

MPSA64 / MMBTA64 / PZTA64

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
		MPSA64	*MMBTA64	**PZTA64	
P_D	Total Device Dissipation	625	350	1,000	mW
	Derate above 25°C	5.0	2.8	8.0	$\text{mW}/^\circ\text{C}$
$R_{\theta JC}$	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" X 1.6" X 0.06."

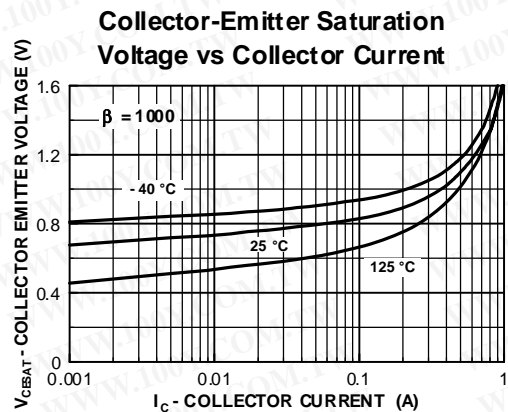
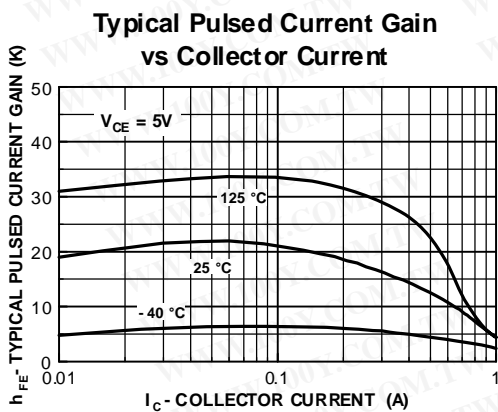
** Device mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead min. 6 cm^2 .

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	$I_C = -100\mu\text{A}, I_B = 0$	-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
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 20,000		
$V_{CE(sat)}$	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
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain - Bandwidth Product	$I_C = -10\text{mA}, V_{CE} = -5.0\text{V},$ $f = 100\text{MHz}$	125		MHz

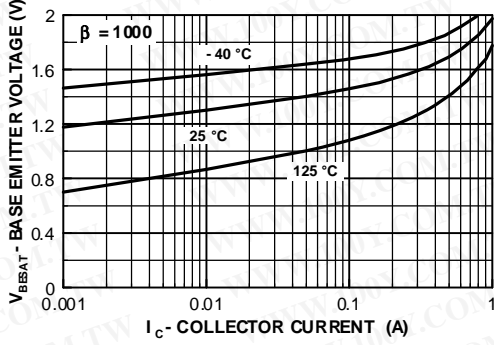
* Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2.0\%$

Typical Performance Characteristics

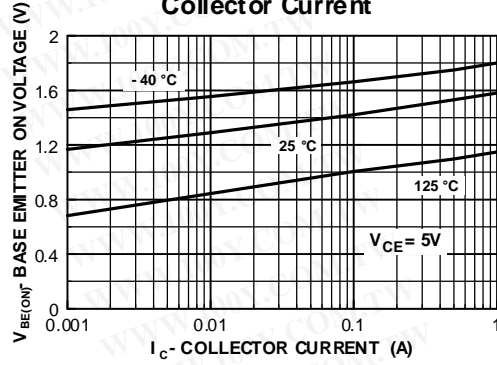


Typical Performance Characteristics (continued)

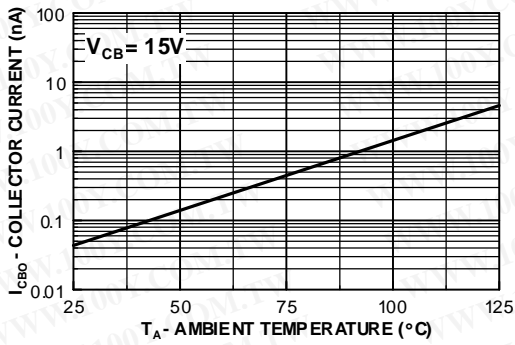
Base-Emitter Saturation Voltage vs Collector Current



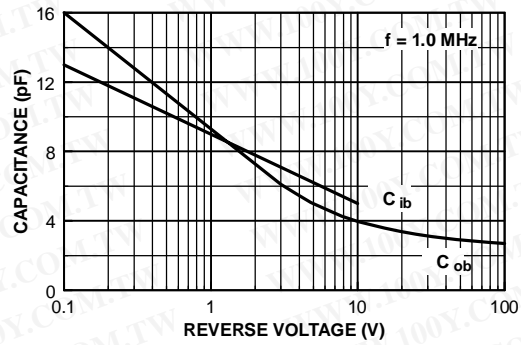
Base Emitter ON Voltage vs Collector Current



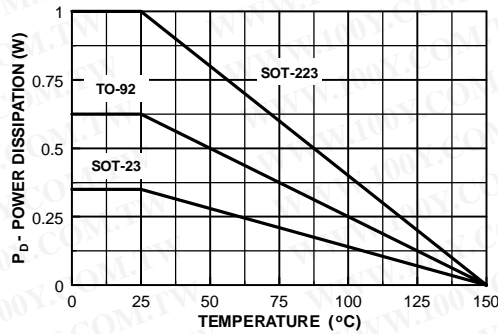
Collector-Cutoff Current vs Ambient Temperature



Input and Output Capacitance vs Reverse Bias Voltage







Power Dissipation vs Ambient Temperature



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