

SOT223 NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTORS

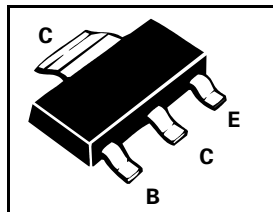
ISSUE 3 - OCTOBER 1995

FZT604
FZT605

FEATURES

- * Guaranteed h_{FE} Specified up to 2A
- * Fast Switching

PARTMARKING DETAIL - DEVICE TYPE IN FULL
COMPLEMENTARY TYPES - FZT604 - FZT704
FZT605 - FZT705



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FZT604	FZT605	UNIT
Collector-Base Voltage	V_{CBO}	120	140	V
Collector-Emitter Voltage	V_{CEO}	100	120	V
Emitter-Base Voltage	V_{EBO}	10		V
Peak Pulse Current	I_{CM}	4		A
Continuous Collector Current	I_C	1.5		A
Power Dissipation	P_{tot}	2		W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150		°C

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

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	FZT604	120		V	$I_C = 100\mu\text{A}$ $I_C = 100\mu\text{A}$
	FZT605	140		V	
Collector-Emitter Breakdown Voltage	FZT604	100		V	$I_C = 10\text{mA}^*$ $I_C = 10\text{mA}^*$
	FZT605	120		V	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	10		V	$I_E = 100\mu\text{A}$
Collector Cut-Off Current	FZT604		0.01 10	μA μA	$V_{CB} = 100\text{V}$ $V_{CB} = 100\text{V}, T_{amb} = 100^\circ\text{C}$
	FZT605		0.01 10	μA μA	
Emitter Cut-Off Current	I_{EBO}		0.1	μA	$V_{EB} = 8\text{V}$
Collector-Emitter Cut-Off Current	FZT604		10	μA	$V_{CES} = 100\text{V}$ $V_{CES} = 120\text{V}$
	FZT605		10	μA	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.0, 1.5	V V	$I_C = 250\text{mA}, I_B = 0.25\text{mA}^*$ $I_C = 1\text{A}, I_B = 1\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		1.8	V	$I_C = 1\text{A}, I_B = 1\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		1.7	V	$I_C = 1\text{A}, V_{CE} = 5\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	2K 5K 2K 0.5K	100K		$I_C = 50\text{mA}, V_{CE} = 5\text{V}$ $I_C = 500\text{mA}, V_{CE} = 5\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 5\text{V}^*$ $I_C = 2\text{A}, V_{CE} = 5\text{V}^*$

FZT604 FZT605

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS
Transition Frequency	f_T	150		MHz	$I_C=100\text{mA}, V_{CE}=10\text{V}$ $f=20\text{MHz}$
Input capacitance	C_{ibo}	90 Typical		pF	$V_{EB}=500\text{mV}, f=1\text{MHz}$
Output Capacitance	C_{obo}	15 Typical		pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Switching Times	t_{on}	0.5 Typical		pF	$I_C=500\text{mA}, V_{CE}=10\text{V}$ $I_{B1} = I_{B2} = 0.5\text{mA}$
	t_{off}	1.6 Typical		pF	

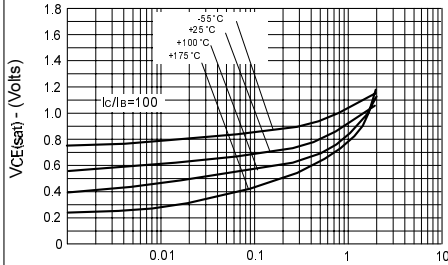
* Measured under pulsed conditions. Pulse width = 300 μ s. Duty cycle 2%

Spice parameter data is available upon request for these devices.



FZT604 FZT605

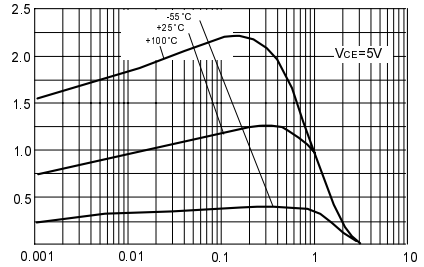
TYPICAL CHARACTERISTICS



I_C - Collector Current (Amps)

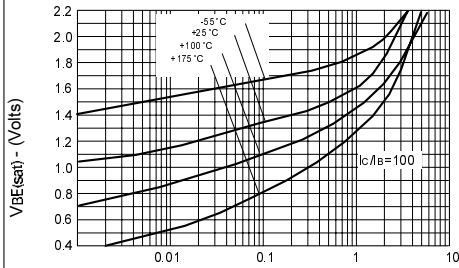
$V_{CE(sat)}$ v I_C

h_{FE} - Gain normalised to 1 Amp



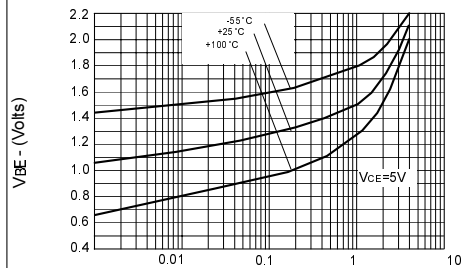
I_C - Collector Current (Amps)

h_{FE} v I_C



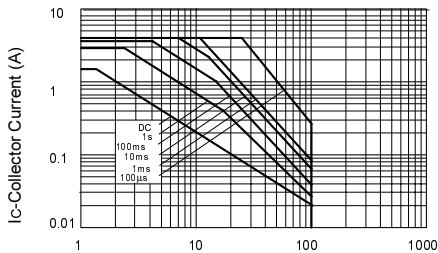
I_C - Collector Current (Amps)

$V_{BE(sat)}$ v I_C



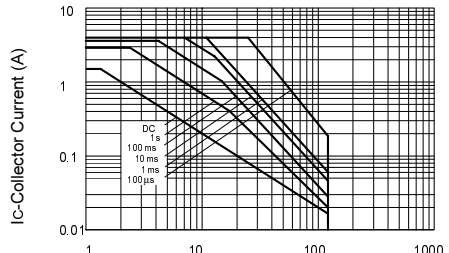
I_C - Collector Current (Amps)

$V_{BE(on)}$ v I_C



V_{CE} - Collector Emitter Voltage (V)

FZT604 Safe Operating Area



V_{CE} - Collector Emitter Voltage (V)

FZT605 Safe Operating Area