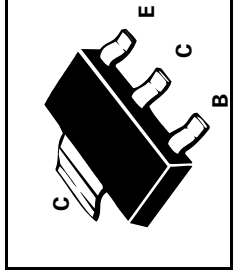


SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 3 - OCTOBER 1995

FZT689B



- FEATURES**
- * Gain of 400 at $I_C=2$ Amps and low saturation voltage
 - * Extremely low equivalent on-resistance; $R_{CE(sat)}$ 92mΩ at 3A
- APPLICATIONS**
- * Darlington replacement
 - * Flash gun converters and Battery powered circuits
- PARTMARKING DETAIL - FZT689B**
- COMPLEMENTARY TYPE - FZT789B**
- ABSOLUTE MAXIMUM RATINGS.**

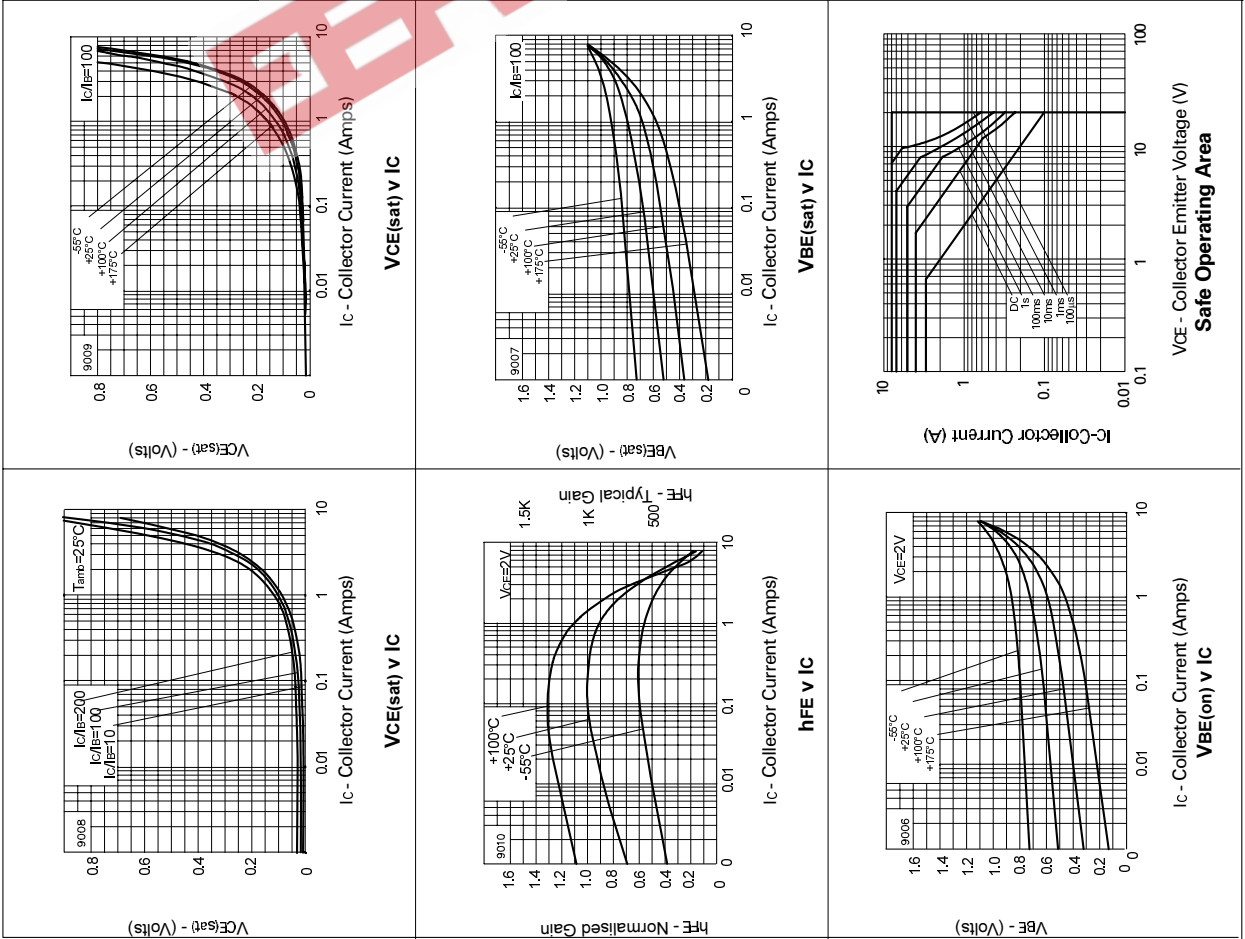
PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	20	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	8	A
Continuous Collector Current	I_C	3	A
Power Dissipation at $T_{amb}=25^\circ\text{C}$	P_{tot}	2	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^\circ\text{C}$

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Breakdown Voltage	$V_{(BR)CBO}$	20			V	$I_C=100\mu\text{A}$
Collector-Base Collector-Emitter	$V_{(BR)CEO}$	20			V	$I_C=10\text{mA}^*$
Emitter-Base	$V_{(BR)EBO}$	5			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}		0.1		μA	$V_{CB}=16\text{V}$
Emitter Cut-Off Current	I_{EBO}		0.1		μA	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.10	0.50	V	$I_C=0.1\text{A}, I_B=0.5\text{mA}^*$
			0.45		V	$I_C=2\text{A}, I_B=10\text{mA}^*$
				0.9	V	$I_C=3\text{A}, I_B=20\text{mA}^*$
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	400	150		$I_C=0.1\text{A}, V_{CE}=2\text{V}^*$
						$I_C=2\text{A}, V_{CE}=2\text{V}^*$
						$I_C=6\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T	150			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}		16		pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on}		30		ns	$I_C=500\text{mA}, I_B=50\text{mA}$
	t_{off}		800		ns	$I_B=50\text{mA}, V_{CE}=10\text{V}$

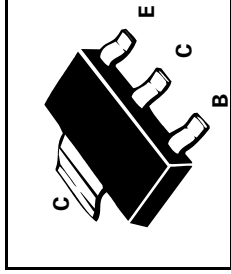
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

TYPICAL CHARACTERISTICS



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ABSOLUTE MAXIMUM RATINGS.

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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	400			$I_C=0.1\text{A}, V_{CE}=2\text{V}^*$
		150				$I_C=2\text{A}, V_{CE}=2\text{V}^*$
		150				$I_C=6\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T	150			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}		16		pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on}		30		ns	$I_C=500\text{mA}, I_B=50\text{mA}$
	t_{off}		800		ns	$I_B=50\text{mA}, V_{CE}=10\text{V}$

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

