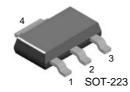
January 2007



NZT605 NPN Darlington Transistor

- This device designed for applications requiring extremely high gain at collector currents to 1.0A and high breakdown voltage.
- Sourced from process 06.



1. Base 2.4. Collector 3. Emitter

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

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	110	V
V _{CBO}	Collector-Base Voltage	140	V
V _{EBO}	Emitter-Base Voltage	10	V
I _C	Collector Current - Continuous	1.5	A
T _J , T _{STG}	Operating and Storage Junction Temperature Range	-55 to +150	°C

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

NOTES:

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

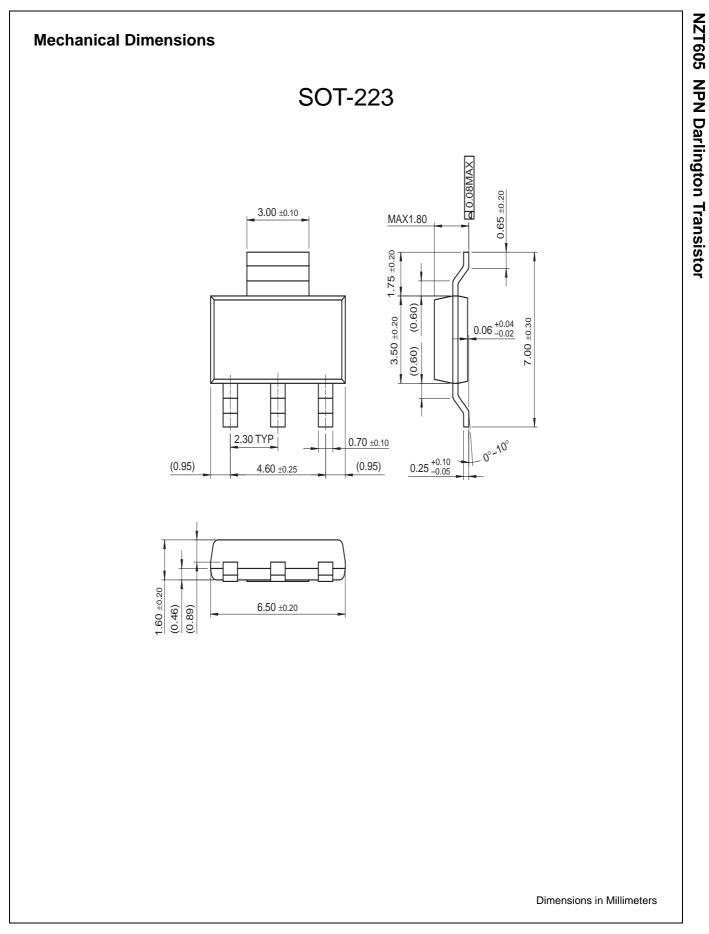
Electrical Characteristics * T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Max	Units
Off Characte	ristics				
V _{(BR)CEO}	Collector-Emitter Breakdown Voltage *	$I_{\rm C} = 10 {\rm mA}, I_{\rm B} = 0$	110		V
V _{(BR)CBO}	Collector-Base Breakdown Voltage	$I_{\rm C} = 100 \mu A, I_{\rm E} = 0$	140		V
V _{(BR)EBO}	Emitter-Base Breakdown Voltage	$I_{E} = 100 \mu A, I_{C} = 0$	10		V
I _{CBO}	Collector Cutoff Current	$V_{CB} = 120V, I_E = 0$		10	nA
I _{CES}	Collector Cutoff Current	$V_{CE} = 120V, I_E = 0$		10	nA
I _{EBO}	Emitter Cut-off Current	$V_{EB} = 8.0V, I_{C} = 0$		100	nA
On Characte	ristics *	·			
h _{FE}	DC Current Gain	$V_{CE} = 5.0V, I_C = 50MA$ $V_{CE} = 5.0V, I_C = 500MA$ $V_{CE} = 5.0V, I_C = 1.0A$ $V_{CE} = 5.0V, I_C = 1.5A$ $V_{CE} = 5.0V, I_C = 2.0A$	2000 5000 2000 300 200	100K	
V _{CE(sat)}	Collector-Emitter Saturation Voltage	$I_{C} = 250$ mA, $I_{B} = 0.25$ mA $I_{C} = 1.0$ A, $I_{B} = 1.0$ mA		1 1.5	V
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C = 1.0A, I _B = 1.0mA		1.8	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 1.0A, V _{CE} = 5.0V		1.7	V
Small Signal	characteristics				
f _T	Transition Frequency	I _C = 100mA, V _{CE} = 10V, f = 20MHz	150		MHz

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

Symbol	Parameter	Max.	Units	
P _D	Total Device Dissipation Derate above 25°C	1,000 8.0	m₩ mW/°C	
R_{\thetaJA}	Thermal Resistance, Junction to Ambient	125	°C/W	

* Device mounted on FR-4PCB 36mm \times 18mm \times 1.5mm; mounting pad for the collector lead min. 6cm²





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