

SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

FZT696B

ISSUE 4 – FEBRUARY 1997

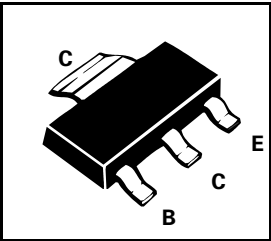
FEATURES

- * 250 Volt V_{CE0}
- * Gain of 500 at $I_C=100\text{mA}$
- * Very low saturation voltage

APPLICATIONS

- * Darlington replacement
- * Battery powered circuits

PARTMARKING DETAIL – FZT696B



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	180	V
Collector-Emitter Voltage	V_{CEO}	180	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	1	A
Continuous Collector Current	I_C	0.5	A
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

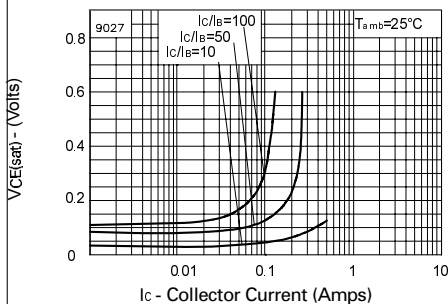
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	180			V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	180			V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			0.1	μA	$V_{CB}=140\text{V}$
Emitter Cut-Off Current	I_{EBO}			0.1	μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.2 0.2 0.25	V V V	$I_C=50\text{mA}, I_B=0.5\text{mA}^*$ $I_C=100\text{mA}, I_B=2\text{mA}^*$ $I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			0.9	V	$I_C=200\text{mA}, I_B=5\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			0.9	V	$I_C=200\text{mA}, V_{CE}=5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	500 150				$I_C=100\text{mA}, V_{CE}=5\text{V}^*$ $I_C=200\text{mA}, V_{CE}=5\text{V}^*$
Transition Frequency	f_T	70			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}		6		pF	$V_{CE}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on} t_{off}		80 4400		ns ns	$I_C=100\text{mA}, I_{B1}=10\text{mA}$ $I_{B2}=10\text{mA}, V_{CC}=50\text{V}$

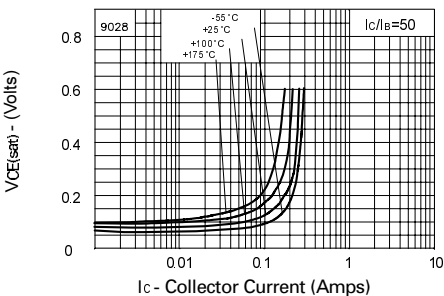
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

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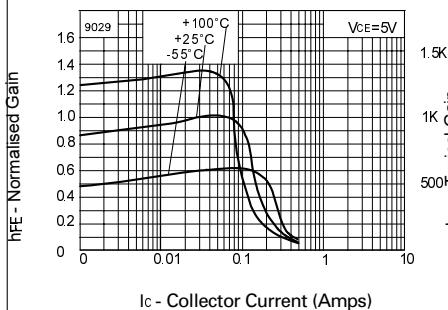
TYPICAL CHARACTERISTICS



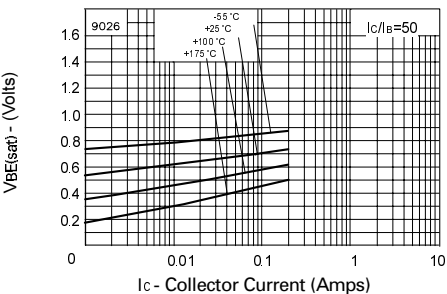
$V_{CE(sat)}$ v I_C



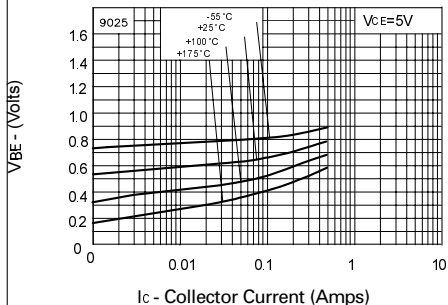
$V_{CE(sat)}$ v I_C



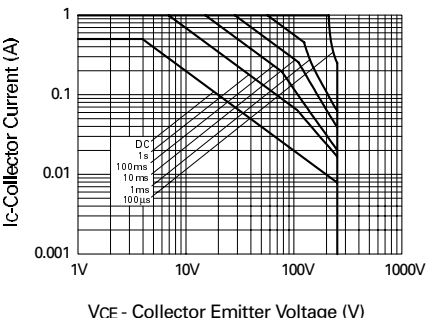
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area