

400V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT89
Features

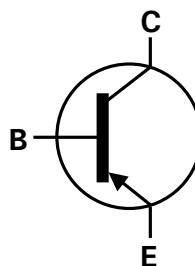
- $BV_{CEO} > -400V$
- $I_C = -200mA$ high Continuous Current
- Low saturation voltage $V_{CE(sat)} < -200mV$ @ $-20mA$
- Complementary NPN type: FCX458
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

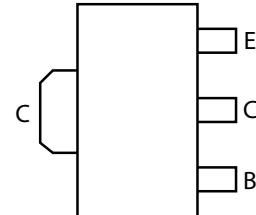
- Case: SOT89
- Case material: molded plastic. "Green" molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208
- Weight: 0.05 grams (Approximate)

SOT89


Top View



Device Symbol

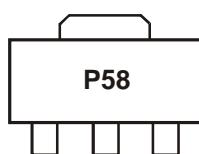

Top View
Pin Out

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

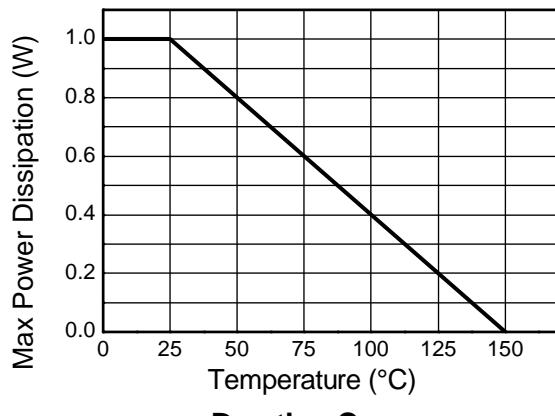
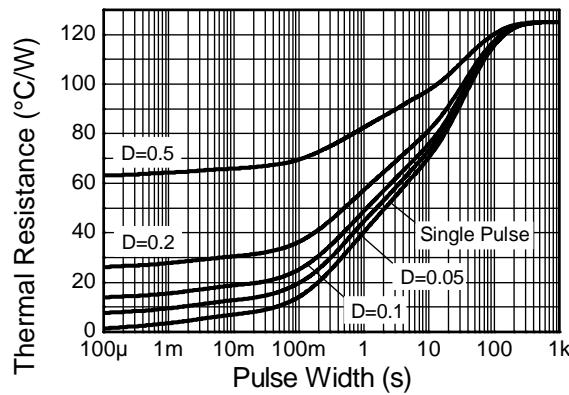
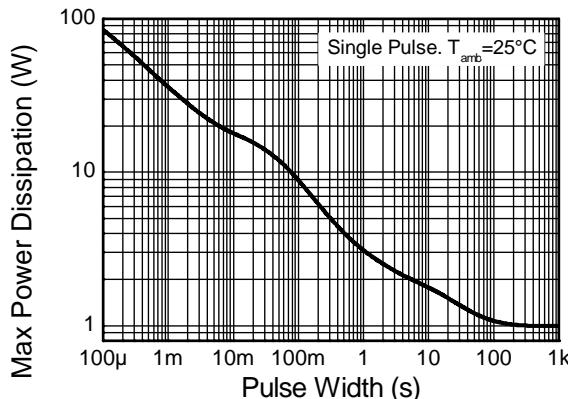
Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-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	°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 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.
6. Thermal resistance from junction to solder-point (on the exposed collector pad).

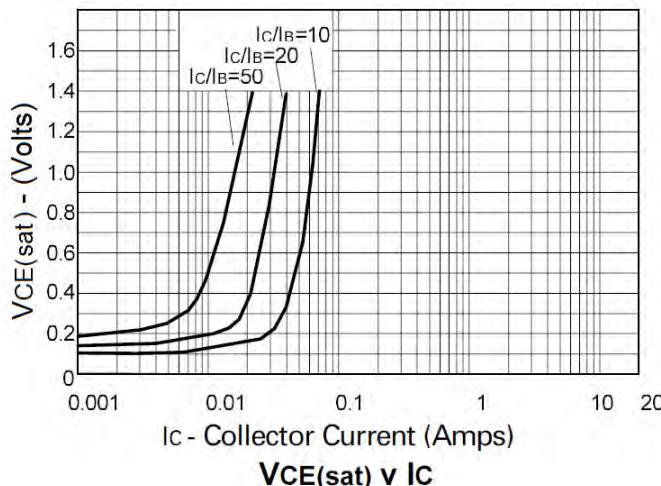
Thermal Characteristics and Derating Information

Derating Curve

Transient Thermal Impedance

Pulse Power Dissipation

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

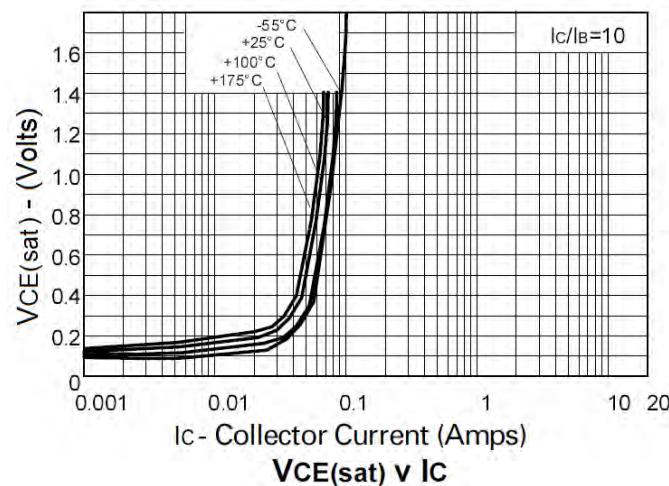
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	-	-	V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-400	-	-	V	$I_C = -1\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-	-	V	$I_E = -100\mu\text{A}$
Collector Cutoff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

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

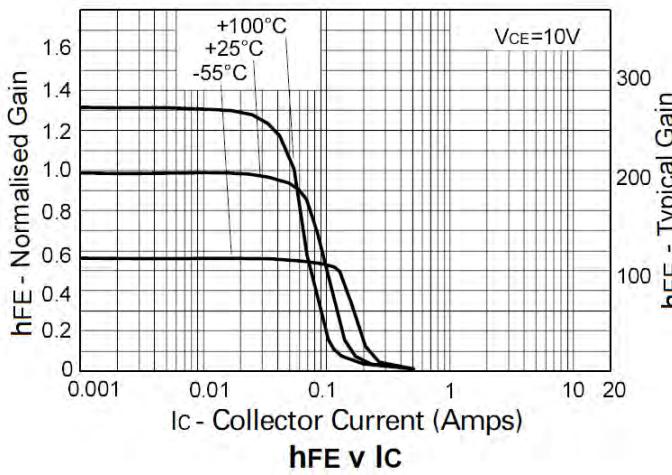
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)



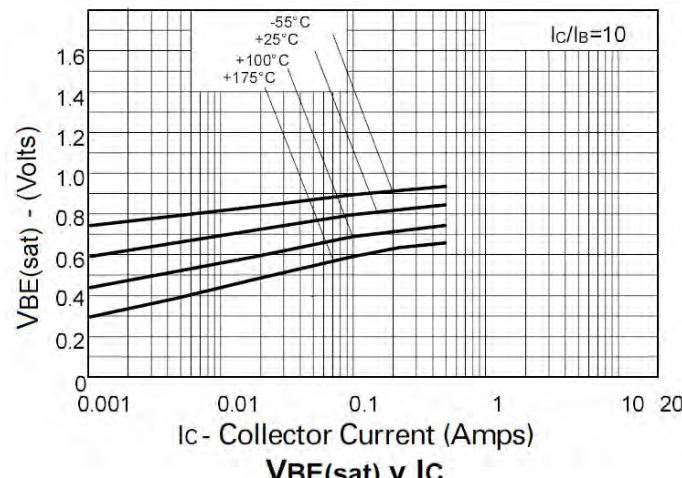
$V_{CE(\text{sat})} \text{ v } I_C$



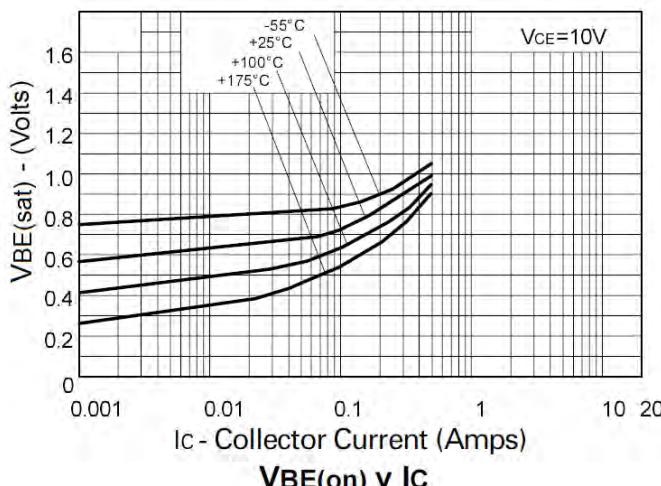
$V_{CE(\text{sat})} \text{ v } I_C$



$hFE \text{ v } I_C$



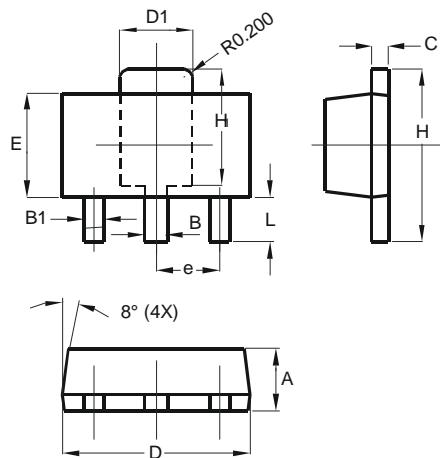
$V_{BE(\text{sat})} \text{ v } I_C$



$V_{BE(\text{on})} \text{ v } I_C$

Package Outline Dimensions

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

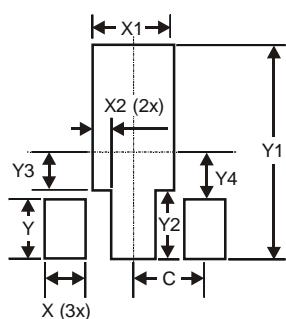


SOT89		
Dim	Min	Max
A	1.40	1.60
B	0.44	0.62
B1	0.35	0.54
C	0.35	0.44
D	4.40	4.60
D1	1.62	1.83
E	2.29	2.60
e	1.50 Typ	
H	3.94	4.25
H1	2.63	2.93
L	0.89	1.20

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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