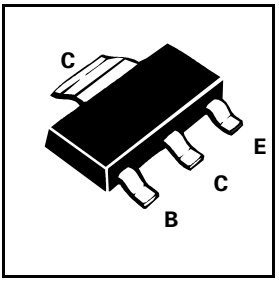
SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTORS

FZT851
FZT853

ISSUE 2 - OCTOBER 1995

FEATURES



* Extremely low equivalent on-resistance; **$R_{CE(sat)}$ 44mΩ at 5A**
* 6 Amps continuous current, up to 20 Amps peak current
* Very low saturation voltages
* Excellent h_{FE} characteristics specified up to 10 Amps

PARTMARKING DETAILS - DEVICE TYPE IN FULL
COMPLEMENTARY TYPES - FZT851 FZT951
FZT853 FZT953

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FZT851	FZT853	UNIT
Collector-Base Voltage	V_{CBO}	150	200	V
Collector-Emitter Voltage	V_{CEO}	60	100	V
Emitter-Base Voltage	V_{EBO}	6	6	V
Peak Pulse Current	I_{CM}	20	10	A
Continuous Collector Current	I_C	**6**		**A**
Power Dissipation at T_{amb}=25°C	P_{tot}	**3**		**W**
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150		°C

*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 4 square inch minimum

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	220		V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	150	220		V	I_C=1μA, RB ≤1kΩ
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	60	85		V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	V_{CB}=120V V_{CB}=120V, T_{amb}=100°C
Collector Cut-Off Current	I_{CER} R ≤1kΩ			50 1	nA μA	V_{CB}=120V V_{CB}=120V, T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			10	nA	V_{EB}=6V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			50 100 170 375	mV mV mV mV	I_C=0.1A, I_B=5mA* I_C=1A, I_B=50mA* I_C=2A, I_B=50mA* I_C=6A, I_B=300mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1200	mV	I_C=6A, I_B=300mA*
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1150	mV	I_C=6A, V_{CE}=1V*
Static Forward Current Transfer Ratio	h_{FE}	100 100 75 25	200 200 120 50	300		I_C=10mA, V_{CE}=1V I_C=2A, V_{CE}=1V* I_C=5A, V_{CE}=1V* I_C=10A, V_{CE}=1V*
Transition Frequency	f_T		130		MHz	I_C=100mA, V_{CE}=10V f=50MHz
Output Capacitance	C_{obo}		45		pF	V_{CB}=10V, f=1MHz
Switching Times	t_{on} t_{off}		45 1100		ns ns	I_C=1A, I_{B1}=100mA I_{B2}=100mA, V_{CC}=10V

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%
Spice parameter data is available upon request for this device

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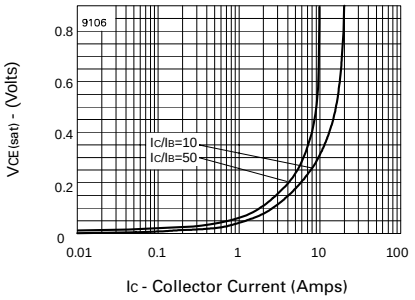
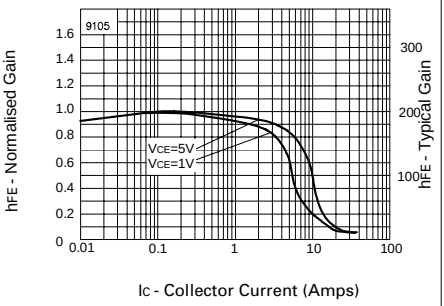
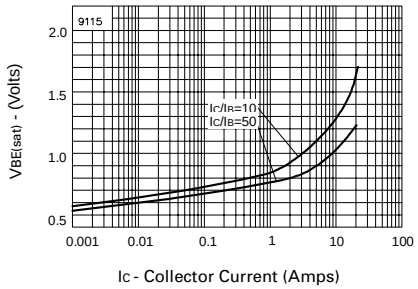
TYPICAL CHARACTERISTICS



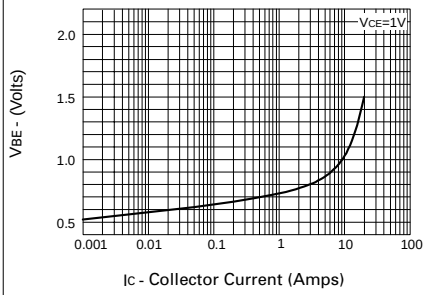
VCE(sat) v IC



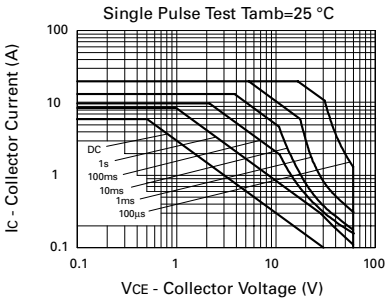
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area