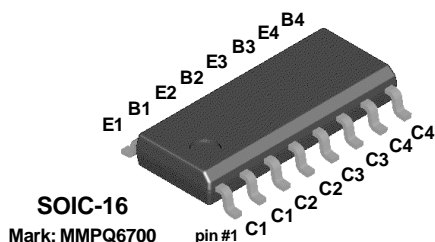


MMPQ6700



TRANSISTOR TYPE							
C1	B1	E1	&	C2	B2	E2	NPN
C3	B3	E3	&	C4	B4	E4	PNP

Quad NPN & PNP General Purpose Amplifier

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 & 66. See 2N3904 (NPN) & 2N3906 (PNP) for characteristics.

Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

Symbol	Parameter	Value	Units
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	°C

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
- 3) All voltages (V) and currents (A) are negative polarity for PNP transistors.

Thermal Characteristics

TA = 25°C unless otherwise noted

Symbol	Characteristic	Max	Units
		MMPQ6700	
P _D	Total Device Dissipation Derate above 25°C	1000	mW
		8.0	mW/°C
R _{θJA}	Thermal Resistance, Junction to Ambient Effective 4 Die Each Die	125	°C/W
		240	°C/W

Quad NPN & PNP General Purpose Amplifier (continued)

MMMPQ6700

Electrical Characteristics

TA = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Max	Units
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OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage*	$I_C = 10 \text{ mA}, I_B = 0$	40		V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = 10 \text{ }\mu\text{A}, I_E = 0$	40		V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = 10 \text{ }\mu\text{A}, I_C = 0$	5.0		V
I_{CBO}	Collector-Cutoff Current	$V_{CB} = 30 \text{ V}, I_E = 0$		50	nA
I_{EBO}	Emitter-Cutoff Current	$V_{EB} = 4.0 \text{ V}, I_C = 0$		50	nA

ON CHARACTERISTICS*

h_{FE}	DC Current Gain	$V_{CE} = 1.0 \text{ V}, I_C = 0.1 \text{ mA}$ $V_{CE} = 1.0 \text{ V}, I_C = 1.0 \text{ mA}$ $V_{CE} = 1.0 \text{ V}, I_C = 10 \text{ mA}$	30 50 70		
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$		0.25	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10 \text{ mA}, I_B = 1.0 \text{ mA}$		0.90	V

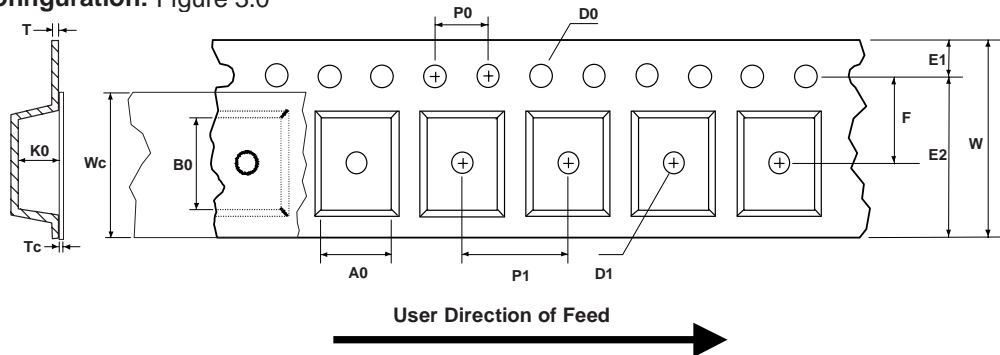
SMALL SIGNAL CHARACTERISTICS

C_{ob}	Output Capacitance	$V_{CB} = 5.0 \text{ V}, f = 100 \text{ kHz}$		4.5	pF
C_{ib}	Input Capacitance	$V_{BE} = 0.5 \text{ V}, f = 100 \text{ kHz}$ PNP $V_{BE} = 0.5 \text{ V}, f = 100 \text{ kHz}$ NPN		10 8.0	pF pF
f_T	Current-Gain Bandwidth Product	$I_C = 10 \text{ mA}, V_{CE} = 20 \text{ V},$ $f = 100 \text{ MHz}$	200		MHz

*Pulse Test: Pulse Width $\leq 300 \text{ }\mu\text{s}$, Duty Cycle $\leq 2.0\%$

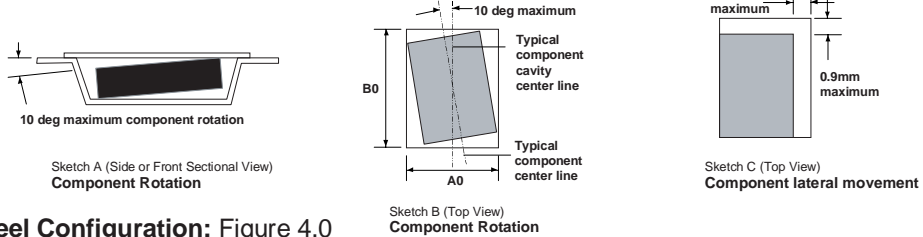
SOIC-16 Tape and Reel Data, continued

SOIC(16lds) Embossed Carrier Tape Configuration: Figure 3.0

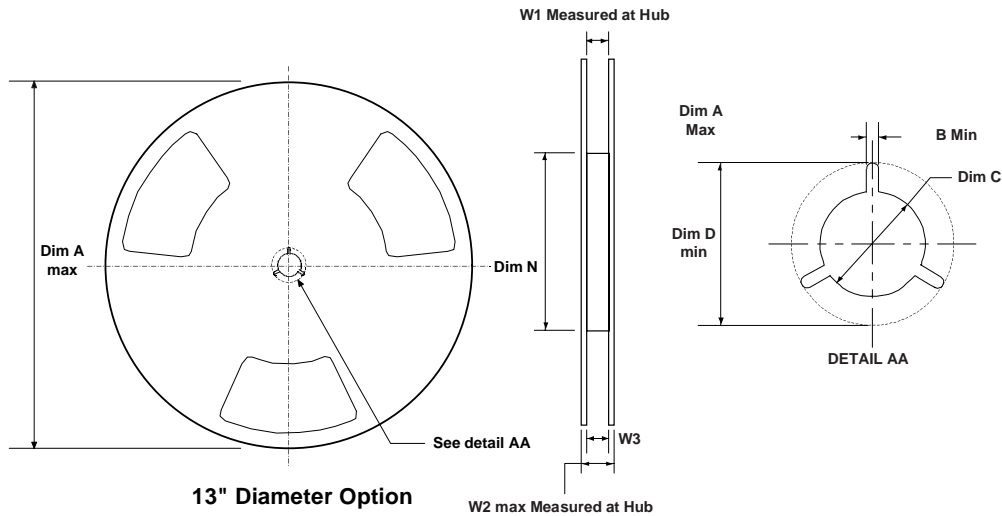


Dimensions are in millimeter														
Pkg type	A0	B0	W	D0	D1	E1	E2	F	P1	P0	K0	T	Wc	Tc
SOIC(16lds) (16mm)	6.60 +/-0.30	10.35 +/-0.25	16.0 +/-0.3	1.55 +/-0.05	1.60 +/-0.10	1.75 +/-0.10	14.25 min	7.50 +/-0.05	8.0 +/-0.1	4.0 +/-0.1	2.40 +/-0.40	0.450 +/-0.150	13.0 +/-0.3	0.06 +/-0.02

Notes: A0, B0, and K0 dimensions are determined with respect to the EIA/Jedec RS-481 rotational and lateral movement requirements (see sketches A, B, and C).



SOIC(16lds) Reel Configuration: Figure 4.0

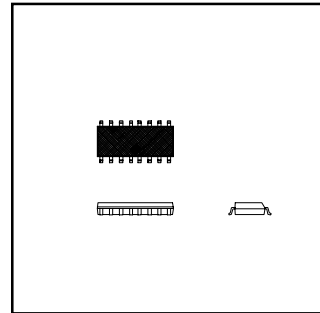
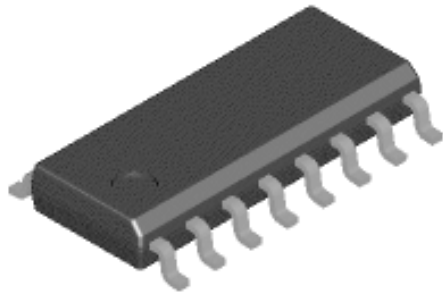


Dimensions are in inches and millimeters									
Tape Size	Reel Option	Dim A	Dim B	Dim C	Dim D	Dim N	Dim W1	Dim W2	Dim W3 (LSL-USL)
16mm	13" Dia	13.00 330	0.059 1.5	512 +0.020/-0.008 13 +0.5/-0.2	0.795 20.2	4.00 100	0.646 +0.078/-0.000 16.4 +2/0	0.882 22.4	0.626 - 0.764 15.9 - 19.4

SOIC-16 Package Dimensions



SOIC-16 (FS PKG Code S3)

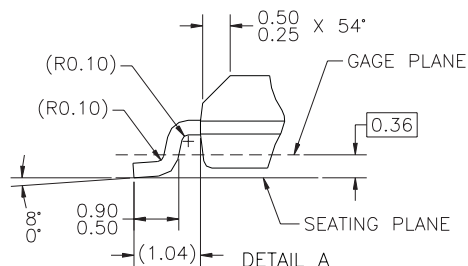
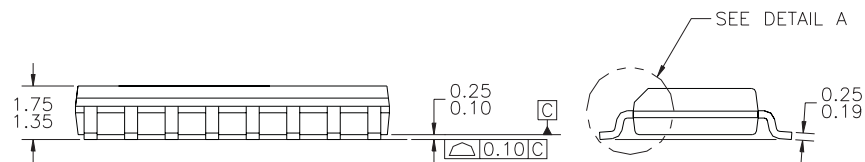
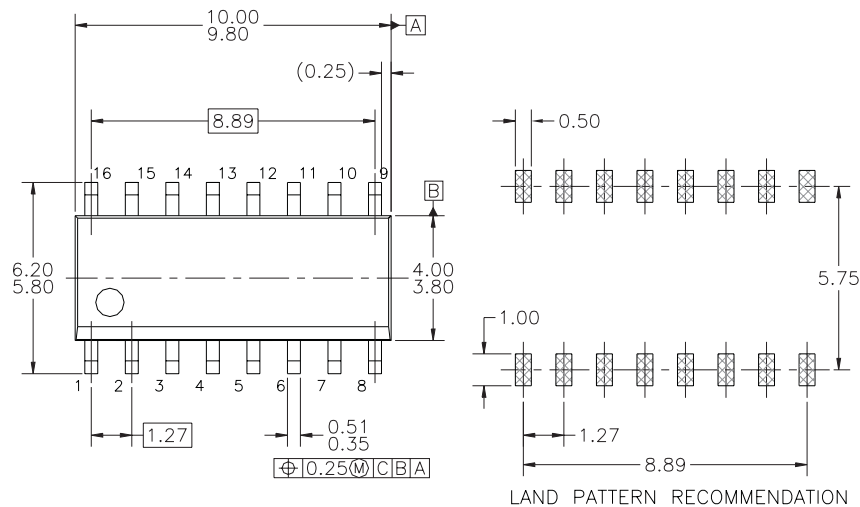


1:1

Scale 1:1 on letter size paper

Dimensions shown below are in:
inches [millimeters]

Part Weight per unit (gram): 0.1437



NOTES: UNLESS OTHERWISE SPECIFIED

- A) THIS PACKAGE CONFORMS TO JEDEC MS-012, VARIATION AC, ISSUE C, DATED MAY 1990.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) STANDARD LEAD FINISH:
200 MICRONS / 5.08 MICRONS MIN.
LEAD/TIN (SOLDER) ON COPPER.

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