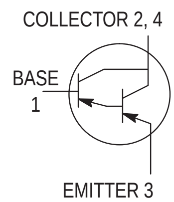
PNP Small-Signal Darlington Transistor

PZTA64T1

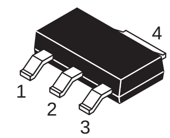
Motorola Preferred Device

This PNP small-signal darlington transistor is designed for use in preamplifiers input applications or wherever it is necessary to have a high input impedance. The device is housed in the SOT-223 package which is designed for medium power surface mount applications.

- High f_T: 125 MHz Minimum
- The SOT-223 Package can be soldered using wave or reflow.
- SOT-223 package ensures level mounting, resulting in improved thermal conduction, and allows visual inspection of soldered joints. The formed leads absorb thermal stress during soldering eliminating the possibility of damage to the die.
- Available in 12 mm Tape and Reel
  Use PZTA64T1 to order the 7 inch/1000 unit reel.
  Use PZTA64T3 to order the 13 inch/4000 unit reel.
- NPN Complement is PZTA14T1



**SOT-223 PACKAGE
PNP SILICON
DARLINGTON
TRANSISTOR
SURFACE MOUNT**



**CASE 318E-04, STYLE 1
TO-261AA**

MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CES}	30	Vdc
Collector-Base Voltage	V_{CBO}	30	Vdc
Emitter-Base Voltage	V_{EBO}	10	Vdc
Total Power Dissipation @ T_A = 25°C(1)	P_D	1.5	Watts
Collector Current	I_C	500	mAdc
Operating and Storage Temperature Range	T_J, T_{stg}	–65 to +150	°C

DEVICE MARKING

P2V

THERMAL CHARACTERISTICS

Thermal Resistance from Junction to Ambient (surface mounted)	$R_{\theta JA}$	83.3	°C/W
Maximum Temperature for Soldering Purposes Time in Solder Bath	T_L	260 10	°C Sec

1. Device mounted on a FR-4 glass epoxy printed circuit board 1.575 in. x 1.575 in. x 0.0625 in.; mounting pad for the collector lead = 0.93 sq. in.

Preferred devices are Motorola recommended choices for future use and best overall value.

REV 4

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 100 µAdc, V_{BE} = 0)	$V_{(BR)CES}$	30	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 µA, I_E = 0)	$V_{(BR)CBO}$	30	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 µA, I_C = 0)	$V_{(BR)EBO}$	10	—	Vdc
Emitter-Base Cutoff Current (V_{BE} = 10 Vdc, I_C = 0)	I_{EBO}	—	0.1	µAdc
Collector-Base Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)	I_{CBO}	—	0.1	µAdc
ON CHARACTERISTICS(2)				
DC Current Gain (I_C = 10 mAdc, V_{CE} = 5.0 Vdc) (I_C = 100 mAdc, V_{CE} = 5.0 Vdc)	h_{FE}	 10,000 20,000	 — —	—
Collector-Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 0.1 mAdc)	$V_{CE(sat)}$	—	1.5	Vdc
Base-Emitter On-Voltage (V_{CE} = 5.0 Vdc, I_C = 100 mAdc)	$V_{BE(on)}$	—	2.0	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain — Bandwidth Product (I_C = 10 mAdc, V_{CE} = 5.0 Vdc, f = 100 MHz)	f_T	125	—	MHz

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

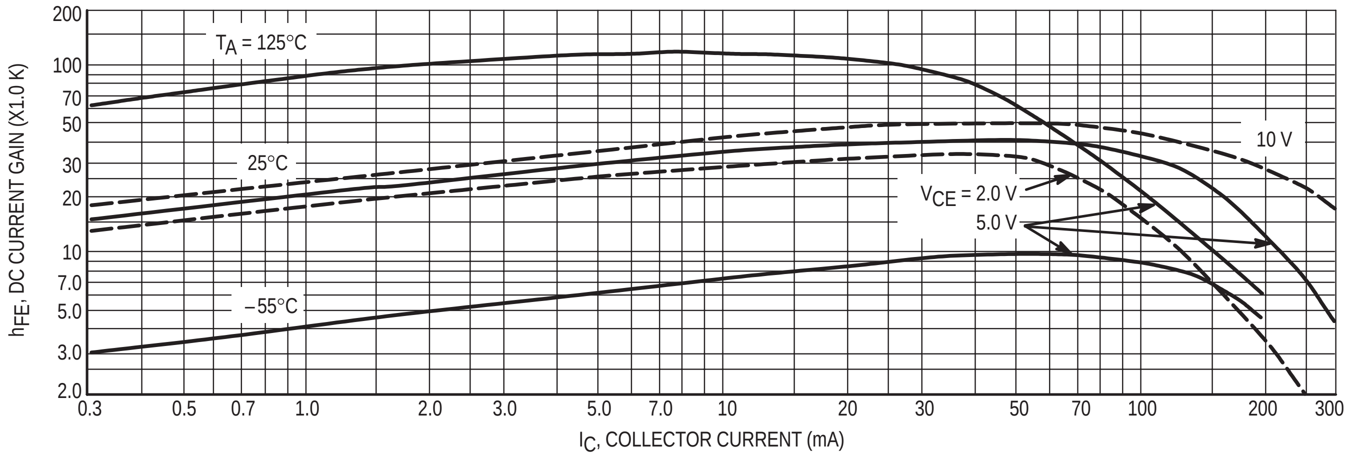


Figure 1. DC Current Gain

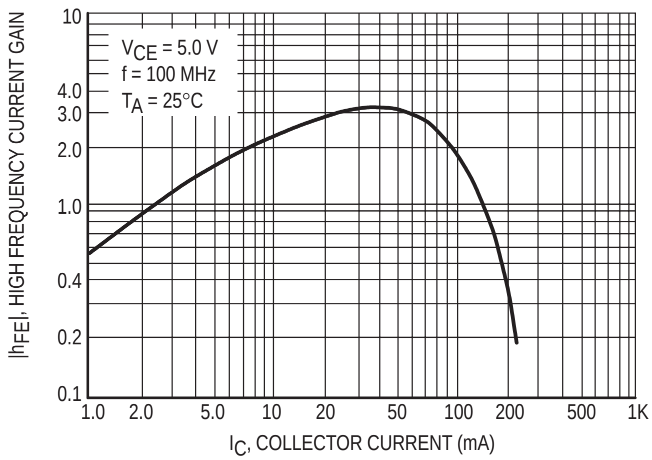


Figure 2. High Frequency Current Gain

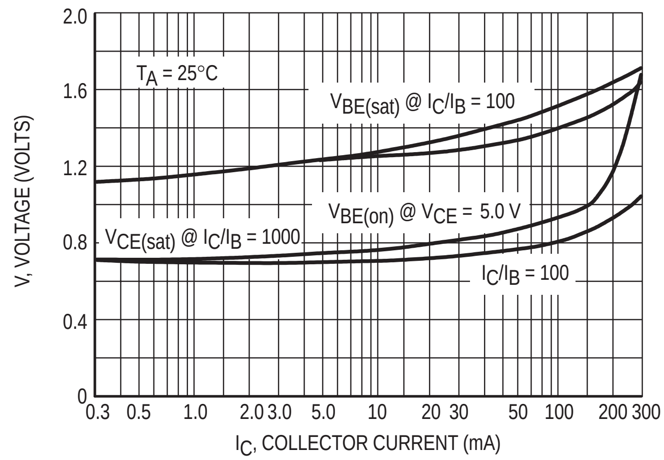


Figure 3. "On" Voltage

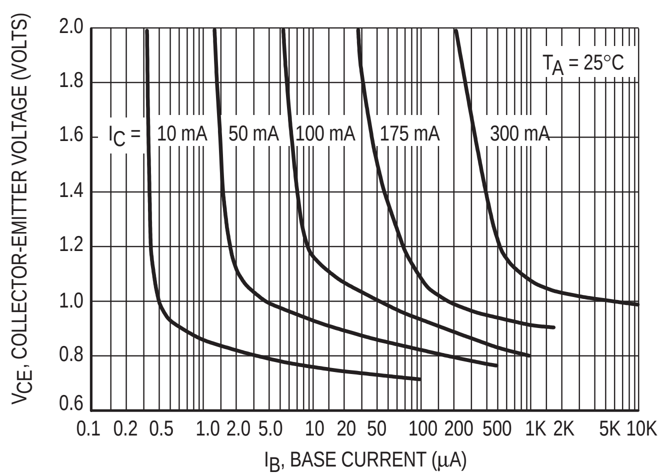


Figure 4. Collector Saturation Region