12V PNP SILICON POWER (SWITCHING) TRANSISTOR IN SOT89

Features

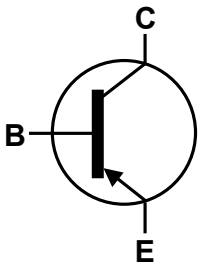
- BV_{CEO} = -12V
- I_C = -3.0A Continuous Current
- Low Saturation Voltage $V_{CE(sat)}$ < -20mV @ -100mA
- R_{sat} = 77mΩ for a Low Equivalent On-Resistance
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please contact us or your local Diodes representative. https://www.diodes.com/quality/product-definitions/**

Mechanical Data

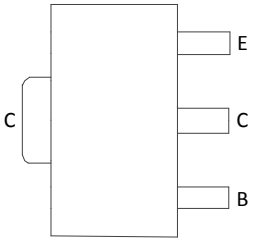
- Case: SOT89
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (e3)
- Weight: 0.05 grams (Approximate)

SOT89

Top View



Device Symbol



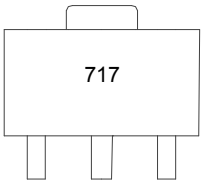
Top View
Pin Out

Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
FCX717TA	Standard	717	7	12	1,000

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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 https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



717 = Product Type Marking Code

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-12	V
Collector-Emitter Voltage	V_{CEO}	-12	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-3	A
Peak Pulse Collector Current	I_{CM}	-10	A
Base Current	I_B	-500	A

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

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Power Dissipation (Note 6)	P_D	2	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

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

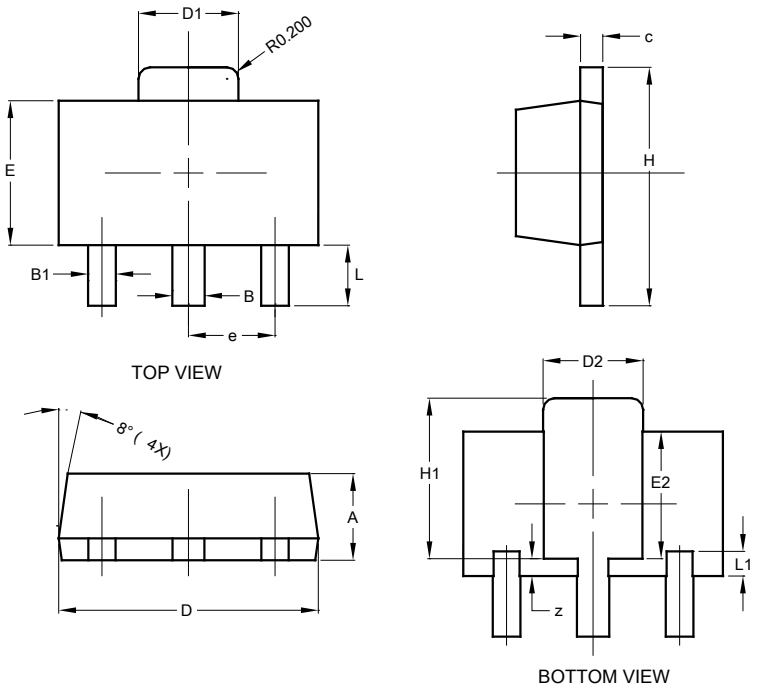
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-12	-35	—	V	I_C = -100µA
Collector- Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-12	-25	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	-8.5	—	V	I_E = -100µA
Collector Cutoff Current	I_{CBO}	—	—	-100	nA	V_{CB} = -10V
Emitter Cutoff Current	I_{EBO}	—	—	-100	nA	V_{EB} = -4V
Collector Emitter Cutoff Current	I_{CES}	—	—	-100	nA	V_{CES} = -10V
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	—	-12 -110 -230	-20 -150 -320	mV	I_C = -0.1A, I_B = -10mA I_C = -1A, I_B = -10mA I_C = -3A, I_B = -50mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	—	-0.92	-1.05	mV	I_C = -3A, I_B = -50mA
Base-Emitter Turn-On Voltage (Note 7)	$V_{BE(on)}$	—	-0.85	-1.0	mV	I_C = -3A, V_{CE} = -2V
DC Current Gain (Note 7)	h_{FE}	300 300 160 60 45	475 450 240 100 70	—	—	I_C = -10mA, V_{CE} = -2V I_C = -0.1A, V_{CE} = -2V I_C = -3A, V_{CE} = -2V I_C = -8A, V_{CE} = -2V I_C = -10A, V_{CE} = -2V
Transitional frequency	f_T	80	110	—	MHz	I_C = -50mA, V_{CE} = -10V f = 100MHz
Output Capacitance	C_{obo}	—	21	30	pF	V_{CB} = -10V, f = 1MHz
Switching Time	t_{on}	—	70	—	ns	I_C = -2A, V_{CC} = -6V, I_{B1} =-I_{B2} = 50mA
	t_{off}		130			

Notes:
5. For a device surface mounted on 15mm x 15mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; device measured when operating in steady state condition.
6. Same as note (5), except the device is mounted on 40mm x 40mm x 0.6mm single sided 1oz weight copper.
7. Measured under pulsed conditions. Pulse width ≤ 300µs. Duty cycle ≤ 2%.

Package Outline Dimensions

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

SOT89

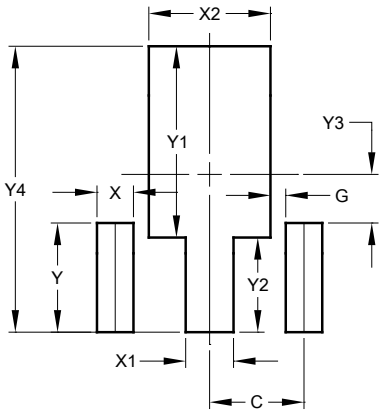


SOT89			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions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

Suggested Pad Layout

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

SOT89



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530

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