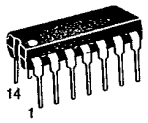
T-43-25

MPQ2906, 2907 For Specifications, See MHQ2906 Data.

MPQ3303

CASE 646-06, STYLE 1
TO-116



QUAD SWITCHING TRANSISTOR

NPN SILICON

5

MAXIMUM RATINGS

Rating	Symbol	Value		Unit
Collector-Emitter Voltage	V_{CEO}	12		Vdc
Collector-Base Voltage	V_{CBO}	25		Vdc
Emitter-Base Voltage	V_{EBO}	4.0		Vdc
Collector Current — Continuous	I_C	1.0		Adc
		Each Transistor	Four Transistors Equal Power	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	650 5.2	1250 10	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D'	1.0 8.0	3.0 24	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150		°C

THERMAL CHARACTERISTICS

Characteristic		Junction to Case	Junction to Ambient	Unit
Thermal Resistance	Each Die Effective, 4 Die	125 41.6	193* 100*	°C/W °C/W
Coupling Factors	Q1-Q4 or Q2-Q3 Q1-Q2 or Q3-Q4	30 2.0	60 25	% %

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	12	—	—	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	25	—	—	Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	4.0	—	—	Vdc
Collector Cutoff Current (V_{CE} = 15 Vdc, V_{BE} = 0)	I_{CES}	—	—	100	μAdc
ON CHARACTERISTICS					
DC Current Gain (I_C = 100 mAdc, V_{CE} = 0.5 Vdc) (I_C = 300 mAdc, V_{CE} = 0.5 Vdc)	h_{FE}	 30 40	 45 55	 — 200	—
Collector-Emitter Saturation Voltage (I_C = 300 mAdc, I_B = 30 mAdc) (I_C = 1.0 Adc, I_B = 0.1 Adc)	$V_{CE(sat)}$	 — —	 0.22 0.52	 0.33 0.7	Vdc
Base-Emitter Saturation Voltage (I_C = 300 mAdc, I_B = 30 mAdc) (I_C = 1.0 Adc, I_B = 0.1 Adc)	$V_{BE(sat)}$	 — —	 0.87 1.04	 1.1 1.4	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 100 mAdc, V_{CE} = 5.0 Vdc, f = 100 MHz)	f_T	400	500	—	MHz
Output Capacitance (V_{CB} = 5.0 Vdc, I_E = 0, f = 1 MHz)	C_{obo}	—	5.0	10	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 1 MHz)	C_{ibo}	—	22	30	pF
SWITCHING CHARACTERISTICS					
Turn-On Time (V_{CC} = 12 Vdc, I_C = 1.0 Adc, $V_{BE(off)}$ = 4.0 Vdc, I_{B1} = 100 mAdc)	t_{on}	—	12	15	ns
Turn-Off Time (V_{CC} = 12 Vdc, I_C = 1.0 Adc, I_{B1} = I_{B2} = 100 mAdc)	t_{off}	—	18	25	ns