

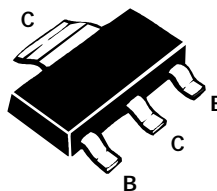
SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

ISSUE 4 - FEBRUARY 1998

FZT1051A

FEATURES

- * $V_{CEO} = 40V$
- * 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}	150	V
Collector-Emitter Voltage	V_{CEO}	40	V
Emitter-Base Voltage	V_{EBO}	5	V
Peak Pulse Current	I_{CM}	10	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.

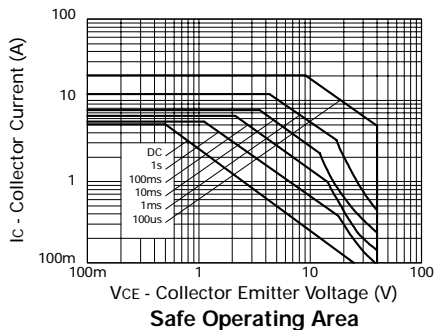
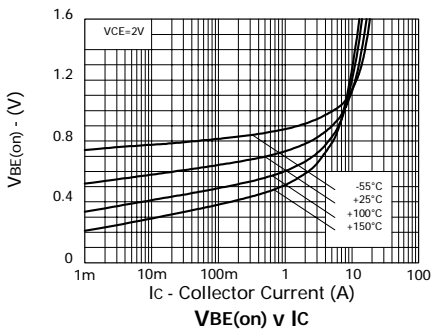
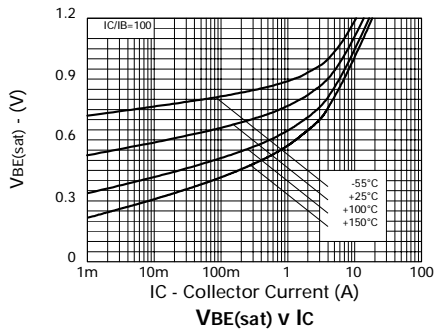
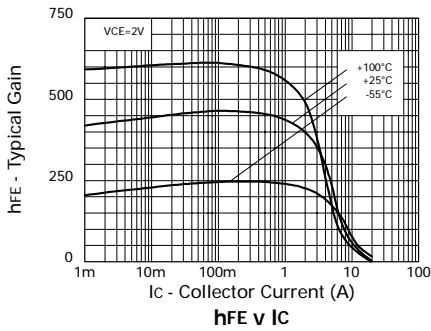
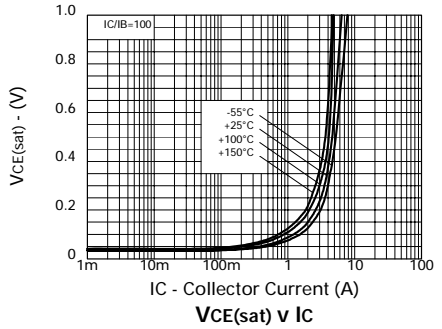
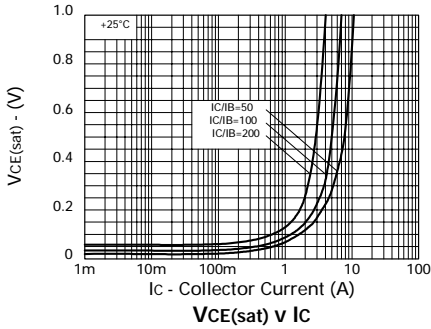
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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	150	190		V	$I_C=100\mu\text{A}$
Collector-Emitter Breakdown Voltage	V_{CES}	150	190		V	$I_C=100\mu\text{A}^*$
Collector-Emitter Breakdown Voltage	V_{CEO}	40	60		V	$I_C=10\text{mA}$
Collector-Emitter Breakdown Voltage	V_{CEV}	150	190		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	$V_{CB}=120\text{V}$
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	$V_{CES}=120\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		17 85 140 250	25 120 180 340	mV mV mV mV	$I_C=0.2\text{A}, I_B=10\text{mA}^*$ $I_C=1\text{A}, I_B=10\text{mA}^*$ $I_C=2\text{A}, I_B=20\text{mA}^*$ $I_C=5\text{A}, I_B=100\text{mA}^*$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		980	1100	mV	$I_C=5\text{A}, I_B=100\text{mA}^*$
Base-Emitter Turn-On Voltage	$V_{BE(on)}$		915	1000	mV	$I_C=5\text{A}, V_{CE}=2\text{V}^*$
Static Forward Current Transfer Ratio	h_{FE}	290 270 130 40	440 450 220 55	1200		$I_C=10\text{mA}, V_{CE}=2\text{V}^*$ $I_C=1\text{A}, V_{CE}=2\text{V}^*$ $I_C=5\text{A}, V_{CE}=2\text{V}^*$ $I_C=10\text{A}, V_{CE}=2\text{V}^*$
Transition Frequency	f_T		155		MHz	$I_C=50\text{mA}, V_{CE}=10\text{V}$ $f=100\text{MHz}$
Output Capacitance	C_{obo}		27	40	pF	$V_{CB}=10\text{V}, f=1\text{MHz}$
Turn-on Time	t_{on}		220		ns	$I_C=3\text{A}, I_B=30\text{mA}, V_{CC}=10\text{V}$
Turn-off Time	t_{off}		540		ns	

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

TYPICAL CHARACTERISTICS





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