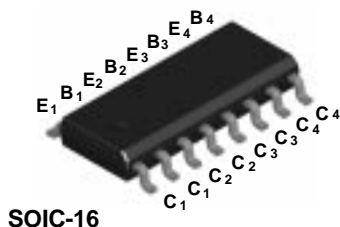


# MMPQ6700



SOIC-16

## Quad NPN & PNP General Purpose Amplifier

These complimentary devices can be used in switches with collector currents of 10  $\mu$ A to 100 mA. These devices are best used when space is the primary consideration. Sourced from Process 23 & 66. See 2N3904 (NPN) & 2N3906 (PNP) for characteristics.

### Absolute Maximum Ratings\*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
V <sub>CEO</sub>	Collector-Emitter Voltage	40	V
V <sub>CBO</sub>	Collector-Base Voltage	40	V
V <sub>EBO</sub>	Emitter-Base Voltage	5.0	V
I <sub>C</sub>	Collector Current - Continuous	200	mA
T <sub>J</sub> , T <sub>stg</sub>	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

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		MMPQ6700	
P <sub>D</sub>	Total Device Dissipation Derate above 25°C	1000 8.0	mW mW/°C
R <sub>θJA</sub>	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	125 240	°C/W °C/W

Quad NPN & PNP General Purpose Amplifier  
(continued)

Electrical Characteristics TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
OFF CHARACTERISTICS					
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10\text{ mA}, I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\text{ }\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\text{ }\mu\text{A}, I_C = 0$	5.0		V
$I_{CBO}$	Collector-Cutoff Current	$V_{CB} = 30\text{ V}, I_E = 0$		50	nA
$I_{EBO}$	Emitter-Cutoff Current	$V_{EB} = 4.0\text{ V}, I_C = 0$		50	nA
ON CHARACTERISTICS*					
$h_{FE}$	DC Current Gain	$V_{CE} = 1.0\text{ V}, I_C = 0.1\text{ mA}$ $V_{CE} = 1.0\text{ V}, I_C = 1.0\text{ mA}$ $V_{CE} = 1.0\text{ V}, I_C = 10\text{ mA}$	30 50 70		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 1.0\text{ mA}$		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10\text{ mA}, I_B = 1.0\text{ mA}$		0.90	V
SMALL SIGNAL CHARACTERISTICS					
$C_{ob}$	Output Capacitance	$V_{CB} = 5.0\text{ V}, f = 100\text{ kHz}$		4.5	pF
$C_{ib}$	Input Capacitance	$V_{BE} = 0.5\text{ V}, f = 1.0\text{ kHz}$		10	pF
$f_T$	Current-Gain Bandwidth Product	$I_C = 10\text{ mA}, V_{CE} = 20\text{ V}, f = 100\text{ MHz}$	200		MHz

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

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FACT Quiet Series™	Quiet Series™
FAST®	SuperSOT™-3
FASTr™	SuperSOT™-6
GTO™	SuperSOT™-8
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### Definition of Terms

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