

Quad NPN and PNP General Purpose Amplifier

MMPQ6700

Description

These complementary devices can be used in switches with collector currents of 10 μ A to 100 mA. These devices are best used when space is the primary consideration. Sourced from process 23 and 66. See 2N3904 (NPN) and 2N3906 (PNP) for characteristics.

ABSOLUTE MAXIMUM RATINGS

($T_A = 25^\circ\text{C}$ unless otherwise noted.) (Notes 1, 2)

Symbol	Parameter	Value	Unit
V_{CEO}	Collector–Emitter Voltage	40	V
V_{CBO}	Collector–Base Voltage	40	V
V_{EBO}	Emitter–Base Voltage	5.0	V
I_C	Collector Current – Continuous	200	mA
T_J, T_{STG}	Operating and Storage Junction Temperature Range	–55 to 150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

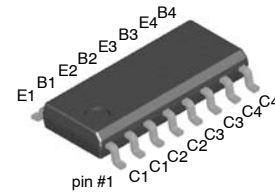
- These ratings are based on a maximum junction temperature of 150°C .
- These are steady-state limits. onsemi should be consulted on applications involving pulsed or low-duty-cycle operations.

THERMAL CHARACTERISTICS

($T_A = 25^\circ\text{C}$ unless otherwise noted.) (Note 3)

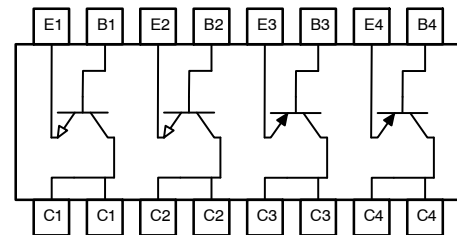
Symbol	Parameter	Max	Unit
P_D	Total Device Dissipation	1000	mW
	Derate Above 25°C	8.0	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to–Ambient	Effective 4 Dies	$^\circ\text{C/W}$
		Each Die	

- PCB size: FR–4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

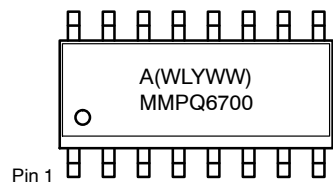


SOIC–16
CASE 751BG

INTERNAL CONNECTION



MARKING DIAGRAM



Pin 1

A = Assembly Site
 WL = Wafer Lot Number
 Y = Year of Production (Last Number)
 WW = Work Week
 MMPQ6700 = Specific Device Code

ORDERING INFORMATION

Device	Package	Shipping
MMPQ6700	SOIC–16 (Pb–Free, Halide Free)	2,500 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification Brochure, BRD8011/D.

MMPQ6700

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

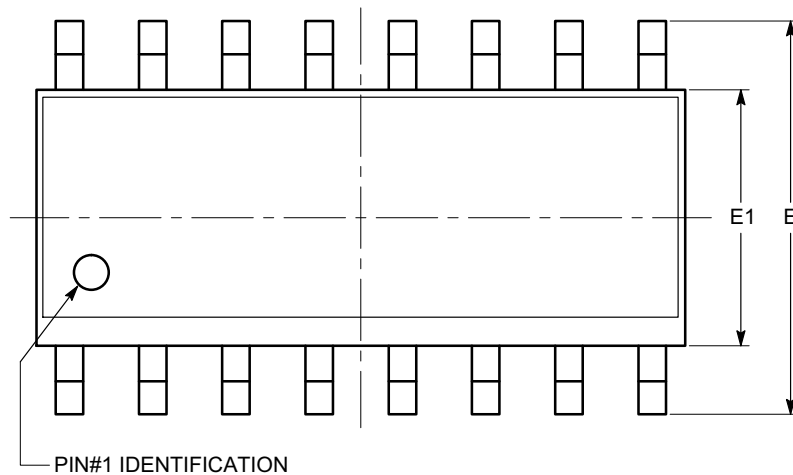
Symbol	Parameter	Test Conditions	Min	Max	Unit
BV _{CEO}	Collector–Emitter Breakdown Voltage (Note 4)	I _C = 10 mA, I _B = 0	40	–	V
BV _{CBO}	Collector–Base Breakdown Voltage	I _C = 10 μA, I _E = 0	40	–	V
BV _{EBO}	Emitter–Base Breakdown Voltage	I _E = 10 μA, I _C = 0	5.0	–	V
I _{CBO}	Collector Cut–Off Current	V _{CB} = 30 V, I _E = 0	–	50	nA
I _{EBO}	Emitter Cut–Off Current	V _{EB} = 4.0 V, I _C = 0	–	50	nA
h _{FE}	DC Current Gain (Note 4)	V _{CE} = 1.0 V, I _C = 0.1 mA	30	–	
		V _{CE} = 1.0 V, I _C = 1.0 mA	50	–	
		V _{CE} = 1.0 V, I _C = 10 mA	70	–	
V _{CE(sat)}	Collector–Emitter Saturation Voltage (Note 4)	I _C = 10 mA, I _B = 1.0 mA	–	0.25	V
V _{BE(sat)}	Base–Emitter Saturation Voltage (Note 4)	I _C = 10 mA, I _B = 1.0 mA	–	0.9	V
C _{ob}	Output Capacitance	V _{CB} = 5.0 V, f = 100 kHz	–	4.5	pF
C _{ib}	Input Capacitance	V _{BE} = 0.5 V, f = 100 kHz	–	10	pF
		PNP NPN	–	8.0	
f _T	Current Gain Bandwidth Product	I _C = 10 mA, V _{CE} = 20 V, f = 100 MHz	200	–	MHz

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

4. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

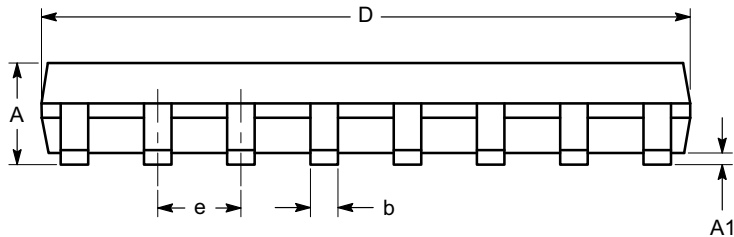
SOIC-16, 150 mils
CASE 751BG
ISSUE O

DATE 19 DEC 2008

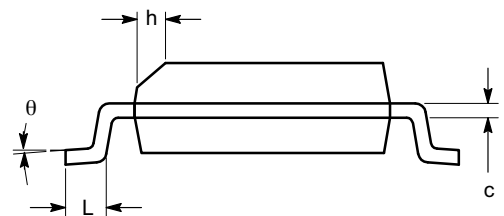


SYMBOL	MIN	NOM	MAX
A	1.35		1.75
A1	0.10		0.25
b	0.33		0.51
c	0.19		0.25
D	9.80	9.90	10.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27 BSC		
h	0.25		0.50
L	0.40		1.27
θ	0°		8°

TOP VIEW



SIDE VIEW



END VIEW

Notes:

- (1) All dimensions are in millimeters. Angles in degrees.
- (2) Complies with JEDEC MS-012.

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DESCRIPTION:	SOIC-16, 150 mils	PAGE 1 OF 1

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