



FCX790A

30V PNP SILICON POWER (SWITCHING) TRANSISTOR IN SOT89

Features

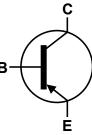
- BV_{CEO} > -40V
- I_C = -2A Continuous Current
- I_{CM} = -6A Peak Pulse Current
- Low Saturation Voltage V_{CE(sat)} < -250mV @ -500mA
- P_D = 2W Power Dissipation
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen- and Antimony-Free. "Green" Device (Note 3)
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please <u>contact us</u> or your local Diodes representative. https://www.diodes.com/quality/product-definitions/

Mechanical Data

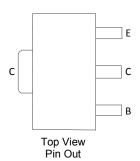
- Case: SOT89
- Case Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 (3)
- Weight: 0.05 grams (Approximate)







Device Symbol



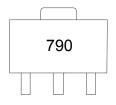
Ordering Information (Note 4)

Part Number	Compliance	Marking	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
FCX790ATA	Standard	790	7	12	1,000

Notes:

- 1. 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



790 = Product Type Marking Code



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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CBO}	-50	V
Collector-Emitter Voltage	V _{CEO}	-40	V
Emitter-Base Voltage	V _{EBO}	-5	V
Continuous Collector Current	I _C	-2	Α
Peak Pulse Collector Current (single pulse)	I _{CM}	-6	Α

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

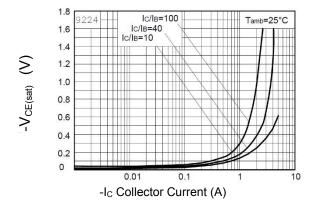
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	_	_	V	I _C = -100μA
Collector- Emitter Breakdown Voltage (Note 7)	BV _{CEO}	-40	_	_	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	_	_	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	_	_	-0.1	μA	V _{CB} = -30V
Emitter Cutoff Current	I _{EBO}	_	_	-0.1	nA	V _{EB} = -4V
Collector-Emitter Saturation Voltage (Note 7)	V _{CE(sat)}	_	ı	-250 -350 -450	mV	I_C = -0.5A, I_B = -5mA I_C = -1A, I_B = -10mA I_C = -2A, I_B = -50mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	_	1	-0.9	mV	$I_C = -1A$, $I_B = -10mA$
Base-Emitter Turn-On Voltage (Note 7)	$V_{BE(on)}$	_	-0.8	1	mV	$I_C = -1A$, $V_{CE} = -2V$
DC Current Gain (Note 7)	h _{FE}	300 250 200 150	ı	800 — — —	_	I _C = -10mA, V _{CE} = -2V I _C = -500mA, V _{CE} = -2V I _C = -1A, V _{CE} = -2V I _C = -2A, V _{CE} = -2V
Transitional frequency	f _T	100	_	_	MHz	I _C = -50mA, V _{CE} = -5V f = 50MHz
Input Capacitance	Cibo	_	225	_	pF	V _{EB} = -0.5V, f = 1MHz
Output Capacitance	C _{obo}	_	24	_	pF	V _{CB} = -10V, f = 1MHz
Switching Time	t _{on}	_	35 600		ns	I _C =-500mA, I _{B1} =-50mA I _{B2} =-50mA, V _{CC} =-10V

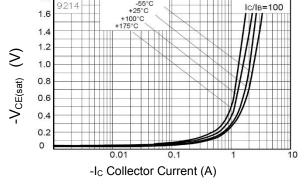
Notes

- 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 \leq 300 μ s. Duty cycle \leq 2%.



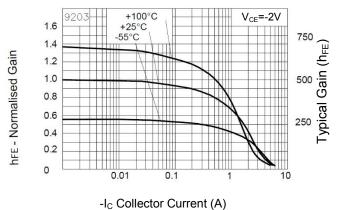
Typical Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

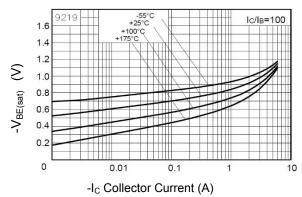




V_{CE(sat) V} I_C

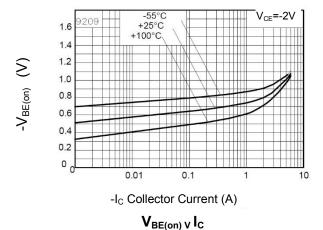
V_{CE(sat) V} I_C

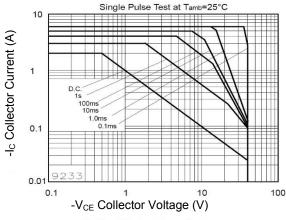




 $V_{\text{BE(sat) V}}I_{\text{C}}$





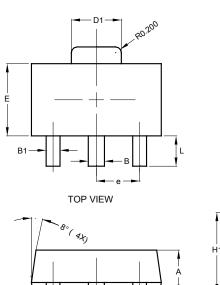


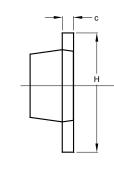
Safe Operating Area



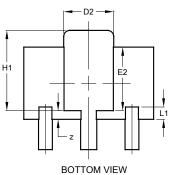
Package Outline Dimensions

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





SOT89

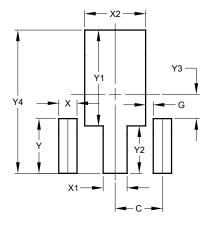


SOT89					
Dim	Min	Max	Тур		
Α	1.40	1.60	1.50		
В	0.50	0.62	0.56		
B1	0.42	0.54	0.48		
С	0.35	0.43	0.38		
D	4.40	4.60	4.50		
D1	1.62	1.83	1.733		
D2	1.61	1.81	1.71		
E	2.40	2.60	2.50		
E2	2.05	2.35	2.20		
е	-	-	1.50		
Н	3.95	4.25	4.10		
H1	2.63	2.93	2.78		
L	0.90	1.20	1.05		
L1	0.327	0.527	0.427		
Z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

SOT89



Dimensions	Value (in mm)
С	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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