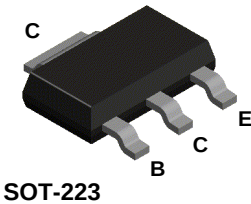




Discrete POWER & Signal
Technologies

NZT651



NPN Current Driver Transistor

This device is designed for power amplifier, regulator and switching circuits where speed is important. Sourced from Process 4P.

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

Symbol	Parameter	Value	Units
V _{CEO}	Collector-Emitter Voltage	60	V
V _{CBO}	Collector-Base Voltage	80	V
V _{EBO}	Emitter-Base Voltage	5.0	V
I _C	Collector Current - Continuous	4.0	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:
- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
 - 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

Thermal Characteristics TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		*NZT651	
P _D	Total Device Dissipation Derate above 25°C	1.2	W
		9.7	mW/°C
R _{θJA}	Thermal Resistance, Junction to Ambient	103	°C/W

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

NPN Current Driver Transistor

(continued)

NZT651

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Sustaining Voltage	$I_C = 10 \text{ mA}, I_B = 0$	60		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \text{ } \mu\text{A}, I_E = 0$	80		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100 \text{ } \mu\text{A}, I_C = 0$	5.0		V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 80 \text{ V}, I_E = 0$		100	nA
I_{EBO}	Emitter-Cutoff Current	$V_{EB} = 4.0 \text{ V}, I_C = 0$		0.1	μA

ON CHARACTERISTICS*

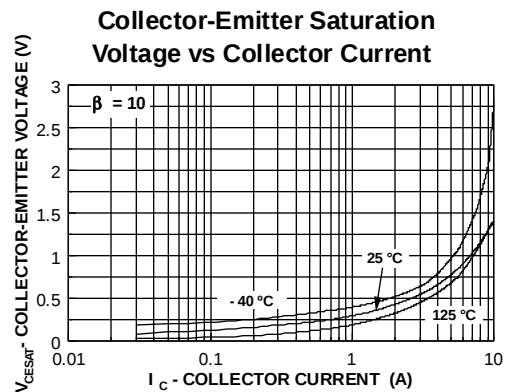
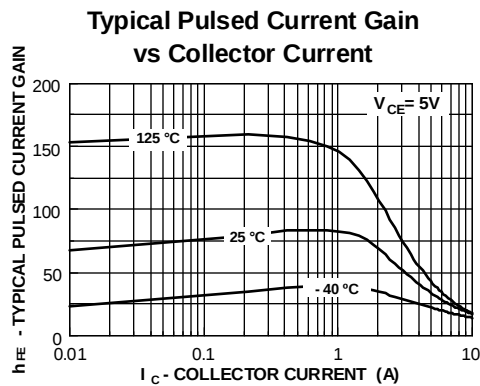
h_{FE}	DC Current Gain	$I_C = 50 \text{ mA}, V_{CE} = 2.0 \text{ V}$ $I_C = 500 \text{ mA}, V_{CE} = 2.0 \text{ V}$ $I_C = 1.0 \text{ A}, V_{CE} = 2.0 \text{ V}$ $I_C = 2.0 \text{ A}, V_{CE} = 2.0 \text{ V}$	75 75 75 40		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$ $I_C = 2.0 \text{ A}, I_B = 200 \text{ mA}$		0.3 0.5	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.0 \text{ A}, I_B = 100 \text{ mA}$		1.2	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 1.0 \text{ A}, V_{CE} = 2.0 \text{ V}$		1.0	V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 50 \text{ mA}, V_{CE} = 5.0 \text{ V},$ $f = 100 \text{ MHz}$	75		MHz
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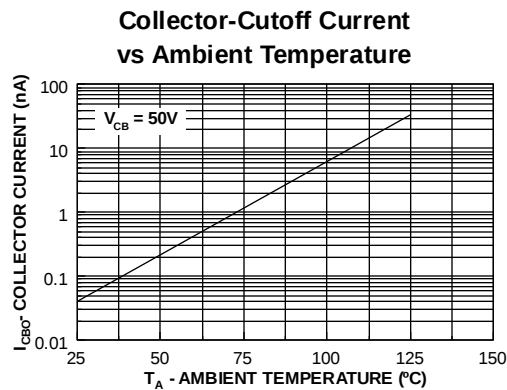
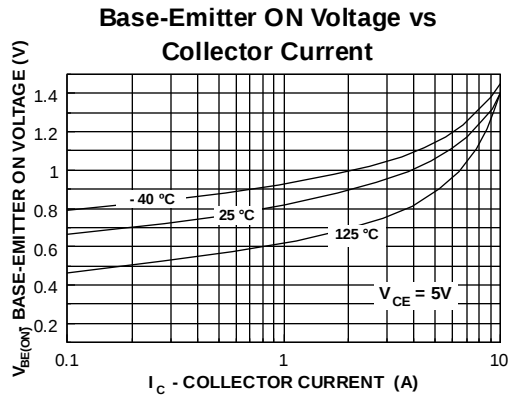
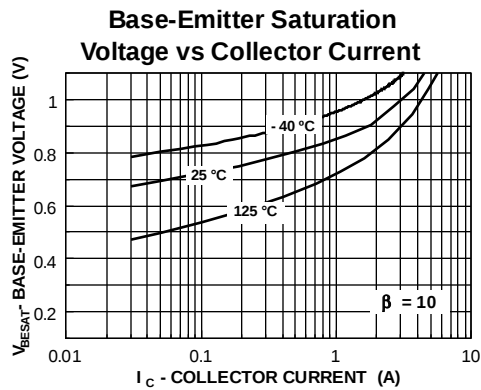
*Pulse Test: Pulse Width $\leq 300 \text{ } \mu\text{s}$, Duty Cycle $\leq 2.0\%$

DC Typical Characteristics

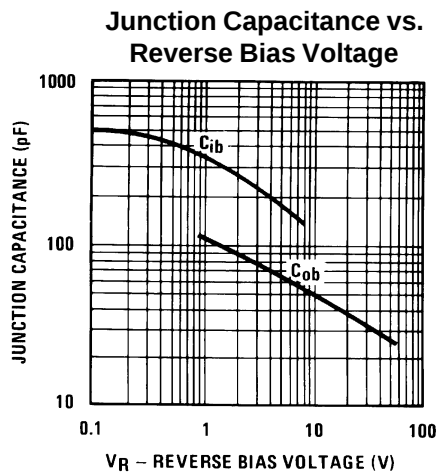


NPN Current Driver Transistor
(continued)

DC Typical Characteristics (continued)



AC Typical Characteristics



AC Typical Characteristics (continued)

