

# MPSA77

# **PNP Darlington Transistor**

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



1. Emitter 2. Base 3. Collector

# **Absolute Maximum Ratings \*** T<sub>a</sub>=25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CES</sub>	Collector-Emitter Voltage	-60	V
$V_{CBO}$	Collector-Base Voltage	-60	V
V <sub>EBO</sub>	Emitter-Base Voltage	-10	V
I <sub>C</sub>	Collector Current - Continuous	-1.2	Α
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Junction Temperature Range	-55 ~ +150	°C

<sup>\*</sup> These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

- These ratings are based on a maximum junction temperature of 150 degrees C.
   These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

# Electrical Characteristics T<sub>a</sub>=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Chara	Off Characteristics				
V <sub>(BR)CES</sub>	Collector-Emitter Breakdown Voltage	$I_C = -100\mu A, I_B = 0$	-60		V
I <sub>CBO</sub>	Collector Cutoff Current	$V_{CB} = -30V, I_{E} = 0$		-100	nA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = -10V, I <sub>C</sub> = 0		-100	nA
On Characteristics *					
h <sub>FE</sub>	DC Current Gain	I <sub>C</sub> = -10mA, V <sub>CE</sub> = -5.0V I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5.0V	10,000 10,000		
V <sub>CE</sub> (sat)	Collector-Emitter Saturation Voltage	I <sub>C</sub> = -100mA, I <sub>B</sub> = -0.1mA		-1.5	V
V <sub>BE</sub> (on)	Base-Emitter On Voltage	I <sub>C</sub> = -100mA, V <sub>CE</sub> = -5.0mA		-2.0	V
Small Signal Characteristics *					
f <sub>T</sub>	Current Gain Dandwidth Product	$I_C = -10 \text{mA}, V_{CE} = -5.0 \text{V}$ f = 100MHz	100		MHz

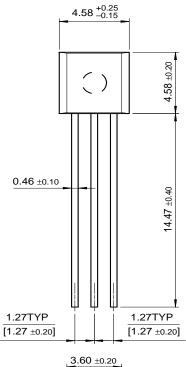
<sup>\*</sup> Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

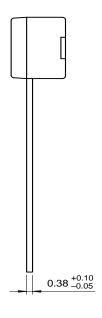
# Thermal Characteristics $T_a=25^{\circ}C$ unless otherwise noted

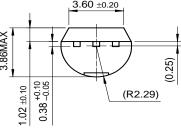
Symbol	Parameter	Max.	Units
P <sub>D</sub>	Total Device Dissipation	625	mW
	Derate above 25°C	5.0	mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	°C/W

# **Package Dimensions**

TO-92







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