



FCX558

400V PNP HIGH VOLTAGE TRANSISTOR IN SOT89

Features

- BV_{CEO} > -400V
- I_C = -200mA High Continuous Current
- I_{CM} = -500mA Peak Pulse Current
- Excellent h_{FE} Characteristics up to -100mA
- 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

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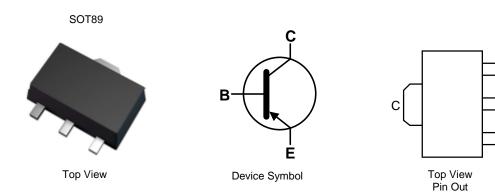
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- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads,
 Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.05 grams (Approximate)



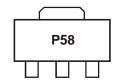
Ordering Information (Note 4)

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Product	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
FCX558TA	AEC-Q101	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/quality/lead_free.html 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/products/packages.html.

Marking Information



P58 = Product Type Marking Code



Absolute 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	Ic	-200	mA
Peak Pulse Current	I _{CM}	-500	mA

Thermal Characteristics (@TA = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit		
	(Note 5)		0.7		
Power Discipation	(Note 6)	D	1	W	
Power Dissipation	(Note 7)	P_{D}	1.5		
	(Note 8)		2		
	(Note 5)		178		
Thermal Resistance, Junction to Ambient Air	(Note 6)	D	125	°C/W	
memai Resistance, Junction to Ambient All	(Note 7)	$R_{ heta JA}$	83		
	(Note 8)		60		
Thermal Resistance, Junction to Lead (Not		$R_{ heta JL}$	22		
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C		

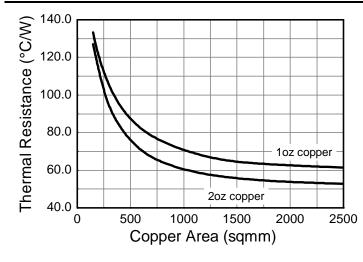
ESD Ratings (Note 10)

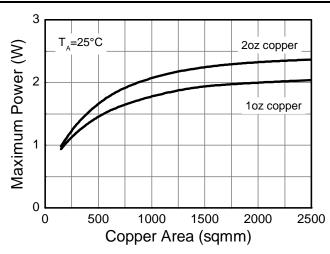
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	٧	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	С

Notes:

- 5. For a device mounted with the exposed collector pad on minimum recommended pad layout (MRP) 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in a steady-state.
- 6. Same as Note 5, except the device is mounted with the exposed collector pad on 15mm x 15mm 1oz copper.
- 7. Same as Note 5, except the device is mounted with the exposed collector pad on 25mm x 25mm 1oz copper.
- 8. Same as Note 5, except the device is mounted with the exposed collector pad on 50mm x 50mm 1oz copper.
- 9. Thermal resistance from junction to solder-point (on the exposed collector pad).
- 10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

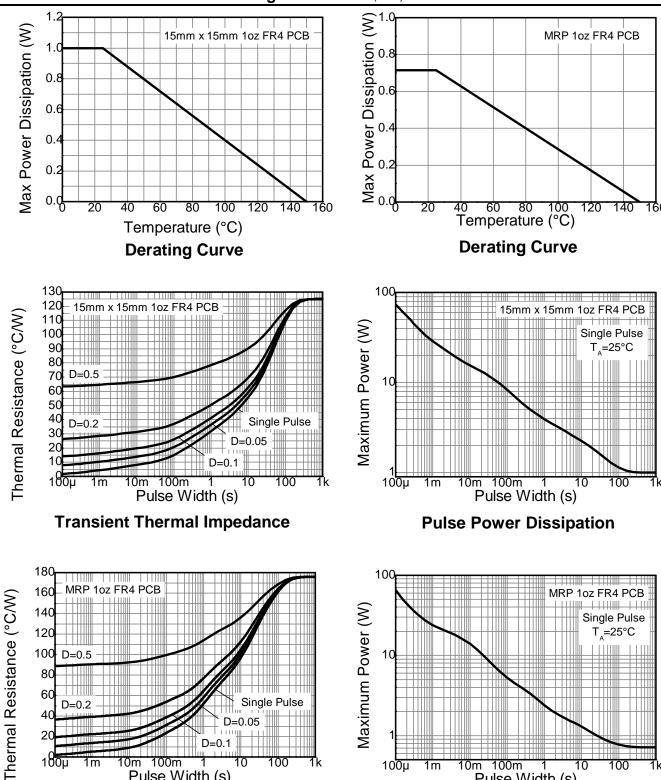
Thermal Characteristics and Derating Information







Thermal Characteristics and Derating Information (cont.)



Transient Thermal Impedance

Pulse Width (s)

Pulse Power Dissipation



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

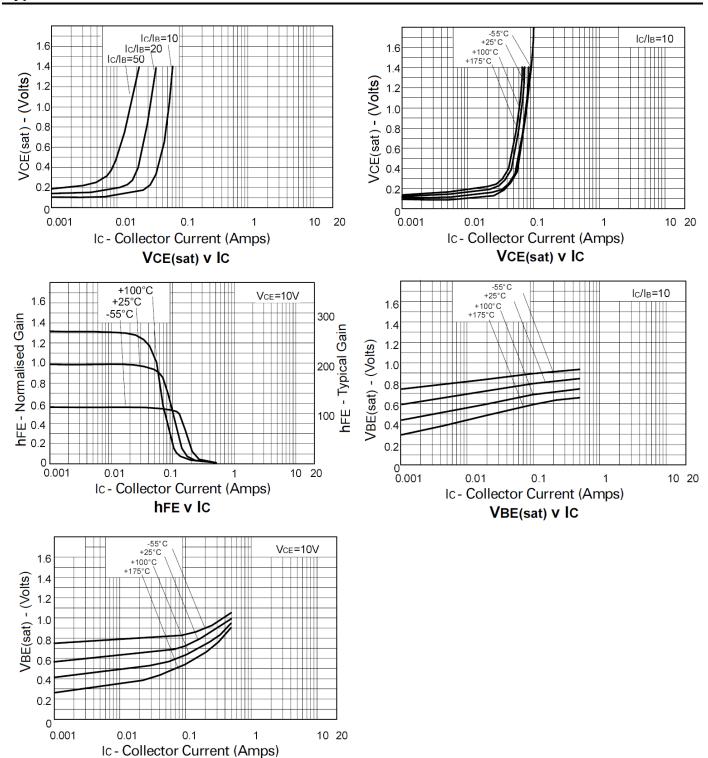
Characteristic	Symbol	Min	Тур.	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-400	-540	-	V	$I_{C} = -100 \mu A$
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-400	-510	-	V	$I_C = -1mA$
Collector-Emitter Breakdown Voltage	BV _{CES}	-400	-540		V	$I_{C} = -100 \mu A$
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.2	-	V	$I_E = -100 \mu A$
Collector Cutoff Current	I _{CBO}	=	<-1	-100	nA	V _{CB} = -320V
Emitter Cutoff Current	I _{CES}	=	<-1	-100	nA	V _{CE} = -320V
Emitter Cutoff Current	I _{EBO}	=	<-1	-20	nA	V _{EB} = -6V
DC Current Transfer Static Ratio (Note 11)	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 11)	V _{CE(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 11)	$V_{BE(sat)}$	=	-	-0.9	V	$I_C = -50 \text{mA}, I_B = -5 \text{mA}$
Base-Emitter Turn-on Voltage (Note 11)	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 = 20MHz
Output Capacitance	C _{obo}	=	-	5	pF	V _{CB} = -20V, f = 1MHz,
Switching Times	t _{on}	_	95	-	nS	$I_C = -50 \text{mA}, V_C = -100 \text{V}$
S .	t _{off}		1,600			$I_{B1} = -5mA$, $I_{B2} = -10mA$

Note:

^{11.} Measured under pulsed conditions. Pulse width \leq 300 μ s. Duty cycle \leq 2%.



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

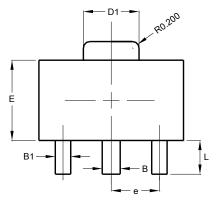


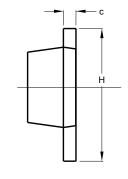
VBE(on) v IC

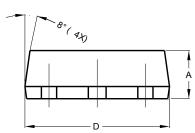


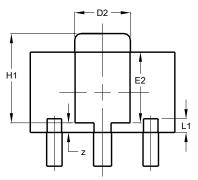
Package Outline Dimensions

Please see http://www.diodes.com/package-outlines.html for the latest version.





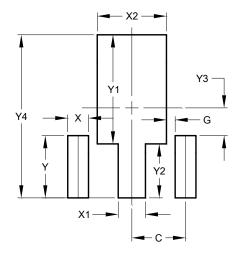




SOT89					
Dim	Min	Max	Тур		
Α	1.40	1.60	1.50		
В	0.50	0.62	0.56		
B1	0.42	0.54	0.48		
С	0.35	0.43	0.38		
D	4.40	4.60	4.50		
D1	1.62	1.83	1.733		
D2	1.61	1.81	1.71		
E	2.40	2.60	2.50		
E2	2.05	2.35	2.20		
е	-	-	1.50		
Н	3.95	4.25	4.10		
H1	2.63	2.93	2.78		
L	0.90	1.20	1.05		
L1	0.327	0.527	0.427		
z	0.20	0.40	0.30		
All Dimensions in mm					

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value		
Dillielisions	(in mm)		
С	1.500		
G	0.244		
Χ	0.580		
X1	0.760		
X2	1.933		
Υ	1.730		
Y1	3.030		
Y2	1.500		
Y3	0.770		
Y4	4.530		

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Note: For high voltage applications, the appropriate industry sector guidelines should be considered with regards to creepage and clearance distances between device terminals and PCB tracking.



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