**MOTOROLA**
SEMICONDUCTOR TECHNICAL DATA

Low Voltage 16:1 Multiplexer

The MC100LVE164 is a 16:1 multiplexer with a differential output. The select inputs (SEL0, 1, 2, 3) control which one of the sixteen data inputs (A0 – A15) is propagated to the output. The device is functionally equivalent to the MC100E164 except it operates from a –3.3V supply. The device is packaged in the 32–lead TQFP. The TQFP has a 7x7mm body with a 0.8mm lead pitch.

Special attention to the design layout results in a typical skew between the 16 inputs of only 50ps.

- 850ps Data Input to Output
- Differential Output
- Extended 100E V_{EE} Range of –3.0V to –3.8V
- Internal 75kΩ Input Pulldown Resistors

MC100LVE164

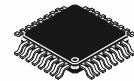**LOW VOLTAGE 16:1 MULTIPLEXER**

FA SUFFIX
TQFP PACKAGE
CASE 873A–02

Pinout: 32-Lead TQFP (Top View)
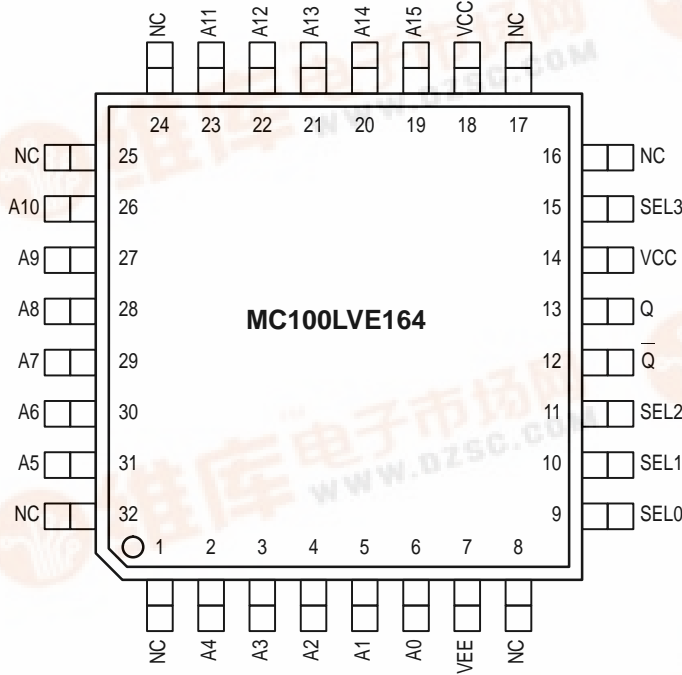
LOGIC DIAGRAM

PIN NAMES

Pin	Function
$A_0 - A_{15}$	Data Inputs
SEL[0:3]	Select Inputs
Q, Q̄	Output
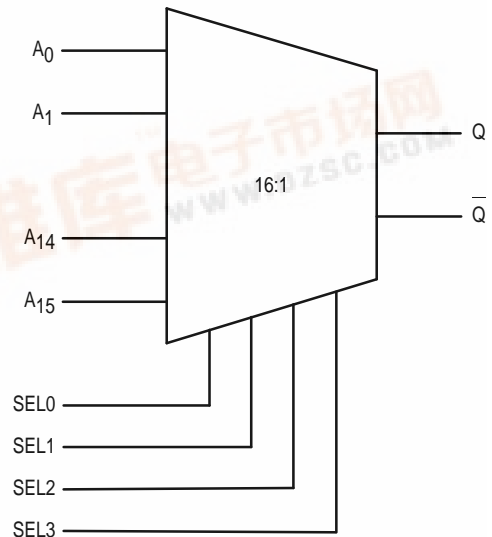
MC100LVE164

DC CHARACTERISTICS ($V_{EE} = V_{EE}$(min) to V_{EE}(max); $V_{CC} = V_{CCO} = $ GND)

Symbol	Characteristic	−40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{IH}	Input HIGH Current			150			150			150			150	μA
I_{EE}	Power Supply Current		34	45		34	45		35	45		37	45	mA

AC CHARACTERISTICS ($V_{EE} = V_{EE}$(min) to V_{EE}(max); $V_{CC} = V_{CCO} = $ GND)

| Symbol	Characteristic		−40°C			0°C			25°C			85°C			Unit
			Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH} t_{PHL}	Propagation Delay to Output	A Input	350	600	850	350	600	850	350	600	850	350	600	850	ps
		SEL0	500	700	900	500	700	900	500	700	900	500	700	900	
		SEL1	400	675	900	400	675	900	400	675	900	400	675	900	
		SEL2	400	675	900	400	675	900	400	675	900	400	675	900	
		SEL3	400	550	700	400	550	700	400	550	700	400	550	700	
t_{SKEW}	Within Device Skew[1]			75			75			50			50		ps
t_r t_f	Rise/Fall Times	20% – 80%	275	400	550	275	400	550	275	400	550	275	400	550	ps

1. Within Device skew is defined as the difference in the A to Q delay between the 16 different A inputs.

FUNCTION TABLE

SEL3	SEL2	SEL1	SEL0	Data
L	L	L	L	A0
L	L	L	H	A1
L	L	H	L	A2
L	L	H	H	A3
L	H	L	L	A4
L	H	L	H	A5
L	H	H	L	A6
L	H	H	H	A7
H	L	L	L	A8
H	L	L	H	A9
H	L	H	L	A10
H	L	H	H	A11
H	H	L	L	A12
H	H	L	H	A13
H	H	H	L	A14
H	H	H	H	A15

OUTLINE DIMENSIONS

FA SUFFIX
TQFP PACKAGE
CASE 873A-02
ISSUE A

DETAIL Y

DETAIL Y

DETAIL AD

DETAIL AD

SECTION AE–AE
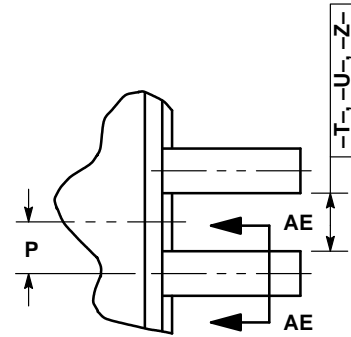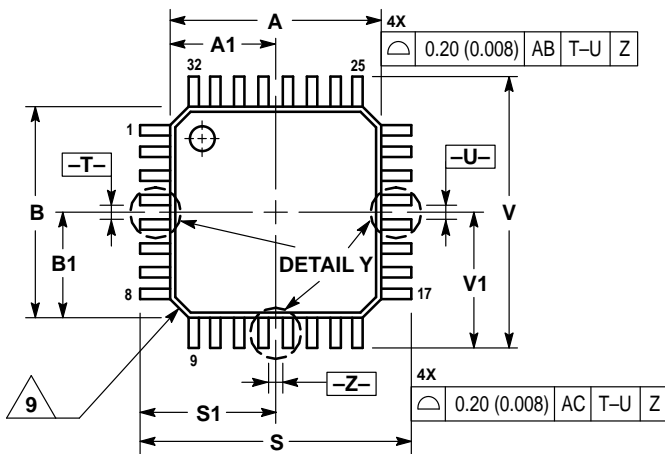
NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DATUM PLANE –AB– IS LOCATED AT BOTTOM OF LEAD AND IS COINCIDENT WITH THE LEAD WHERE THE LEAD EXITS THE PLASTIC BODY AT THE BOTTOM OF THE PARTING LINE.
4. DATUMS –T–, –U–, AND –Z– TO BE DETERMINED AT DATUM PLANE –AB–.
5. DIMENSIONS S AND V TO BE DETERMINED AT SEATING PLANE –AC–.
6. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.250 (0.010) PER SIDE. DIMENSIONS A AND B DO INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE –AB–.
7. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. DAMBAR PROTRUSION SHALL NOT CAUSE THE D DIMENSION TO EXCEED 0.520 (0.020).
8. MINIMUM SOLDER PLATE THICKNESS SHALL BE 0.0076 (0.0003).
9. EXACT SHAPE OF EACH CORNER MAY VARY FROM DEPICTION.
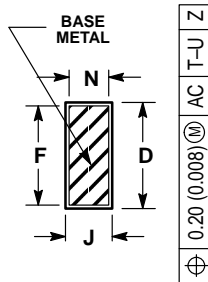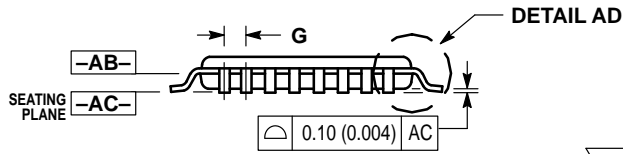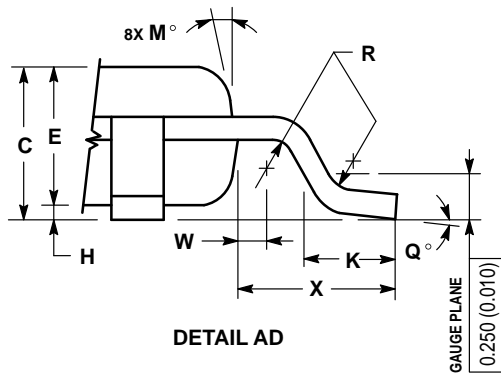
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.000 BSC		0.276 BSC	
A1	3.500 BSC		0.138 BSC	
B	7.000 BSC		0.276 BSC	
B1	3.500 BSC		0.138 BSC	
C	1.400	1.600	0.055	0.063
D	0.300	0.450	0.012	0.018
E	1.350	1.450	0.053	0.057
F	0.300	0.400	0.012	0.016
G	0.800 BSC		0.031 BSC	
H	0.050	0.150	0.002	0.006
J	0.090	0.200	0.004	0.008
K	0.500	0.700	0.020	0.028
M	12° REF		12° REF	
N	0.090	0.160	0.004	0.006
P	0.400 BSC		0.016 BSC	
Q	1°	5°	1°	5°
R	0.150	0.250	0.006	0.010
S	9.000 BSC		0.354 BSC	
S1	4.500 BSC		0.177 BSC	
V	9.000 BSC		0.354 BSC	
V1	4.500 BSC		0.177 BSC	
W	0.200 REF		0.008 REF	
X	1.000 REF		0.039 REF	

MC100LVE164

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