MHQ4001A
MHQ4002A

CASE 632-02, STYLE 1
TO-116

QUAD
MEMORY DRIVER TRANSISTOR

NPN SILICON

5

Refer to MD3725 for graphs.

MAXIMUM RATINGS

Rating	Symbol	MHQ4001A	MHQ4002A	Unit
Collector-Emitter Voltage	V_{CEO}	40	45	Vdc
Collector-Emitter Voltage	V_{CES}	60	70	Vdc
Collector-Base Voltage	V_{CBO}	60	70	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current — Continuous	I_C	1.5		Adc
		Each Transistor	**Four Transistors Equal Power**	
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	750 4.3	2500 14.3	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.2 6.86	4.0 22.8	Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +200		°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 = 10 mAdc, I_B = 0)	MHQ4001A MHQ4002A	$V_{(BR)CEO}$	 40 45	 — —	 — —	Vdc
Collector-Emitter Breakdown Voltage (I_C = 10 μAdc, V_{BE} = 0)	MHQ4001A MHQ4002A	$V_{(BR)CES}$	 60 70	 — —	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 10 μAdc, I_E = 0)	MHQ4001A MHQ4002A	$V_{(BR)CBO}$	 60 70	 — —	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	6.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = 30 Vdc, I_E = 0)		I_{CBO}	—	—	500	nAdc
ON CHARACTERISTICS(1)						
DC Current Gain (I_C = 100 mAdc, V_{CE} = 1.0 Vdc) (I_C = 500 mAdc, V_{CE} = 1.0 Vdc) (I_C = 1.0 Adc, V_{CE} = 5.0 Vdc)		h_{FE}	50 30 20	100 60 45	250 — —	—
Collector-Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 Adc, I_B = 100 mAdc)		$V_{CE(sat)}$	— — —	0.14 0.23 0.36	0.26 0.52 0.95	Vdc
Base-Emitter Saturation Voltage (I_C = 100 mAdc, I_B = 10 mAdc) (I_C = 500 mAdc, I_B = 50 mAdc) (I_C = 1.0 Adc, I_B = 100 mAdc)		$V_{BE(sat)}$	— 0.8 —	0.75 0.88 1.0	0.86 1.1 1.7	Vdc
SMALL-SIGNAL CHARACTERISTICS						
Current-Gain — Bandwidth Product(1) (I_C = 50 mAdc, V_{CE} = 10 Vdc, f = 100 MHz)		f_T	200	275	—	MHz
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)		C_{obo}	—	5.0	10	pF
Input Capacitance (V_{BE} = 0.5 Vdc, I_C = 0, f = 100 kHz)		C_{ibo}	—	55	70	pF
SWITCHING CHARACTERISTICS						
Turn-On Time (V_{CC} = 30 Vdc, I_C = 0.5 Adc, V_{BE} = 3.8 Vdc, I_{B1} = 50 mAdc)		t_{on}	—	30	40	ns
Turn-Off Time (V_{CC} = 30 Vdc, I_C = 0.5 Adc, I_{B1} = I_{B2} = 50 mAdc)		t_{off}	—	60	75	ns

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.