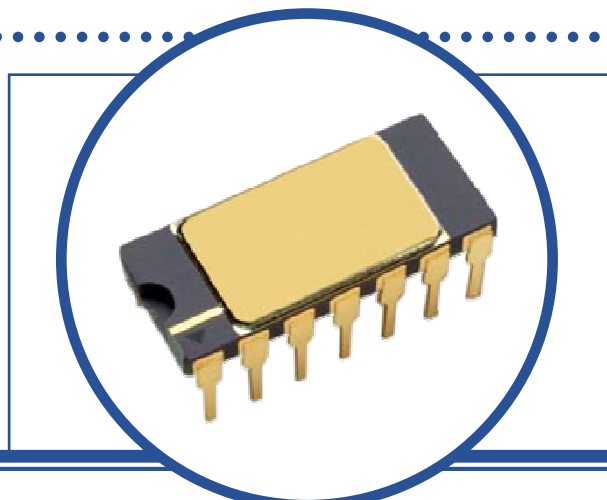


# QUAD COMPLIMENTARY TRANSISTORS

## MHQ6002

- High Speed Saturated Switching
- Hermetic Ceramic Dual In Line Package.
- Ideally suited for High Speed Switching and General Purpose Applications
- Screening Options Available



### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise stated)

		Per Device	Total Package
V <sub>CBO</sub>	Collector – Base Voltage	60V	
V <sub>CEO</sub>	Collector – Emitter Voltage	30V	
V <sub>EBO</sub>	Emitter – Base Voltage	5V	
I <sub>C</sub>	Continuous Collector Current	500mA	
P <sub>D</sub>	Total Power Dissipation at T <sub>A</sub> = 25°C	650mW	1.9W
	Derate Above 25°C	3.71mW/°C	10.86mW/°C
T <sub>J</sub>	Junction Temperature Range	-65 to +200°C	
T <sub>stg</sub>	Storage Temperature Range	-65 to +200°C	

### THERMAL PROPERTIES (Each Device)

Symbol	Parameters	Max.	Units
R <sub>θJA</sub>	Thermal Resistance, Junction To Ambient	269.2	°C/W

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.



# QUAD COMPLIMENTARY TRANSISTORS MHQ6002

## ELECTRICAL CHARACTERISTICS (Each Device, $T_A = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 10\text{mA}$ $I_B = 0$	30			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$ $I_E = 0$	60			
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10\mu\text{A}$ $I_C = 0$	5			
$I_{CBO}$	Collector Cut-Off Current	$V_{CB} = 50\text{V}$ $I_E = 0$			20	nA
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = 3\text{V}$ $I_C = 0$			30	
$V_{CE(sat)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			0.4	V
		$I_C = 300\text{mA}$ $I_B = 30\text{mA}$			1.4	
$V_{BE(sat)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$			1.3	
		$I_C = 300\text{mA}$ $I_B = 30\text{mA}$			2	
$h_{FE}^{(1)}$	Forward-current transfer ratio	$I_C = 1.0\text{mA}$ $V_{CE} = 10\text{V}$	25			
		$I_C = 10\text{mA}$ $V_{CE} = 10\text{V}$	35			
		$I_C = 150\text{mA}$ $V_{CE} = 10\text{V}$	40			
		$I_C = 300\text{mA}$ $V_{CE} = 10\text{V}$	20			

## DYNAMIC CHARACTERISTICS

$f_T$	Transition Frequency	$I_C = 50\text{mA}$ $V_{CE} = 20\text{V}$ $f = 100\text{MHz}$			300		MHz
$C_{obo}$	Output Capacitance	$V_{CB} = -10\text{V}$ $I_E = 0$ $f = 1.0\text{MHz}$	NPN		6		pF
			PNP		4.5		
$C_{ibo}$	Input Capacitance	$V_{EB} = -2\text{V}$ $I_C = 0$ $f = 1.0\text{MHz}$	NPN		20		ns
			PNP		17		
$t_{on}$	Turn-On Time	$I_C = -150\text{mA}$ $V_{CC} = -30\text{V}$ $I_{B1} = -15\text{mA}$			30		ns
$t_{off}$	Turn-Off Time	$I_C = -150\text{mA}$ $V_{CC} = -30\text{V}$ $I_{B1} = -I_{B2} = -15\text{mA}$			225		

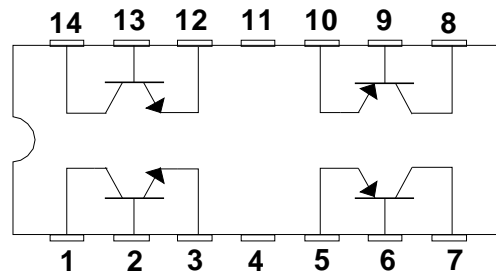
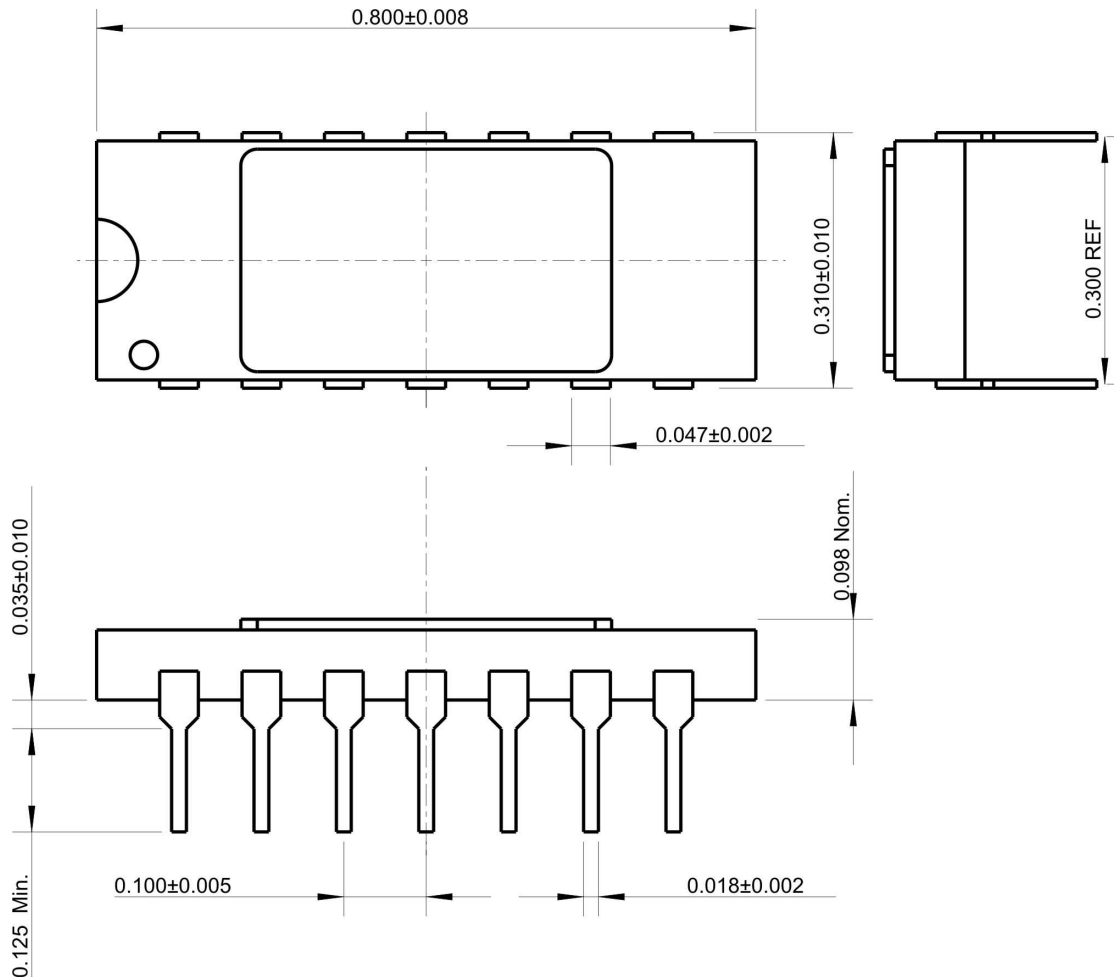
### Notes

(1) Pulse Width  $\leq 300\mu\text{s}$ ,  $\delta \leq 2\%$

# QUAD COMPLIMENTARY TRANSISTORS MHQ6002

## MECHANICAL DATA

Dimensions in inches



NPN	Pin 1 - Collector 1	Pin 14 - Collector 4
	Pin 2 - Base 1	Pin 13 - Base 4
	Pin 3 - Emitter 1	Pin 12 - Emitter 4
	Pin 4 - No Connection	Pin 11 - No Connection
PNP	Pin 5 - Emitter 2	Pin 10 - Emitter 3
	Pin 6 - Base 2	Pin 9 - Base 3
	Pin 7 - Collector 2	Pin 8 - Collector 3