FCX558

400V PNP SILICON PLANAR HIGH VOLTAGE TRANSISTOR IN SOT89

Features

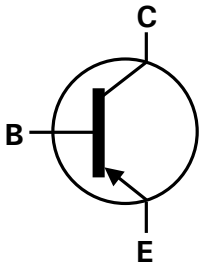
- BV_{CEO} > -400V
- I_C = -200mA high Continuous Current
- Low saturation voltage $V_{CE(sat)}$ < -200mV @ -20mA
- Complementary NPN type: FCX458
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards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

Mechanical Data

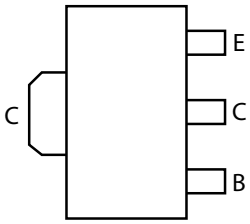
- Case: SOT89
- Case material: molded plastic. "Green" molding compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.05 grams (Approximate)

SOT89

Top View



Device Symbol



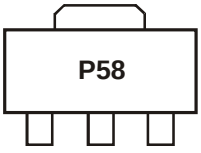
Top View
Pin Out

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°C, unless otherwise specified.)

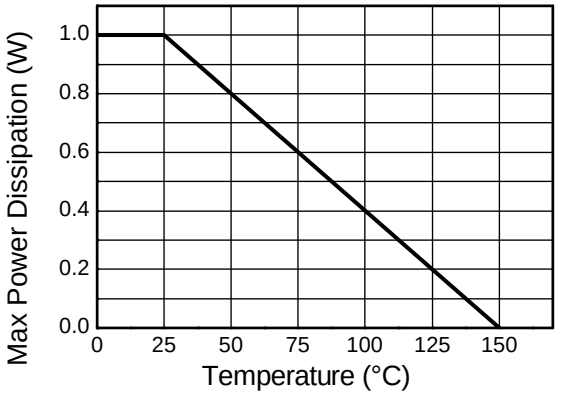
Characteristic	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	-400	V
Collector-Emitter Voltage	V_{CEO}	-400	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-200	mA
Peak Pulse Current	I_{CM}	-500	mA

Thermal Characteristics

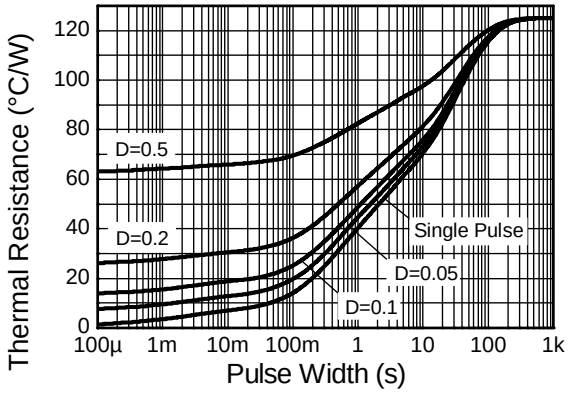
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\theta JA}$	125	°C/W
Thermal Resistance, Junction to Leads (Note 6)	$R_{\theta JL}$	10.01	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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).

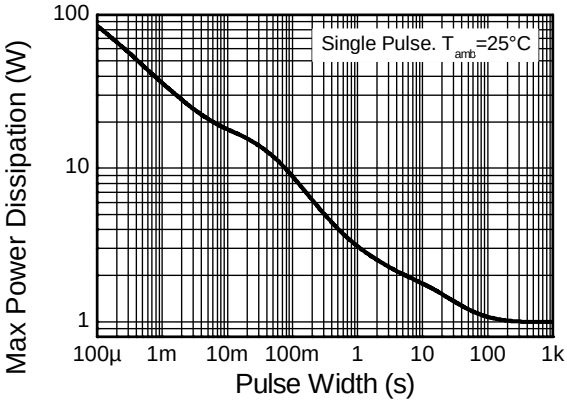
Thermal Characteristics and Derating Information



Derating Curve



Transient Thermal Impedance



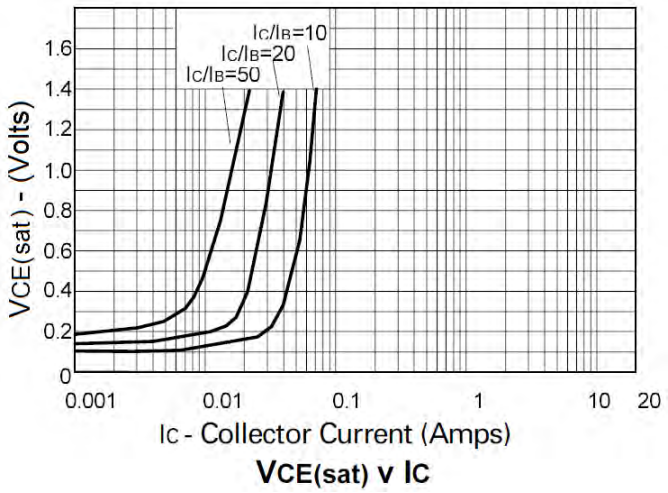
Pulse Power Dissipation

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

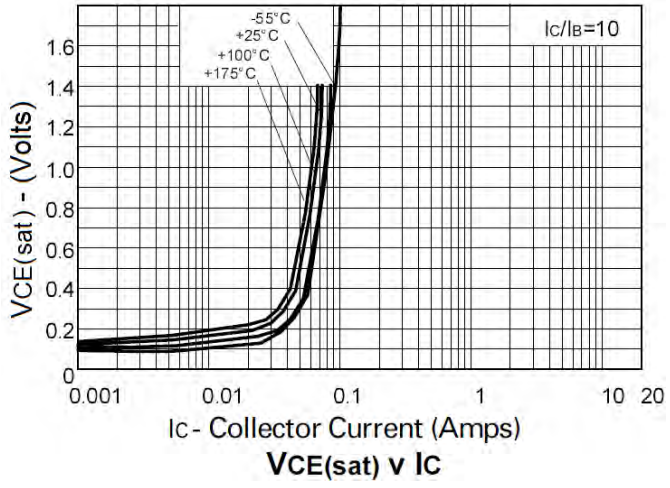
Characteristic	Symbol	Min	Typ.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-400	-	-	V	I_C = -100µA
Collector-Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-400	-	-	V	I_C = -1mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	-	-	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	-	-	-100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

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

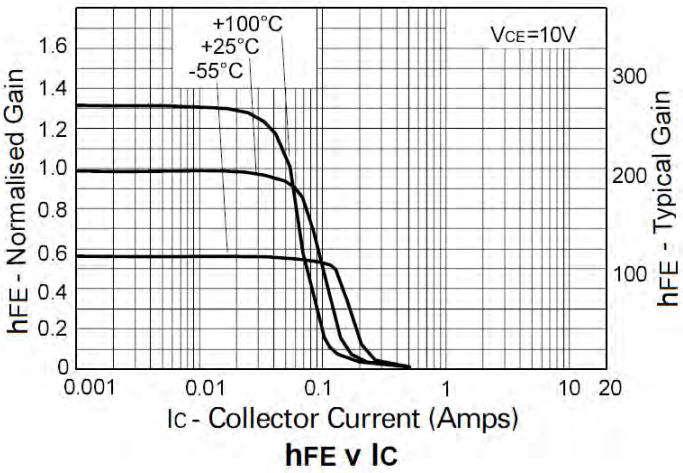
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



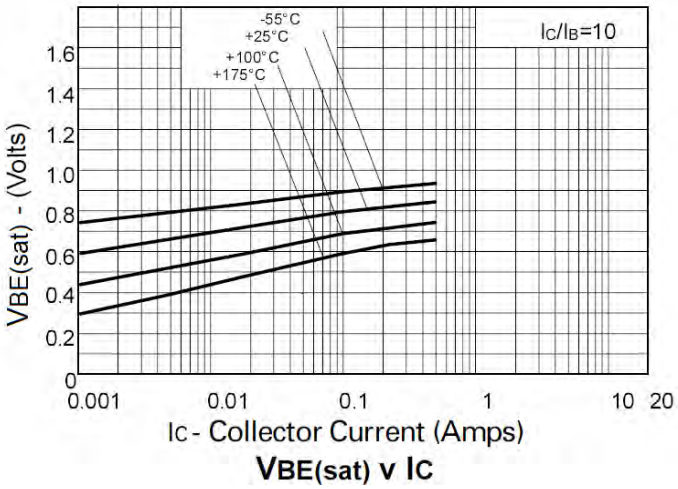
VCE(sat) v IC



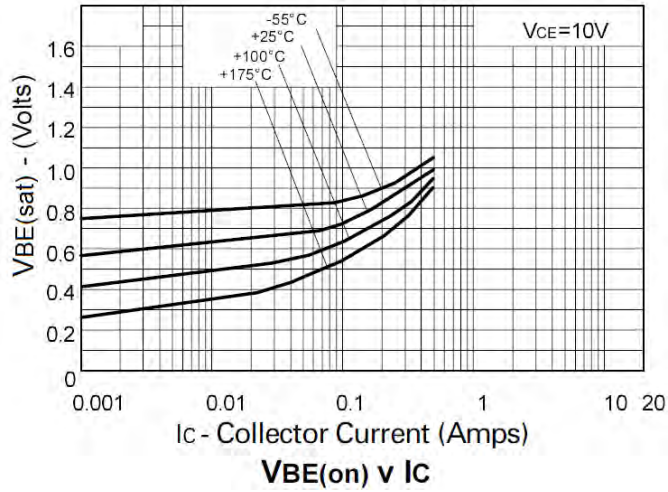
VCE(sat) v IC



hFE v IC



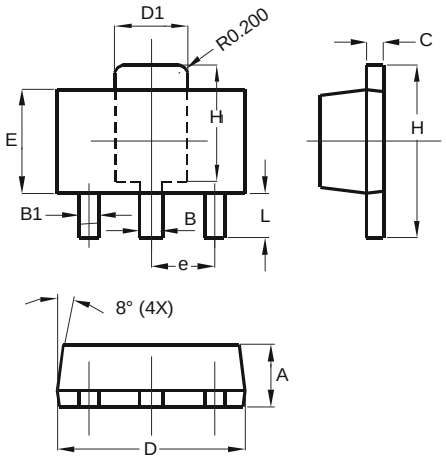
VBE(sat) v IC



VBE(on) v IC

Package Outline Dimensions

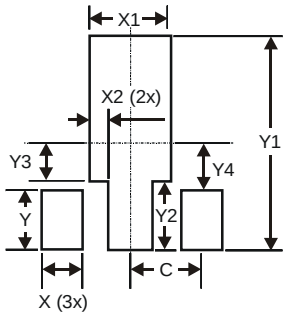
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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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