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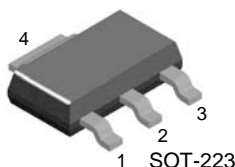
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NZT605

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 * $T_C = 25^\circ\text{C}$ 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	$^\circ\text{C}$

* 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 degrees C.
2. These are steady limits. The factory should be consulted on application involving pulsed or low duty cycle operations

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

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

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

Thermal Characteristics

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

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation	1,000	mW
	Derate above 25°C	8.0	mW/ $^{\circ}\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	125	$^{\circ}\text{C}/\text{W}$

* Device mounted on FR-4PCB $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$; mounting pad for the collector lead min. 6cm^2

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