

# SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

**FZT688B**

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## FEATURES

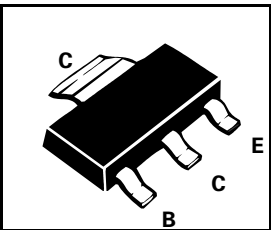
- \* Extremely low equivalent on resistance;  $R_{CE(sat)}$  **83mΩ at 3A**
- \* Gain of 400 at  $I_C=3$  Amps and very low saturation voltage

## APPLICATIONS

- \* Flash gun convertors & Battery powered circuits

PARTMARKING DETAIL – FZT688B

COMPLEMENTARY TYPE - FZT788B



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	12	V
Collector-Emitter Voltage	$V_{CEO}$	12	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	10	A
Continuous Collector Current	$I_C$	4	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 Voltages	$V_{(BR)CBO}$	12			V	$I_C=100\mu\text{A}$
	$V_{(BR)CEO}$	12			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	$\mu\text{A}$	$V_{CB}=10\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			0.1	$\mu\text{A}$	$V_{EB}=4\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.04	V	$I_C=0.1\text{A}, I_B=1\text{mA}$
				0.06	V	$I_C=0.1\text{A}, I_B=0.5\text{mA}^*$
				0.18	V	$I_C=1\text{A}, I_B=50\text{mA}^*$
				0.35	V	$I_C=3\text{A}, I_B=20\text{mA}^*$
				0.40	V	$I_C=4\text{A}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.1	V	$I_C=3\text{A}, I_B=20\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.0	V	$I_C=3\text{A}, V_{CE}=2\text{V}$
Static Forward Current Transfer Ratio	$h_{FE}$	500				$I_C=0.1\text{A}, V_{CE}=2\text{V}^*$
		400				$I_C=3\text{A}, V_{CE}=2\text{V}^*$
		100				$I_C=10\text{A}, V_{CE}=2\text{V}^*$
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	$C_{obo}$		40		pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	$t_{on}$ $t_{off}$		40		ns	$I_C=500\text{mA}, I_{B1}=50\text{A}$
			500		ns	$I_{B2}=50\text{mA}, V_{CC}=10\text{V}$

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

# FZT688B

## TYPICAL CHARACTERISTICS

