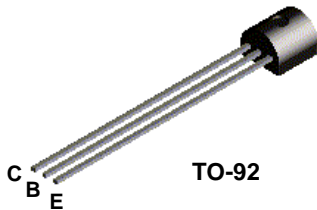
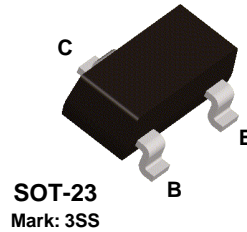


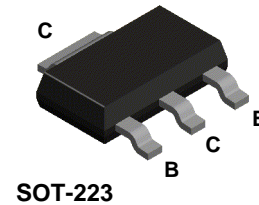
MPSA28



MMBTA28



PZTA28



NPN Darlington Transistor

This device is designed for applications requiring extremely high current gain at collector currents to 500 mA. Sourced from Process 03.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V _{CES}	Collector-Emitter Voltage	80	V
V _{CB0}	Collector-Base Voltage	80	V
V _{EBO}	Emitter-Base Voltage	12	V
I _C	Collector Current - Continuous	800	mA
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
		MPSA28	*MMBTA28	**PZTA28	
P _D	Total Device Dissipation	625	350	1,000	mW
	Derate above 25°C	5.0	2.8	8.0	mW/°C
R _{θJC}	Thermal Resistance, Junction to Case	83.3			°C/W
R _{θJA}	Thermal Resistance, Junction to Ambient	200	357	125	°C/W

* Device mounted on FR-4 PCB 1.6" X 1.6" X 0.06."

** 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 Darlington Transistor

(continued)

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = 100 \mu A, V_{BE} = 0$	80		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 100 \mu A, I_E = 0$	80		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \mu A, I_C = 0$	12		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = 60 V, I_E = 0$		100	nA
I_{CES}	Collector Cutoff Current	$V_{CE} = 60 V, V_{BE} = 0$		500	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = 10 V, I_C = 0$		100	nA

ON CHARACTERISTICS

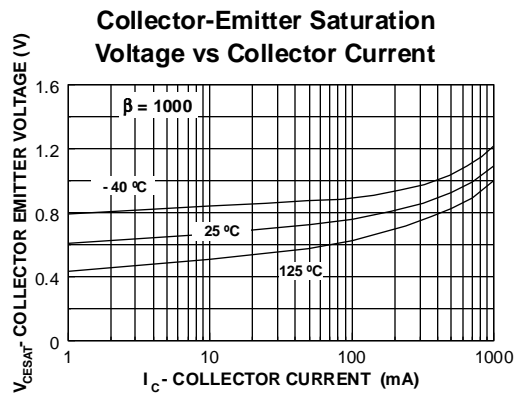
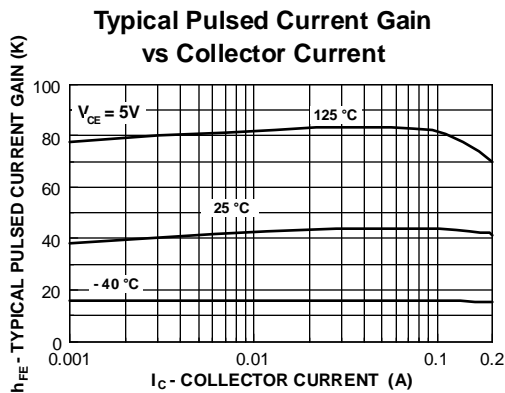
h_{FE}	DC Current Gain	$I_C = 10 \text{ mA}, V_{CE} = 5.0 \text{ V}$ $I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$	10,000 10,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 0.01 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 0.1 \text{ mA}$		1.2 1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100 \text{ mA}, V_{CE} = 5.0 \text{ V}$		2.0	V

SMALL SIGNAL CHARACTERISTICS

f_T	Current Gain - Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 5.0,$ $f = 100 \text{ MHz}$	125		MHz
C_{obo}	Output Capacitance	$V_{CB} = 1.0 \text{ V}, I_E = 0, f = 1.0 \text{ MHz}$		8.0	pF

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

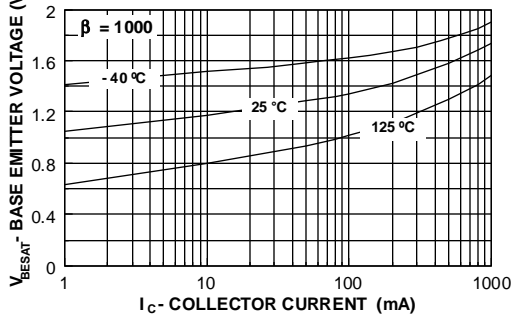
Typical Characteristics



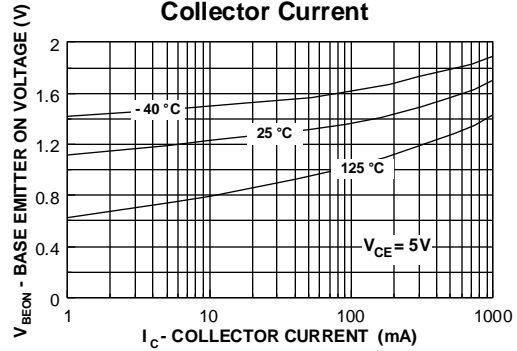
MPSA28 / NMBTA28 / PZTA28

Typical Characteristics (continued)

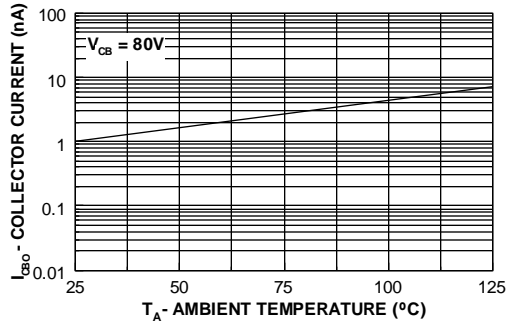
Base-Emitter Saturation Voltage vs Collector Current



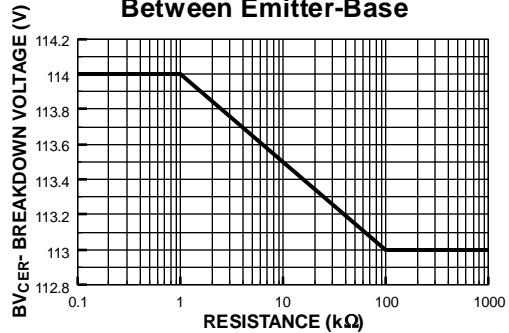
Base Emitter ON Voltage vs Collector Current



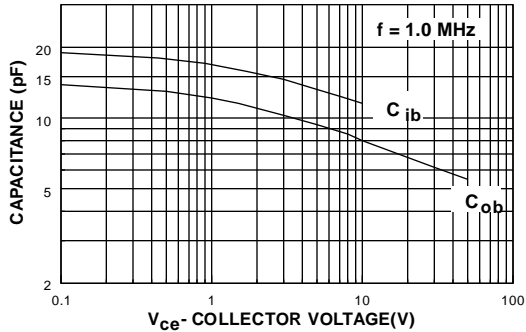
Collector-Cutoff Current vs. Ambient Temperature



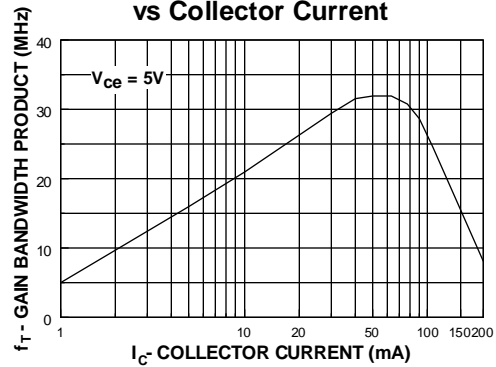
Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base



Input and Output Capacitance vs Reverse Voltage



Gain Bandwidth Product vs Collector Current



NPN Darlington Transistor
(continued)

MPSA28 / NMBTA28 / PZTA28

Typical Characteristics (continued)

