

MHQ3546 (SILICON)

MPQ3546

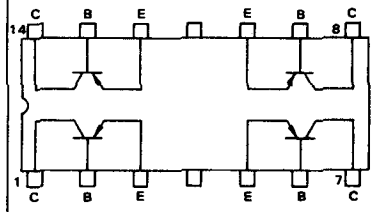
QUAD DUAL-IN-LINE PNP SILICON ANNULAR SWITCHING TRANSISTORS

... designed for low-level, high-speed switching applications.

- Choice of Ceramic or Plastic Package
- High Current-Gain-Bandwidth Product –
 $f_T = 1000 \text{ MHz (Typ) @ } I_C = 10 \text{ mAdc}$
- Fast Switching Times
 $t_{on} = 15 \text{ ns (Typ)}$
 $t_{off} = 25 \text{ ns (Typ)}$
- Transistor Similar to 2N3546
- TO-116 Packaging – Compact Size Compatible With IC
Automatic Insertion Equipment

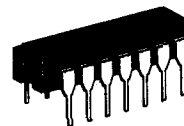
QUAD DUAL-IN-LINE PNP SILICON SWITCHING TRANSISTOR

CONNECTION DIAGRAM

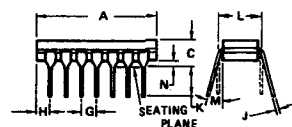
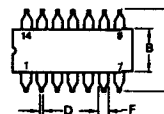


MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	12	Vdc
Collector-Base Voltage	V_{CB}	15	Vdc
Emitter-Base Voltage	V_{EB}	4.5	Vdc
Collector Current – Continuous	I_C	200	mAdc
		Each Transistor	Total Device
Total Device Dissipation @ $T_A = 25^\circ\text{C}$	P_D	0.5	1.5
Derate above 25°C	MHQ3546 MPQ3546	2.86 4.0	8.58 12
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200 -55 to +150	$^\circ\text{C}$



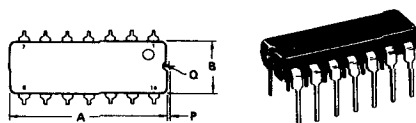
MHQ3546
CERAMIC
CASE 632-02
TO-116



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.8	19.9	0.660	0.785
B	5.59	7.11	0.220	0.280
C	—	5.08	—	0.200
D	0.381	0.504	0.015	0.020
E	0.77	1.27	0.030	0.050
F	2.54	—	0.100	—
G	0.203	0.381	0.008	0.015
H	—	1.27	—	0.050
I	—	1.27	—	0.050
J	—	1.27	—	0.050
K	—	1.27	—	0.050
L	—	1.27	—	0.050
M	—	1.27	—	0.050
N	—	1.27	—	0.050
O	—	1.27	—	0.050
P	—	1.27	—	0.050
Q	—	1.27	—	0.050
R	—	1.27	—	0.050
S	—	1.27	—	0.050
T	—	1.27	—	0.050
U	—	1.27	—	0.050
V	—	1.27	—	0.050
W	—	1.27	—	0.050
X	—	1.27	—	0.050
Y	—	1.27	—	0.050
Z	—	1.27	—	0.050

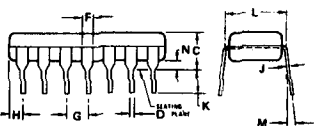
All JEDEC dimensions and notes apply.

NOTE:
DIMENSION "L" TO CENTER OF
LEADS WHEN FORMED PARALLEL.



MPQ3546

CASE 646
PLASTIC PACKAGE



NOTES:
1. LEADS WITHIN 0.13 mm (0.005) RADIUS OF TRUE POSITION AT SEATING PLANE AT MAXIMUM MATERIAL CONDITION.
2. DIMENSION "L" TO CENTER OF LEADS WHEN FORMED PARALLEL.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.16	18.80	0.715	0.740
B	6.10	6.80	0.240	0.260
C	4.96	4.57	0.190	0.180
D	0.38	0.51	0.015	0.020
E	1.02	1.52	0.040	0.060
F	2.54	—	0.100	—
G	0.203	0.381	0.008	0.015
H	—	1.27	—	0.050
I	—	1.27	—	0.050
J	—	1.27	—	0.050
K	—	1.27	—	0.050
L	—	1.27	—	0.050
M	—	1.27	—	0.050
N	—	1.27	—	0.050
O	—	1.27	—	0.050
P	—	1.27	—	0.050
Q	—	1.27	—	0.050
R	—	1.27	—	0.050
S	—	1.27	—	0.050
T	—	1.27	—	0.050
U	—	1.27	—	0.050
V	—	1.27	—	0.050
W	—	1.27	—	0.050
X	—	1.27	—	0.050
Y	—	1.27	—	0.050
Z	—	1.27	—	0.050

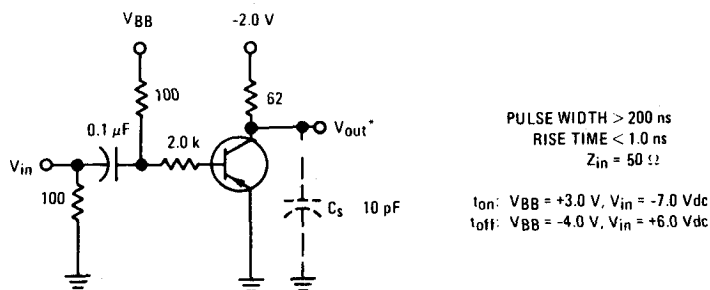
MHQ3546, MPQ3546 (continued)

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)	BV _{CEO}	12	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	BV _{CBO}	15	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	BV _{EBO}	4.5	—	—	Vdc
Collector Cutoff Current (V _{CB} = 10 Vdc, I _E = 0)	I _{CBO}	—	—	0.1	μAdc
Emitter Cutoff Current (V _{BE} = 3.0 Vdc, I _C = 0)	I _{EBO}	—	—	0.1	μAdc
ON CHARACTERISTICS					
DC Current Gain(1) (I _C = 10 mAdc, V _{CE} = 1.0 Vdc) (I _C = 100 mAdc, V _{CE} = 1.0 Vdc)	h _{FE}	30 15	— —	— —	—
Collector-Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc)	V _{CE(sat)}	—	—	0.25	Vdc
Base-Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc)	V _{BE(sat)}	—	—	0.9	Vdc
DYNAMIC CHARACTERISTICS					
Current-Gain-Bandwidth Product(1) (I _C = 10 mAdc, V _{CE} = 10 Vdc, f = 100 MHz)	f _T	600	1000	—	MHz
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 1.0 MHz)	C _{ob}	—	2.0	6.0	pF
Input Capacitance (V _{BE} = 0.5 Vdc, I _C = 0, f = 1.0 MHz)	C _{ib}	—	3.5	8.0	pF
SWITCHING CHARACTERISTICS (Figure 1)					
Turn-On Time (V _{CC} = 2.0 Vdc, V _{BE(off)} = 3.0 Vdc, I _C = 30 mAdc, I _{B1} = 1.5 mAdc)	t _{on}	—	15	—	ns
Turn-Off Time (V _{CC} = 2.0 Vdc, I _C = 30 mAdc, I _{B1} = I _{B2} = 1.5 mAdc)	t _{off}	—	25	—	ns

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle = 2%.

FIGURE 1 – SWITCHING TIME TEST CIRCUIT



* Oscilloscope Rise Time ≤ 1.0 ns