

# SOT223 NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTOR

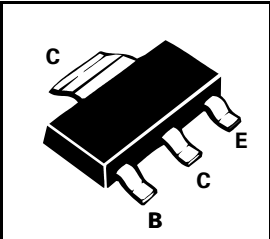
## FZT600

ISSUE 3 – FEBRUARY 1997

### FEATURES

- \* 2A continuous current
- \* 140 VOLT  $V_{CEO}$
- \* Guaranteed  $h_{FE}$  Specified up to 1A

PART MARKING DETAIL – FZT600



### ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	160	V
Collector-Emitter Voltage	$V_{CEO}$	140	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Peak Pulse Current	$I_{CM}$	4	A
Continuous Collector Current	$I_C$	2	A
Power Dissipation	$P_{tot}$	2	W
Operating and Storage Temperature Range	$T_f; T_{stg}$	-55 to +150	°C

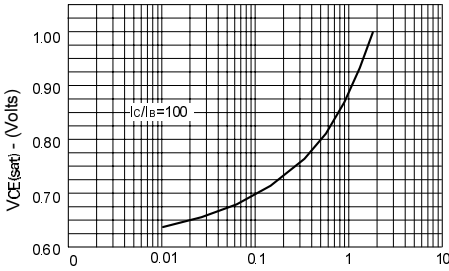
### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	160			V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	140			V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10			V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$			0.01 10	$\mu\text{A}$ $\mu\text{A}$	$V_{CB}=140\text{V}$ $V_{CB}=140\text{V}, T_{amb}=100^\circ\text{C}$
Collector Cut-Off Current	$I_{CES}$			10	$\mu\text{A}$	$V_{CES}=140\text{V}$
Emitter Cut-Off Current	$I_{EBO}$			0.1	$\mu\text{A}$	$V_{EB}=8\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.75 0.85	1.1 1.2	V V	$I_C=0.5\text{A}, I_B=5\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.7	1.9	V	$I_C=1\text{A}, I_B=10\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1.5	1.7	V	$I_C=1\text{A}, V_{CE}=5\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	1k				$I_C=50\text{mA}, V_{CE}=10\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=10\text{V}^*$ $I_C=1\text{A}, V_{CE}=10\text{V}^*$
		2k			100k	
		1k				
		GROUP B	5k 10k 5k	10k 20k 10k	100k	
Transition Frequency	$f_T$	150	250		MHz	$I_C=100\text{mA}, V_{CE}=10\text{V}$ $f=20\text{MHz}$
Output Capacitance	$C_{obo}$		10	15	MHz	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	$T_{on}$		0.75		$\mu\text{s}$	$I_C=0.5\text{A}, V_{CE}=10\text{V}$ $I_{B1}=I_{B2}=0.5\text{mA}$
	$T_{off}$		2.20		$\mu\text{s}$	

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

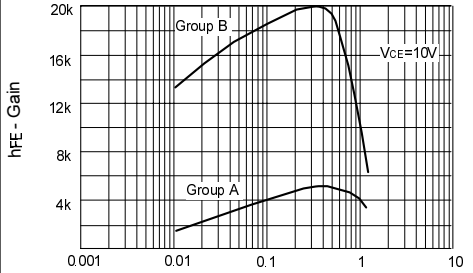
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## TYPICAL CHARACTERISTICS



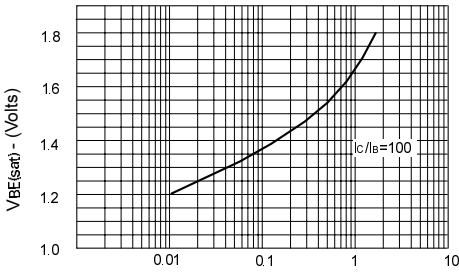
$I_C$  - Collector Current (Amps)

**$V_{CE(sat)}$  v  $I_C$**



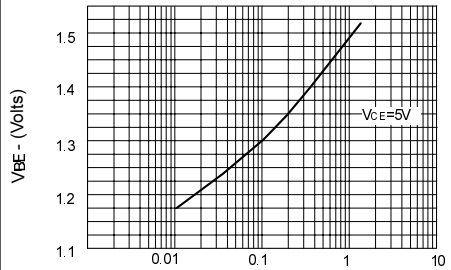
$I_C$  - Collector Current (Amps)

**$h_{FE}$  v  $I_C$**



$I_C$  - Collector Current (Amps)

**$V_{BE(sat)}$  v  $I_C$**



$I_C$  - Collector Current (Amps)

**$V_{BE(on)}$  v  $I_C$**