

NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FZT690B

ISSUE 3 - OCTOBER 1995

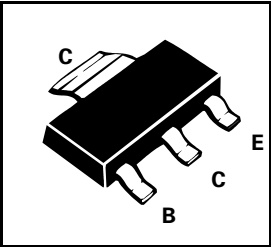
FEATURES

- * Very low equivalent on-resistance; $R_{CE(sat)}$ 125mΩ at 2A
- * Gain of 400 at $I_C=1$ Amp
- * Very low saturation voltage

APPLICATIONS

- * Darlington replacement
- * Siren Drivers, DC-DC converters

PARTMARKING DETAIL – FZT690B



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	3	A
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$)

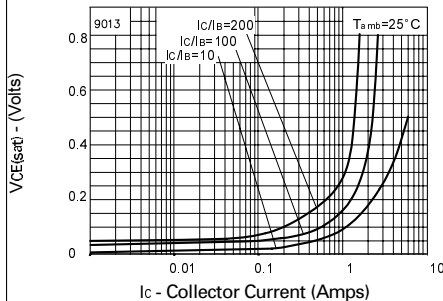
PARAMETER	SYMBOL	MIN.	TYP.	MAX	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	45			V	$I_C=100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	45			V	$I_C=10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu A$
Collector Cut-Off Current	I_{CBO}			0.1	μA	$V_{CB}=35V$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.1 0.5	V V	$I_C=0.1A, I_B=0.5mA^*$ $I_C=1A, I_B=5mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=1A, I_B=10mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	$I_C=1A, V_{CE}=2V^*$
Static Forward Current Transfer Ratio	h_{FE}	500 400 150 50				$I_C=100mA, V_{CE}=2V^*$ $I_C=1A, V_{CE}=2V^*$ $I_C=2A, V_{CE}=2V^*$ $I_C=3A, V_{CE}=2V^*$
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	$I_C=500mA, I_{B1}=50mA$ $I_{B2}=50mA, V_{CC}=10V$

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

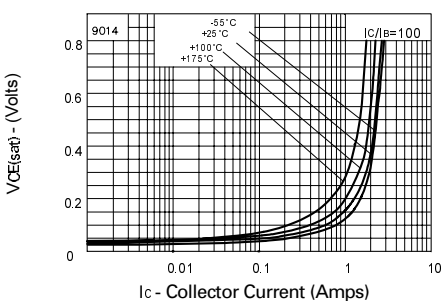
Spice parameter data is available upon request for this device

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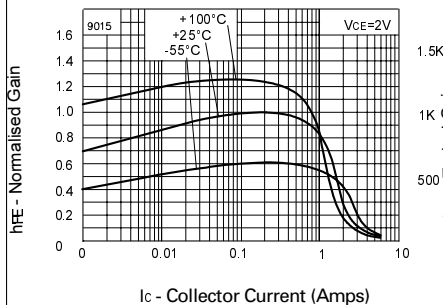
TYPICAL CHARACTERISTICS



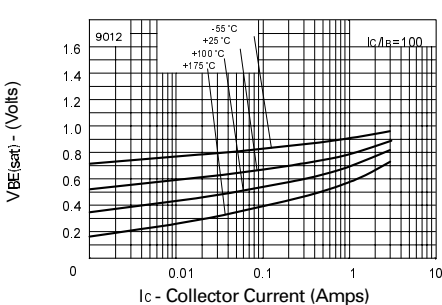
VCE(sat) v IC



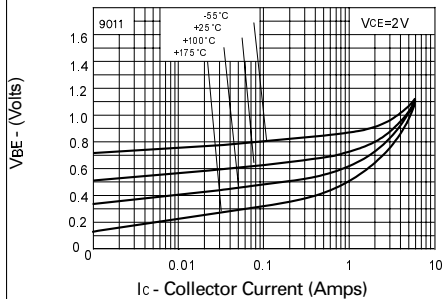
VCE(sat) v IC



hFE v IC



VBE(sat) v IC



VBE(on) v IC

