

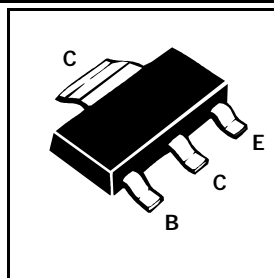
# SOT223 NPN SILICON PLANAR MEDIUM POWER HIGH GAIN TRANSISTOR

## FZT1051A

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### 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 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

## TYPICAL CHARACTERISTICS

