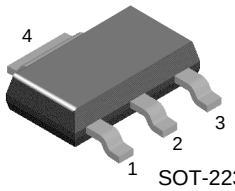
FAIRCHILD SEMICONDUCTOR®

September 2006

NZT902
NPN Low Saturation Transistor

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



SOT-223

1. Base 2. Collector 3. Emitter

Absolute Maximum Ratings* T_a=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	90	V
V_{CBO}	Collector-Base Voltage	120	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current - Continuous	3	A
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	- 55 ~ +150	°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°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°C unless otherwise noted

Symbol	Parameter	Value	Units
P_D	Total Device Dissipation	1	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	°C/W

* Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm.

Electrical Characteristics* T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C = 10mA	90			V
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = 100μA	120			V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = 100μA	5			V
I_{CBO}	Collector-Base Cutoff Current	V_{CB} = 100V V_{CB} = 100V, Ta = 100 °C			100 10	nA uA
I_{EBO}	Emitter-Base Cutoff Current	V_{EB} = 4V			100	nA
h_{FE}	DC Current Gain	I_C = 0.1A, V_{CE} = 2V I_C = 1A, V_{CE} = 2V I_C = 2A, V_{CE} = 2V	80 80 25			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = 0.1A, I_B = 5.0mA I_C = 1A, I_B = 100mA I_C = 3A, I_B = 300mA			50 250 600	mV mV mV
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	I_C = 1A, I_B = 100mA			1.25	V
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 1MHz			35	pF
f_T	Transition Frequency	I_C = 100mA, V_{CE} = 5V, f = 100MHz	75			MHz

* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Performance Characteristics

Figure 1. Static Characteristic

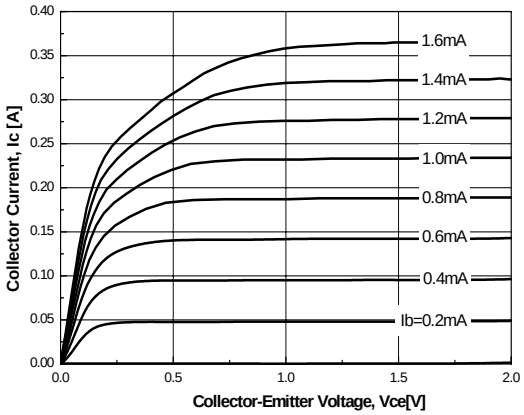


Figure 2. DC current Gain

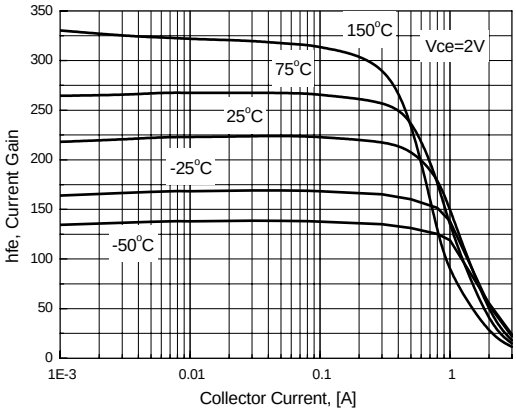


Figure 3. Collector-Emitter Saturation Voltage

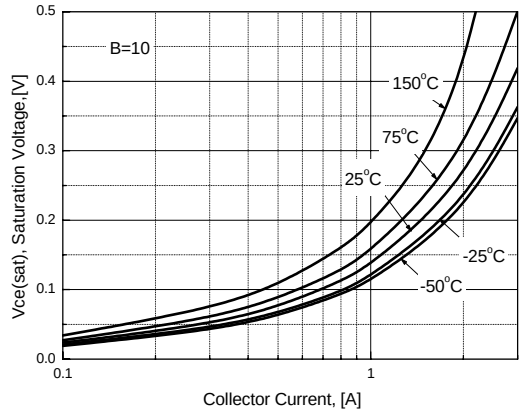


Figure 4. Base-Emitter Saturation Voltage

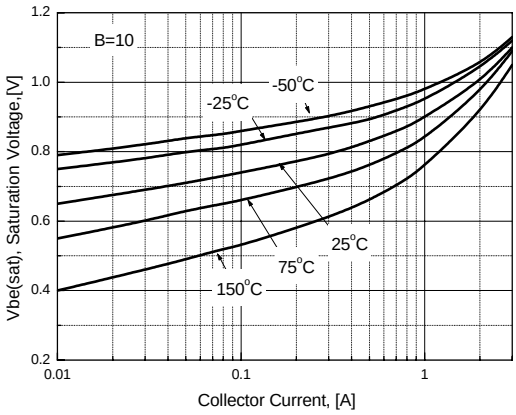


Figure 5. Output Capacitance

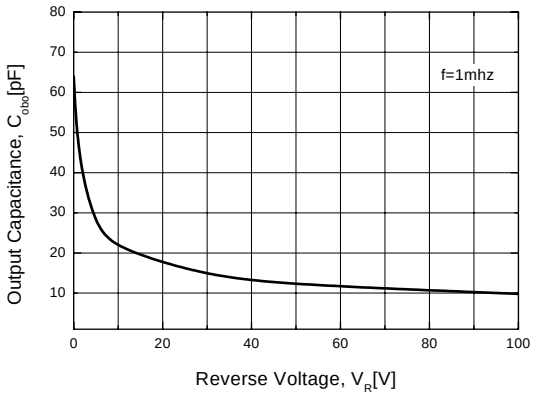
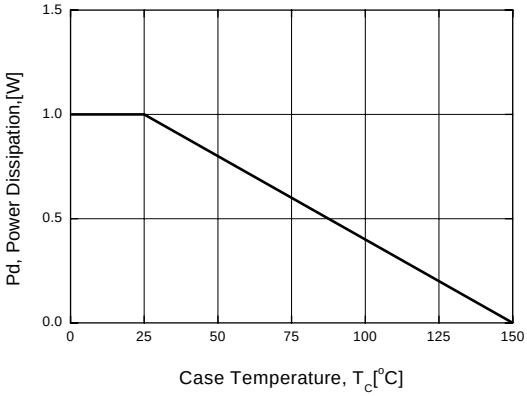
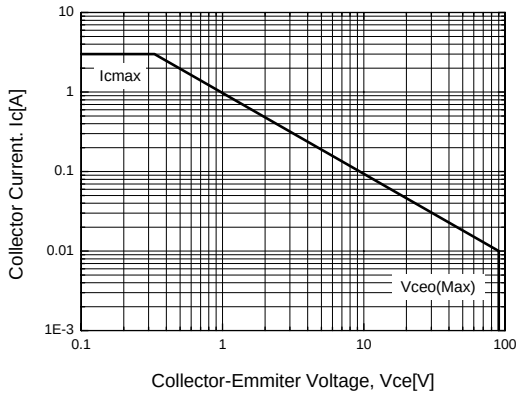


Figure 6. Power Dissipation vs Ambient Temperature



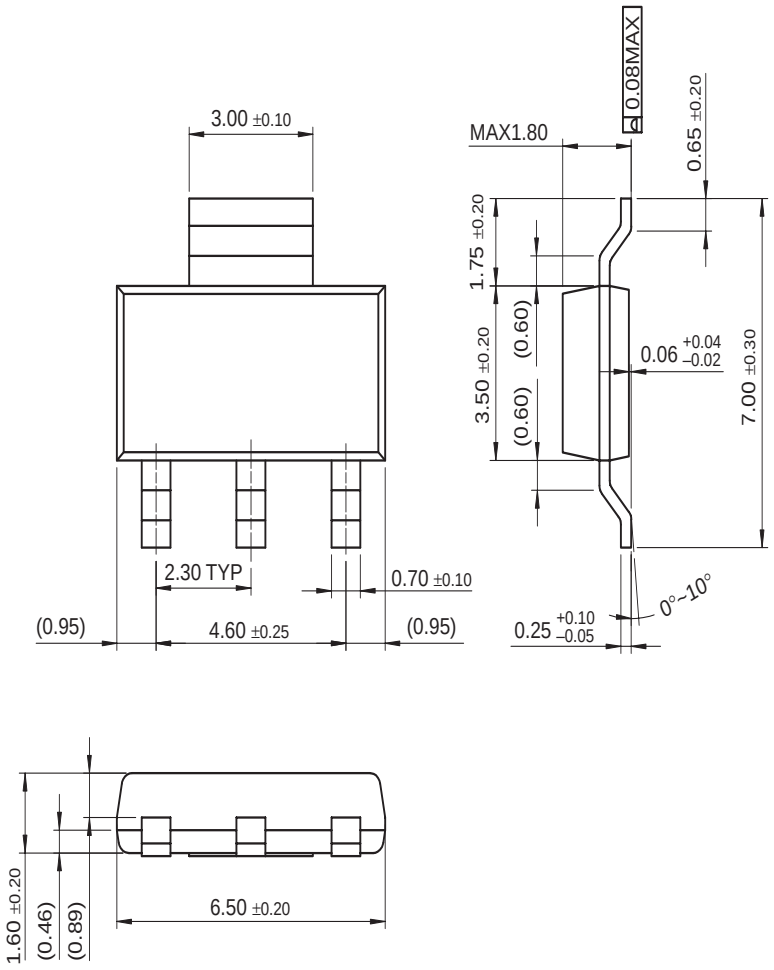
Typical Performance Characteristics

Figure 9. SOA



Mechanical Dimensions

SOT-223



Dimensions in Millimeters

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