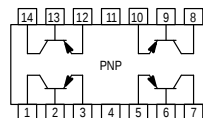


Quad Amplifier Transistors

PNP Silicon

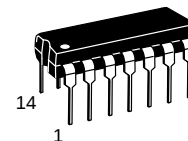


MPQ3798
MPQ3799*

*Motorola Preferred Device

MAXIMUM RATINGS

Rating	Symbol	MPQ3798	MPQ3799	Unit
Collector–Emitter Voltage	V_{CEO}	–40	–60	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 @ $T_A = 25^\circ\text{C}$ (1) Derate above 25°C	P_D	0.5 4.0	0.9 7.2	Watts 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 m/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150		$^\circ\text{C}$



CASE 646–06, STYLE 1
TO–116

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage(2) ($I_C = -10 \text{ mAdc}$, $I_B = 0$)	MPQ3798 MPQ3799	$V_{(BR)CEO}$	–40 –60	— —	— —	Vdc
Collector–Base Breakdown Voltage ($I_C = -10 \mu\text{Adc}$, $I_E = 0$)		$V_{(BR)CBO}$	–60	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10 \mu\text{Adc}$, $I_C = 0$)		$V_{(BR)EBO}$	–5.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = -50 \text{ Vdc}$, $I_E = 0$)		I_{CBO}	—	—	–10	nAdc
Emitter Cutoff Current ($V_{EB} = -3.0 \text{ Vdc}$, $I_C = 0$)		I_{EBO}	—	—	–20	nAdc

- Second breakdown occurs at power levels greater than 3 times the power dissipation rating.
- Pulse Test: Pulse Width $\leq 300 \mu\text{s}$; Duty Cycle $\leq 2.0\%$.

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

MPQ3798 MPQ3799**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS					
DC Current Gain ($I_C = -10\ \mu\text{Adc}$, $V_{CE} = -5.0\ \text{Vdc}$)	h_{FE}	100	—	—	—
MPQ3798		225	—	—	
MPQ3799					
($I_C = -100\ \mu\text{Adc}$, $V_{CE} = -5.0\ \text{Vdc}$)		150	—	—	
MPQ3798		300	—	—	
MPQ3799					
($I_C = -500\ \mu\text{Adc}$, $V_{CE} = -5.0\ \text{Vdc}$)		150	—	—	
MPQ3798		300	—	—	
MPQ3799					
($I_C = -10\ \text{mAdc}$, $V_{CE} = -5.0\ \text{Vdc}$)		125	—	—	
MPQ3798		250	—	—	
MPQ3799					
Collector–Emitter Saturation Voltage ($I_C = -100\ \mu\text{Adc}$, $I_B = -10\ \mu\text{Adc}$) ($I_C = -1.0\ \text{mAdc}$, $I_B = -100\ \mu\text{Adc}$)	$V_{CE(\text{sat})}$	— —	–0.12 –0.07	–0.2 –0.25	Vdc
Base–Emitter Saturation Voltage ($I_C = -100\ \mu\text{Adc}$, $I_B = -10\ \mu\text{Adc}$) ($I_C = -1.0\ \text{mAdc}$, $I_B = -100\ \mu\text{Adc}$)	$V_{BE(\text{sat})}$	— —	–0.62 –0.68	–0.7 –0.8	Vdc
SMALL–SIGNAL CHARACTERISTICS					
Current–Gain — Bandwidth Product ($I_C = -1.0\ \text{mAdc}$, $V_{CE} = -5.0\ \text{Vdc}$, $f = 100\ \text{MHz}$)	f_T	60	250	—	MHz
Output Capacitance ($V_{CB} = -5.0\ \text{Vdc}$, $I_E = 0$, $f = 1.0\ \text{MHz}$)	C_{obo}	—	2.1	4.0	pF
Input Capacitance ($V_{EB} = -0.5\ \text{Vdc}$, $I_C = 0$, $f = 1.0\ \text{MHz}$)	C_{ibo}	—	5.5	8.0	pF
Noise Figure ($I_C = -100\ \mu\text{Adc}$, $V_{CE} = -10\ \text{Vdc}$, $R_S = 3.0\ \text{k ohms}$, $f = 1.0\ \text{kHz}$)	NF	—	2.5	—	dB
MPQ3798 MPQ3799		—	1.5	—	

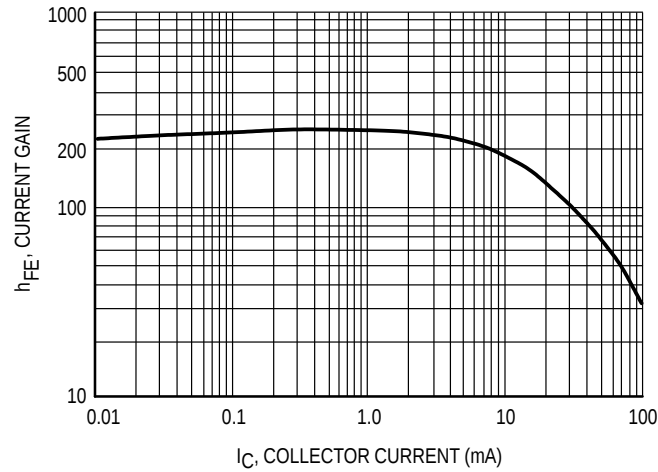


Figure 1. DC Current Gain versus Collector Current

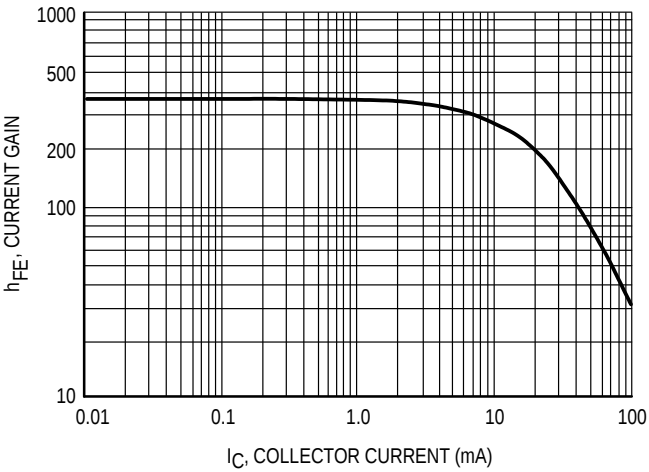


Figure 2. DC Current Gain versus Collector Current

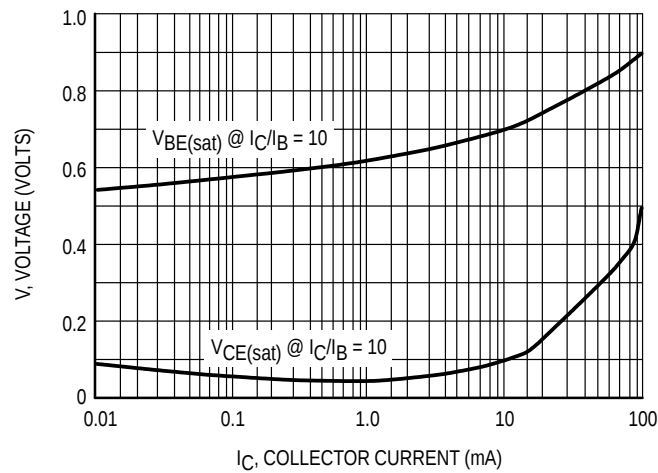


Figure 3. "ON" Voltages

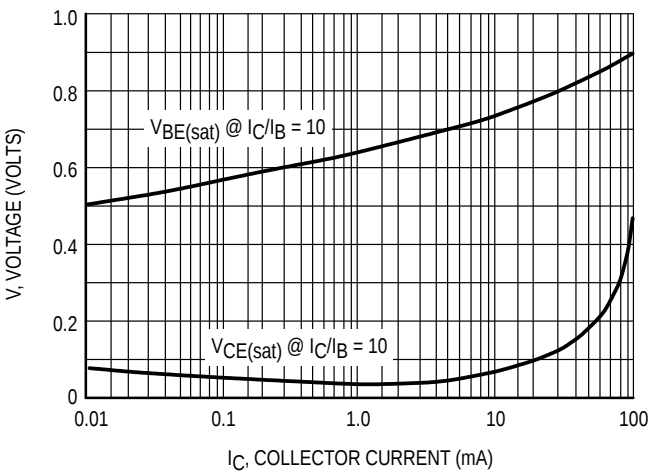
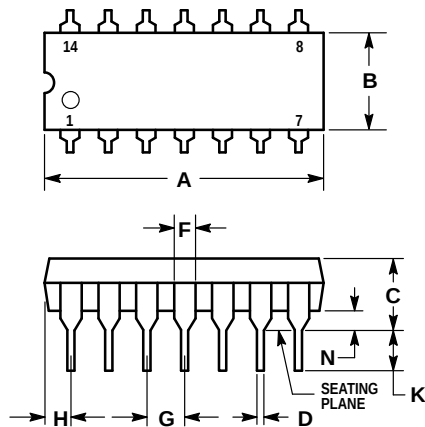


Figure 4. "ON" Voltages

PACKAGE DIMENSIONS



NOTES:

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

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

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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