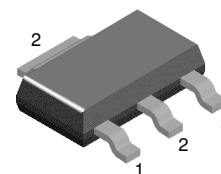


# NZT560/NZT560A

## NPN Low Saturation Transistor

### Features

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



1. Base 2. Collector 3. Emitter

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

Symbol	Parameter	Ratings	Units
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{CBO}$	Collector-Base Voltage	80	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current - Continuous	3	A
$T_J, T_{STG}$	Operating and Storage Junction Temperature Range	- 55 to +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  $150^\circ\text{C}$ .
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### Thermal Characteristics $T_A=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Max.		Units
		NZT560	NZT560A	
$P_D$	Total Device Dissipation	1		W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125		$^\circ\text{C}/\text{W}$

**Electrical Characteristics**  $T_A=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Max.	Units
<b>Off Characteristics</b>					
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$	60		V
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 100\mu\text{A}$	80		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}$	5		V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = 30\text{V}$ $V_{CB} = 30\text{V}, T_A = 100^\circ\text{C}$		100 10	nA $\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = 4\text{V}$		100	nA
<b>On Characteristics *</b>					
$h_{FE}$	DC Current Gain	$I_C = 100\text{mA}, V_{CE} = 2\text{V}$ $I_C = 500\text{mA}, V_{CE} = 2\text{V}$  $I_C = 1\text{A}, V_{CE} = 2\text{V}$ $I_C = 3\text{A}, V_{CE} = 2\text{V}$			
		Nzt560 Nzt560A	70 100 250 80 25	300 550	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 100\text{mA}$ $I_C = 3\text{A}, I_B = 300\text{mA}$		300 450 400	mV mV mV
		Nzt560 Nzt560A			
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 100\text{mA}$		1.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1\text{A}, V_{CE} = 2\text{V}$		1	V
<b>Small Signal Characteristics</b>					
$C_{obo}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$		30	pF
$f_T$	Transition Frequency	$I_C = 100\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$	75		MHz

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

## Typical Performance Characteristics

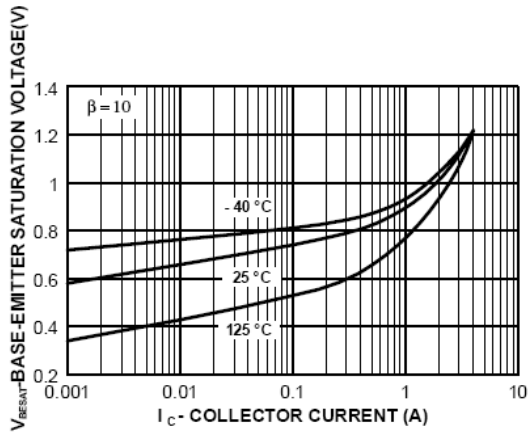


Figure 1. Base-Emitter Saturation Voltage vs Collector Current

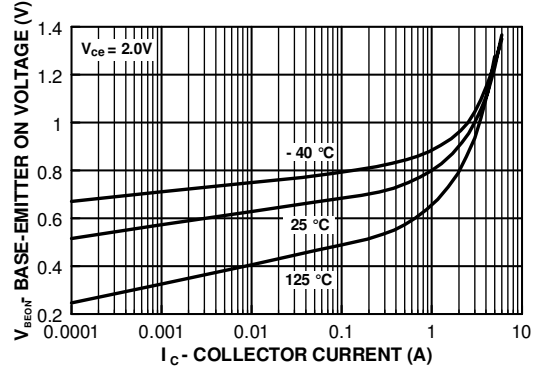


Figure 2. Base-Emitter On Voltage vs Collector Current

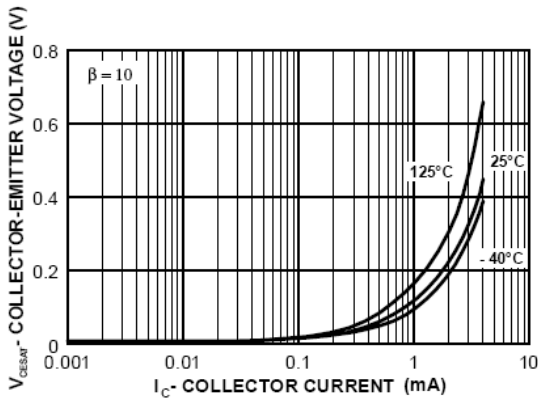


Figure 3. Collector-Emitter Saturation Voltage vs Collector Current

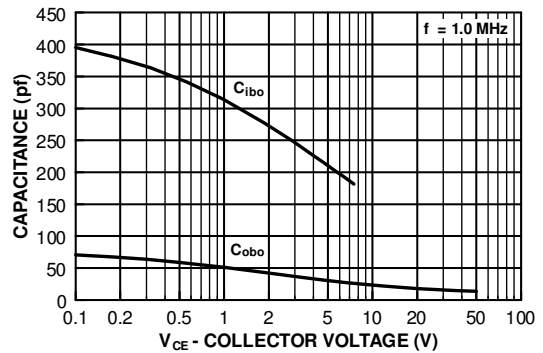


Figure 4. Input/Output Capacitance vs Reverse Bias Voltage

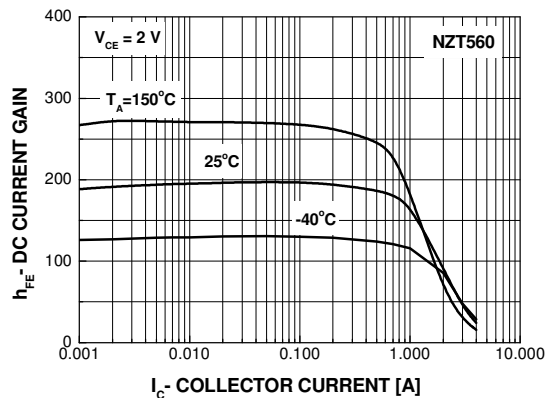


Figure 5. Current Gain vs Collector Current

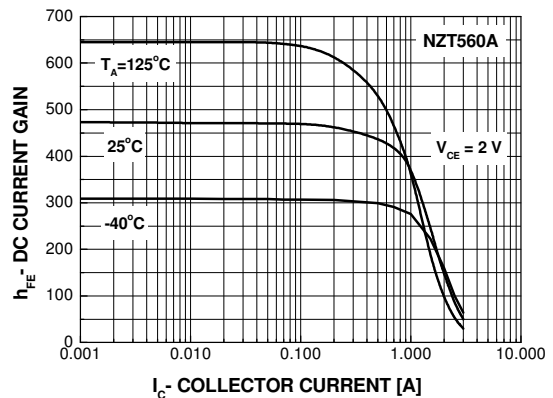
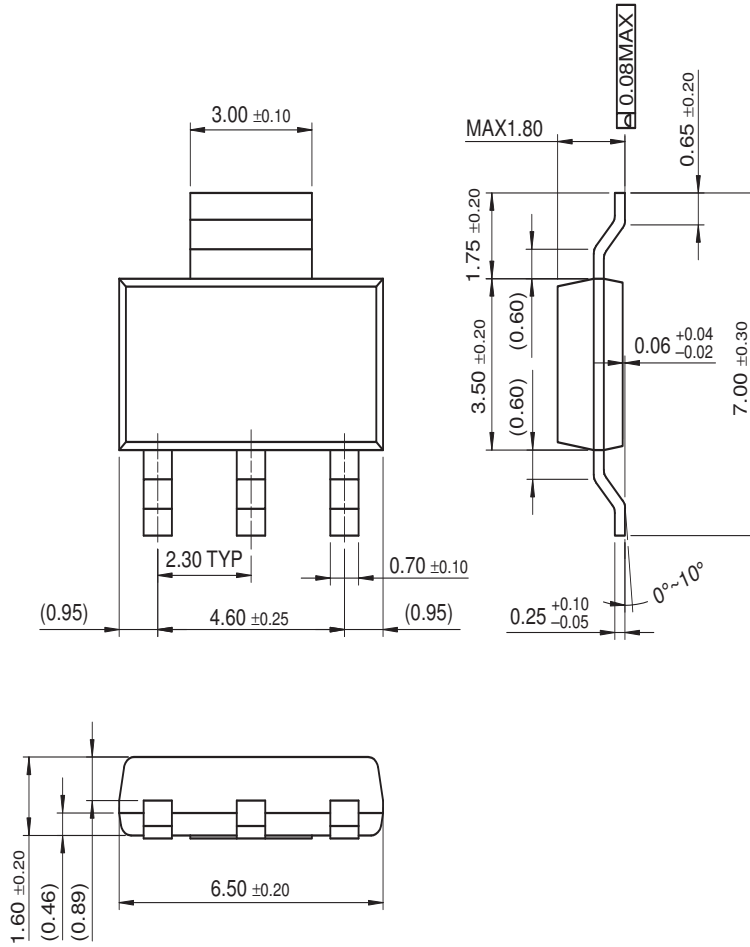


Figure 6. Current Gain vs Collector Current

Physical Dimensions

SOT-223






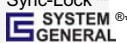


Dimensions in Millimeters



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Rev. 140



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