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FAIRCHILD SEMICONDUCTOR®

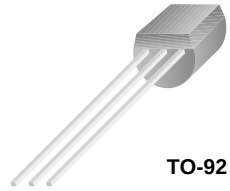
November 2011

MPSA64 / MMBTA64 / PZTA64
PNP Darlington Transistor

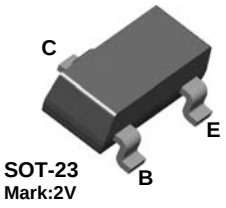
Features

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

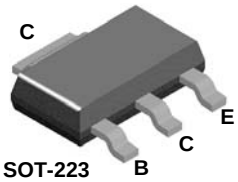
MPSA64



MMBTA64



PZTA64



Absolute Maximum Ratings* T_a = 25°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	°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°C unless otherwise noted

Symbol	Parameter	Max.			Units
		MPSA64	*MMBTA64	**PZTA64	
P_D	Total Device Dissipation Derate above 25°C	625 5.0	350 2.8	1,000 8.0	mW mW/°C
$R_{\theta JC}$	Thermal Resistance, Junction to Case	83.3			°C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	200	357	125	°C/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.

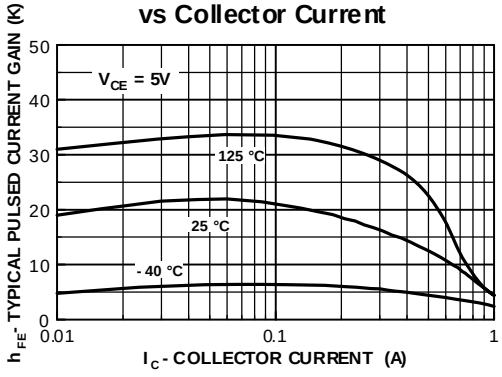
Electrical Characteristics T_a = 25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
OFF CHARACTERISTICS					
$V_{(BR)CES}$	Collector-Emitter Breakdown Voltage	I_C = -100μA, I_B = 0	-30		V
I_{CBO}	Collector-Cutoff Current	V_{CB} = -30V, I_E = 0		-100	nA
I_{EBO}	Emitter-Cutoff Current	V_{EB} = -10V, I_C = 0		-100	nA
ON CHARACTERISTICS*					
h_{FE}	DC Current Gain	I_C = -10mA, V_{CE} = -5.0V I_C = -100mA, V_{CE} = -5.0V	10,000 20,000		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C = -100mA, I_B = -0.1mA		-1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	I_C = -100mA, V_{CE} = -5.0V		-2.0	V
SMALL SIGNAL CHARACTERISTICS					
f_T	Current Gain - Bandwidth Product	I_C = -10mA, V_{CE} = -5.0V, f = 100MHz	125		MHz

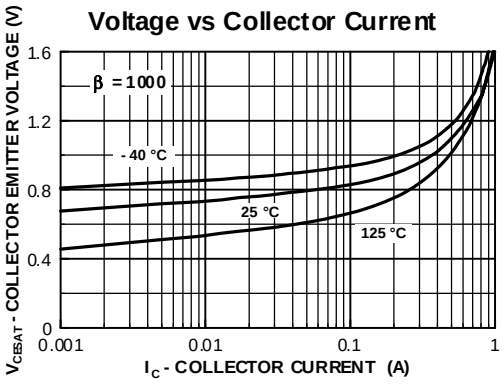
* Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

Typical Performance Characteristics

Typical Pulsed Current Gain vs Collector Current

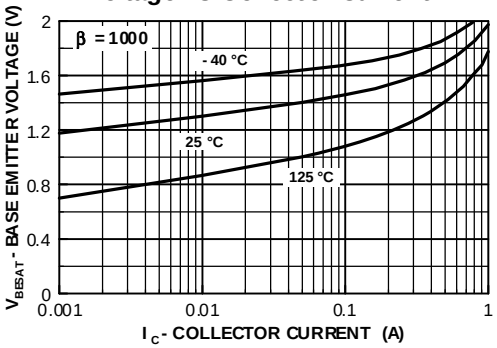


Collector-Emitter Saturation Voltage vs Collector Current

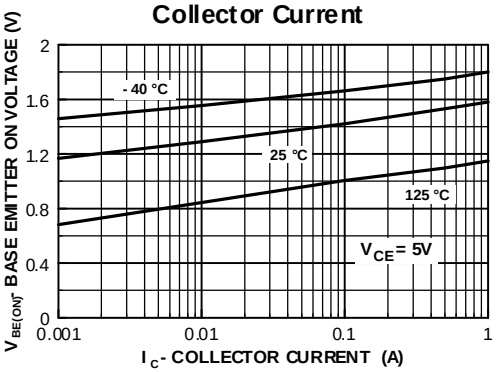


Typical Performance Characteristics (continued)

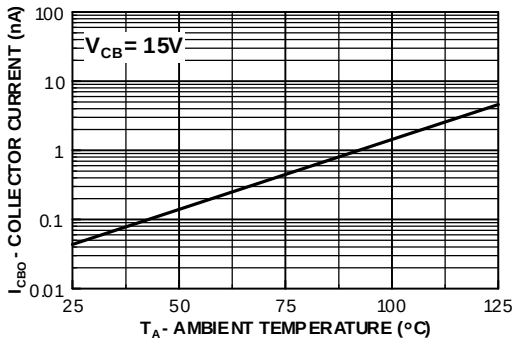
Base-Emitter Saturation Voltage vs Collector Current



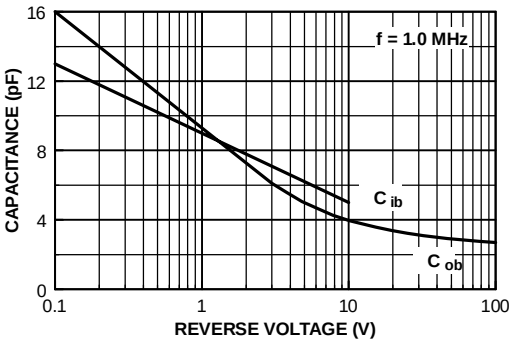
Base Emitter ON Voltage vs Collector Current



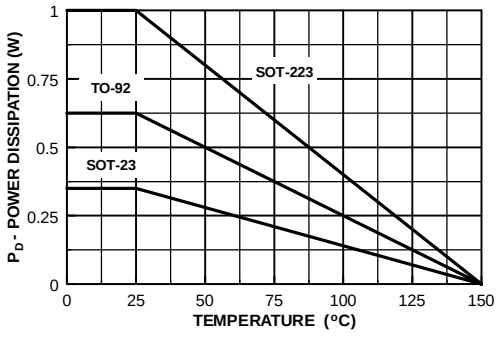
Collector-Cutoff Current vs Ambient Temperature



Input and Output Capacitance vs Reverse Bias Voltage



Power Dissipation vs Ambient Temperature



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