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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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MMPQ3904
SURFACE MOUNT
NPN SILICON
QUAD TRANSISTORS



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR MMPQ3904, consisting of four transistors and available in the SOIC-16 surface mount package, is designed for general purpose amplifier and switching applications.

MARKING: FULL PART NUMBER



SOIC-16 CASE

MAXIMUM RATINGS: ($T_A=25^\circ\text{C}$)

Collector-Base Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance (Total Package)
Thermal Resistance (Each Transistor)

SYMBOL		UNITS
V_{CBO}	60	V
V_{CEO}	40	V
V_{EBO}	6.0	V
I_C	200	mA
P_D	1.0	W
T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
θ_{JA}	125	$^\circ\text{C/W}$
θ_{JA}	240	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

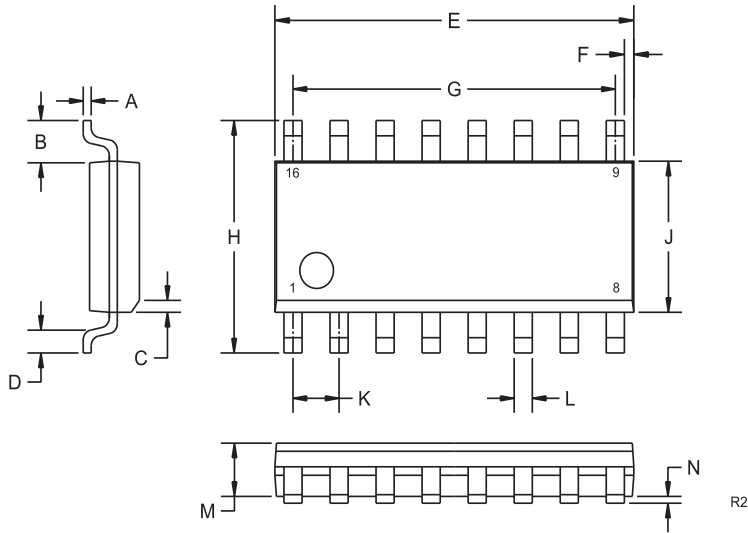
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
I_{CEV}	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$			50	nA
BV_{CBO}	$I_C=10\mu\text{A}$	60			V
BV_{CEO}	$I_C=1.0\text{mA}$	40			V
BV_{EBO}	$I_E=10\mu\text{A}$	6.0			V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$			0.20	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$			0.30	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65		0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$			0.95	V
h_{FE}	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100		300	
h_{FE}	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	60			
h_{FE}	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	30			
f_T	$V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$		450		MHz
C_{ib}	$V_{EB}=0.5\text{V}, f=1.0\text{MHz}$		6.0		pF
C_{ob}	$V_{CB}=5.0\text{V}, f=1.0\text{MHz}$		2.5		pF
NF	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{k}\Omega, f=1.0\text{Hz to } 15.7\text{kHz}$		2.0		dB
t_d	$V_{CC}=3.0\text{V}, V_{BE}=0.5\text{V}, I_C=10\text{mA}, I_{B1}=1.0\text{mA}$		18		ns
t_r	$V_{CC}=3.0\text{V}, V_{BE}=0.5\text{V}, I_C=10\text{mA}, I_{B1}=1.0\text{mA}$		20		ns
t_s	$V_{CC}=3.0\text{V}, I_C=10\text{mA}, I_{B1}=I_{B2}=1.0\text{mA}$		150		ns
t_f	$V_{CC}=3.0\text{V}, I_C=10\text{mA}, I_{B1}=I_{B2}=1.0\text{mA}$		25		ns

R2 (1-March 2010)

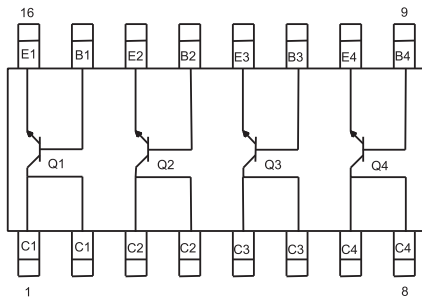
MMPQ3904
 SURFACE MOUNT
 NPN SILICON
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SOIC-16 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



MARKING: FULL PART NUMBER

SYMBOL	DIMENSIONS		DIMENSIONS	
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.007	0.010	0.19	0.25
B	0.041		1.04	
C	0.010	0.020	0.25	0.50
D	0.020	0.035	0.50	0.90
E	0.386	0.394	9.80	10.00
F	0.010		0.25	
G	0.350		8.89	
H	0.228	0.244	5.80	6.20
J	0.150	0.157	3.80	4.00
K	0.050		1.27	
L	0.0138	0.0201	0.35	0.51
M	0.0531	0.0689	1.35	1.75
N	0.0039	0.0098	0.10	0.25

SOIC-16 (REV:R2)

R2 (1-March 2010)