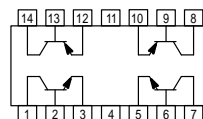
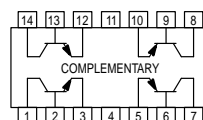


Quad Complementary Pair Transistors

NPN/PNP Silicon



MPQ6100A
TYPE A

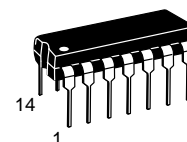


MPQ6600A1
TYPE B

MPQ6100A
MPQ6600A1*

Voltage and Current are negative
for PNP Transistors

*Motorola Preferred Device



CASE 646-06, STYLE 1
TO-116

MAXIMUM RATINGS

Rating	Symbol	MPQ6100A MPQ6600A1		Unit
Collector-Emitter Voltage	V_{CEO}	45		Vdc
Collector-Base Voltage	V_{CBO}	60		Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current — Continuous	I_C	50		mAdc
		Each Transistor	Four Transistors Equal Power	
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	500 4.0	900 7.2	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	0.825 6.7	2.4 19.2	Watts mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic		Junction to Case	Junction to Ambient	Unit
Thermal Resistance ⁽¹⁾	Each Die	151	250	$^\circ\text{C/W}$
	Effective, 4 Die	52	139	$^\circ\text{C/W}$
Coupling Factors	Q1-Q4 or Q2-Q3	34	70	%
	Q1-Q2 or Q3-Q4	2.0	26	%

1. $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.

Preferred devices are Motorola recommended choices for future use and best overall value.

MPQ6100A MPQ6600A1

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage ⁽²⁾ (I _C = 10 mA, I _B = 0)	V _{(BR)CEO}	45	—	—	Vdc
Collector–Base Breakdown Voltage (I _C = 10 μA, I _E = 0)	V _{(BR)CBO}	60	—	—	Vdc
Emitter–Base Breakdown Voltage (I _E = 10 μA, I _C = 0)	V _{(BR)EBO}	5.0	—	—	Vdc
Collector Cutoff Current (V _{CB} = 50 Vdc, I _E = 0)	I _{CBO}	—	—	10	nA

ON CHARACTERISTICS⁽²⁾

DC Current Gain (I _C = 100 μA, V _{CE} = 5.0 Vdc) (I _C = 500 μA, V _{CE} = 5.0 Vdc) (I _C = 1.0 mA, V _{CE} = 5.0 Vdc) (I _C = 10 mA, V _{CE} = 5.0 Vdc)	MPQ6100A, 6600A1 MPQ6100A, 6600A1 MPQ6100A, 6600A1 MPQ6100A, 6600A1	h _{FE}	100 150 150 125	— — — —	— — — —
Collector–Emitter Saturation Voltage (I _C = 1.0 mA, I _B = 100 μA)		V _{CE(sat)}	—	—	0.25 Vdc
Base–Emitter Saturation Voltage (I _C = 1.0 mA, I _B = 100 μA)		V _{BE(sat)}	—	—	0.8 Vdc

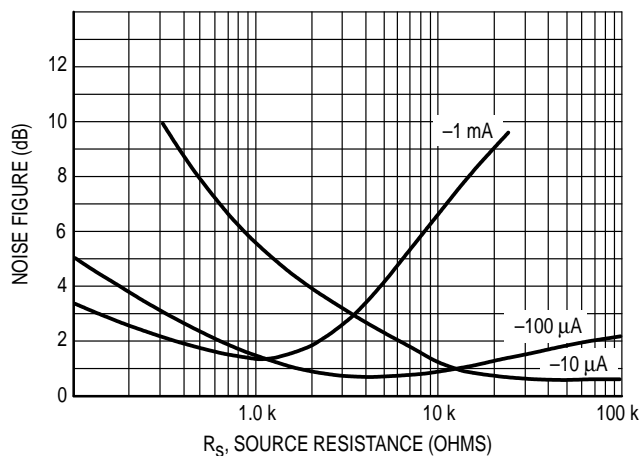
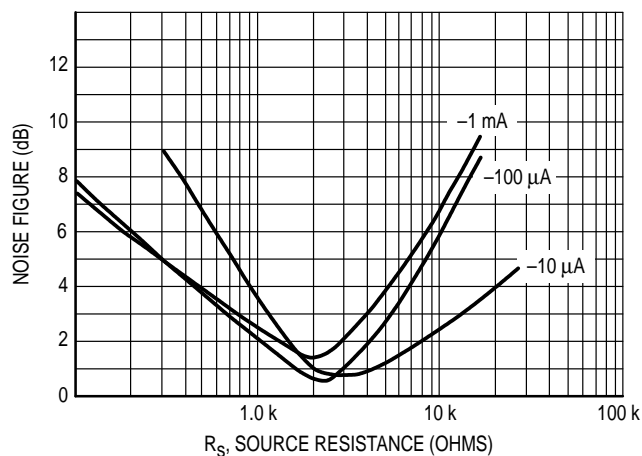
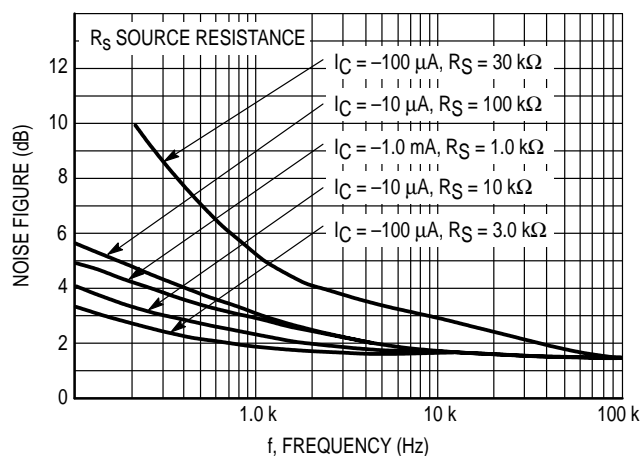
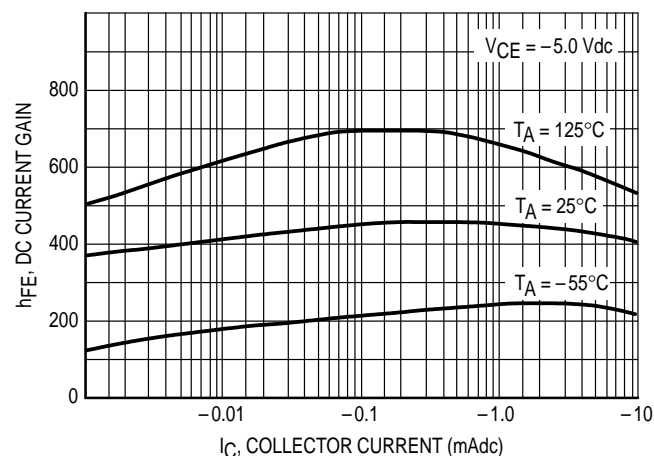
SMALL–SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product (I _C = 500 μA, V _{CE} = 5.0 Vdc, f = 20 MHz)		f _T	50	—	— MHz
Output Capacitance (V _{CB} = 5.0 Vdc, I _E = 0, f = 1.0 MHz)	PNP NPN	C _{obo}	— —	1.2 1.8	4.0 4.0 pF
Input Capacitance (V _{EB} = 0.5 Vdc, I _C = 0, f = 1.0 MHz)	PNP NPN	C _{ibo}	— —	— —	8.0 8.0 pF
Noise Figure (I _C = 100 μA, V _{CE} = 5.0 Vdc, R _S = 10 kΩ, f = 1.0 kHz, BW = 10 kHz)		NF	—	4.0	— dB

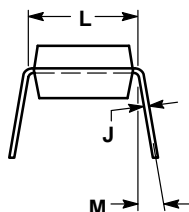
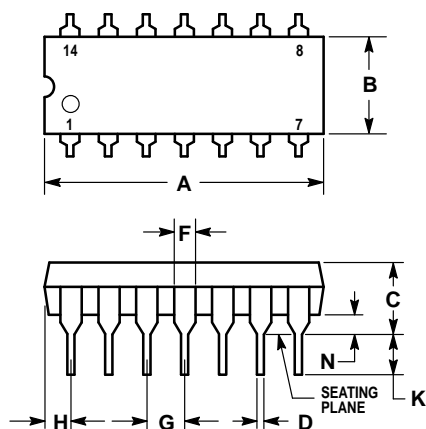
MATCHING CHARACTERISTICS (MPQ6600A1 ONLY)

DC Current Gain Ratio (I _C = 100 μA, V _{CE} = 5.0 Vdc)		h _{FE1} /h _{FE2}	0.8	—	1.0
Base–Emitter Voltage Differential (I _C = 100 μA, V _{CE} = 5.0 Vdc)		V _{BE1} –V _{BE2}	—	—	20 mVdc

2. Pulse Test: Pulse Width ≤ 300 μs; Duty Cycle ≤ 2.0%.

SPOT NOISE FIGURE $(V_{CE} = 10 \text{ Vdc}, T_A = 25^\circ\text{C})$ **Figure 1. Source Resistance Effects, $f = 1.0 \text{ kHz}$** **Figure 2. Source Resistance Effects, $f = 10 \text{ Hz}$** **Figure 3. Frequency Effects****Figure 4. Typical Current Gain Characteristics**

PACKAGE DIMENSIONS



STYLE 1:


- PIN 1. COLLECTOR
 2. BASE
 3. EMITTER
 4. NO CONNECTION
 5. EMITTER
 6. BASE
 7. COLLECTOR
 8. COLLECTOR
 9. BASE
 10. EMITTER
 11. NO CONNECTION
 12. EMITTER
 13. BASE
 14. COLLECTOR

NOTES:

- LEADS WITHIN 0.13 (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
- DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
- DIMENSION B DOES NOT INCLUDE MOLD FLASH.
- ROUNDED CORNERS OPTIONAL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.715	0.770	18.16	19.56
B	0.240	0.260	6.10	6.60
C	0.145	0.185	3.69	4.69
D	0.015	0.021	0.38	0.53
F	0.040	0.070	1.02	1.78
G	0.100 BSC		2.54 BSC	
H	0.052	0.095	1.32	2.41
J	0.008	0.015	0.20	0.38
K	0.115	0.135	2.92	3.43
L	0.300 BSC		7.62 BSC	
M	0°	10°	0°	10°
N	0.015	0.039	0.39	1.01

**CASE 646-06
 TO-116
 ISSUE M**

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