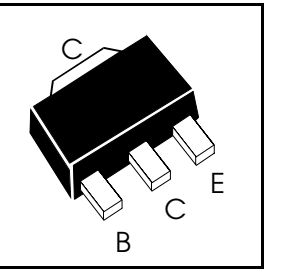
SOT89 NPN SILICON POWER (SWITCHING) TRANSISTOR

ISSSUE 1 - MARCH 1999

FCX690B

FEATURES

- *** 2W POWER DISSIPATION**
- * 6A Peak Pulse Current
- * Gain of 400 @I_C=1Amp
- * Very Low Saturation Voltage



Complimentary Type - FCX790A
Partmarking Detail - 690

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	45	V
Collector-Emitter Voltage	V_{CEO}	45	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current **	I_{CM}	6	A
Continuous Collector Current	I_C	2	A
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.

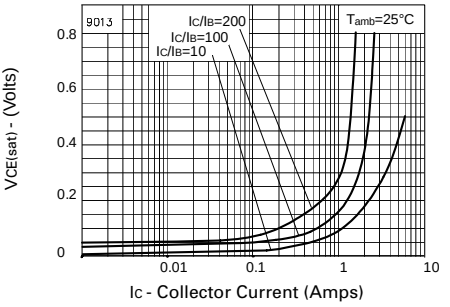
FCX690B

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C)

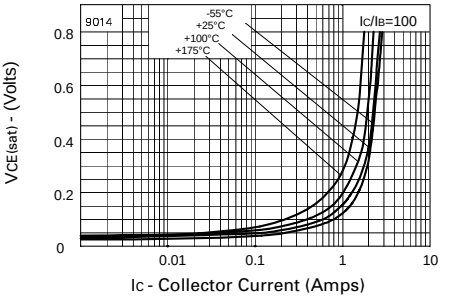
PARAMETER	SYMBOL	Min	Typ	Max	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45			V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			0.1	μA	V_{CB}=35V
Emitter Cut-Off Current	I_{EBO}			0.1	μA	V_{EB}=4V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			80 300	mV mV	I_C=0.1A, I_B=0.5mA * I_C=1A, I_B=5mA *
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	I_C=1A, I_B=10mA *
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.85	V	I_C=1A, V_{CE}=2V *
Static Forward Current Transfer Ratio	h_{FE}	500 400 150				I_C=100mA, V_{CE}=2V* I_C=1A, V_{CE}=2V* I_C=2A, V_{CE}=2V*
Transition Frequency	f_T	150			MHz	I_C=50mA, V_{CE}=5V f=50MHz
Input Capacitance	C_{ibo}		200		pF	V_{EB}=0.5V, f=1MHz
Output Capacitance	C_{obo}		16		pF	V_{CB}=10V, f=1MHz
Switching Times	t_{on} t_{off}		33 1300		ns ns	I_C=500mA, I_{B1}=I_{B2}=50mA V_{CC}=10V

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

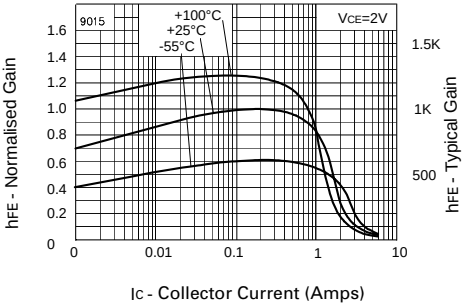
TYPICAL CHARACTERISTICS



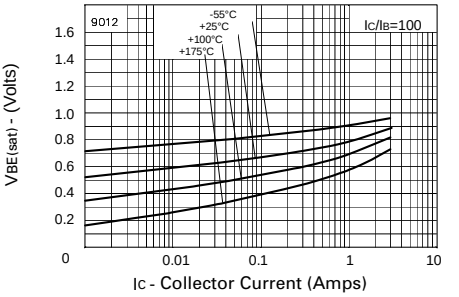
VCE(sat) v IC



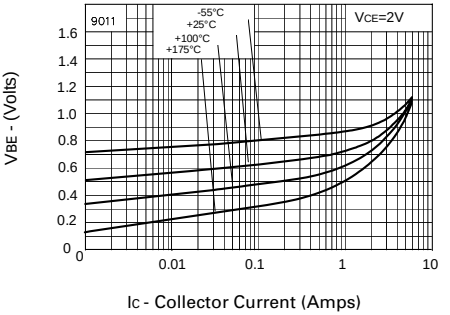
VCE(sat) v IC



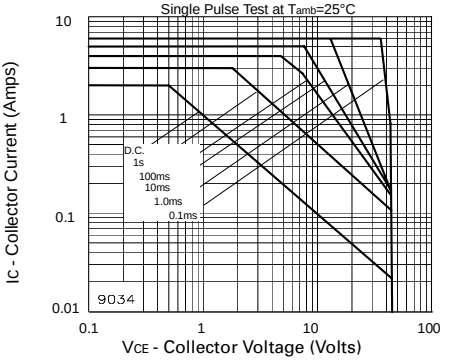
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area