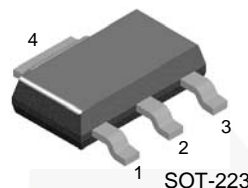


NZT660 / NZT660A

PNP Low Saturation Transistor

Description

These devices are designed with high-current gain and low saturation voltage with collector currents up to 3 A continuous.



1. Base 2,4. Collector 3. Emitter

Ordering Information

Part Number	Marking	Package	Packing Method
NZT660	660	SOT-223 4L	Tape and Reel
NZT660A	660A	SOT-223 4L	Tape and Reel

Absolute Maximum Ratings^{(1),(2)}

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value		Unit
		NZT660	NZT660A	
V_{CEO}	Collector-Emitter Voltage	-60	-60	V
V_{CBO}	Collector-Base Voltage	-80	-60	V
V_{EBO}	Emitter-Base Voltage	-5	-5	V
I_C	Collector Current - Continuous	-3	-3	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	-55 to +150	$^\circ\text{C}$

Notes:

1. These ratings are based on a maximum junction temperature of 150°C .
2. These are steady state limits. Fairchild Semiconductor should be consulted on application involving pulsed or low-duty cycle operation.

Thermal Characteristics⁽³⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_D	Total Device Dissipation	2	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62.5	$^\circ\text{C/W}$

Note:

3. PCB size: FR-4 76 x 114 x 1.57 mm³ (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -10\text{ mA}$	-60		V
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = -100\text{ }\mu\text{A}$ NZT660	-80		V
		NZT660A	-60		
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = -100\text{ }\mu\text{A}$	-5		V
I_{CBO}	Collector-Base Cut-Off Current	$V_{CB} = -30\text{ V}$		-100	nA
		$V_{CB} = -30\text{ V}, T_A = 100^\circ\text{C}$		-10	μA
I_{EBO}	Emitter-Base Cut-Off Current	$V_{EB} = -4\text{ V}$		-100	nA
h_{FE}	DC Current Gain ⁽⁴⁾	$I_C = -100\text{ mA}, V_{CE} = -2\text{ V}$	70		
		$I_C = -500\text{ mA}, V_{CE} = -2\text{ V}$ NZT660	100	300	
		NZT660A	250	550	
		$I_C = -1\text{ A}, V_{CE} = -2\text{ V}$	80		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ⁽⁴⁾	$I_C = -1\text{ A}, I_B = -100\text{ mV}$		-300	mV
		$I_C = -3\text{ A}, I_B = -300\text{ mV}$ NZT660		-550	
		NZT660A		-500	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ⁽⁴⁾	$I_C = -1\text{ A}, I_B = -100\text{ mV}$		-1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage ⁽⁴⁾	$I_C = -1\text{ A}, V_{CE} = -2\text{ V}$		-1	V
C_{ob}	Output Capacitance	$V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$		45	pF
f_T	Transition Frequency	$I_C = -100\text{ mA}, V_{CE} = -5\text{ V}, f = 100\text{ MHz}$	75		MHz

Note:

4. Pulse test: pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2.0\%$.

Typical Performance Characteristics

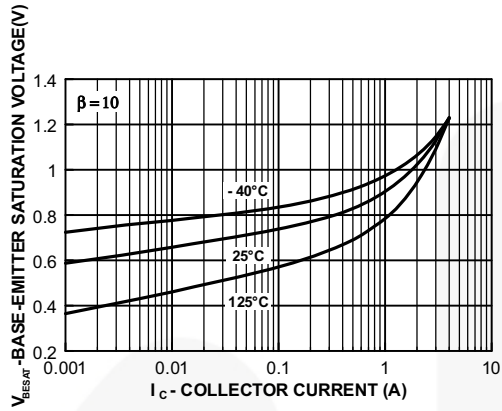


Figure 1. Base-Emitter Saturation Voltage vs. Collector Current

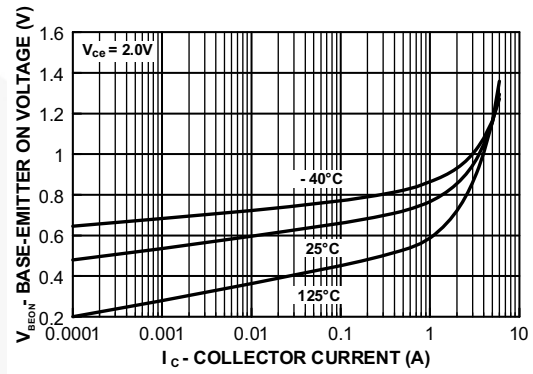


Figure 2. Base-Emitter On Voltage vs. Collector Current

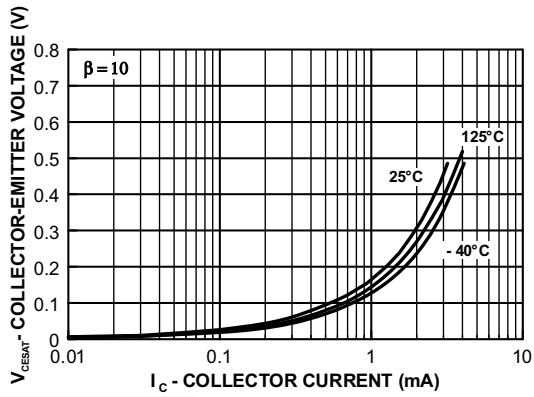


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

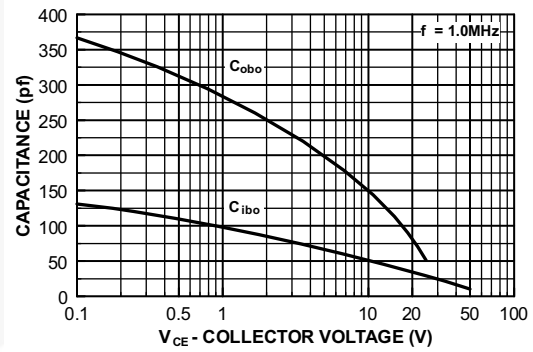


Figure 4. Input / Output Capacitance vs. Reverse Bias Voltage

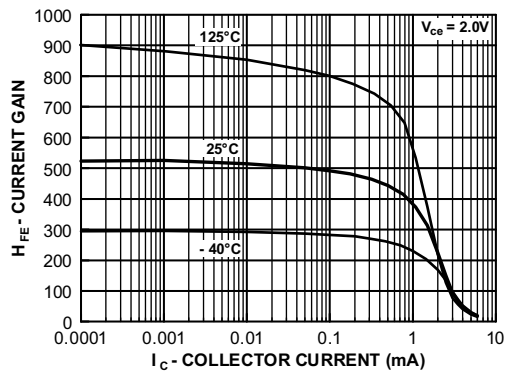


Figure 5. Current Gain vs. Collector Current

Physical Dimensions

SOT-223

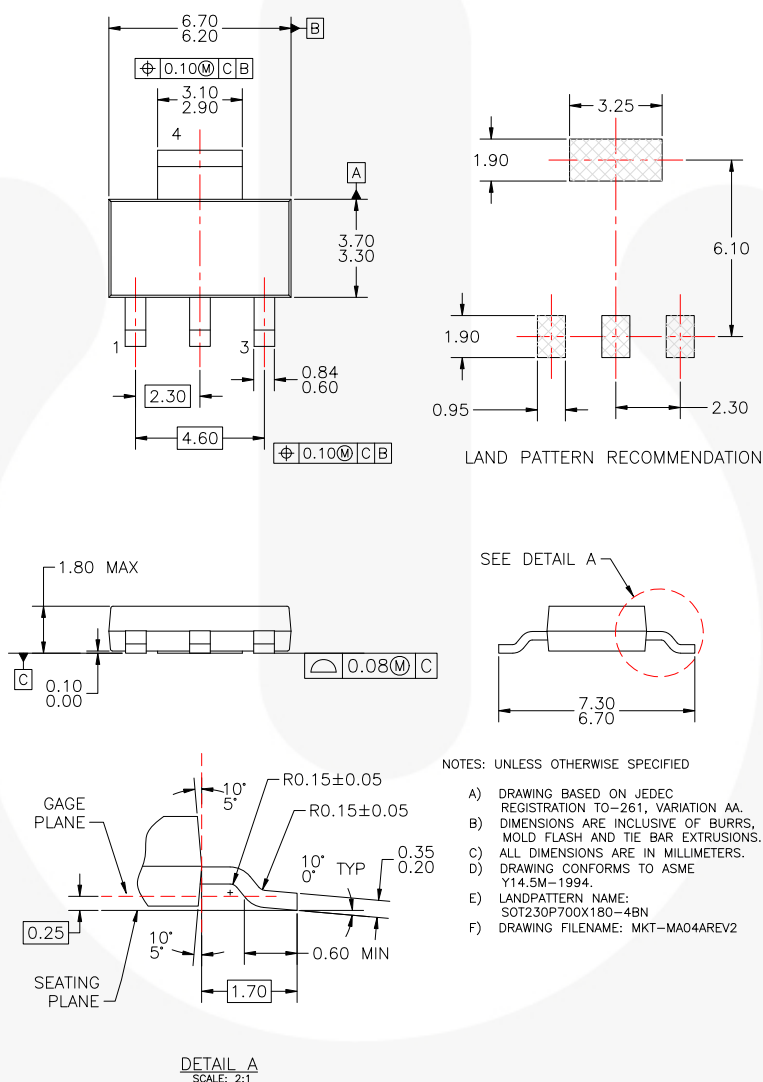


Figure 6. MOLDED PACKAGE, SOT-223, 4 LEAD (ACTIVE)

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Definition of Terms

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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