

# SOT223 NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTOR

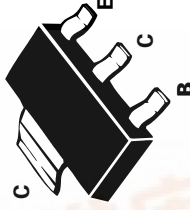
## FZT600

ISSUE 3 – FEBRUARY 1997

### FEATURES

- \* 2A continuous current
- \* 140 VOLT  $V_{CE0}$
- \* Guaranteed  $h_{FE}$  Specified up to 1A

PART MARKING DETAIL – FZT600



### ABSOLUTE MAXIMUM RATINGS.

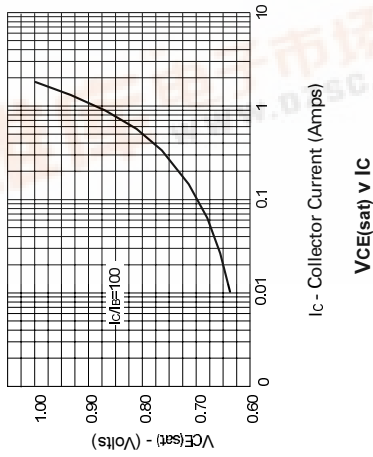
PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CB0}$	160	V
Collector-Emitter Voltage	$V_{CE0}$	140	V
Emitter-Base Voltage	$V_{EB0}$	10	V
Peak Pulse Current	$I_{CM}$	4	A
Continuous Collector Current	$I_C$	2	A
Power Dissipation	$P_{tot}$	2	W
Operating and Storage Temperature Range	$T_j, T_{stg}$	-55 to +150	$^{\circ}C$

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

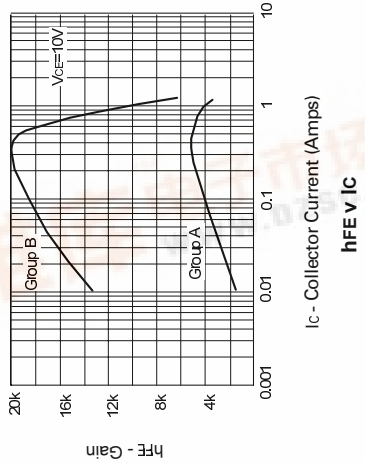
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	160			V	$I_C = 100\mu A$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	140			V	$I_C = 10mA^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10			V	$I_E = 100\mu A$
Collector Cut-Off Current	$I_{CBO}$		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

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

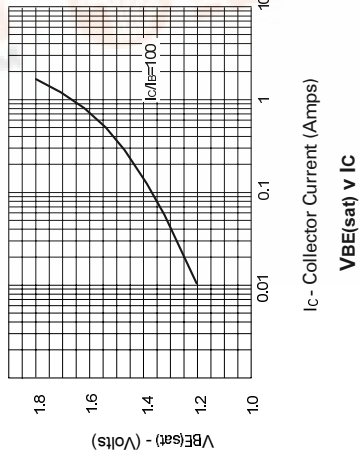
### TYPICAL CHARACTERISTICS



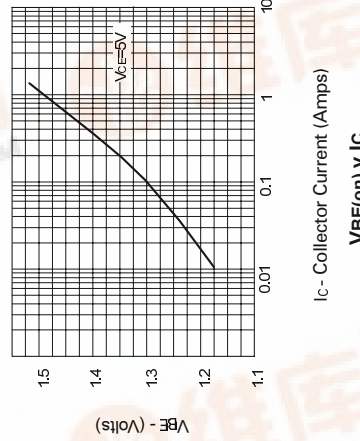
$V_{CE(sat)}$  v  $I_C$



$h_{FE}$  v  $I_C$



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



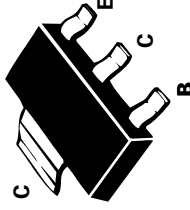
$V_{BE(on)}$  v  $I_C$

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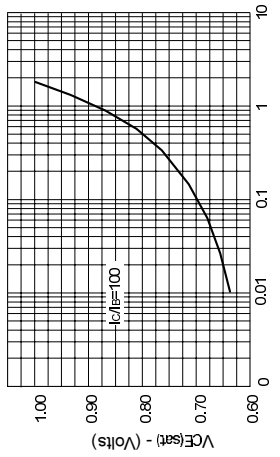
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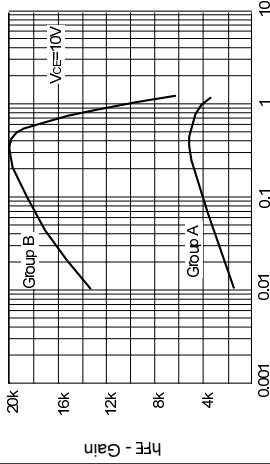


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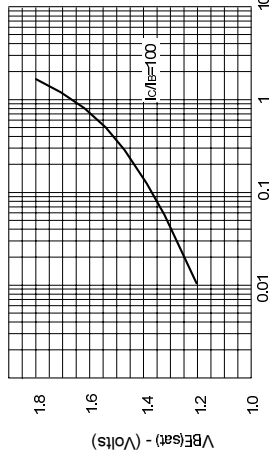
$I_C$  - Collector Current (Amps)

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



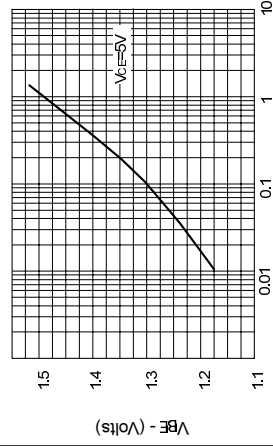
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