

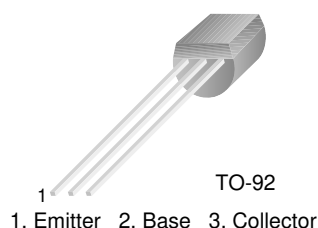


March 2009

MPSA77

PNP Darlington Transistor

- This device is designed for applications requiring extremely high current gain at currents to 800mA.
- Sourced from process 61.



Absolute Maximum Ratings * $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CES}	Collector-Emitter Voltage	-60	V
V_{CBO}	Collector-Base Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-10	V
I_C	Collector Current - Continuous	-1.2	A
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 ~ +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 state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

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

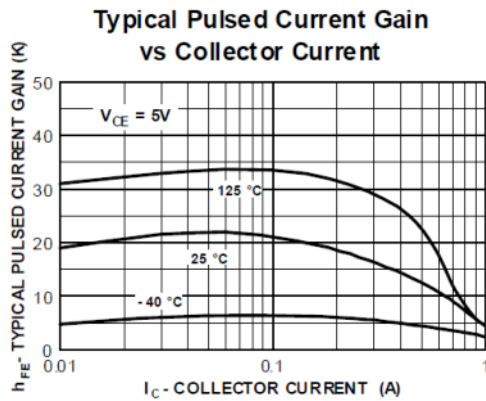
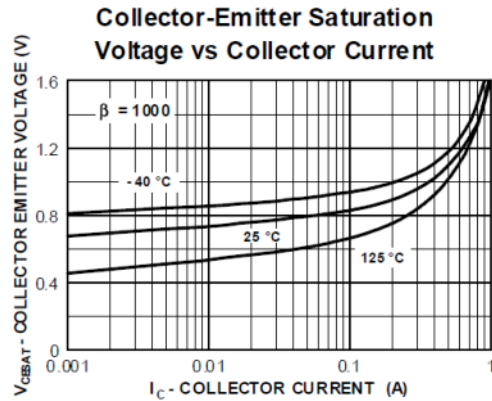
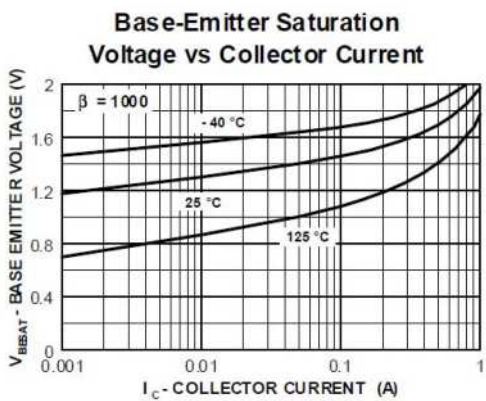
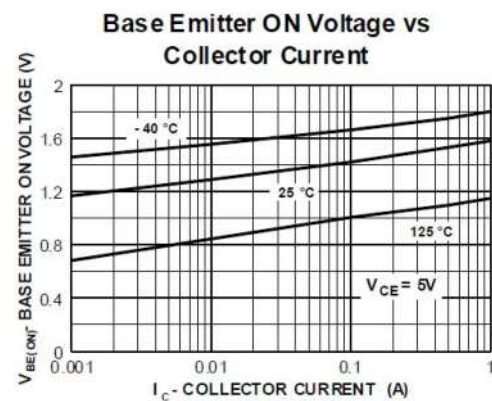
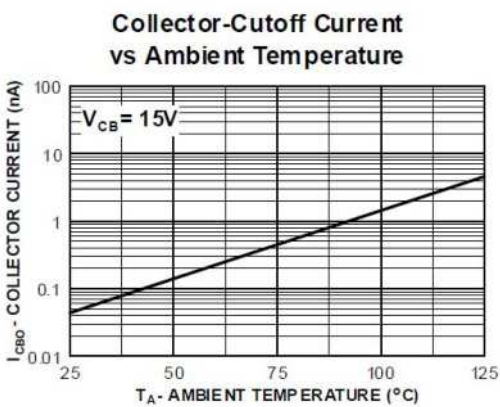
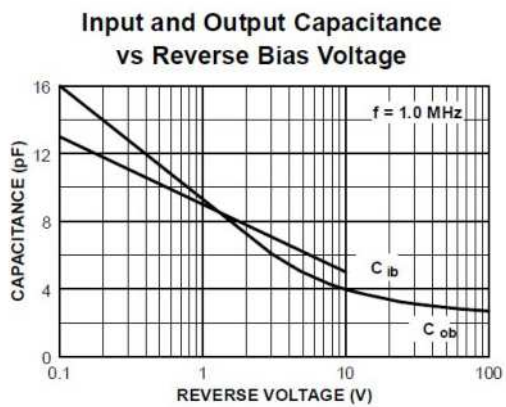
Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	625 5.0	mW mW/ $^\circ\text{C}$
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = -100\mu\text{A}, I_B = 0$	-60		V
I_{CBO}	Collector Cutoff Current	$V_{CB} = -30\text{V}, I_E = 0$		-100	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = -10\text{V}, I_C = 0$		-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	$I_C = -100\text{mA}, I_B = -0.1\text{mA}$		-1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = -100\text{mA}, V_{CE} = -5.0\text{mA}$		-2.0	V
Small Signal Characteristics *					
f_T	Current Gain Bandwidth Product	$I_C = -10\text{mA}, V_{CE} = -5.0\text{V}$ $f = 100\text{MHz}$	100		MHz

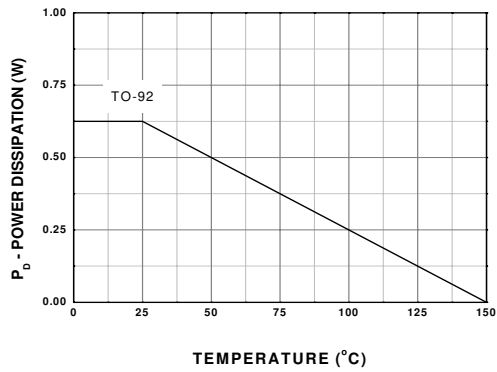
* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Typical Performance Characteristics

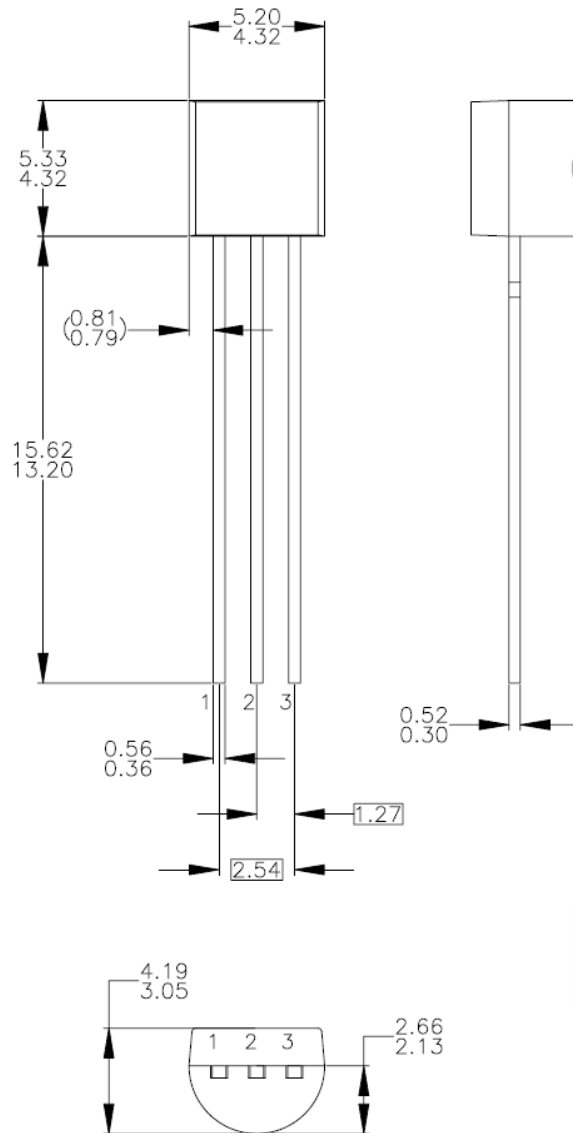


Typical Performance Characteristics (Continued)

Power Dissipation vs Ambient Temperature



Mechanical Dimensions (TO-92)



NOTES: UNLESS OTHERWISE SPECIFIED

- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DRAWING CONFORMS TO ASME Y14.5M-1994.
- D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

PIN	92			94			96			97			98		
	P	F	M	P	F	M	P	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

LEGEND:

P — BIPOLAR E — EMITTER D — DRAIN
F — JFET B — BASE S — SOURCE
M — DMOS C — COLLECTOR G — GATE

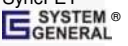
- E) FOR PACKAGE 92, 94, 96, 97 AND 98:
PIN CONFIGURATION DRAIN "D" AND SOURCE "S"
ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

Dimensions in Millimeters



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Rev. I39