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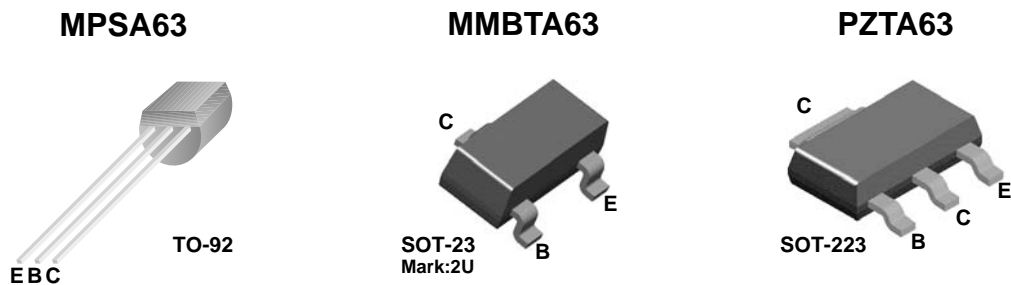
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# MPSA63 / MMBTA63 / PZTA63

## 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	625	350	1,000	mW
	Derate above $25^\circ\text{C}$	5.0	2.8	8.0	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	357	125	$^\circ\text{C}/\text{W}$

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

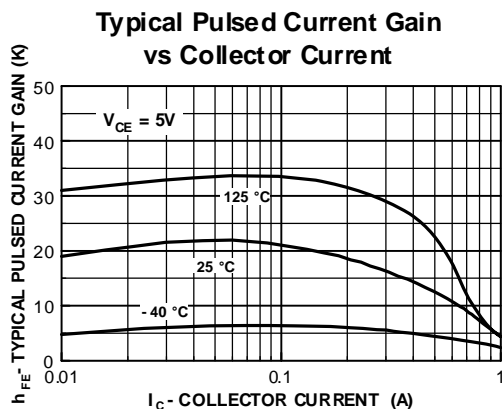
\*\* Device mounted on FR-4 PCB  $36\text{mm} \times 18\text{mm} \times 1.5\text{mm}$ ; mounting pad for the collector lead min.  $6\text{cm}^2$ .

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

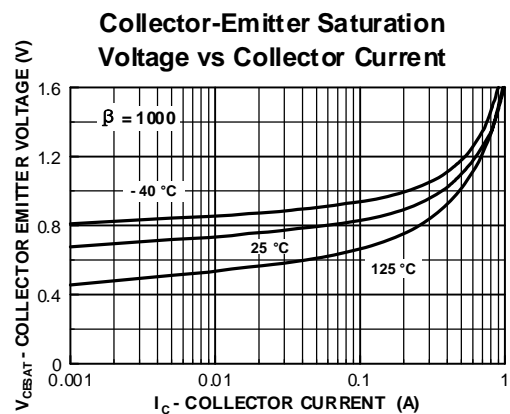
Symbol	Parameter	Test Condition	Min.	Max.	Units
<b>Off Characteristics</b>					
$BV_{(BR)CES}$	Collector-Emitter Breakdown Voltage	$I_C = -100\mu\text{A}, I_B = 0$	-30		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = -30\text{V}, I_E = 0$		-100	nA
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = -10\text{V}, I_C = 0$		-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**

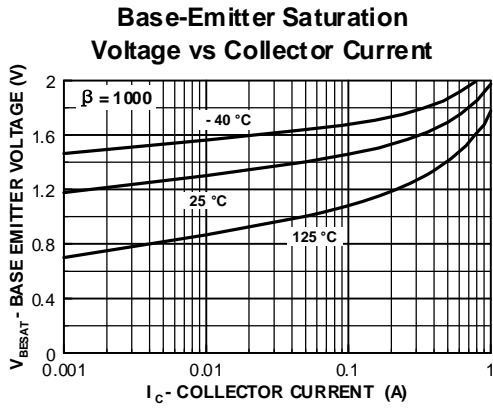


**Figure 1. Typical Pulsed Current Gain vs Collector Current**

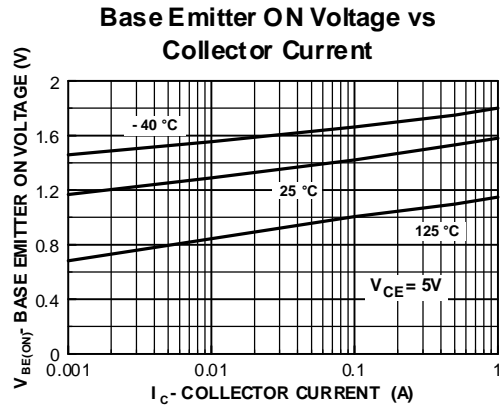


**Figure 2. Collector-Emitter Saturation Voltage vs Collector Current**

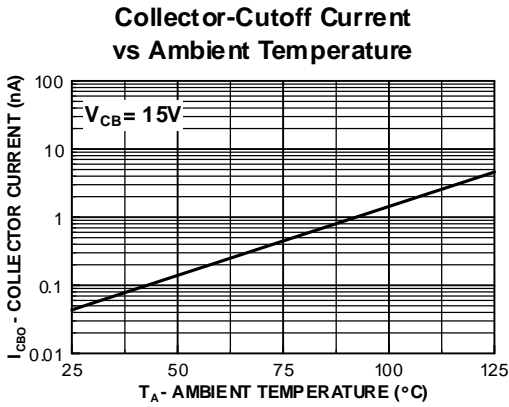
**Typical Performance Characteristics** (continued)



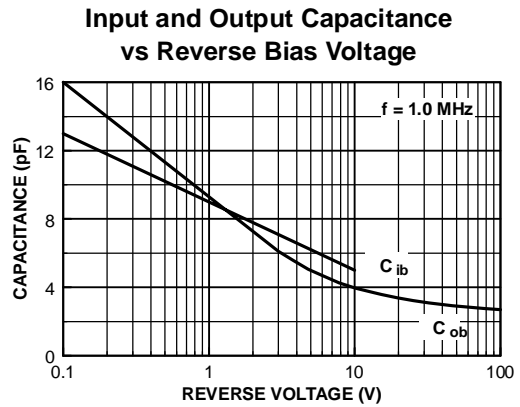
**Figure 3. Base-Emitter Saturation Voltage vs Collector Current**



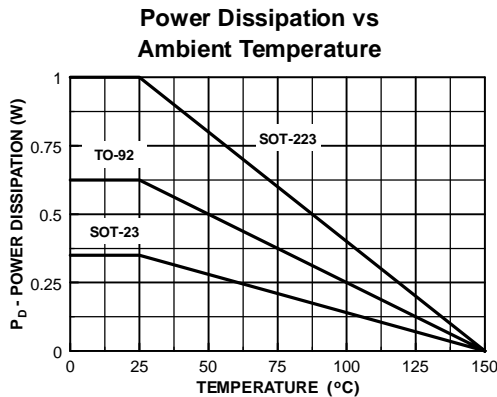
**Figure 4. Base-Emitter ON Voltage vs Collector Current**



**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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No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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