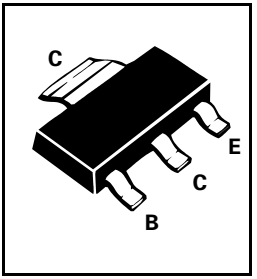
SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTOR

FZT849

ISSUE 3 - JANUARY 1996

FEATURES

* Extremely low equivalent on-resistance; **$R_{CE(sat)}$36mΩ at 5A**
* **7 Amp** continuous collector current (20 Amp peak)
* Very low saturation voltages
* Excellent gain charateristics specified upto 20 Amp
* **P_{tot} =3 Watts**



PARTMARKING DETAILS - FZT849
COMPLEMENTARY TYPE - FZT949

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	V_{CBO}	80	V
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Base Voltage	V_{EBO}	6	V
Peak Pulse Current	I_{CM}	20	A
Continuous Collector Current	$\mathbf{I_C}$	**7**	**A**
Power Dissipation at T_{amb}=25°C	$\mathbf{P_{tot}}$	**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 inch square minimum

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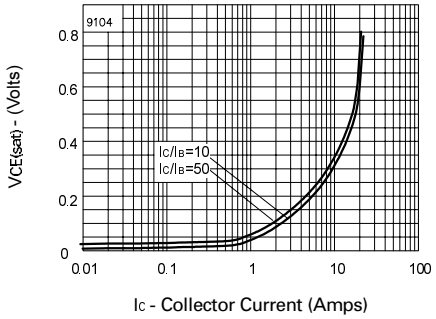
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated)

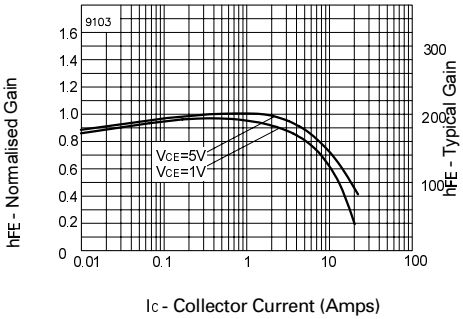
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	I_C=100μA
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	80	120		V	I_C=1μA, RB ≤1kΩ
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30	40		V	I_C=10mA*
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	I_E=100μA
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	V_{CB}=70V V_{CB}=70V, T_{amb}=100°C
Collector Cut-Off Current	I_{CER} R ≤1kΩ			50 1	nA μA	V_{CB}=70V V_{CB}=70V, T_{amb}=100°C
Emitter Cut-Off Current	I_{EBO}			10	nA	V_{EB}=6V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		35 67 168	50 110 215 350	mV mV mV mV	I_C=0.5A, I_B=20mA* I_C=1A, I_B=20mA* I_C=2A, I_B=20mA* I_C=6.5A, I_B=300mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.2	V	I_C=6.5A, I_B=300mA
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.13	V	I_C=6.5A, V_{CE}=1V*
Static Forward Current Transfer Ratio	h_{FE}	100 100 100 30	200 200 150 65	300		I_C=10mA, V_{CE}=1V I_C=1A, V_{CE}=1V* I_C=7A, V_{CE}=1V* I_C=20A, V_{CE}=2V*
Transition Frequency	f_T		100		MHz	I_C=100mA, V_{CE}=10V f=50MHz
Output Capacitance	C_{obo}		75		pF	V_{CB}=10V, f=1MHz*
Switching Times	t_{on} t_{off}		45 630		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

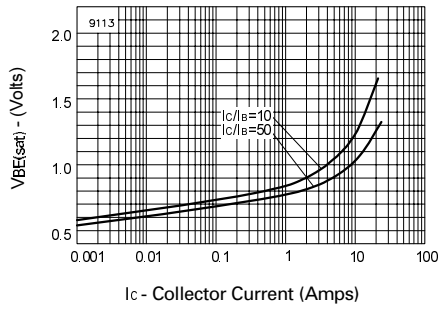
TYPICAL CHARACTERISTICS



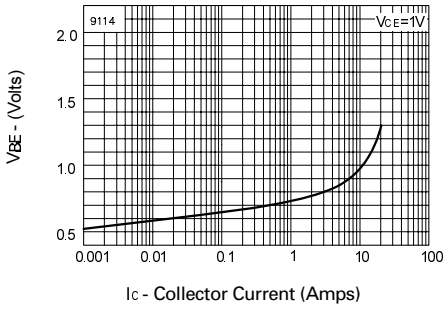
VCE(sat) v IC



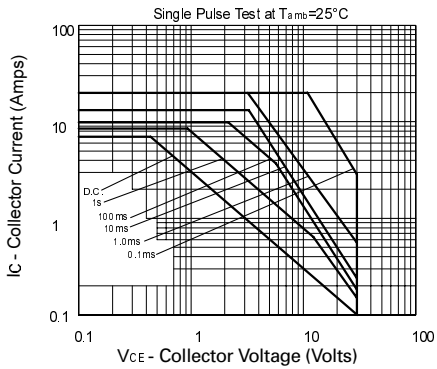
hFE v IC



VBE(sat) v IC



VBE(on) v IC



Safe Operating Area