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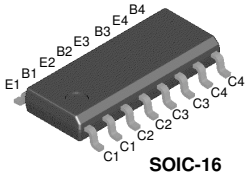
MMPQ2222

NPN Multi-Chip General Purpose Amplifier

- This device is for use as a medium power amplifier and switch requiring collector currents up to 500mA.
- Sourced from process 19.



SOIC-16
Mark: MMPQ2222

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

Symbol	Parameter	Value	Units
V_{CEO}	Collector-Emitter Voltage	30	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current - Continuous	500	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	- 55 ~ +155	°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

Electrical Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
Off Characteristics					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage *	I_C = 10mA, I_B = 0	30		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	I_C = 10μA, I_E = 0	60		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_C = 10μA, I_C = 0	5.0		V
I_{CBO}	Collector Cutoff Current	V_{CB} = 50V, I_E = 0		50	nA
I_{EBO}	Emitter Cutoff Current	V_{EB}= 3.0V, I_C = 0		50	nA
On Characteristics *					
h_{FE}	DC Current Gain	I_C = 10mA, V_{CE} = 10V I_C = 150mA, V_{CE} = 1.0V * I_C = 150mA, V_{CE} = 1.0V *	75 100 50		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage *	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA		0.4 1.6	V V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage *	I_C = 150mA, I_B = 15mA I_C = 500mA, I_B = 50mA		1.3 2.6	V V
Small Signal Characteristics					
f_T	Current GAin Bandwidth Product	I_C = 20mA, V_{CE} = 20V, f = 100MHz		300	MHz
C_{obo}	Output Capacitance	V_{CB} = 10V, I_E = 0, f = 100kHz		4.0	pF
C_{ibo}	Input Capacitance	V_{EB} = 0.5V, I_E = 0, f = 100kHz		20	pF
NF	Noise Figure	I_C = 100μA, V_{CE} = 10V, R_S = 1.0kΩ, f = 1.0kHz		2.0	dB

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

Thermal Characteristics T_a=25°C unless otherwise noted

Symbol	Parameter	Max.	Units
P_D	Total Device Dissipation Derate above 25°C	1000 8.0	mW mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	 125 240	 °C/W °C/W

Typical Characteristics

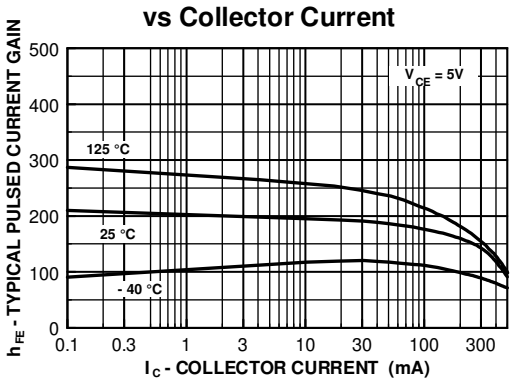


Figure 1. Typical Pulsed Current Gain vs Collector Current

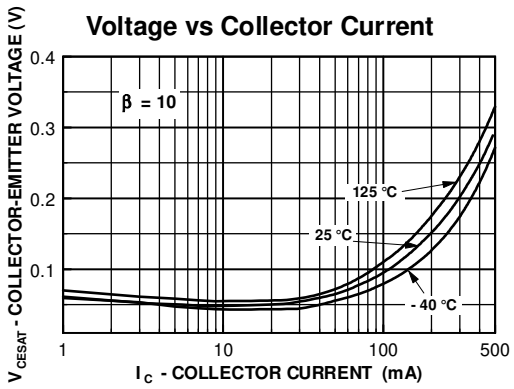


Figure 2. Collector-Emitter Saturation Voltage vs Collector Current

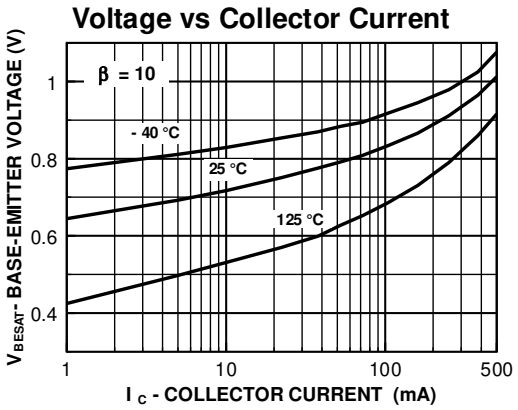


Figure 3. Base-Emitter Saturation Voltage vs Collector Current

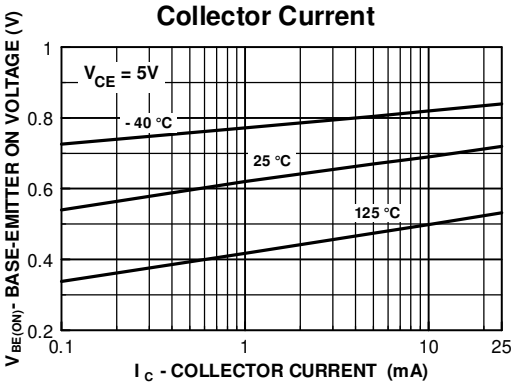


Figure 4. Base-Emitter On Voltage vs Collector Current

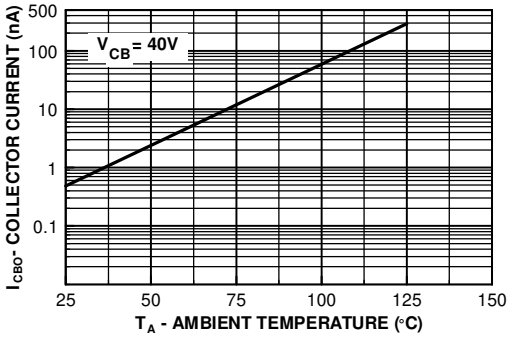


Figure 5. Collector Cutoff Current vs Ambient Temperature

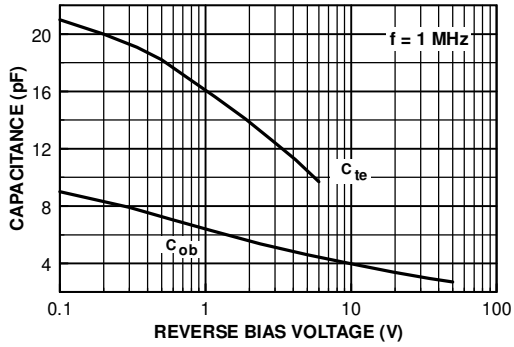


Figure 6. Emitter Transition and Output Capacitance vs Reverse Bias Voltage

Typical Characteristics (Continued)

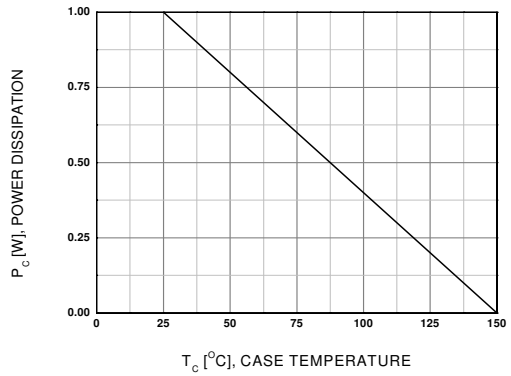


Figure 7. Power Dissipation vs Ambient Temperature

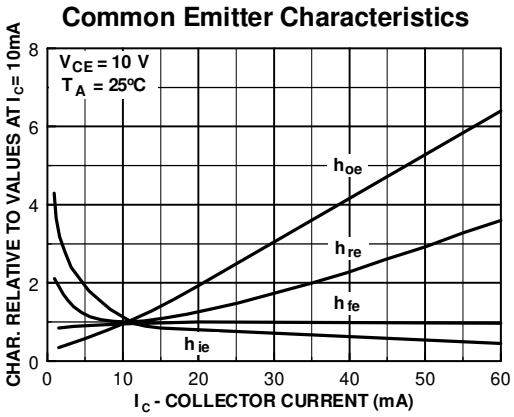


Figure 8. Common Emitter Characteristics

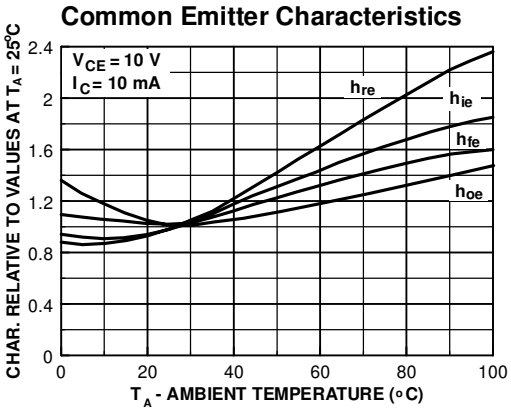


Figure 9. Common Emitter Characteristics

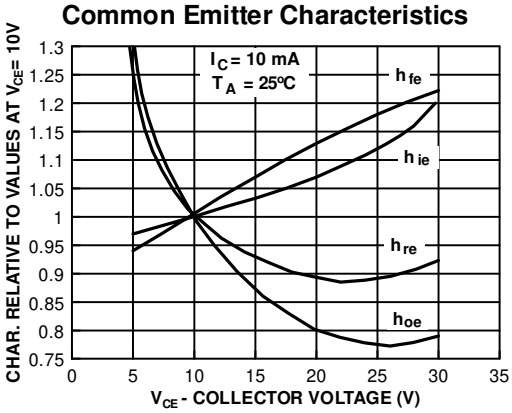


Figure 10. Common Emitter Characteristics

Test Circuit

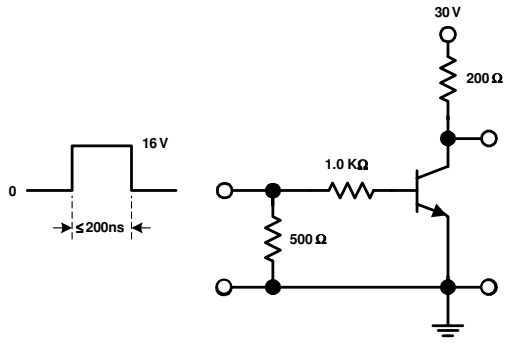


Figure 1. Saturated Turn-On Switching Time

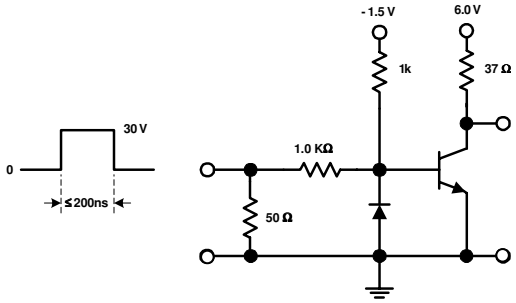
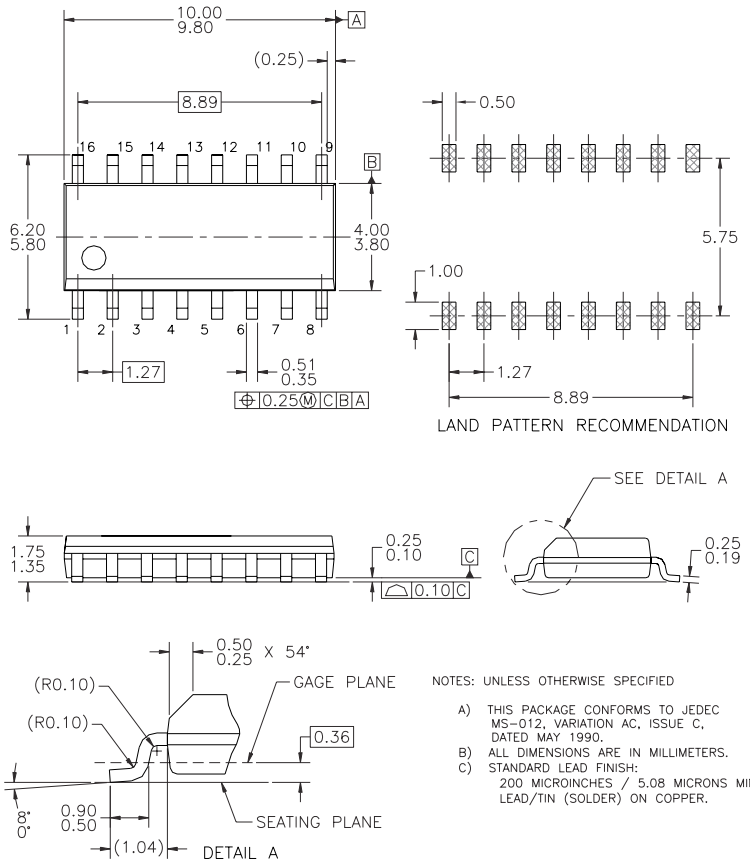


Figure 2. Saturated Turn-Off Switching Time

Package Dimensions

SOIC-16



NOTES: UNLESS OTHERWISE SPECIFIED

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C) STANDARD LEAD FINISH: 200 MICROINCHES / 5.08 MICRONS MIN. LEAD/TIN (SOLDER) ON COPPER.

Dimensions in Millimeters

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