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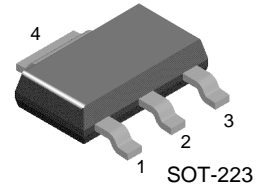
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# FZT3019

## NPN General Purpose Amplifier

### Features

- This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 500 mA and collector voltages up to 80 V.
- Sourced from process 12.



1. Base 2. Collector 3. Emitter

### Absolute Maximum Ratings \* $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CEO}$	Collector-Emitter Voltage	80	V
$V_{CBO}$	Collector-Base Voltage	140	V
$V_{EBO}$	Emitter-Base Voltage	7.0	V
$I_C$	Collector current - Continuous	1.0	A
$T_J, T_{stg}$	Junction and Storage Temperature	-55 ~ +150	$^\circ\text{C}$

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

1. These ratings are based on a maximum junction temperature of 150 degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage *	$I_C = 30 \text{ mA}, I_B = 0$	80		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu\text{A}, I_E = 0$	140		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \mu\text{A}, I_C = 0$	7.0		Vn
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 90 \text{ V}, I_E = 0$ $V_{CB} = 90 \text{ V}, I_E = 0, T_a = 150^\circ\text{C}$		10 10	nA $\mu\text{A}$
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 5 \text{ V}$ ,		10	nA
<b>On Characteristics</b>					
$h_{FE}$	DC Current Gain	$I_C = 0.1 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 10 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 150 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 500 \text{ mA}, V_{CE} = 10 \text{ V}$ $I_C = 1.0 \text{ A}, V_{CE} = 10 \text{ V}$	50 90 100 50 15	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$ $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}$		0.2 0.5	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 150 \text{ mA}, I_B = 15 \text{ mA}$		1.1	V
<b>Small Signal Characteristics</b>					
$f_T$	Current Gain - Bandwidth Product	$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V}, f = 20 \text{ MHz}$	100		MHz
$C_{cob}$	Collector-Base Capacitance	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		12	pF
$C_{ibo}$	Input Capacitance	$V_{BE} = 0.5 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		60	pF
$h_{fe}$	Small Signal current Gain	$I_C = 50 \text{ mA}, V_{CE} = 10 \text{ V},$ $f = 20 \text{ MHz}$	80	400	
$rb'Cc$	Collector Base Time Constant	$I_C = 10 \text{ mA}, V_{CB} = 10 \text{ V}, f = 4.0 \text{ MHz}$		400	pS
NF	Noise Figure	$I_C = 100 \text{ mA}, V_{CE} = 10 \text{ V},$ $R_S = 1.0\text{k}\Omega, f = 1.0\text{KHz}$		4.0	dB

\* Pulse Test: Pulse Width  $\leq 300 \mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

**Thermal Characteristics**  $T_a=25^\circ\text{C}$  unless otherwise noted

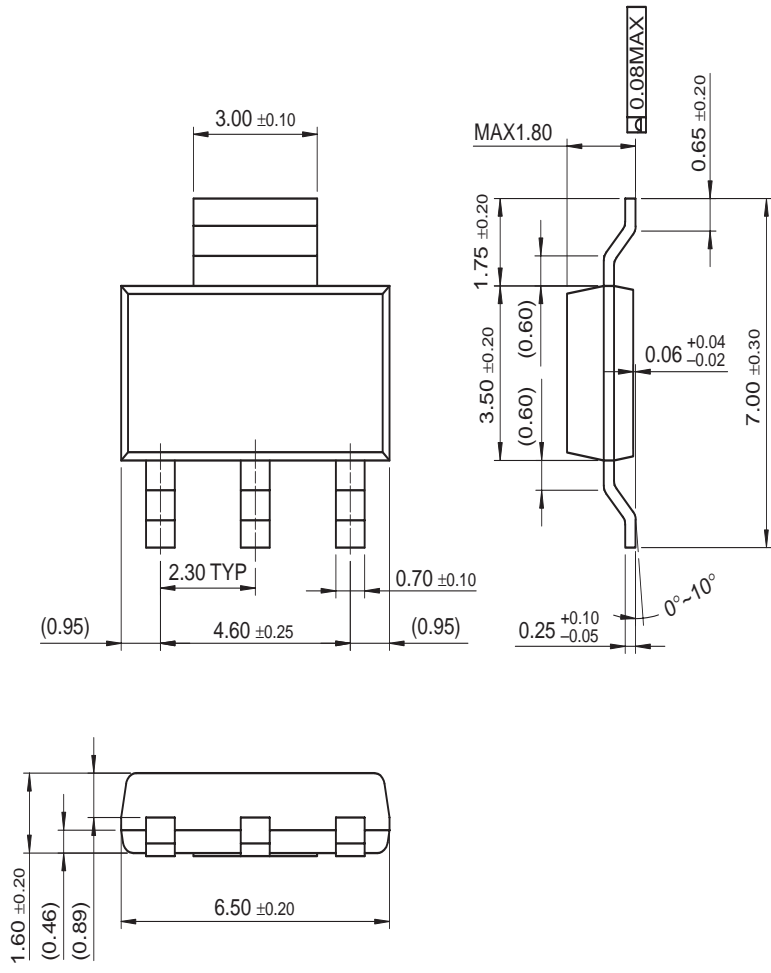
Symbol	Parameter	Max.	Units
$P_D$	Total Device Dissipation	1.0	W
	Derate above $25^\circ\text{C}$	8.0	mW/ $^\circ\text{C}$
$R_{\theta JA}^*$	Thermal Resistance, Junction to Ambient	125	$^\circ\text{C}/\text{W}$

**NOTES :**

\* Device mounted on FR-4 PCB  $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$ , Mounting Pad for the collector lead is  $600\text{mm}^2$

# Package Dimensions

## SOT-223



Dimensions in Millimeters

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