Single 2-Input Exclusive OR Gate

MC74VHC1G86, MC74VHC1GT86

The MC74VHC1G86 / MC74VHC1GT86 is a 2−input Exclusive OR Gate in tiny packages. The MC74VHC1G86 has CMOS level input thresholds while the MC74VHC1GT86 has TTL level input thresholds.

The internal circuit is composed of three stages, including a buffered output which provides high noise immunity and stable output.

The input structures provide protection when voltages up to 5.5 V are applied, regardless of the supply voltage. This allows the device to be used to interface 5 V circuits to 3 V circuits. Some output structures also provide protection when V_{CC} = 0 V and when the output voltage exceeds V_{CC}. These input and output structures help prevent device destruction caused by supply voltage − input/output voltage mismatch, battery backup, hot insertion, etc.

Features

- Designed for 2.0 V to 5.5 V V_{CC} Operation
- 3.5 ns t_{PD} at 5 V (typ)
- Inputs/Outputs Over−Voltage Tolerant up to 5.5 V
- I_{OFF} Supports Partial Power Down Protection
- Source/Sink 8 mA at 3.0 V
- Available in SC−88A, SC−74A, TSOP−5, SOT−553, SOT−953 and UDFN6 Packages
- Chip Complexity < 100 FETs
- NLV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q100 Qualified and PPAP Capable
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

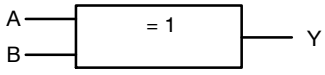
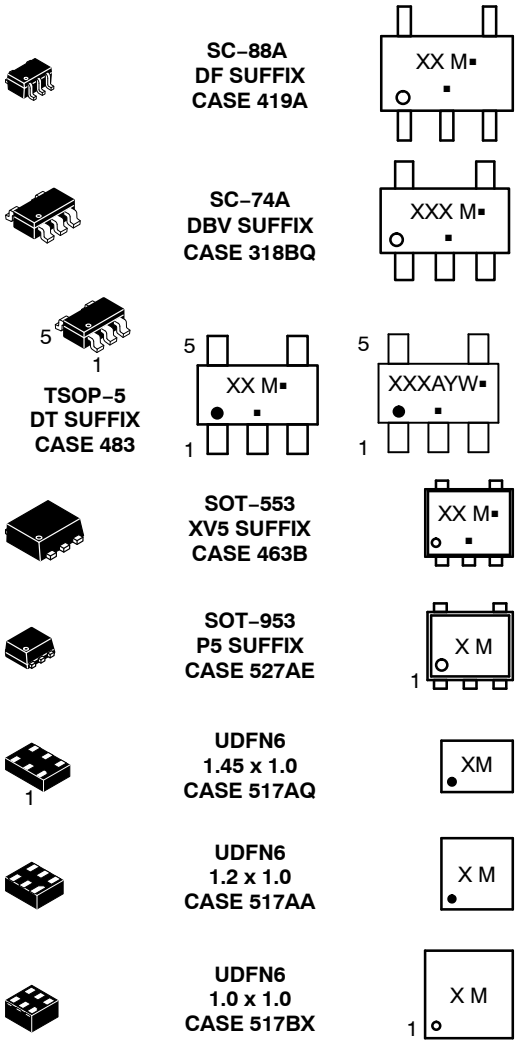


Figure 1. Logic Symbol

MARKING DIAGRAMS



XX = Specific Device Code
M = Date Code*
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering, marking and shipping information in the package dimensions section on page 7 of this data sheet.

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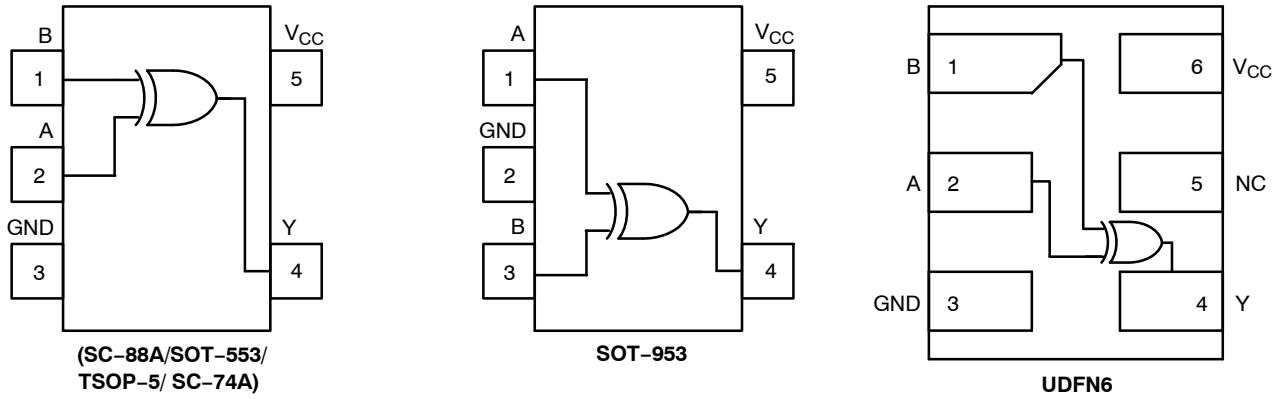


Figure 2. Pinout (Top View)

PIN ASSIGNMENT
(SC−88A/SOT−553/ TSOP−5/SC−74A)

Pin	Function
1	B
2	A
3	GND
4	Y
5	V_{CC}

PIN ASSIGNMENT (SOT−953)

Pin	Function
1	A
2	GND
3	B
4	Y
5	V_{CC}

PIN ASSIGNMENT (UDFN)

Pin	Function
1	B
2	A
3	GND
4	Y
5	NC
6	V_{CC}

FUNCTION TABLE

Input		Output
A	**B**	**Y**
L	L	L
L	H	H
H	L	H
H	H	L

MAXIMUM RATINGS

Symbol	Characteristics			Value	Unit
V_{CC}	DC Supply Voltage		TSOP−5, SC−88A (NLV) SC−74A, SC−88A, UDFN6, SOT−553, SOT−953	−0.5 to +7.0 −0.5 to +6.5	V
V_{IN}	DC Input Voltage		TSOP−5, SC−88A (NLV) SC−74A, SC−88A, UDFN6, SOT−553, SOT−953	−0.5 to +7.0 −0.5 to +6.5	V
V_{OUT}	DC Output Voltage (NLV)	1Gxx		−0.5 to V_{CC} + 0.5	V
		1GTxx	Active−Mode (High or Low State) Tri−State Mode (Note 1) Power−Down Mode (V_{CC} = 0 V)	−0.5 to V_{CC} + 0.5 −0.5 to +7.0 −0.5 to +7.0	
	DC Output Voltage		Active−Mode (High or Low State) Tri−State Mode (Note 1) Power−Down Mode (V_{CC} = 0 V)	−0.5 to V_{CC} + 0.5 −0.5 to +6.5 −0.5 to +6.5	V
I_{IK}	DC Input Diode Current		V_{IN} < GND	−20	mA
I_{OK}	DC Output Diode Current (NLV)	1Gxx	V_{OUT} > V_{CC}, V_{OUT} < GND	±20	mA
		1GTxx	V_{OUT} < GND	−20	
	DC Output Diode Current		V_{OUT} < GND	−20	mA
I_{OUT}	DC Output Source/Sink Current			±25	mA
I_{CC} or I_{GND}	DC Supply Current per Supply Pin or Ground Pin			±50	mA
T_{STG}	Storage Temperature Range			−65 to +150	°C
T_L	Lead Temperature, 1 mm from Case for 10 secs			260	°C
T_J	Junction Temperature Under Bias			+150	°C
θ_{JA}	Thermal Resistance (Note 2)		SC−88A SC−74A SOT−553 SOT−953 UDFN6	377 320 324 254 154	°C/W
P_D	Power Dissipation in Still Air		SC−88A SC−74A SOT−553 SOT−953 UDFN6	332 390 386 491 812	mW
MSL	Moisture Sensitivity			Level 1	−
F_R	Flammability Rating		Oxygen Index: 28 to 34	UL 94 V−0 @ 0.125 in	−
V_{ESD}	ESD Withstand Voltage (Note 3)		Human Body Model Charged Device Model	2000 1000	V
$I_{Latchup}$	Latchup Performance (Note 4)			± 100	mA

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.

1. Applicable to devices with outputs that may be tri−stated.
2. Measured with minimum pad spacing on an FR4 board, using 10mm−by−1inch, 2 ounce copper trace no air flow per JESD51−7.
3. HBM tested to ANSI/ESDA/JEDEC JS−001−2017. CDM tested to EIA/JESD22−C101−F. JEDEC recommends that ESD qualification to EIA/JESD22−A115−A (Machine Model) be discontinued per JEDEC/JEP172A.
4. Tested to EIA/JESD78 Class II.

RECOMMENDED OPERATING CONDITIONS

Symbol	Characteristics			Min	Max	Unit
V_{CC}	Positive DC Supply Voltage			2.0	5.5	V
V_{IN}	DC Input Voltage			0	5.5	V
V_{OUT}	DC Output Voltage (NLV)	1Gxx		0	V_{CC}	V
		1GTxx	Active−Mode (High or Low State) Tri−State Mode (Note 1) Power−Down Mode (V_{CC} = 0 V)	0 0 0	V_{CC} 5.5 5.5	
	DC Output Voltage		Active−Mode (High or Low State) Tri−State Mode (Note 1) Power−Down Mode (V_{CC} = 0 V)	0 0 0	V_{CC} 5.5 5.5	V
T_A	Operating Temperature Range			−55	+125	°C
t_r , t_f	Input Rise and Fall Time		TSOP−5, SC−88A (NLV) V_{CC} = 3.0 V to 3.6 V V_{CC} = 4.5 V to 5.5 V	 0 0	 100 20	ns/V
	Input Rise and Fall Time		SC−74A, SC−88A, UDFN6, SOT−553, SOT−953 V_{CC} = 2.0 V V_{CC} = 2.3 V to 2.7 V V_{CC} = 3.0 V to 3.6 V V_{CC} = 4.5 V to 5.5 V	 0 0 0 0	 20 20 10 5	

Functional operation above the stresses listed in the Recommended Operating Ranges is not implied. Extended exposure to stresses beyond the Recommended Operating Ranges limits may affect device reliability.

DC ELECTRICAL CHARACTERISTICS (MC74VHC1G86)

Symbol	Parameter	Test Conditions	V_{CC} (V)	T_A = 25°C			−40°C ≤ T_A ≤ 85°C		−55°C ≤ T_A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V_{IH}	High−Level Input Voltage		2.0	1.5	–	–	1.5	–	1.5	–	V
			3.0	2.1	–	–	2.1	–	2.1	–	
			4.5	3.15	–	–	3.15	–	3.15	–	
			5.5	3.85	–	–	3.85	–	3.85	–	
V_{IL}	Low−Level Input Voltage		2.0	–	–	0.5	–	0.5	–	0.5	V
			3.0	–	–	0.9	–	0.9	–	0.9	
			4.5	–	–	1.35	–	1.35	–	1.35	
			5.5	–	–	1.65	–	1.65	–	1.65	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL} I_{OH} = −50 μA I_{OH} = −50 μA I_{OH} = −50 μA I_{OH} = −4 mA I_{OH} = −8 mA	 2.0 3.0 4.5 3.0 4.5	 1.9 2.9 4.4 2.58 3.94	 2.0 3.0 4.5 – –	 – – – – –	 1.9 2.9 4.4 2.48 3.80	 – – – – –	 1.9 2.9 4.4 2.34 3.66	 – – – – –	V
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL} I_{OL} = 50 μA I_{OL} = 50 μA I_{OL} = 50 μA I_{OL} = 4 mA I_{OL} = 8 mA	 2.0 3.0 4.5 3.0 4.5	 – – – – –	 0.0 0.0 0.0 – –	 0.1 0.1 0.1 0.36 0.36	 – – – – –	 0.1 0.1 0.1 0.44 0.44	 – – – – –	 0.1 0.1 0.1 0.52 0.52	V
I_{IN}	Input Leakage Current	V_{IN} = 5.5 V or GND	2.0 to 5.5	–	–	±0.1	–	±1.0	–	± 1.0	μA
I_{OFF}	Power Off Leakage Current (NLV)	V_{IN} = 5.5 V	0.0	–	–	1.0	–	10	–	10	μA
	Power Off Leakage Current	V_{IN} = 5.5 V or V_{OUT} = 5.5 V	0.0	–	–	1.0	–	10	–	10	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND	5.5	–	–	1.0	–	20	–	40	μA

DC ELECTRICAL CHARACTERISTICS (MC74VHC1GT86)

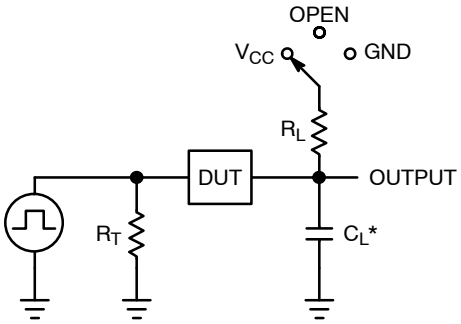
Symbol	Parameter	Test Conditions	V_{CC} (V)	T_A = 25°C			−40°C ≤ T_A ≤ 85°C		−55°C ≤ T_A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
V_{IH}	High−Level Input Voltage		2.0	1.0	–	–	1.0	–	1.0	–	V
			3.0	1.4	–	–	1.4	–	1.4	–	
			4.5	2.0	–	–	2.0	–	2.0	–	
			5.5	2.0	–	–	2.0	–	2.0	–	
V_{IL}	Low−Level Input Voltage		2.0	–	–	0.28	–	0.28	–	0.28	V
			3.0	–	–	0.45	–	0.45	–	0.45	
			4.5	–	–	0.8	–	0.8	–	0.8	
			5.5	–	–	0.8	–	0.8	–	0.8	
V_{OH}	High−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}									V
		I_{OH} = −50 μA	2.0	1.9	2.0	–	1.9	–	1.9	–	
		I_{OH} = −50 μA	3.0	2.9	3.0	–	2.9	–	2.9	–	
		I_{OH} = −50 μA	4.5	4.4	4.5	–	4.4	–	4.4	–	
		I_{OH} = −4 mA	3.0	2.58	–	–	2.48	–	2.34	–	
		I_{OH} = −8 mA	4.5	3.94	–	–	3.80	–	3.66	–	
V_{OL}	Low−Level Output Voltage	V_{IN} = V_{IH} or V_{IL}									V
		I_{OL} = 50 μA	2.0	–	0.0	0.1	–	0.1	–	0.1	
		I_{OL} = 50 μA	3.0	–	0.0	0.1	–	0.1	–	0.1	
		I_{OL} = 50 μA	4.5	–	0.0	0.1	–	0.1	–	0.1	
		I_{OL} = 4 mA	3.0	–	–	0.36	–	0.44	–	0.52	
		I_{OL} = 8 mA	4.5	–	–	0.36	–	0.44	–	0.52	
I_{IN}	Input Leakage Current	V_{IN} = 5.5 V or GND	2.0 to 5.5	–	–	±0.1	–	±1.0	–	± 1.0	μA
I_{OFF}	Power Off Leakage Current	V_{IN} = 5.5 V or V_{OUT} = 5.5 V	0	–	–	1.0	–	10	–	10	μA
I_{CC}	Quiescent Supply Current	V_{IN} = V_{CC} or GND	5.5	–	–	1.0	–	20	–	40	μA
I_{CCT}	Increase in Quiescent Supply Current per Input Pin	One Input: V_{IN} = 3.4 V; Other Input at V_{CC} or GND	5.5	–	–	1.35	–	1.5	–	1.65	mA

AC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V_{CC} (V)	T_A = 25°C			−40°C ≤ T_A ≤ 85°C		−55°C ≤ T_A ≤ 125°C		Unit
				Min	Typ	Max	Min	Max	Min	Max	
t_{PLH}, t_{PHL}	Propagation Delay, (A or B) to Y (Figures 3 and 4)	C_L = 15 pF	3.0 to 3.6	–	4.4	11.0	–	13.0	–	15.5	ns
		C_L = 50 pF		–	5.7	14.5	–	16.5	–	19.5	
		C_L = 15 pF	4.5 to 5.5	–	3.5	6.8	–	8.0	–	10.0	
		C_L = 50 pF		–	4.2	8.8	–	10.0	–	12.0	
C_{IN}	Input Capacitance			–	4.0	10	–	10	–	10	pF
C_{OUT}	Output Capacitance	Output in High Impedance State		–	6.0	–	–	–	–	–	pF

		Typical @ 25°C, V_{CC} = 5.0 V	
C_{PD}	Power Dissipation Capacitance (Note 5)	8.0	pF

5. C_{PD} is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load. Average operating current can be obtained by the equation: $I_{CC(OPR)}$ = C_{PD} • V_{CC} • f_{in} + I_{CC}. C_{PD} is used to determine the no−load dynamic power consumption; P_D = C_{PD} • V_{CC}^2 • f_{in} + I_{CC} • V_{CC}.



C_L includes probe and jig capacitance
R_T is Z_{OUT} of pulse generator (typically 50 Ω)
f = 1 MHz

Test	Switch Position	C_L, pF	R_L, Ω
t_{PLH} / t_{PHL}	Open	See AC Characteristics Table	X
t_{PLZ} / t_{PZL}	V_{CC}		1 k
t_{PHZ} / t_{PZH}	GND		1 k

X = Don't Care

Figure 3. Test Circuit

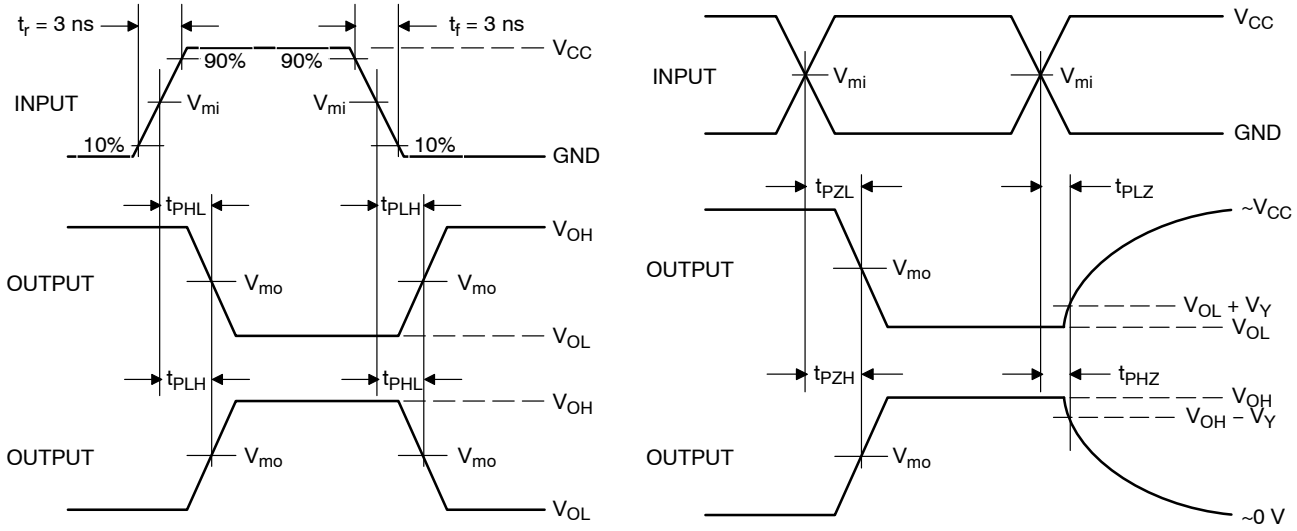


Figure 4. Switching Waveforms

V_{CC}, V	V_{mi}, V	V_{mo}, V		V_Y, V
		t_{PLH}, t_{PHL}	t_{PZL}, t_{PLZ}, t_{PZH}, t_{PHZ}	
3.0 to 3.6	V_{CC}/2	V_{CC}/2	V_{CC}/2	0.3
4.5 to 5.5	V_{CC}/2	V_{CC}/2	V_{CC}/2	0.3

ORDERING INFORMATION

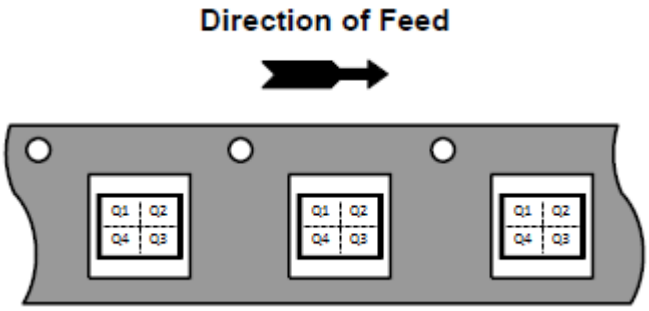
Device	Packages	Specific Device Code	Pin 1 Orientation (See below)	Shipping†
MC74VHC1G86DFT1G	SC−88A	V8	Q2	3000 / Tape & Reel
MC74VHC1G86DFT2G	SC−88A	V8	Q4	3000 / Tape & Reel
MC74VHC1G86DFT2G−L22038**	SC−88A	V8	Q4	3000 / Tape & Reel
NLVVHC1G86DFT1G*	SC−88A	V8	Q2	3000 / Tape & Reel
NLVVHC1G86DFT2G*	SC−88A	V8	Q4	3000 / Tape & Reel
M74VHC1GT86DFT1G	SC−88A	VM	Q2	3000 / Tape & Reel
M74VHC1GT86DFT2G	SC−88A	VM	Q4	3000 / Tape & Reel
NLVVHC1GT86DFT1G*	SC−88A	VM	Q2	3000 / Tape & Reel
NLVVHC1GT86DFT2G	SC−88A	VM	Q4	3000 / Tape & Ree
MC74VHC1G86DBVT1G	SC−74A	V8	Q4	3000 / Tape & Reel
MC74VHC1GT86DBVT1G (In Development)	SC−74A	TBD	Q4	3000 / Tape & Reel
MC74VHC1G86DTT1G**	TSOP−5	V8	Q4	3000 / Tape & Reel
NLVVHC1G86DTT1G*	TSOP−5	V8	Q4	3000 / Tape & Reel
NLV74VHC1GT86DTT1G*	TSOP−5	VM	Q4	3000 / Tape & Reel
M74VHC1GT86DTT1G**	TSOP−5	VM	Q4	3000 / Tape & Reel
MC74VHC1G86XV5T2G (In Development)	SOT−553	TBD	Q4	4000 / Tape & Reel
MC74VHC1GT86XV5T2G (In Development)	SOT−553	TBD	Q4	4000 / Tape & Reel
MC74VHC1G86P5T5G (In Development)	SOT−953	TBD	Q2	8000 / Tape & Reel
MC74VHC1GT85P5T5G (In Development)	SOT−953	TBD	Q2	8000 / Tape & Reel
MC74VHC1G86MU1TCG (In Development)	UDFN6, 1.45 x 1.0, 0.5P	R (Rotated 270° CW)	Q4	3000 / Tape & Reel
MC74VHC1GT86MU1TCG (In Development)	UDFN6, 1.45 x 1.0, 0.5P	TBD	Q4	3000 / Tape & Reel
MC74VHC1G86MU2TCG (In Development)	UDFN6, 1.2 x 1.0, 0.4P	4	Q4	3000 / Tape & Reel
MC74VHC1GT86MU2TCG (In Development)	UDFN6, 1.2 x 1.0, 0.4P	6	Q4	3000 / Tape & Reel
MC74VHC1G86MU3TCG (In Development)	UDFN6, 1.0 x 1.0, 0.35P	Y (Rotated 180° CW)	Q4	3000 / Tape & Reel
MC74VHC1GT86MU3TCG (In Development)	UDFN6, 1.0 x 1.0, 0.35P	TBD	Q4	3000 / Tape & Reel

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

*NLV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC−Q100 Qualified and PPAP Capable.

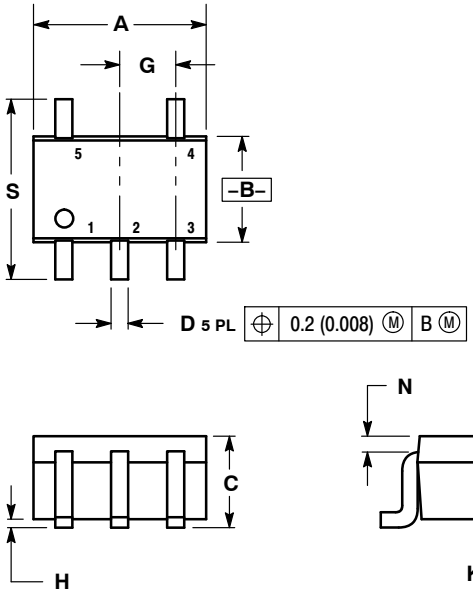
** Please refer to NLV specifications for this device.

Pin 1 Orientation in Tape and Reel



PACKAGE DIMENSIONS

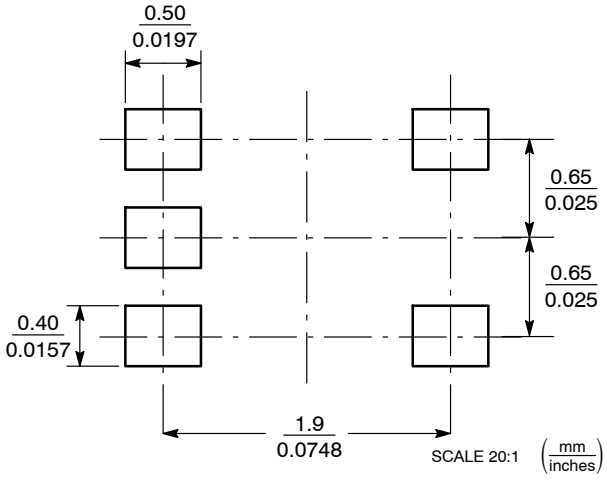
SC−88A (SC−70−5/SOT−353)
CASE 419A−02
ISSUE L



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419A−01 OBSOLETE. NEW STANDARD 419A−02.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

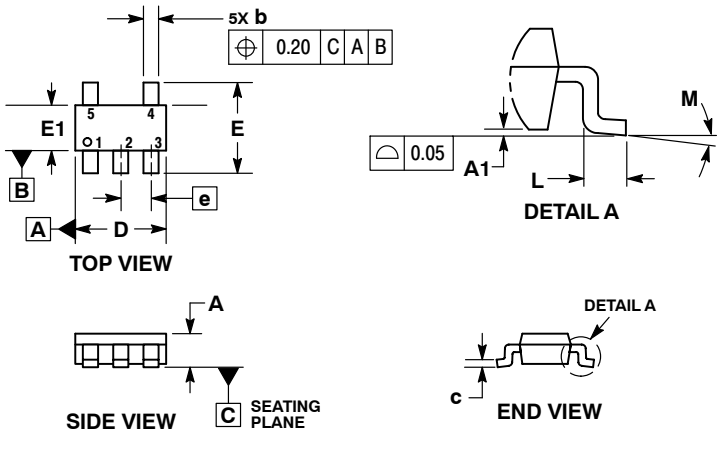
SOLDER FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

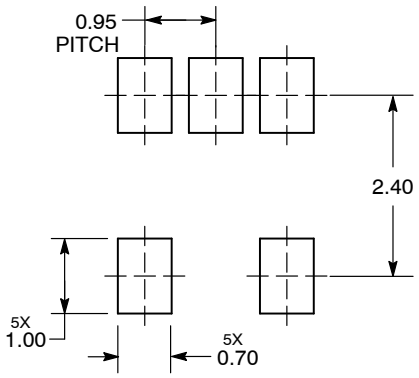
SC−74A
CASE 318BQ
ISSUE B



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE.

	MILLIMETERS	
DIM	MIN	MAX
A	0.90	1.10
A1	0.01	0.10
b	0.25	0.50
c	0.10	0.26
D	2.85	3.15
E	2.50	3.00
E1	1.35	1.65
e	0.95 BSC	
L	0.20	0.60
M	0 °	10 °

RECOMMENDED SOLDERING FOOTPRINT*

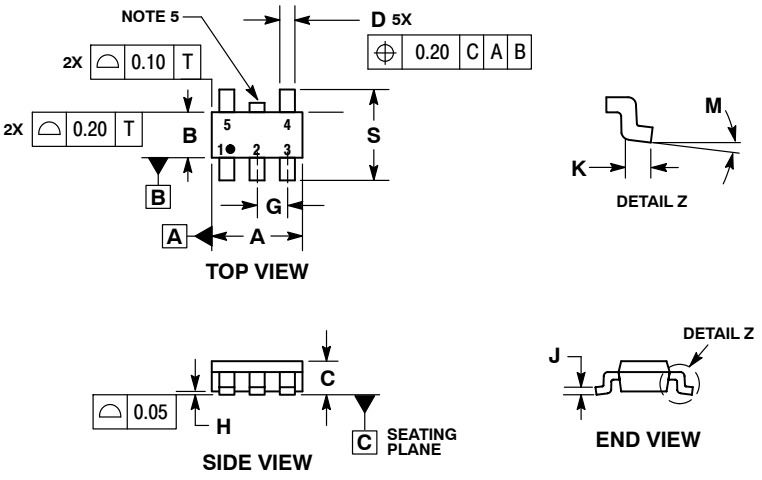


DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

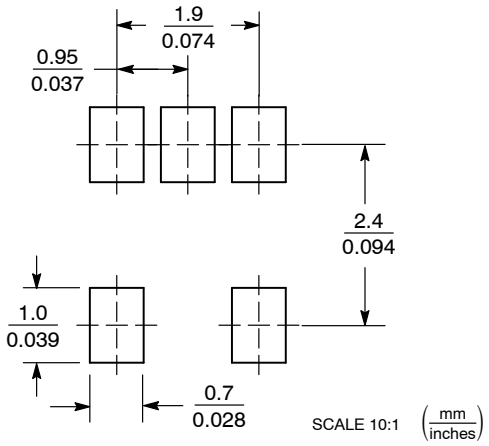
TSOP−5
CASE 483
ISSUE N



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS. MOLD FLASH, PROTRUSIONS, OR GATE BURRS SHALL NOT EXCEED 0.15 PER SIDE. DIMENSION A.
5. OPTIONAL CONSTRUCTION: AN ADDITIONAL TRIMMED LEAD IS ALLOWED IN THIS LOCATION. TRIMMED LEAD NOT TO EXTEND MORE THAN 0.2 FROM BODY.

	MILLIMETERS	
DIM	MIN	MAX
A	2.85	3.15
B	1.35	1.65
C	0.90	1.10
D	0.25	0.50
G	0.95 BSC	
H	0.01	0.10
J	0.10	0.26
K	0.20	0.60
M	0 °	10 °
S	2.50	3.00

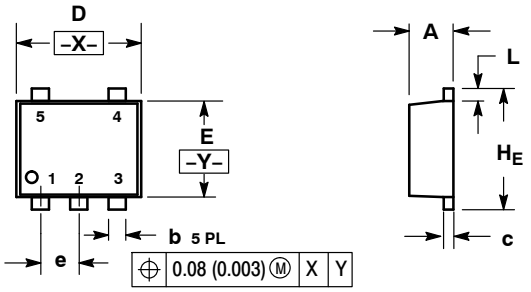
SOLDERING FOOTPRINT*



*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

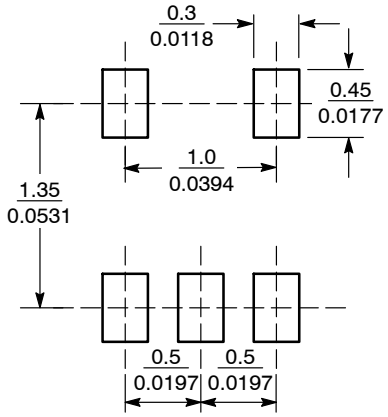
SOT−553, 5 LEAD
CASE 463B
ISSUE C



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.

	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0.50	0.55	0.60	0.020	0.022	0.024
b	0.17	0.22	0.27	0.007	0.009	0.011
c	0.08	0.13	0.18	0.003	0.005	0.007
D	1.55	1.60	1.65	0.061	0.063	0.065
E	1.15	1.20	1.25	0.045	0.047	0.049
e	0.50 BSC			0.020 BSC		
L	0.10	0.20	0.30	0.004	0.008	0.012
H_E	1.55	1.60	1.65	0.061	0.063	0.065

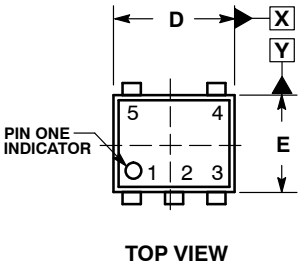
SOLDERING FOOTPRINT*



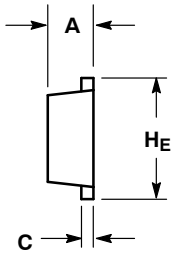
*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

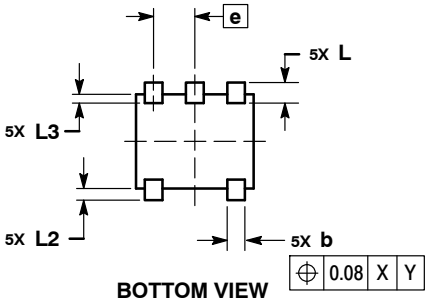
SOT−953
CASE 527AE
ISSUE E



TOP VIEW



SIDE VIEW

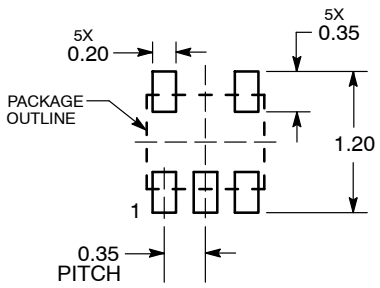


BOTTOM VIEW

NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF THE BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS, OR GATE BURRS.

	MILLIMETERS		
DIM	MIN	NOM	MAX
A	0.34	0.37	0.40
b	0.10	0.15	0.20
C	0.07	0.12	0.17
D	0.95	1.00	1.05
E	0.75	0.80	0.85
e	0.35 BSC		
H_E	0.95	1.00	1.05
L	0.175 REF		
L2	0.05	0.10	0.15
L3	---	---	0.15

SOLDERING FOOTPRINT*

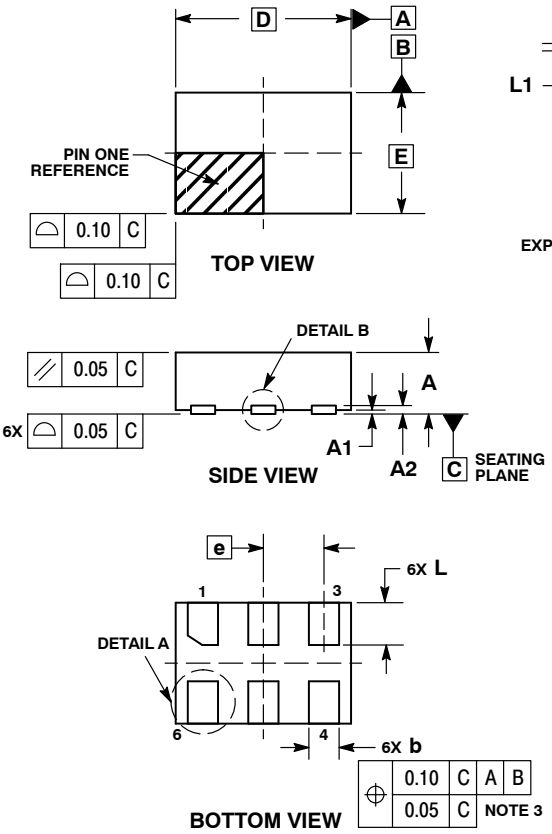


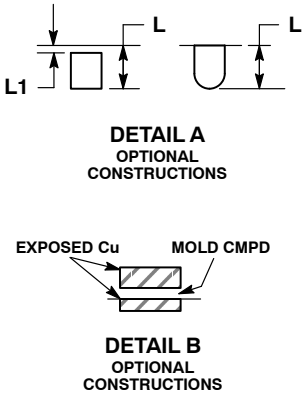
DIMENSIONS: MILLIMETERS

*For additional information on our Pb−Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

PACKAGE DIMENSIONS

UDFN6, 1.45x1.0, 0.5P
CASE 517AQ
ISSUE O

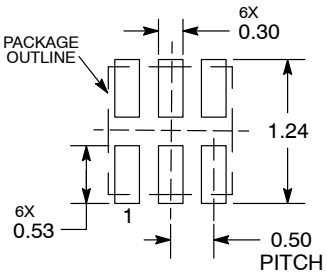




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.30 mm FROM THE TERMINAL TIP.

	MILLIMETERS	
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A2	0.07 REF	
b	0.20	0.30
D	1.45 BSC	
E	1.00 BSC	
e	0.50 BSC	
L	0.30	0.40
L1	---	0.15

MOUNTING FOOTPRINT

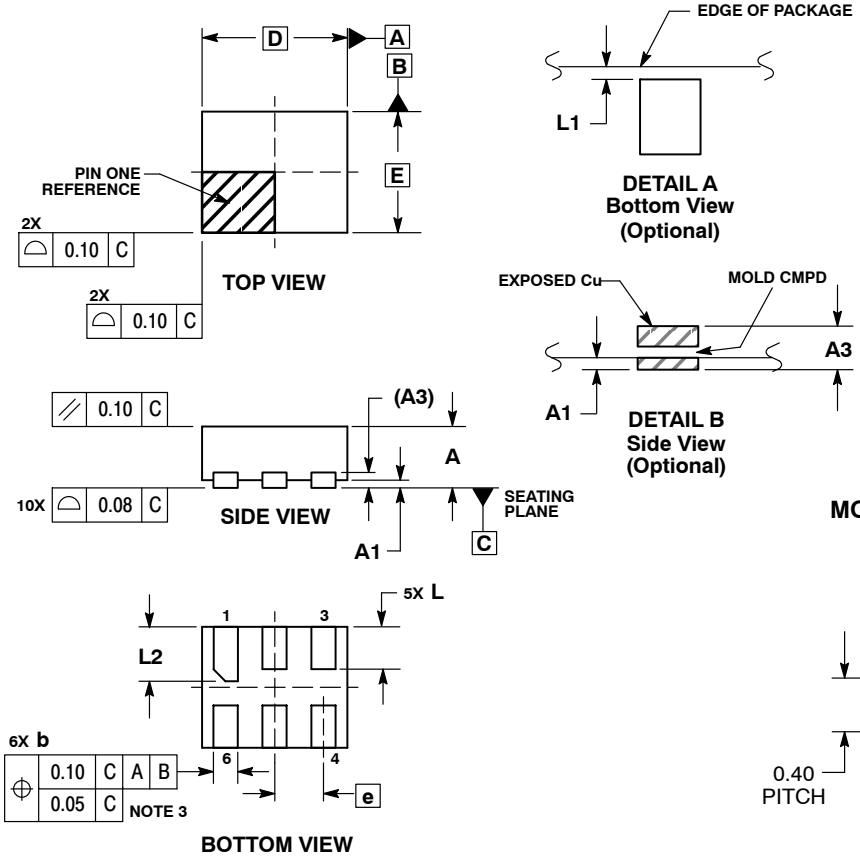


DIMENSIONS: MILLIMETERS

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PACKAGE DIMENSIONS

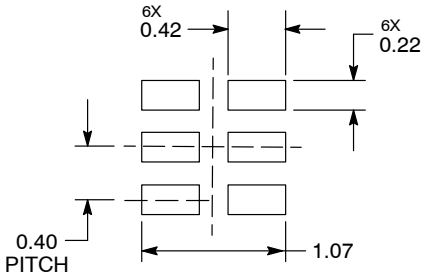
UDFN6, 1.2x1.0, 0.4P
CASE 517AA
ISSUE D



NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.25 AND 0.30 mm FROM TERMINAL.
4. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

	MILLIMETERS	
DIM	MIN	MAX
A	0.45	0.55
A1	0.00	0.05
A3	0.127 REF	
b	0.15	0.25
D	1.20 BSC	
E	1.00 BSC	
e	0.40 BSC	
L	0.30	0.40
L1	0.00	0.15
L2	0.40	0.50

MOUNTING FOOTPRINT*

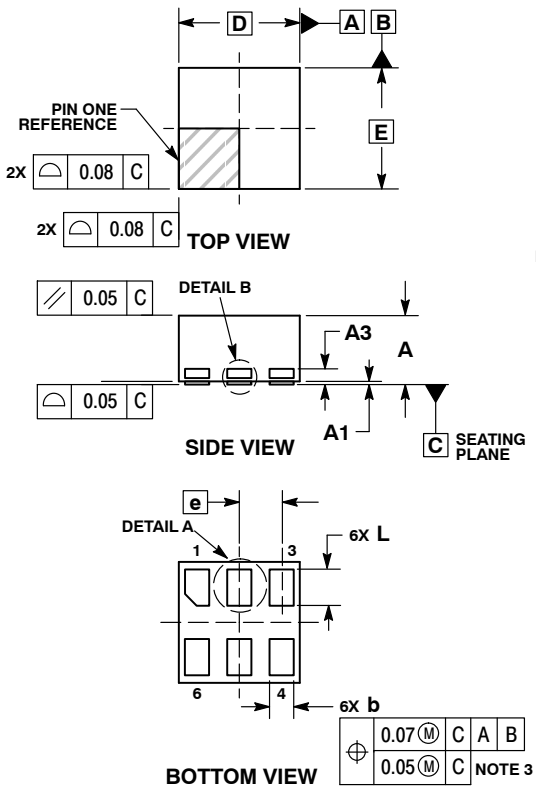


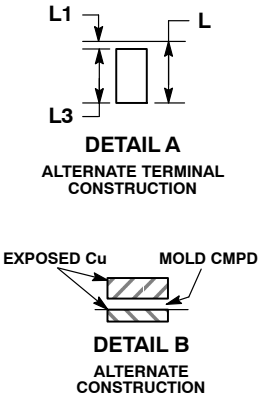
DIMENSIONS: MILLIMETERS

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PACKAGE DIMENSIONS

UDFN6, 1x1, 0.35P
CASE 517BX
ISSUE O

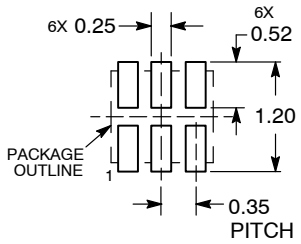




NOTES:
1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. DIMENSION b APPLIES TO PLATED TERMINAL AND IS MEASURED BETWEEN 0.15 AND 0.20 MM FROM TERMINAL TIP.
4. PACKAGE DIMENSIONS EXCLUSIVE OF BURRS AND MOLD FLASH.

	MILLIMETERS	
DIM	MIN	MAX
A	0.50	0.65
A1	0.00	0.05
A3	0.13 REF	
b	0.17	0.23
D	1.00 BSC	
E	1.00 BSC	
e	0.35	
L	0.20	0.40
L1	---	0.15
L3	0.26	0.33

RECOMMENDED SOLDERING FOOTPRINT*



DIMENSION: MILLIMETERS

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