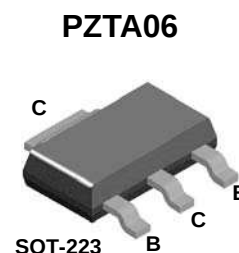
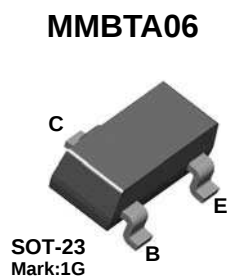
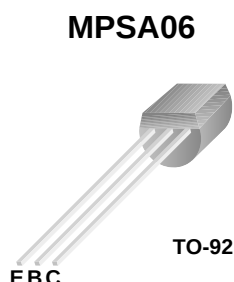


MPSA06 / MMBTA06 / PZTA06

NPN General Purpose Amplifier

Features

- This device is designed for general purpose amplifier applications at collector currents to 300mA.
- Sourced from Process 33.



Absolute Maximum Ratings * $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	80	V
V_{CBO}	Collector-Base Voltage	80	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Collector Current - Continuous	500	mA
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
		MPSA06	*MMBTA06	**PZTA06	
P_D	Total Device Dissipation	625	350	1,000	mW
	Derate above 25°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. 6cm^2 .

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 1.0\text{mA}$, $I_B = 0$	80		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 100\mu\text{A}$, $I_C = 0$	4.0		V
I_{CEO}	Collector-Cutoff Current	$V_{CE} = 60\text{V}$, $I_B = 0$		0.1	μA
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 80\text{V}$, $I_E = 0$		0.1	μA
On Characteristics					
h_{FE}	DC Current Gain	$I_C = 10\text{mA}$, $V_{CE} = 1.0\text{V}$ $I_C = 100\text{mA}$, $V_{CE} = 1.0\text{V}$	100 100		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{mA}$, $I_B = 10\text{mA}$		0.25	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C = 100\text{mA}$, $V_{CE} = 1.0\text{V}$		1.2	V
Small Signal Characteristics					
f_T	Current Gain - Bandwidth Product	$I_C = 10\text{mA}$, $V_{CE} = 2.0\text{V}$, $f = 100\text{MHz}$	100		MHz

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

Typical Performance Characteristics

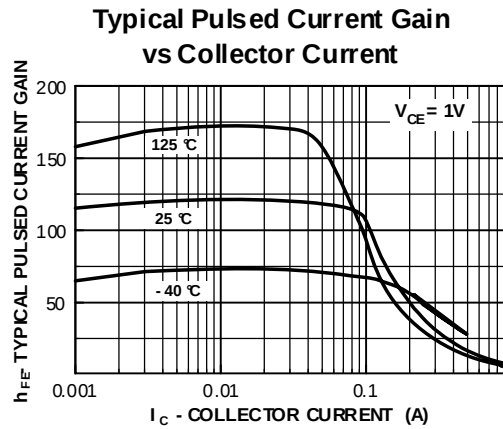


Figure 1. Typical Pulsed Current Gain vs Collector Current

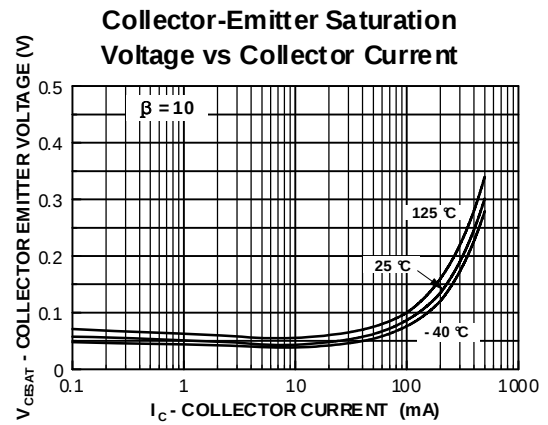


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

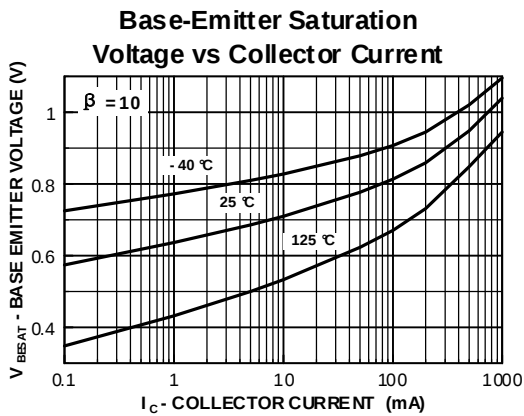


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

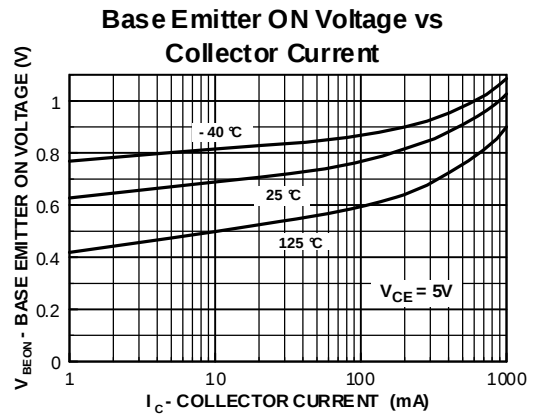


Figure 4. Base-Emitter ON Voltage vs Collector Current

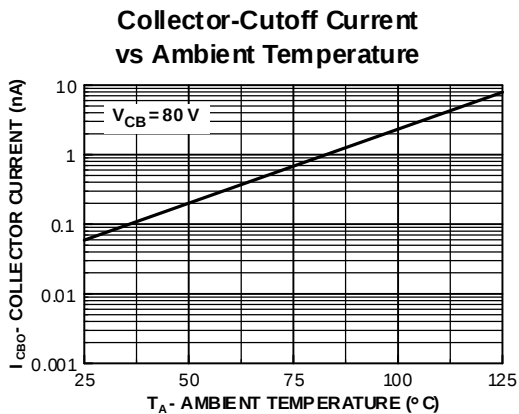


Figure 5. Collector Cutoff Current vs Ambient Temperature

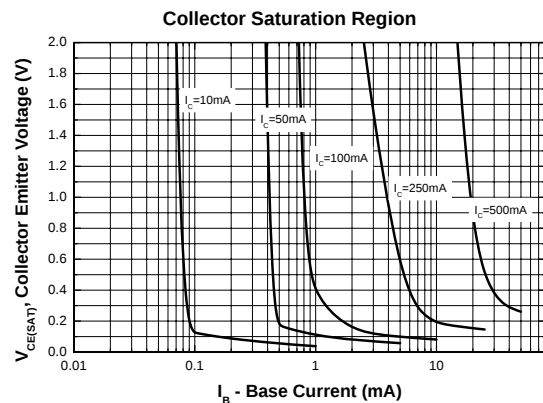


Figure 6. Collector Saturation Region

Typical Performance Characteristics (continued)

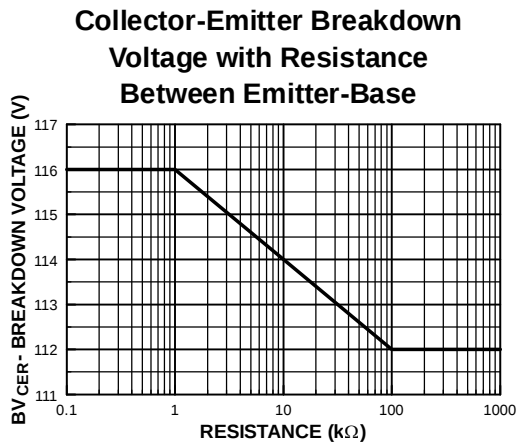


Figure 7. Collector-Emitter Breakdown Voltage with Resistance Between Emitter-Base

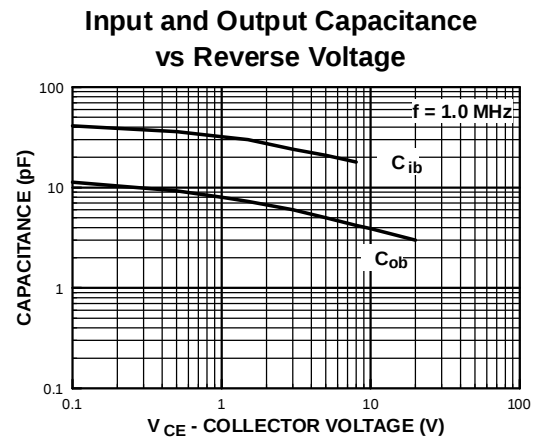


Figure 8. Input and Output Capacitance vs Reverse Voltage

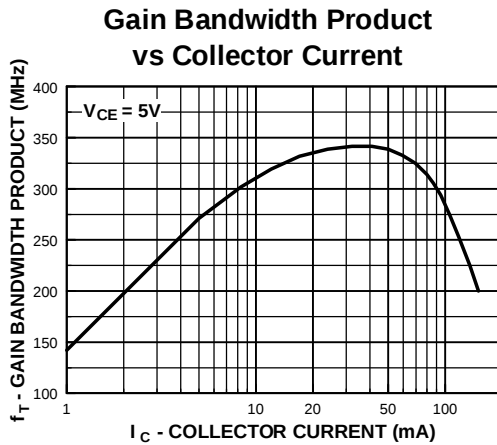


Figure 9. Gain Bandwidth Product vs Collector Current

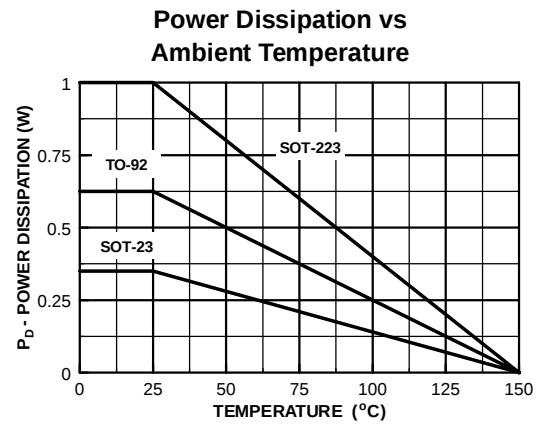


Figure 10. Power Dissipation vs Ambient Temperature



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