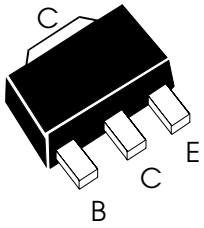
SOT89 PNP SILICON POWER (SWITCHING) TRANSISTOR

ISSSUE 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)}$67mΩ 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°C	P_{tot}	1 † 2 ‡	W W
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°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=300μs. Duty cycle ≤ 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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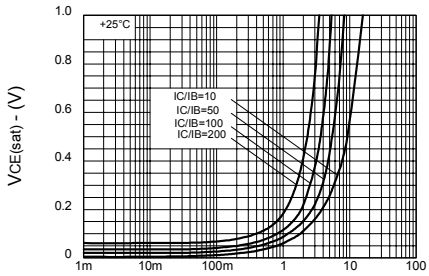
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

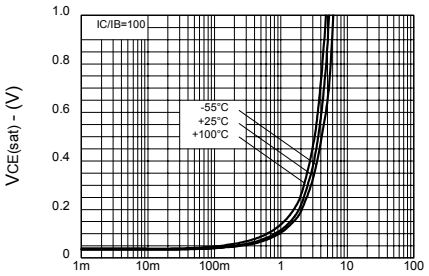
PARAMETER	SYMBOL	VALUE			UNIT	CONDITIONS.
		MIN.	TYP.	MAX.		
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-30			V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	-25			V	I_C=-100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-25			V	I_C=-10mA*
Collector-Emitter Breakdown Voltage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

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤ 2%

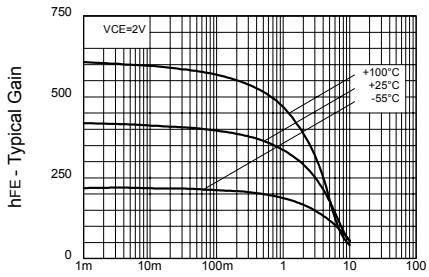
TYPICAL CHARACTERISTICS



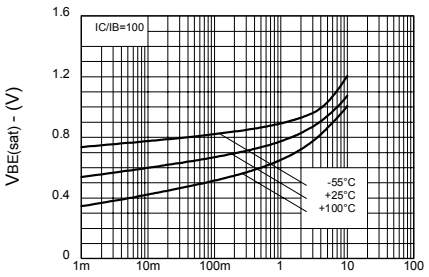
VCE(sat) v IC



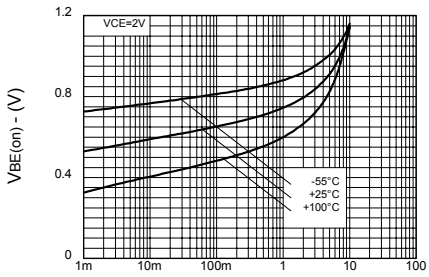
VCE(sat) v IC



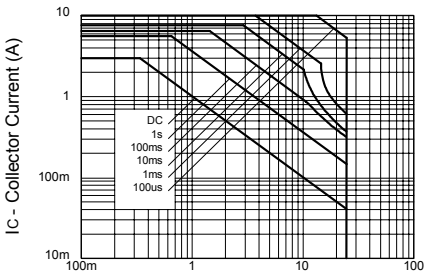
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area