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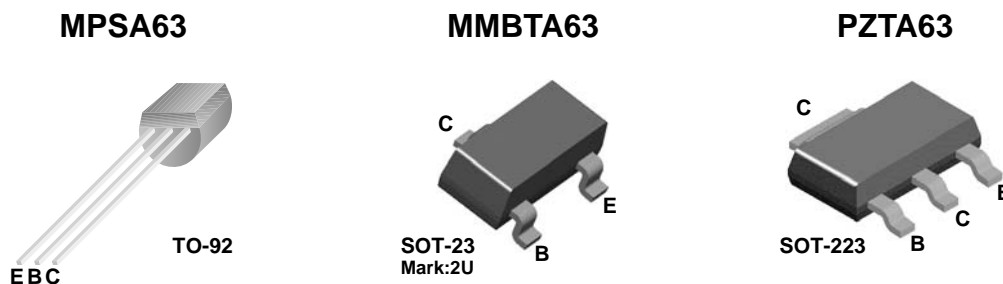
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# MPSA63 / MMBTA63 / PZTA63 PNP Darlington Transistor

## Features

- This device is designed for applications requiring extremely high current gain at currents to 800 mA.
- 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	-30	V
$V_{CBO}$	Collector-Base Voltage	-30	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 to +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
		MPSA63	*MMBTA63	**PZTA63	
$P_D$	Total Device Dissipation Derate above $25^\circ\text{C}$	625	350	1,000	mW
		5.0	2.8	8.0	
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3			$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	125	$^\circ\text{C}/\text{W}$

\* Device mounted on FR-4 PCB  $1.6'' \times 1.6'' \times 0.06''$ .

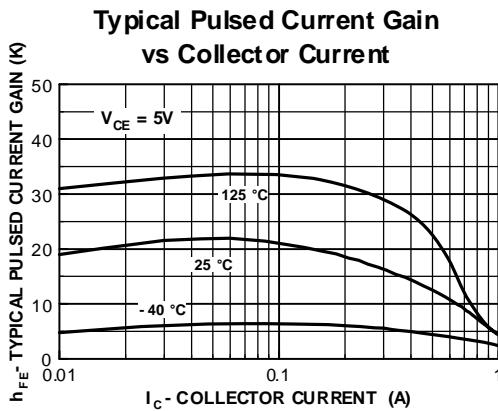
\*\* Device mounted on FR-4 PCB  $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$ ; mounting pad for the collector lead min.  $6\text{cm}^2$ .

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

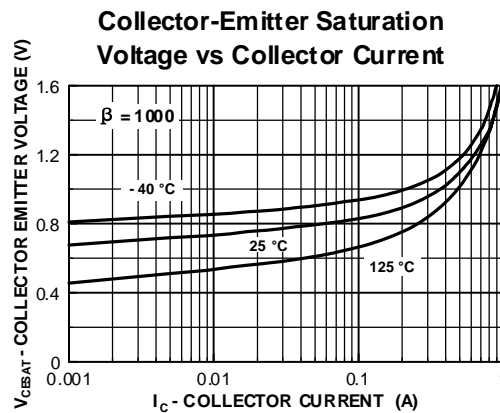
Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$BV_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = -100\mu\text{A}, I_B = 0$	-30		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = -30\text{V}, I_E = 0$		-100	nA
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = -10\text{V}, I_C = 0$		-100	nA
<b>On Characteristics *</b>					
$h_{FE}$	DC Current Gain	$I_C = -10\text{mA}, V_{CE} = -5.0\text{V}$ $I_C = -100\text{mA}, V_{CE} = -5.0\text{V}$	5,000 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	$I_C = -100\text{mA}, V_{CE} = -5.0\text{V}$		-2.0	V
<b>Small Signal Characteristics</b>					
$f_T$	Current Gain - Bandwidth Product	$I_C = -10\text{mA}, V_{CE} = -5.0\text{V},$ $f = 100\text{MHz}$	125		MHz

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

**Typical Performance Characteristics**



**Figure 1. Typical Pulsed Current Gain vs Collector Current**



**Figure 2. Collector-Emitter Saturation Voltage vs Collector Current**

Typical Performance Characteristics (continued)

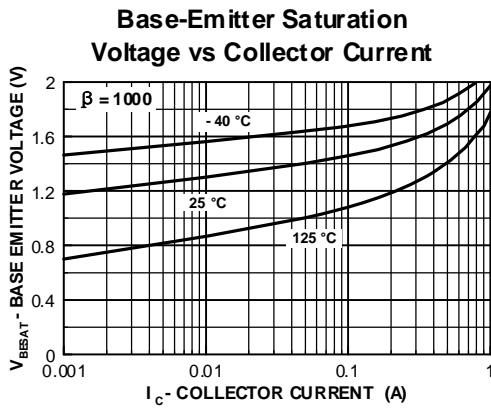


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

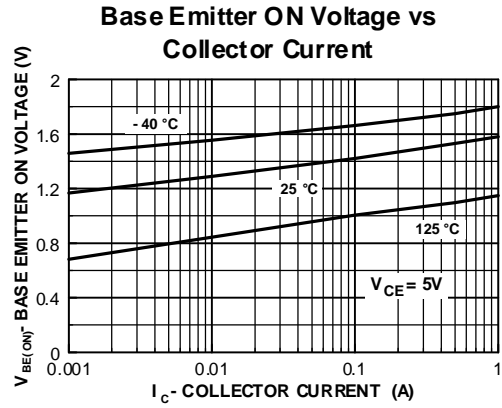


Figure 4. Base-Emitter ON Voltage vs Collector Current

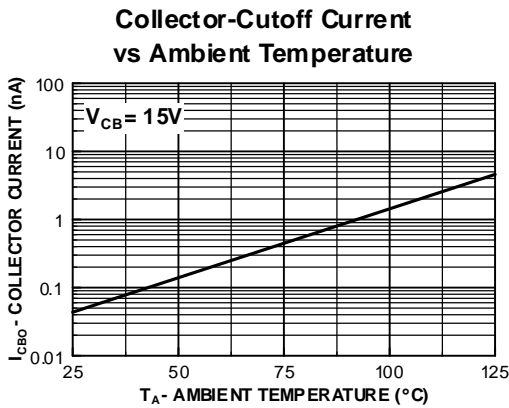


Figure 5. Collector Cutoff Current vs Ambient Temperature

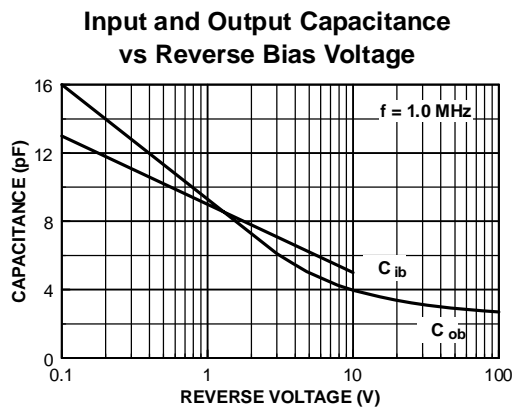


Figure 6. Input and Output Capacitance vs Reverse Bias Voltage

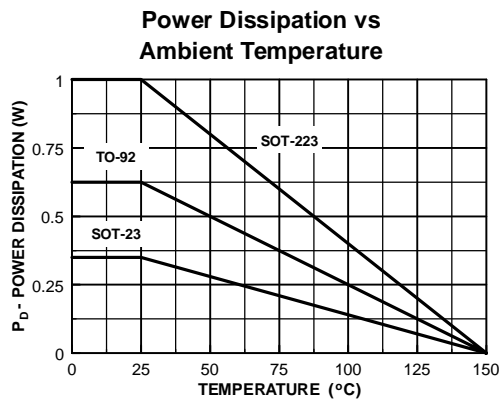







Figure 7. Power Dissipation vs Ambient Temperature



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Obsolete	Not In Production	Datasheet contains specifications on a product that is discontinued by Fairchild Semiconductor. The datasheet is for reference information only.

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