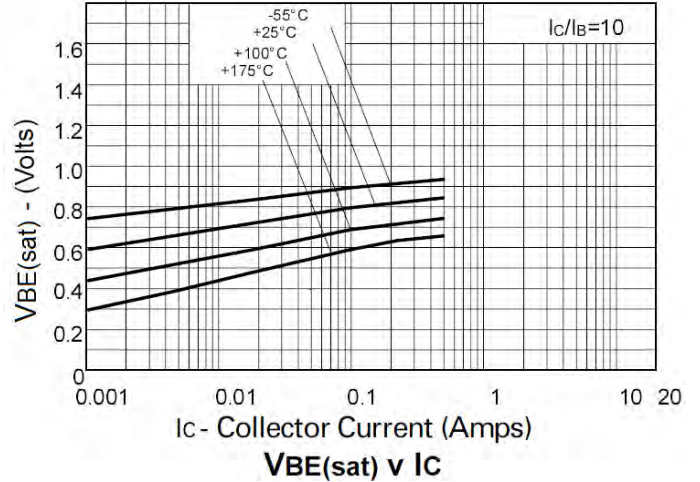
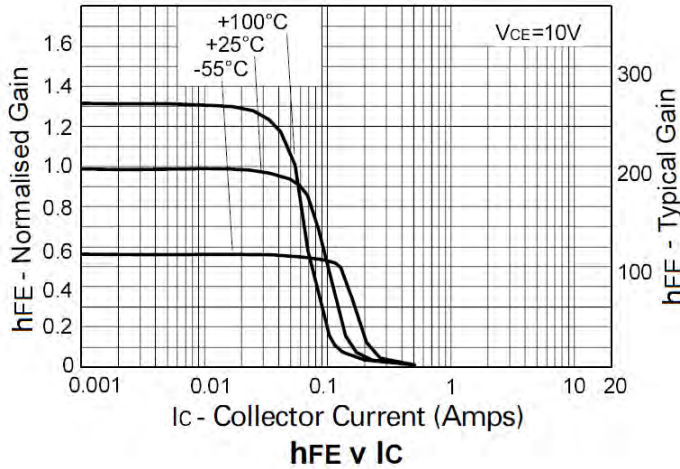
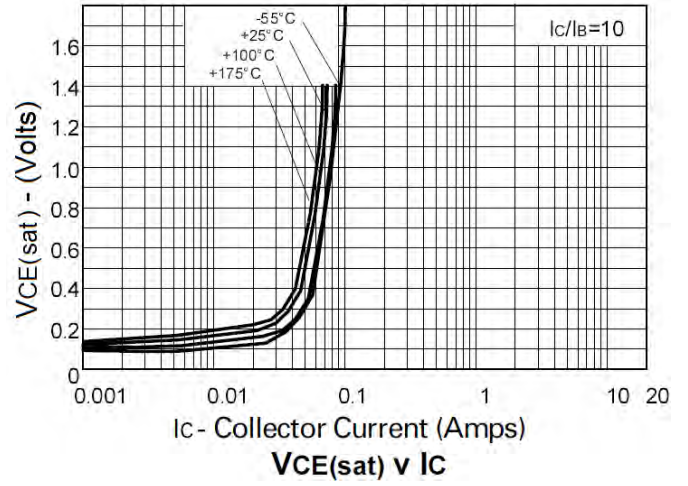
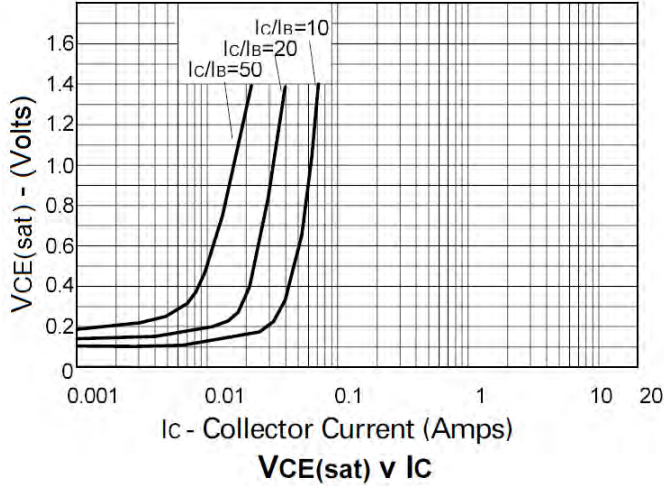
**Pulse Power Dissipation**

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

Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	$BV_{CBO}$	-400	-	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 7)	$BV_{CEO}$	-400	-	-	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	$BV_{EBO}$	-7	-	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff Current	$I_{CBO}$	-	-	-100	nA	$V_{CB} = -320\text{V}$
Emitter Cutoff Current	$I_{EBO}$	-	-	-100	nA	$V_{EB} = -5\text{V}$
Emitter Cutoff Current	$I_{CES}$	-	-	-100	nA	$V_{CES} = -320\text{V}$
DC current transfer Static ratio (Note 7)	$h_{FE}$	100	-	-	-	$I_C = -1\text{mA}, V_{CE} = -10\text{V}$
		100	-	300		$I_C = -50\text{mA}, V_{CE} = -10\text{V}$
		15	-	-		$I_C = -100\text{mA}, V_{CE} = -10\text{V}$
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	-	-	-0.2	V	$I_C = -20\text{mA}, I_B = -2\text{mA}$
		-	-	-0.5		$I_C = -50\text{mA}, I_B = -6\text{mA}$
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	-	-	-0.9	V	$I_C = -50\text{mA}, I_B = -5\text{mA}$
Base-Emitter Turn-on Voltage (Note 7)	$V_{BE(on)}$	-	-	-0.9	V	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$
Transitional Frequency	$f_T$	50	-	-	MHz	$I_E = -10\text{mA}, V_{CE} = -20\text{V}$ $f = 20\text{MHz}$
Output capacitance	$C_{obo}$	-	-	5	pF	$V_{CB} = -20\text{V}, f = 1\text{MHz}$ ,
Switching times	$t_{on}$	-	95	-	nS	$I_C = -50\text{mA}, V_C = -100\text{V}$ $I_{B1} = -5\text{mA}, I_{B2} = -10\text{mA}$
	$t_{off}$		1600			

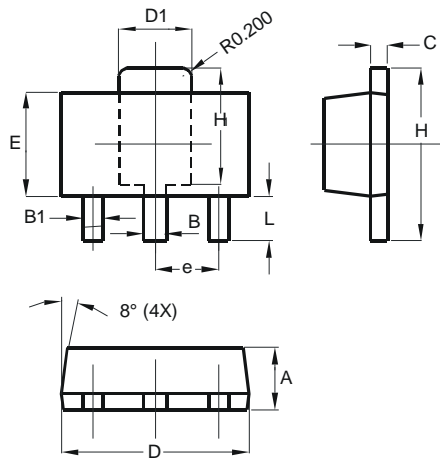
Notes: 7. Measured under pulsed conditions. Pulse width  $\leq 300\mu\text{s}$ . Duty cycle  $\leq 2\%$ .

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



## Package Outline Dimensions

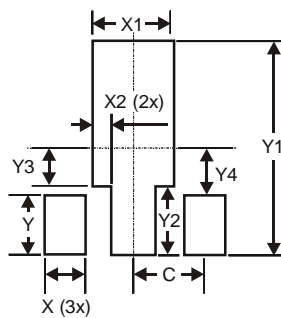
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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