

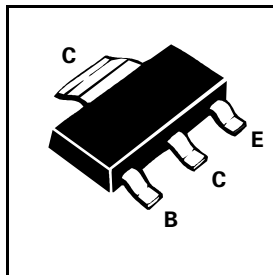
# SOT 223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 2 - JUNE 2007

**FZT1049A**

## FEATURES

- \*  $V_{CE0} = 25V$
- \* 5 Amp Continuous Current
- \* 20 Amp Pulse Current
- \* Low Saturation Voltage
- \* High Gain
- \* Extremely Low Equivalent On-resistance;  $R_{CE(sat)} = 50m\Omega$  at 5A



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	25	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Peak Pulse Current	$I_{CM}$	20	A
Continuous Collector Current	$I_C$	5	A
Base Current	$I_B$	500	mA
Power Dissipation at $T_{amb}=25^{\circ}C$ †	$P_{tot}$	2.5	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 typical manner on a PCB with copper equal to 2 inches x 2 inches.

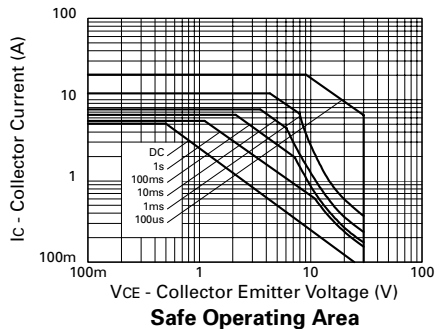
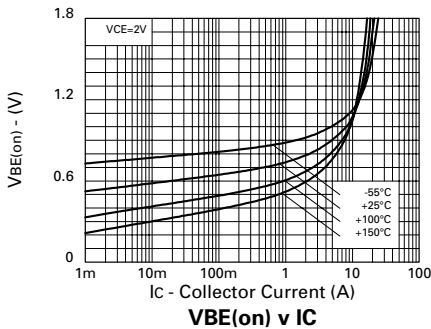
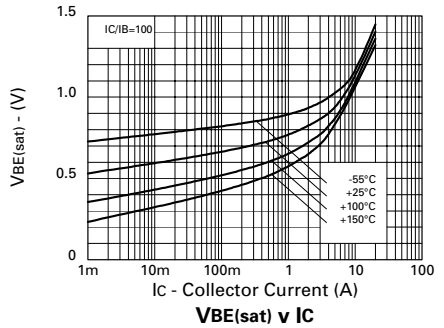
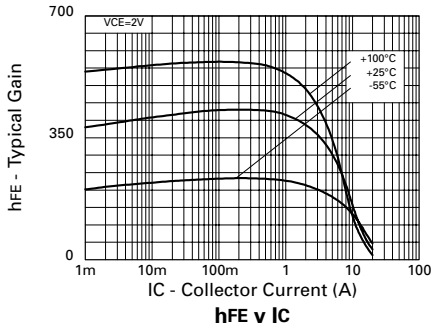
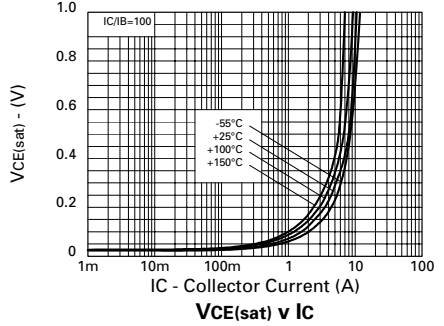
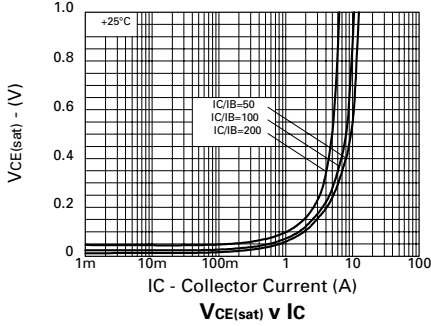
# FZT1049A

## 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	130		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	$V_{CES}$	80	130		V	$I_C=100\mu\text{A}^*$
Collector-Emitter Breakdown Voltage	$V_{CEO}$	25	30	V		$I_C=10\text{mA}$
Collector-Emitter Breakdown Voltage	$V_{CEV}$	80	130		V	$I_C=100\mu\text{A}, V_{EB}=1\text{V}$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	9		V	$I_E=100\mu\text{A}$
Collector Cut-Off Current	$I_{CBO}$		0.3	10	nA	$V_{CB}=35\text{V}$
Emitter Cut-Off Current	$I_{EBO}$		0.3	10	nA	$V_{EB}=4\text{V}$
Collector Emitter Cut-Off Current	$I_{CES}$		0.3	10	nA	$V_{CES}=35\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		35 70 180 250	60 100 250 330	mV mV mV mV	$I_C=0.5\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=3\text{A}, I_B=30\text{mA}^*$ $I_C=5\text{A}, I_B=50\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		950	1050	mV	$I_C=5\text{A}, I_B=50\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		900	1000	mV	$I_C=5\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	$h_{FE}$	280 300 300 180 40	440 450 450 280 80	1200		$I_C=10\text{mA}, V_{CE}=2\text{V}^*$ $I_C=0.5\text{A}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=5\text{A}, V_{CE}=2\text{V}^*$ $I_C=20\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	$f_T$		180		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	$C_{obo}$		45	60	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Turn-on Time	$t_{on}$		125		ns	$I_C=4\text{A}, I_B=40\text{mA}, V_{CC}=10\text{V}$
Turn-off Time	$t_{off}$		380		ns	

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## TYPICAL CHARACTERISTICS





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