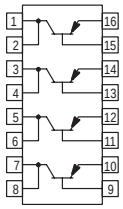
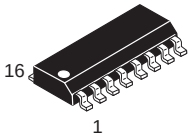
Quad Amplifier/Switch Transistor

PNP Silicon



MMPQ3906

Motorola Preferred Device



CASE 751B–05, STYLE 4
SO–16

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector–Emitter Voltage	V_{CEO}	–40		Vdc
Collector–Base Voltage	V_{CB}	–40		Vdc
Emitter–Base Voltage	V_{EB}	–5.0		Vdc
Collector Current — Continuous	I_C	–200		mAdc
		Each Transistor	**Four Transistors Equal Power**	
Power Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.4 3.2	800 6.4	mW mW/°C
Power Dissipation @ T_C = 25°C Derate above 25°C	P_D	0.66 5.3	1.92 15.4	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150		°C

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector–Emitter Breakdown Voltage(1) (I_C = –1.0 mAdc, I_B = 0)	$V_{(BR)CEO}$	–40	—	—	Vdc
Collector–Base Breakdown Voltage (I_C = –10 μAdc, I_E = 0)	$V_{(BR)CBO}$	–40	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E = –10 μAdc, I_C = 0)	$V_{(BR)EBO}$	–5.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = –30 Vdc, I_E = 0)	I_{CBO}	—	—	–50	nAdc
Emitter Cutoff Current (V_{EB} = –4.0 Vdc, I_C = 0)	I_{EBO}	—	—	–50	nAdc

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

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

REV 1

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS(1)					
DC Current Gain (I_C = –0.1 mAdc, V_{CE} = –1.0 Vdc) (I_C = –1.0 mAdc, V_{CE} = –1.0 Vdc) (I_C = –10 mAdc, V_{CE} = –1.0 Vdc)	h_{FE}	 40 60 75	 160 180 200	 — — —	—
Collector–Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –1.0 mAdc)	$V_{CE(sat)}$	—	–0.1	–0.25	Vdc
Base–Emitter Saturation Voltage (I_C = –10 mAdc, I_B = –1.0 mAdc)	$V_{BE(sat)}$	—	–0.65	–0.85	Vdc
DYNAMIC CHARACTERISTICS					
Current–Gain — Bandwidth Product (I_C = –10 mAdc, V_{CE} = –20 Vdc, f = 100 MHz)	f_T	200	250	—	MHz
Output Capacitance (V_{CB} = –5.0 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	—	3.3	4.5	pF
Input Capacitance (V_{EB} = –0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ib}	—	4.8	10	pF
SWITCHING CHARACTERISTICS					
Turn–On Time (I_C = –10 mAdc, $V_{BE(off)}$ = 0.5 Vdc, I_{B1} = –1.0 mAdc)	t_{on}	—	43	—	ns
Turn–Off Time (I_C = –10 mAdc, I_{B1} = I_{B2} = –1.0 mAdc)	t_{off}	—	155	—	ns

1. Pulse Test: Pulse Width $\leq$ 300 μs; Duty Cycle $\leq$ 2.0%.