

SOT223 NPN SILICON PLANAR MEDIUM POWER DARLINGTON TRANSISTORS

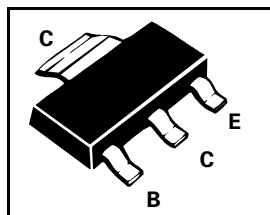
ISSUE 4 - MARCH 2001

FEATURES

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

PARTMARKING DETAIL - FZT605

COMPLEMENTARY TYPES - FZT705



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	140	V
Collector-Emitter Voltage	V_{CEO}	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	$V_{(BR)CBO}$	140		V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	120		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	μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}, T_{amb} = 100^\circ\text{C}$
Emitter Cut-Off Current	I_{EBO}		0.1	μA	$V_{EB} = 8\text{V}$
Collector-Emitter Cut-Off Current	I_{CES}		10	μA	$V_{CES} = 120\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		1.0, 1.5	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		$I_C = 50\text{mA}, V_{CE} = 5\text{V}$ $I_C = 500\text{mA}, V_{CE} = 5\text{V}^*$ $I_C = 1\text{A}, V_{CE} = 5\text{V}^*$ $I_C = 2\text{A}, V_{CE} = 5\text{V}^*$
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		nsec	$I_C = 500\text{mA}, V_{CE} = 10\text{V}$ $I_{B1} = I_{B2} = 0.5\text{mA}$
	t_{off}	1.6 Typical		nsec	

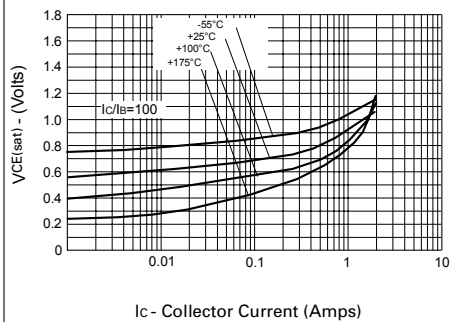
* Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle 2%

Spice parameter data is available upon request for these devices.

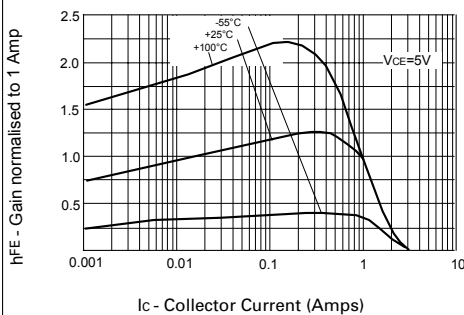


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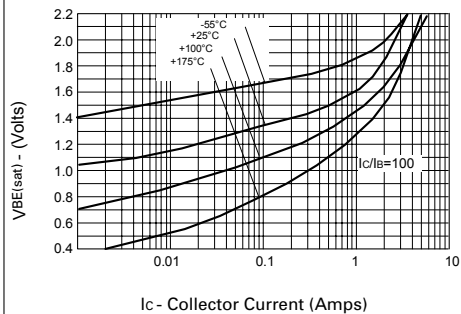
TYPICAL CHARACTERISTICS



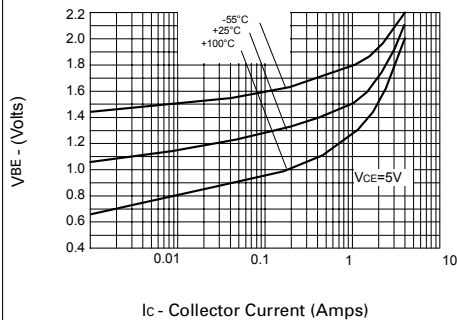
$V_{CE(sat)}$ v I_C



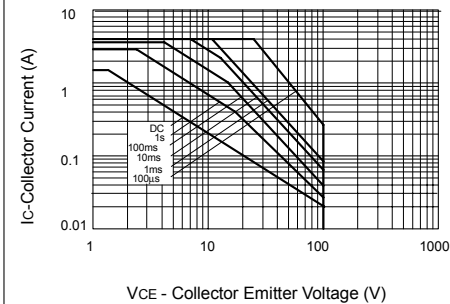
h_{FE} v I_C



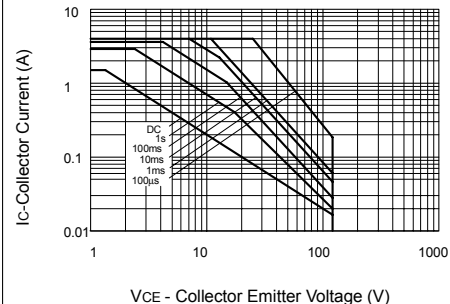
$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



FZT604 Safe Operating Area



FZT605 Safe Operating Area