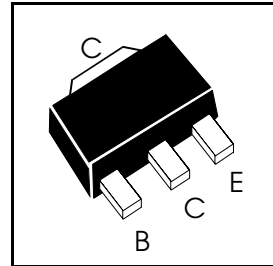


**SOT89 PNP SILICON POWER  
(SWITCHING) TRANSISTOR**  
ISSUE 1 - SEPTEMBER 1999

**FCX1149A**

**FEATURES**

- \* **2W POWER DISSIPATION**
- \* 20A Peak Pulse Current
- \* Excellent  $H_{FE}$  Characteristics up to 10 Amps
- \* Extremely Low Saturation Voltage E.g. 45mv Typ.
- \* Extremely Low Equivalent On-resistance;  
 $R_{CE(sat)}$  **67m $\Omega$  at 3A**



Partmarking Detail - 149

**ABSOLUTE MAXIMUM RATINGS.**

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	-30	V
Collector-Emitter Voltage	$V_{CEO}$	-25	V
Emitter-Base Voltage	$V_{EBO}$	-5	V
Peak Pulse Current **	$I_{CM}$	-10	A
Continuous Collector Current	$I_C$	-3	A
Base Current	$I_B$	-500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	1 † 2 ‡	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

† recommended  $P_{tot}$  calculated using FR4 measuring 15x15x0.6mm

‡ Maximum power dissipation is calculated assuming that the device is mounted on FR4 substrate measuring 40x40x0.6mm and using comparable measurement methods adopted by other suppliers.

\*\*Measured under pulsed conditions. Pulse width=300 $\mu$ s. Duty cycle  $\leq$  2%

Spice parameter data is available upon request for these devices.

Refer to the handling instructions for soldering surface mount components.

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## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	VALUE			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-30			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-25			V	$I_C = -100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-25			V	$I_C = -10\text{mA}^*$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEV}$	-25			V	$I_C = -100\mu\text{A}, V_{EB} = +1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	$I_E = -100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		-0.3	-100	nA	$V_{CB} = -24\text{V}$
Emitter Cut-Off Current	$I_{EBO}$		-0.3	-100	nA	$V_{EB} = -4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$		-0.3	-100	nA	$V_{CES} = -20\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-45 -100 -140 -200 -230	-80 -170 -240 -300 -350	mV	$I_C = -0.1\text{A}, I_B = -1\text{mA}^*$ $I_C = -0.5\text{A}, I_B = -3\text{mA}^*$ $I_C = -1\text{A}, I_B = -7\text{mA}^*$ $I_C = -3\text{A}, I_B = -100\text{mA}^*$ $I_C = -4\text{A}, I_B = -140\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-930	-1050	mV	$I_C = -3\text{A}, I_B = -100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		-840	-1000	mV	$I_C = -3\text{A}, V_{CE} = -2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	270 250 150 115	450 400 260 190 50	800		$I_C = -10\text{mA}, V_{CE} = -2\text{V}^*$ $I_C = -0.5\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -3.0\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -5.0\text{A}, V_{CE} = -2\text{V}^*$ $I_C = -10.0\text{A}, V_{CE} = -2\text{V}^*$
Transition Frequency	$f_T$		135		MHz	$I_C = -50\text{mA}, V_{CE} = -10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	$C_{cb}$		50		pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Switching Times	$t_{on}$		150		ns	$I_C = -4\text{A}, I_B = -40\text{mA}, V_{CC} = -10\text{V}$
	$t_{off}$		270		ns	$I_C = -4\text{A}, I_B = -40\text{mA}, V_{CC} = -10\text{V}$

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

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## TYPICAL CHARACTERISTICS

