

SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FZT694B

ISSUE 3 - OCTOBER 1995

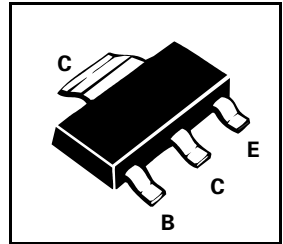
FEATURES

- * High V_{CE0} / Very Low Saturation Voltage
- * Gain of 400 at $I_C=200\text{mA}$

APPLICATIONS

- * Darlington replacement
- * Relay / solenoid driver

PARTMARKING DETAIL - FZT694B



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	120	V
Collector-Emitter Voltage	V_{CEO}	120	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	2	A
Continuous Collector Current	I_C	1	A
Power Dissipation $T_{amb}=25^\circ\text{C}$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

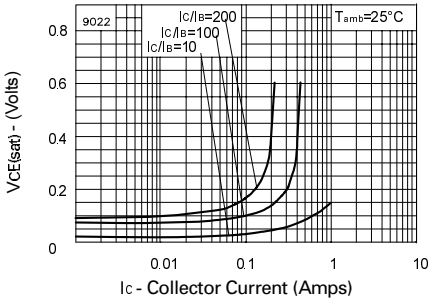
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Breakdown Voltages	$V_{(BR)CBO}$	120			V	$I_C=100\mu\text{A}$
	$V_{(BR)CEO}$	120			V	$I_C=10\text{mA}^*$
	$V_{(BR)EBO}$	5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			0.1	μA	$V_{CB}=100\text{V}$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.25	V	$I_C=100\text{mA}, I_B=0.5\text{mA}^*$
				0.5	V	$I_C=400\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=1\text{A}, I_B=10\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	$I_C=1\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	500				$I_C=100\text{mA}, V_{CE}=2\text{V}^*$
		400				$I_C=200\text{mA}, V_{CE}=2\text{V}^*$
		150				$I_C=400\text{mA}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T	130			MHz	$I_C=50\text{mA}, V_{CE}=5\text{V}$ $f=50\text{MHz}$
Input Capacitance	C_{ibo}		200		pF	$V_{EB}=0.5\text{V}, f=1\text{MHz}$
Output Capacitance	C_{obo}		9		pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on} t_{off}		80		ns	$I_C=100\text{mA}, I_{B1}=10\text{mA}$
			2900		ns	$I_{B2}=10\text{mA}, V_{CC}=50\text{V}$

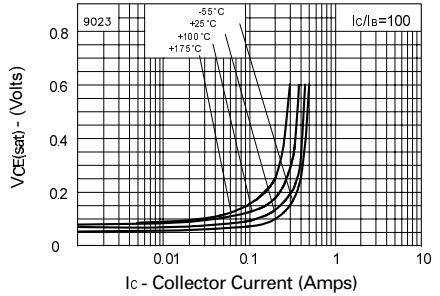
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

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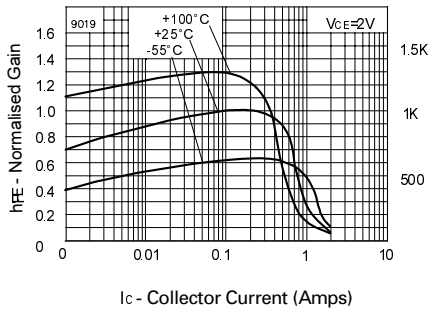
TYPICAL CHARACTERISTICS



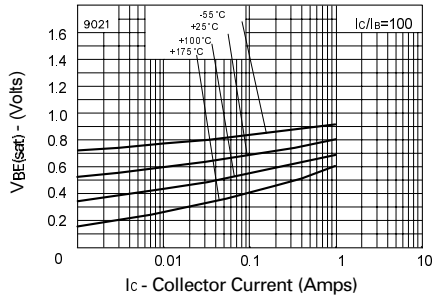
VCE(sat) v IC



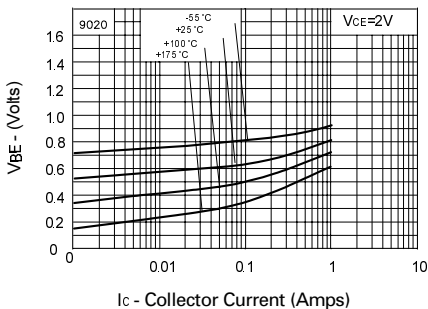
VCE(sat) v IC



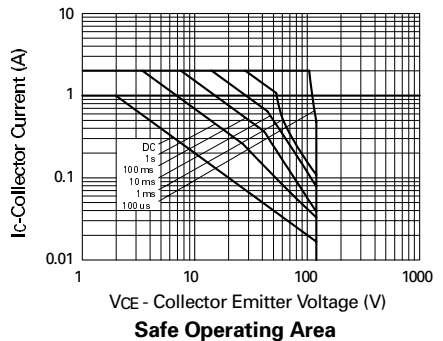
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area