

# SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

## FZT688B

ISSUE 3 - OCTOBER 1995

### FEATURES

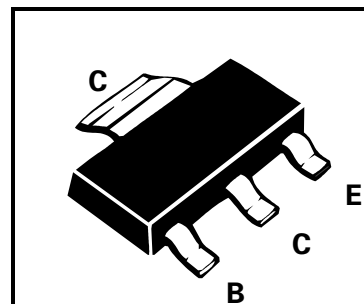
- \* Extremely low equivalent on resistance;  $R_{CE(sat)}$  **83mΩ at 3A**
- \* Gain of 400 at  $I_C=3$  Amps and very low saturation voltage

### 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 $T_{amb}=25^{\circ}C$	$P_{tot}$	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.
Breakdown Voltages	$V_{(BR)CBO}$	12			V	$I_C=100\mu A$
	$V_{(BR)CEO}$	12			V	$I_C=10mA^*$
	$V_{(BR)EBO}$	5			V	$I_E=100\mu A$
Collector Cut-Off Current	$I_{CBO}$			0.1	$\mu A$	$V_{CB}=10V$
Emitter Cut-Off Current	$I_{EBO}$			0.1	$\mu A$	$V_{EB}=4V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			0.04 0.06 0.18 0.35 0.40	V	$I_C=0.1A, I_B=1mA$ $I_C=0.1A, I_B=0.5mA^*$ $I_C=1A, I_B=50mA^*$ $I_C=3A, I_B=20mA^*$ $I_C=4A, I_B=50mA^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.1	V	$I_C=3A, I_B=20mA^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.0	V	$I_C=3A, V_{CE}=2V$
Static Forward Current Transfer Ratio	$h_{FE}$	500 400 100				$I_C=0.1A, V_{CE}=2V^*$ $I_C=3A, V_{CE}=2V^*$ $I_C=10A, V_{CE}=2V^*$
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	$C_{obo}$		40		pF	$V_{CB}=10V, f=1MHz$
Switching Times	$t_{on}$		40		ns	$I_C=500mA, I_{B1}=50A$ $I_{B2}=50mA, V_{CC}=10V$
	$t_{off}$		500		ns	

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

# FZT688B

## TYPICAL CHARACTERISTICS

