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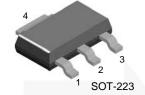


January 2014

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	Part Number Marking		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 Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Val	Unit	
Symbol	r al allietei	NZT660	NZT660A	Oilit
V _{CEO}	Collector-Emitter Voltage	-60	-60	V
V _{CBO}	BO Collector-Base Voltage		-60	V
V _{EBO}	Emitter-Base Voltage	-5	-5	V
I _C	I _C Collector Current - Continuous		-3	Α
T _J , T _{STG}	T _J , T _{STG} Operating and Storage Junction Temperature Range		-55 to +150	°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.

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Thermal Characteristics(3)

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

Symbol	Parameter	Max.	Unit
P _D	Total Device Dissipation	2	W
$R_{\theta JA}$	R _{θJA} Thermal Resistance, Junction to Ambient		°C/W

Note:

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

Electrical Characteristics

Values are at $T_A = 25$ °C unless otherwise noted.

Symbol	Parameter	Conditions			Min.	Max.	Unit
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C = -10 mA			-60		V
D\/	Collector-Base Breakdown Voltage	I _C = -100 μA		NZT660	-80		- V
BV _{CBO}				NZT660A	-60		
BV _{EBO}	Emitter-Base Breakdown Voltage	I _E = -100 μA			-5		V
1	Collector-Base Cut-Off Current	V _{CB} = -30 V			-100	nA	
I _{CBO}	Collector-base Cut-On Current	V _{CB} = -30 V, T _A = 100°C				-10	μΑ
I _{EBO}	Emitter-Base Cut-Off Current V _{EB} = -4 V			-100	nA		
	DC Current Gain ⁽⁴⁾	$I_C = -100 \text{ mA}, V_{CE} =$	= -2 V		70		
		$I_C = -500 \text{ mA}, V_{CE} = -2 \text{ V}$	- 21/	NZT660	100	300	
h _{FE}			NZT660A	250	550		
		$I_C = -1 A, V_{CE} = -2 V$		80			
		$I_C = -3 \text{ A}, V_{CE} = -2 \text{ Y}$	V		25		
	I _C = -1 A, I _B =		mV			-300	
V _{CE} (sat)	(t) Collector-Emitter Saturation Voltage ⁽⁴⁾ $I_C = I_C$	$I_C = -3 \text{ A}, I_B = -300 \text{ mV}$		NZT660		-550	mV
				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 A, V _{CE} = -2 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 mA, V _{CE} = -5 V, f = 100 MHz		75		MHz	

Note:

4. Pulse test: pulse width \leq 300 μ s, duty cycle \leq 2.0%.

Typical Performance Characteristics

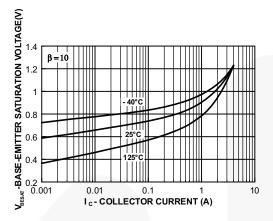


Figure 1. Base-Emitter Saturation Voltage vs. Collector Current

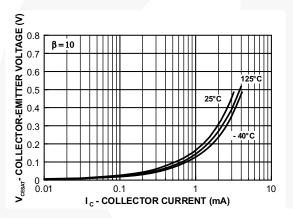


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

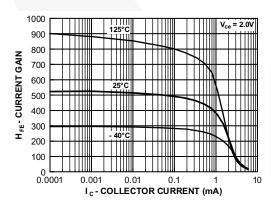


Figure 5. Current Gain vs. Collector Current

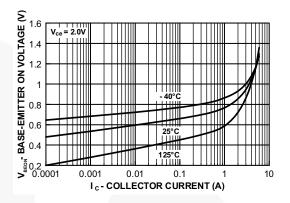


Figure 2. Base-Emitter On Voltage vs. Collector Current

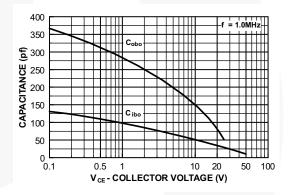


Figure 4. Input / Output Capacitance vs. Reverse Bias Voltage

Physical Dimensions

SOT-223

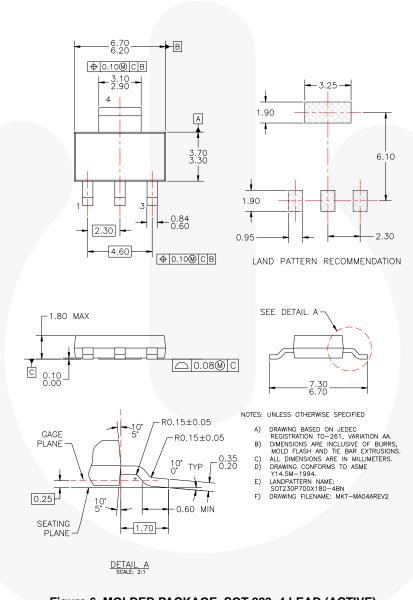


Figure 6. MOLDED PACKAGE, SOT-223, 4 LEAD (ACTIVE)

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Definition of Terms					
Datasheet Identification	Product Status	Definition			
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