

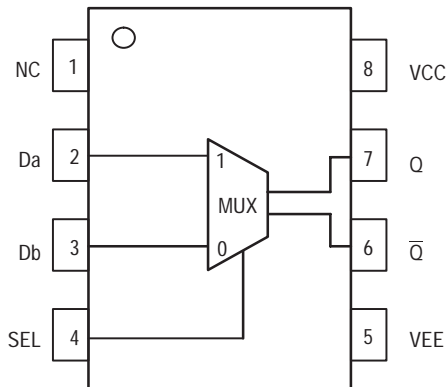
# MC100LVEL58

## 2:1 Multiplexer

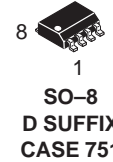
The MC100LVEL58 is a 2:1 multiplexer. The device is pin and functionally equivalent to the EL58 and works from a  $-3.3V$  supply. With AC performance similar to the EL58 device, the LVEL58 is ideal for low voltage applications which require the ultimate in AC performance.

- 440ps Typical Propagation Delays
- High Bandwidth Output Transitions
- PECL mode: 3.0V to 5.5V  $V_{CC}$  with  $V_{EE} = 0V$
- ECL mode: 0V  $V_{CC}$  with  $V_{EE} = -3.0V$  to  $-5.5V$
- 75k $\Omega$  Internal Input Pulldown Resistors
- >4000V ESD Protection
- Moisture Sensitivity Level 1, Indefinite Time Out of Drypack  
For Additional Information, See Application Note AND8003/D
- Flammability Rating: UL-94 code V-0 @ 1/8",  
Oxygen Index 28 to 34
- Transistor Count: 729 devices

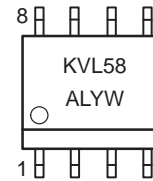
Logic Diagram and Pinout: 8-Lead SOIC (Top View)



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### MARKING DIAGRAM\*



A = Assembly Location  
L = Wafer Lot  
Y = Year  
W = Work Week

\*For additional information, see Application Note AND8002/D

### PIN NAMES

Pins	Function
Da, Db Q	Data Inputs Data Outputs

### TRUTH TABLE

SEL	Data
H	a
L	b

### ORDERING INFORMATION

Device	Package	Shipping
MC100LVEL58D	SO-8	98 Units / Rail
MC100LVEL58DR2	SO-8	2500 Units / Reel

# MC100LVEL58

## ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

Symbol	Characteristic	Rating	Unit
V <sub>EE</sub>	Power Supply (V <sub>CC</sub> = 0V)	-8.0 to 0	VDC
V <sub>I</sub>	Input Voltage (V <sub>CC</sub> = 0V)	0 to -6.0	VDC
I <sub>out</sub>	Output Current Continuous Surge	50 100	mA
T <sub>A</sub>	Operating Temperature Range	-40 to +85	°C
V <sub>EE</sub>	Operating Range <sup>1,2</sup>	-5.7 to -3.0	V
θ <sub>JA</sub>	Thermal Resistance (Junction-to-Ambient)	Still Air 500lfpm 190 130	°C/W
θ <sub>JC</sub>	Thermal Resistance (Junction-to-Case)	41 to 44 ± 5%	°C/W
T <sub>sol</sub>	Solder Temperature (<2 to 3 Seconds: 245°C desired)	265	°C

1. Absolute maximum rating, beyond which, device life may be impaired, unless otherwise specified on an individual data sheet.

2. Parametric values specified at: 100EL Series: -4.20V to -5.50V  
10EL Series: -4.94V to -5.50V

## MC100LVEL58

### DC CHARACTERISTICS (V<sub>EE</sub> = V<sub>EE</sub>(min) to V<sub>EE</sub>(max); V<sub>CC</sub> = 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 <sub>EE</sub>	Power Supply Current		21	28		21	28		21	28		23	30	mA
V <sub>EE</sub>	Power Supply Voltage	3.0		3.8	3.0		3.8	3.0		3.8	3.0		3.8	V
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	μA

## MC100LVEL58

### AC CHARACTERISTICS (V<sub>EE</sub> = V<sub>EE</sub>(min) to V<sub>EE</sub>(max); V<sub>CC</sub> = 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 <sub>PLH</sub>	Propagation Delay D Q	340	435	560	340	435	560	350	440	570	370	450	590	ps
t <sub>PHL</sub>	Delay SEL Q	350	455	570	350	455	570	360	460	580	380	470	600	ps
t <sub>r</sub>	Output Rise/Fall Times Q	100		320	100		320	100		320	100		320	ps
t <sub>f</sub>	(20% - 80%)													

### DC CHARACTERISTICS

(V<sub>EE</sub> = V<sub>EE</sub>(min) - V<sub>EE</sub>(max); V<sub>CC</sub> = GND<sup>1</sup>), All input and output voltage parameters vary 1:1 with V<sub>CC</sub>

Symbol	Characteristic	-40°C			0°C to 85°C			Unit	Condition
		Min	Typ	Max	Min	Typ	Max		
V <sub>OH</sub>	Output HIGH Voltage <sup>(2)</sup>	-1085	-1005	-880	-1025	-955	-880	mV	V <sub>IN</sub> = V <sub>IH</sub> (max)
V <sub>OL</sub>	Output LOW Voltage <sup>(2)</sup>	-1830	-1695	-1555	-1810	-1705	-1620	mV	or V <sub>IL</sub> (min)
V <sub>OHA</sub>	Output HIGH Voltage <sup>(2)</sup>	-1095	—	—	-1035	—	—	mV	V <sub>IN</sub> = V <sub>IH</sub> (max)
V <sub>OLA</sub>	Output LOW Voltage <sup>(2)</sup>	—	—	-1555	—	—	-1610	mV	or V <sub>IL</sub> (min)
V <sub>IH</sub>	Input HIGH Voltage	-1165	—	-880	-1165	—	-880	mV	
V <sub>IL</sub>	Input LOW Voltage	-1810	—	-1475	-1810	—	-1475	mV	
I <sub>IL</sub>	Input LOW Current	0.5	—	—	0.5	—	—	μA	V <sub>IN</sub> = V <sub>IL</sub> (max)

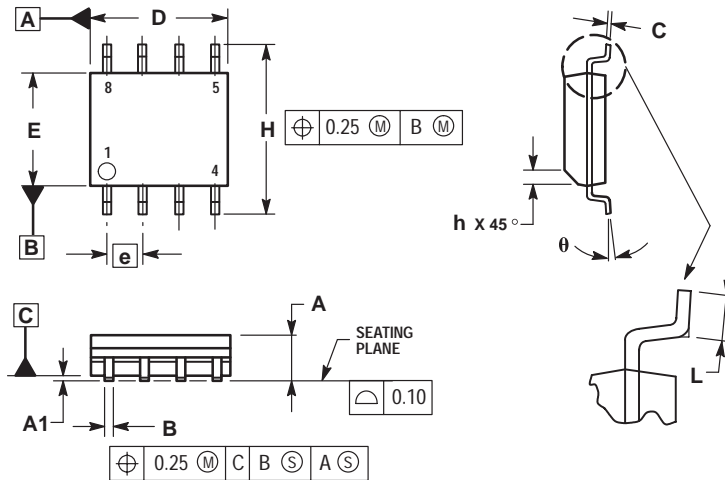
1. V<sub>CC</sub> = 0V, V<sub>EE</sub> = V<sub>EE</sub>min to V<sub>EE</sub>max, all other pins floating.

2. All loading with 50 ohms to V<sub>CC</sub>-2.0 volts.

# MC100LVEL58

## PACKAGE DIMENSIONS

SO-8  
D SUFFIX  
CASE 751-06  
ISSUE T



### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. DIMENSIONS ARE IN MILLIMETER.
3. DIMENSION D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE B DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.19	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.25
θ	0°	7°

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