

SOT223 NPN SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTOR

ISSUE 3 - JANUARY 1996

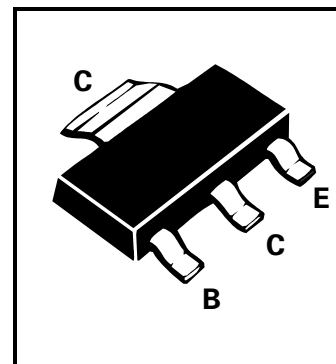
FZT849

FEATURES

- * Extremely low equivalent on-resistance; $R_{CE(sat)} 36m\Omega$ at 5A
- * **7 Amp** continuous collector current (20 Amp peak)
- * Very low saturation voltages
- * Excellent gain characteristics 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	I_C	7	A
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	3	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

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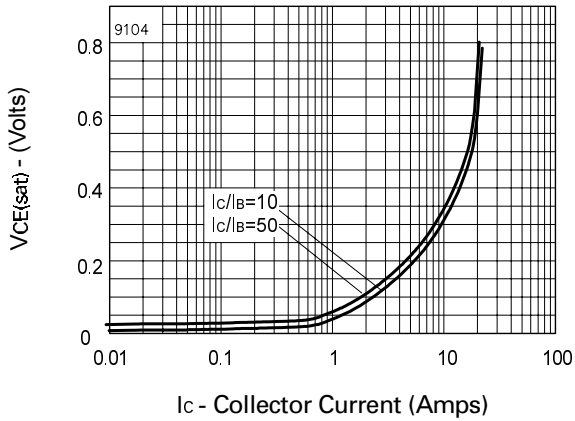
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	80	120		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{(BR)CER}$	80	120		V	$I_C=1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	30	40		V	$I_C=10\text{mA}^*$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6	8		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	I_{CBO}			50 1	nA μA	$V_{CB}=70\text{V}$ $V_{CB}=70\text{V}$, $T_{amb}=100^{\circ}\text{C}$
Collector Cut-Off Current	I_{CER} $R \leq 1\text{k}\Omega$			50 1	nA μA	$V_{CB}=70\text{V}$ $V_{CB}=70\text{V}$, $T_{amb}=100^{\circ}\text{C}$
Emitter Cut-Off Current	I_{EBO}			10	nA	$V_{EB}=6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		35 67 168	50 110 215 350	mV mV mV mV	$I_C=0.5\text{A}$, $I_B=20\text{mA}^*$ $I_C=1\text{A}$, $I_B=20\text{mA}^*$ $I_C=2\text{A}$, $I_B=20\text{mA}^*$ $I_C=6.5\text{A}$, $I_B=300\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			1.2	V	$I_C=6.5\text{A}$, $I_B=300\text{mA}$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$			1.13	V	$I_C=6.5\text{A}$, $V_{CE}=1\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	100 100 100 30	200 200 150 65	300		$I_C=10\text{mA}$, $V_{CE}=1\text{V}$ $I_C=1\text{A}$, $V_{CE}=1\text{V}^*$ $I_C=7\text{A}$, $V_{CE}=1\text{V}^*$ $I_C=20\text{A}$, $V_{CE}=2\text{V}^*$
Transition Frequency	f_T		100		MHz	$I_C=100\text{mA}$, $V_{CE}=10\text{V}$ $f=50\text{MHz}$
Output Capacitance	C_{obo}		75		pF	$V_{CB}=10\text{V}$, $f=1\text{MHz}^*$
Switching Times	t_{on} t_{off}		45 630		ns ns	$I_C=1\text{A}$, $I_{B1}=100\text{mA}$ $I_{B2}=100\text{mA}$, $V_{CC}=10\text{V}$

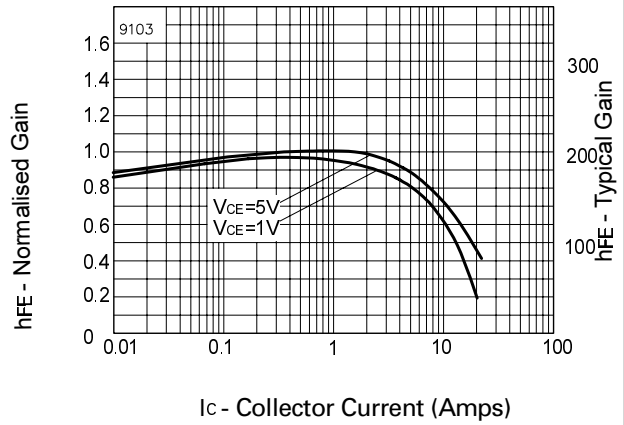
*Measured under pulsed conditions. Pulse width=300 μs . Duty cycle $\leq 2\%$
Spice parameter data is available upon request for this device

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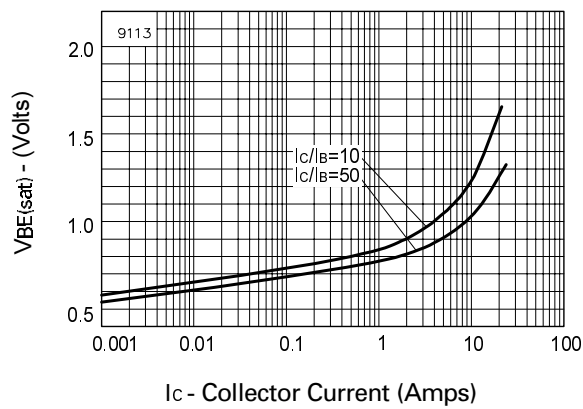
TYPICAL CHARACTERISTICS



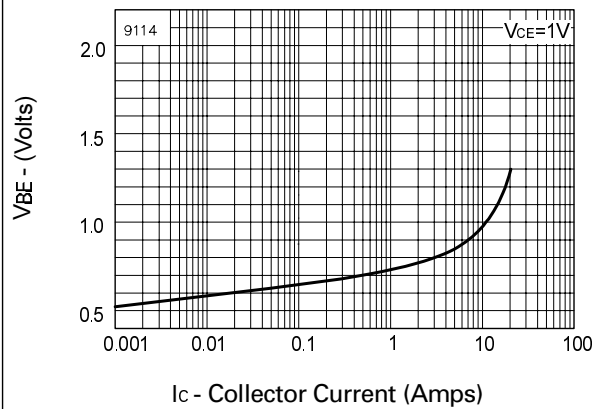
$V_{CE(sat)}$ v I_C



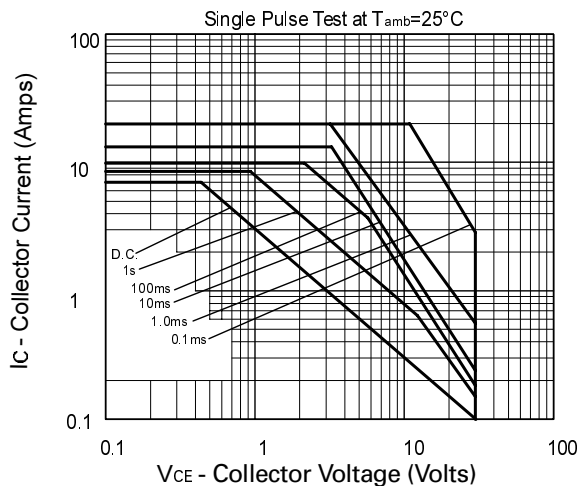
hFE v I_C



$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C



Safe Operating Area