

Quad 2-Input Multiplexer with Three-State Outputs

Features

- 'AC257, 'ACT257..... Non-Inverting Outputs
 - CD74ACT258 Inverting Outputs
 - Buffered Inputs
 - Typical Propagation Delay
 - 4.4ns at $V_{CC} = 5V$, $T_A = 25^{\circ}C$, $C_L = 50pF$
 - Exceeds 2kV ESD Protection MIL-STD-883, Method 3015
 - SCR-Latchup-Resistant CMOS Process and Circuit Design
 - Speed of Bipolar FAST™/AS/S with Significantly Reduced Power Consumption
 - Balanced Propagation Delays
 - AC Types Feature 1.5V to 5.5V Operation and Balanced Noise Immunity at 30% of the Supply
 - $\pm 24mA$ Output Drive Current
 - Fanout to 15 FAST™ ICs
- Drives 50Ω Transmission Lines

Description

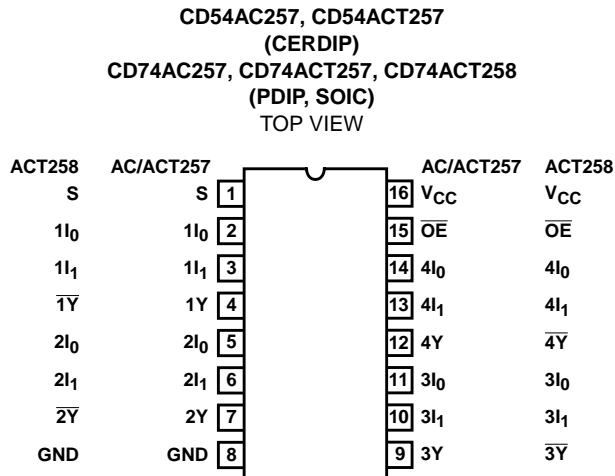
The 'AC257, 'ACT257 and CD74ACT258 are quad 2-input multiplexers with three-state outputs that utilize Advanced CMOS Logic technology. Each of these devices selects four bits of data from two sources under the control of a common Select input (S). The Output Enable (\overline{OE}) is active LOW. When \overline{OE} is HIGH, all of the outputs (Y or \overline{Y}) are in the high-impedance state regardless of all other input conditions.

Moving data from two groups of registers to four common output buses is a common use of the 'AC257, 'ACT257, and CD74ACT258. The state of the Select input determines the particular register from which the data comes. The 'AC257, 'ACT257 and CD74ACT258 can also be used as function generators.

Ordering Information

PART NUMBER	TEMP. RANGE (°C)	PACKAGE
CD54AC257F3A	-55 to 125	16 Ld CERDIP
CD74AC257E	0 to 70°C, -40 to 85, -55 to 125	16 Ld PDIP
CD74AC257M	0 to 70°C, -40 to 85, -55 to 125	16 Ld SOIC
CD54ACT257F3A	-55 to 125	16 Ld CERDIP
CD74ACT257E	0 to 70°C, -40 to 85, -55 to 125	16 Ld PDIP
CD74ACT257M	0 to 70°C, -40 to 85, -55 to 125	16 Ld SOIC
CD74ACT258E	0 to 70°C, -40 to 85, -55 to 125	16 Ld PDIP
CD74ACT258M	0 to 70°C, -40 to 85, -55 to 125	16 Ld SOIC

Pinout

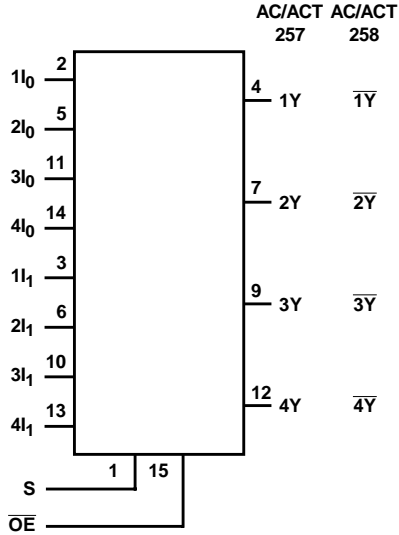


NOTES:

1. When ordering, use the entire part number. Add the suffix 96 to obtain the variant in the tape and reel.
2. Wafer and die for this part number is available which meets all electrical specifications. Please contact your local TI sales office or customer service for ordering information.

CD54/74AC257, CD54/74ACT257, CD74ACT258

Functional Diagram



TRUTH TABLE

OUTPUT ENABLE	SELECT INPUT	DATA INPUTS		257 OUTPUTS	258 OUTPUTS
\overline{OE}	S	I_0	I_1	Y	\overline{Y}
H	X	X	X	Z	Z
L	L	L	X	L	H
L	L	H	X	H	L
L	H	X	L	L	H
L	H	X	H	H	L

H = High level voltage, L = Low level voltage, Z = High impedance (off) state, X = Don't Care

CD54/74AC257, CD54/74ACT257, CD74ACT258

Absolute Maximum Ratings

DC Supply Voltage, V_{CC}	-0.5V to 6V
DC Input Diode Current, I_{IK}	
For $V_I < -0.5V$ or $V_I > V_{CC} + 0.5V$	$\pm 20mA$
DC Output Diode Current, I_{OK}	
For $V_O < -0.5V$ or $V_O > V_{CC} + 0.5V$	$\pm 50mA$
DC Output Source or Sink Current per Output Pin, I_O	
For $V_O > -0.5V$ or $V_O < V_{CC} + 0.5V$	$\pm 50mA$
DC V_{CC} or Ground Current, I_{CC} or I_{GND} (Note 3)	$\pm 100mA$

Thermal Information

Thermal Resistance (Typical, Note 5)	θ_{JA} ($^{\circ}C/W$)
PDIP Package	—
SOIC Package	—
Maximum Junction Temperature (Plastic Package)	$150^{\circ}C$
Maximum Storage Temperature Range	$-65^{\circ}C$ to $150^{\circ}C$
Maximum Lead Temperature (Soldering 10s)	$300^{\circ}C$

Operating Conditions

Temperature Range, T_A	$-55^{\circ}C$ to $125^{\circ}C$
Supply Voltage Range, V_{CC} (Note 4)	
AC Types	1.5V to 5.5V
ACT Types	4.5V to 5.5V
DC Input or Output Voltage, V_I , V_O	0V to V_{CC}
Input Rise and Fall Slew Rate, dt/dv	
AC Types, 1.5V to 3V	50ns (Max)
AC Types, 3.6V to 5.5V	20ns (Max)
ACT Types, 4.5V to 5.5V	10ns (Max)

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

NOTES:

3. For up to 4 outputs per device, add $\pm 25mA$ for each additional output.
4. Unless otherwise specified, all voltages are referenced to ground.
5. θ_{JA} is measured with the component mounted on an evaluation PC board in free air.

DC Electrical Specifications

PARAMETER	SYMBOL	TEST CONDITIONS		V_{CC} (V)	25 $^{\circ}C$		-40 $^{\circ}C$ TO 85 $^{\circ}C$		-55 $^{\circ}C$ TO 125 $^{\circ}C$		UNITS	
		V_I (V)	I_O (mA)		MIN	MAX	MIN	MAX	MIN	MAX		
AC TYPES												
High Level Input Voltage	V_{IH}	-	-	1.5	1.2	-	1.2	-	1.2	-	V	
				3	2.1	-	2.1	-	2.1	-	V	
				5.5	3.85	-	3.85	-	3.85	-	V	
Low Level Input Voltage	V_{IL}	-	-	1.5	-	0.3	-	0.3	-	0.3	V	
				3	-	0.9	-	0.9	-	0.9	V	
				5.5	-	1.65	-	1.65	-	1.65	V	
High Level Output Voltage	V_{OH}	V_{IH} or V_{IL}	-0.05	-0.05	1.5	1.4	-	1.4	-	1.4	-	V
			-0.05	-0.05	3	2.9	-	2.9	-	2.9	-	V
			-0.05	-0.05	4.5	4.4	-	4.4	-	4.4	-	V
			-4	-4	3	2.58	-	2.48	-	2.4	-	V
			-24	-24	4.5	3.94	-	3.8	-	3.7	-	V
			-75	-75	5.5	-	-	3.85	-	-	-	V
			(Note 6, 7)	(Note 6, 7)	5.5	-	-	-	-	3.85	-	V

CD54/74AC257, CD54/74ACT257, CD74ACT258

DC Electrical Specifications (Continued)

PARAMETER	SYMBOL	TEST CONDITIONS		V _{CC} (V)	25°C		-40°C TO 85°C		-55°C TO 125°C		UNITS
		V _I (V)	I _O (mA)		MIN	MAX	MIN	MAX	MIN	MAX	
Low Level Output Voltage	V _{OL}	V _{IH} or V _{IL}	0.05	1.5	-	0.1	-	0.1	-	0.1	V
			0.05	3	-	0.1	-	0.1	-	0.1	V
			0.05	4.5	-	0.1	-	0.1	-	0.1	V
			12	3	-	0.36	-	0.44	-	0.5	V
			24	4.5	-	0.36	-	0.44	-	0.5	V
			75 (Note 6, 7)	5.5	-	-	-	1.65	-	-	V
			50 (Note 6, 7)	5.5	-	-	-	-	-	1.65	V
Input Leakage Current	I _I	V _{CC} or GND	-	5.5	-	±0.1	-	±1	-	±1	µA
Three-State Leakage Current	I _{OZ}	V _{IH} or V _{IL} V _O = V _{CC} or GND	-	5.5	-	±0.5	-	±5	-	±10	µA
Quiescent Supply Current MSI	I _{CC}	V _{CC} or GND	0	5.5	-	8	-	80	-	160	µA
ACT TYPES											
High Level Input Voltage	V _{IH}	-	-	4.5 to 5.5	2	-	2	-	2	-	V
Low Level Input Voltage	V _{IL}	-	-	4.5 to 5.5	-	0.8	-	0.8	-	0.8	V
High Level Output Voltage	V _{OH}	V _{IH} or V _{IL}	-0.05	4.5	4.4	-	4.4	-	4.4	-	V
			-24	4.5	3.94	-	3.8	-	3.7	-	V
			-75 (Note 6, 7)	5.5	-	-	3.85	-	-	-	V
			-50 (Note 6, 7)	5.5	-	-	-	-	3.85	-	V
Low Level Output Voltage	V _{OL}	V _{IH} or V _{IL}	0.05	4.5	-	0.1	-	0.1	-	0.1	V
			24	4.5	-	0.36	-	0.44	-	0.5	V
			75 (Note 6, 7)	5.5	-	-	-	1.65	-	-	V
			50 (Note 6, 7)	5.5	-	-	-	-	-	1.65	V
Input Leakage Current	I _I	V _{CC} or GND	-	5.5	-	±0.1	-	±1	-	±1	µA
Three-State or Leakage Current	I _{OZ}	V _{IH} or V _{IL} V _O = V _{CC} or GND	-	5.5	-	±0.5	-	±5	-	±10	µA
Quiescent Supply Current MSI	I _{CC}	V _{CC} or GND	0	5.5	-	8	-	80	-	160	µA
Additional Supply Current per Input Pin TTL Inputs High 1 Unit Load	ΔI _{CC}	V _{CC} -2.1	-	4.5 to 5.5	-	2.4	-	2.8	-	3	mA

NOTES:

- Test one output at a time for a 1-second maximum duration. Measurement is made by forcing current and measuring voltage to minimize power dissipation.
- Test verifies a minimum 50Ω transmission-line-drive capability at 85°C, 75Ω at 125°C.

CD54/74AC257, CD54/74ACT257, CD74ACT258

ACT Input Load Table

INPUT	UNIT LOAD
Data	0.83
S	1.27
OE	1.27

NOTE: Unit load is ΔI_{CC} limit specified in DC Electrical Specifications Table, e.g., 2.4mA max at 25°C.

Switching Specifications Input $t_r, t_f = 3ns, C_L = 50pF$ (Worst Case)

PARAMETER	SYMBOL	V _{CC} (V)	-40°C TO 85°C			-55°C TO 125°C			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
ACT TYPES									
Propagation Delay, In to Y AC/ACT257	t _{PLH} , t _{PHL}	1.5	-	-	106	-	-	117	ns
		3.3 (Note 9)	3.3	-	11.8	3.3	-	13	ns
		5 (Note 10)	2.4	-	8.5	2.3	-	9.3	ns
Propagation Delay, S to Y AC/ACT257	t _{PLH} , t _{PHL}	1.5	-	-	153	-	-	168	ns
		3.3	4.8	-	17.1	4.7	-	18.8	ns
		5	3.5	-	12.2	3.4	-	13.4	ns
Propagation Delay, OE to Y AC/ACT257	t _{PLZ} , t _{PHZ} , t _{PZL} , t _{PZH}	1.5	-	-	167	-	-	184	ns
		3.3	5.3	-	18.7	5.2	-	20.6	ns
		5	3.8	-	13.4	3.7	-	14.7	ns
Propagation Delay, In to Y 'AC/CD74ACT258	t _{PLH} , t _{PHL}	1.5	-	-	91	-	-	100	ns
		3.3	2.9	-	10.2	2.8	-	11.2	ns
		5	2.1	-	7.3	2	-	8	ns
Propagation Delay, S to Y 'AC/CD74ACT258	t _{PLH} , t _{PHL}	1.5	-	-	153	-	-	168	ns
		3.3	4.8	-	17.1	4.7	-	18.8	ns
		5	3.5	-	12.2	3.4	-	13.4	ns
Propagation Delay, OE to Y 'AC/CD74ACT258	t _{PLZ} , t _{PHZ} , t _{PZL} , t _{PZH}	1.5	-	-	167	-	-	184	ns
		3.3	5.3	-	18.7	5.2	-	20.6	ns
		5	3.8	-	13.4	3.7	-	14.7	ns
Three-State Output Capacitance	C _O	-	-	-	15	-	-	15	pF
Input Capacitance	C _I	-	-	-	10	-	-	10	pF
Power Dissipation Capacitance	C _{PD} (Note 11)	-	-	130	-	-	130	-	pF
ACT TYPES									
Propagation Delay, In to Y AC/ACT257	t _{PLH} , t _{PHL}	5 (Note 10)	2.8	-	9.7	2.7	-	10.7	ns
Propagation Delay, S to Y AC/ACT257	t _{PLH} , t _{PHL}	5	4	-	14	3.9	-	15.4	ns

CD54/74AC257, CD54/74ACT257, CD74ACT258

Switching Specifications Input $t_r, t_f = 3\text{ns}$, $C_L = 50\text{pF}$ (Worst Case) (Continued)

PARAMETER	SYMBOL	V_{CC} (V)	-40°C TO 85°C			-55°C TO 125°C			UNITS
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay, $\overline{\text{OE}}$ to Y AC/ACT257	$t_{PLZ}, t_{PHZ}, t_{PZL}, t_{PZH}$	5	4.1	-	14.6	4	-	16.1	ns
Propagation Delay, In to Y 'AC/CD74ACT258	t_{PLH}, t_{PHL}	5	2.4	-	8.5	2.3	-	9.3	ns
Propagation Delay, S to Y 'AC/CD74ACT258	t_{PLH}, t_{PHL}	5	4	-	14	3.9	-	15.4	ns
Propagation Delay, $\overline{\text{OE}}$ to Y 'AC/CD74ACT258	$t_{PLZ}, t_{PHZ}, t_{PZL}, t_{PZH}$	5	4.1	-	14.6	4	-	16.1	ns
Three-State Output Capacitance	C_O	-	-	-	15	-	-	15	pF
Input Capacitance	C_I	-	-	-	10	-	-	10	pF
Power Dissipation Capacitance	C_{PD} (Note 11)	-	-	130	-	-	130	-	pF

NOTES:

8. Limits tested 100%.
9. 3.3V Min is at 3.6V, Max is at 3V.
10. 5V Min is at 5.5V, Max is at 4.5V.
11. C_{PD} is used to determine the dynamic power consumption per multiplexer.
 AC: $P_D = C_{PD} V_{CC}^2 f_i + \sum (C_L V_{CC}^2 f_o)$
 ACT: $P_D = C_{PD} V_{CC}^2 f_i + \sum (C_L V_{CC}^2 f_o) + V_{CC} \Delta I_{CC}$ where f_i = input frequency, f_o = output frequency, C_L = output load capacitance, V_{CC} = supply voltage.

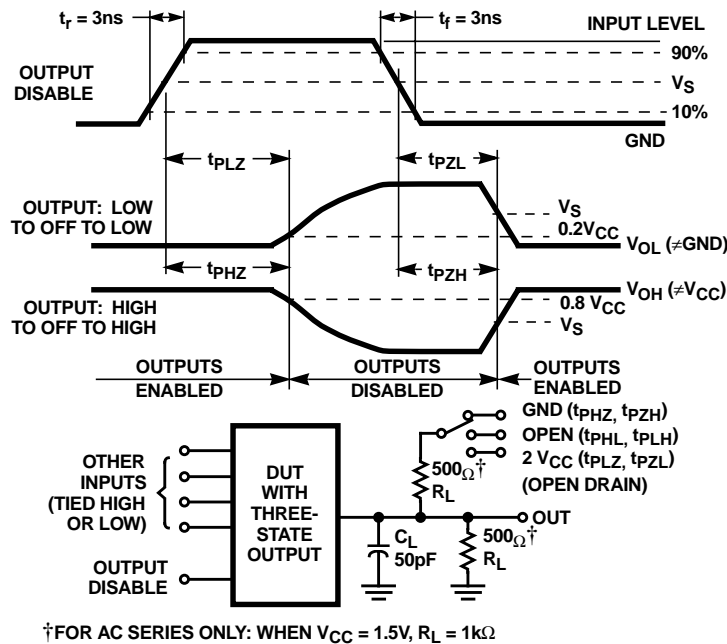


FIGURE 1. THREE-STATE PROPAGATION DELAY TIMES AND TEST CIRCUIT

CD54/74AC257, CD54/74ACT257, CD74ACT258

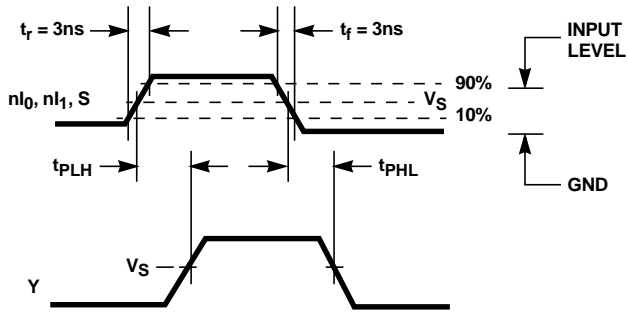


FIGURE 2. INPUTS OR SELECT TO OUTPUT PROPAGATION DELAYS (AC/ACT257)

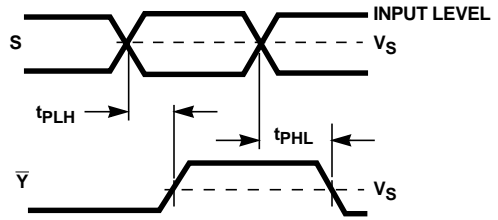
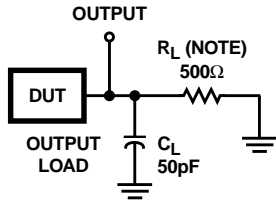


FIGURE 3. SELECT TO OUTPUT PROPAGATION DELAYS (CD74ACT258)



NOTE: For AC Series Only: When $V_{CC} = 1.5V$, $R_L = 1k\Omega$.

	AC	ACT
Input Level	V_{CC}	3V
Input Switching Voltage, V_S	$0.5 V_{CC}$	1.5V
Output Switching Voltage, V_S	$0.5 V_{CC}$	$0.5 V_{CC}$

FIGURE 4. PROPAGATION DELAY TIMES

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PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
CD54AC257F3A	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type
CD54ACT257F3A	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type
CD74AC257E	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74AC257EE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74AC257M	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74AC257M96	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74AC257M96E4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74AC257M96G4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74AC257ME4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74AC257MG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257E	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74ACT257EE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
CD74ACT257M	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257M96	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257M96E4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257M96G4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257ME4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT257MG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
CD74ACT258M	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
CD74ACT258M96	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
CD74ACT258M96E4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
CD74ACT258M96G4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
CD74ACT258ME4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
CD74ACT258MG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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TAPE AND REEL INFORMATION



QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
CD74AC257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT258M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CD74AC257M96	SOIC	D	16	2500	333.2	345.9	28.6
CD74ACT257M96	SOIC	D	16	2500	346.0	346.0	33.0
CD74ACT257M96	SOIC	D	16	2500	333.2	345.9	28.6
CD74ACT258M96	SOIC	D	16	2500	333.2	345.9	28.6

J (R-GDIP-T**)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



DIM \ PINS **	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)

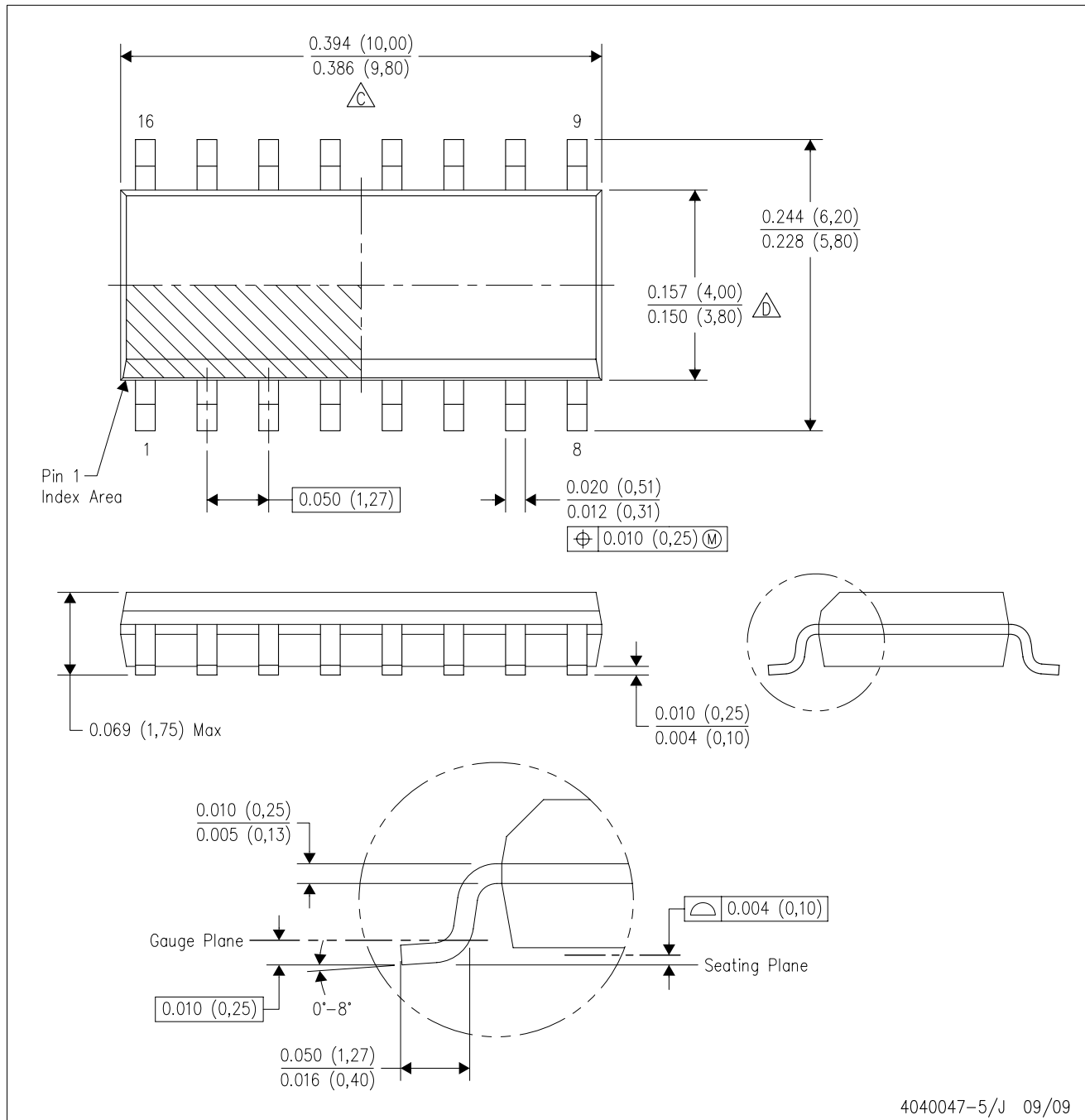


4040083/F 03/03

- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. This package is hermetically sealed with a ceramic lid using glass frit.
 - D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
 - E. Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

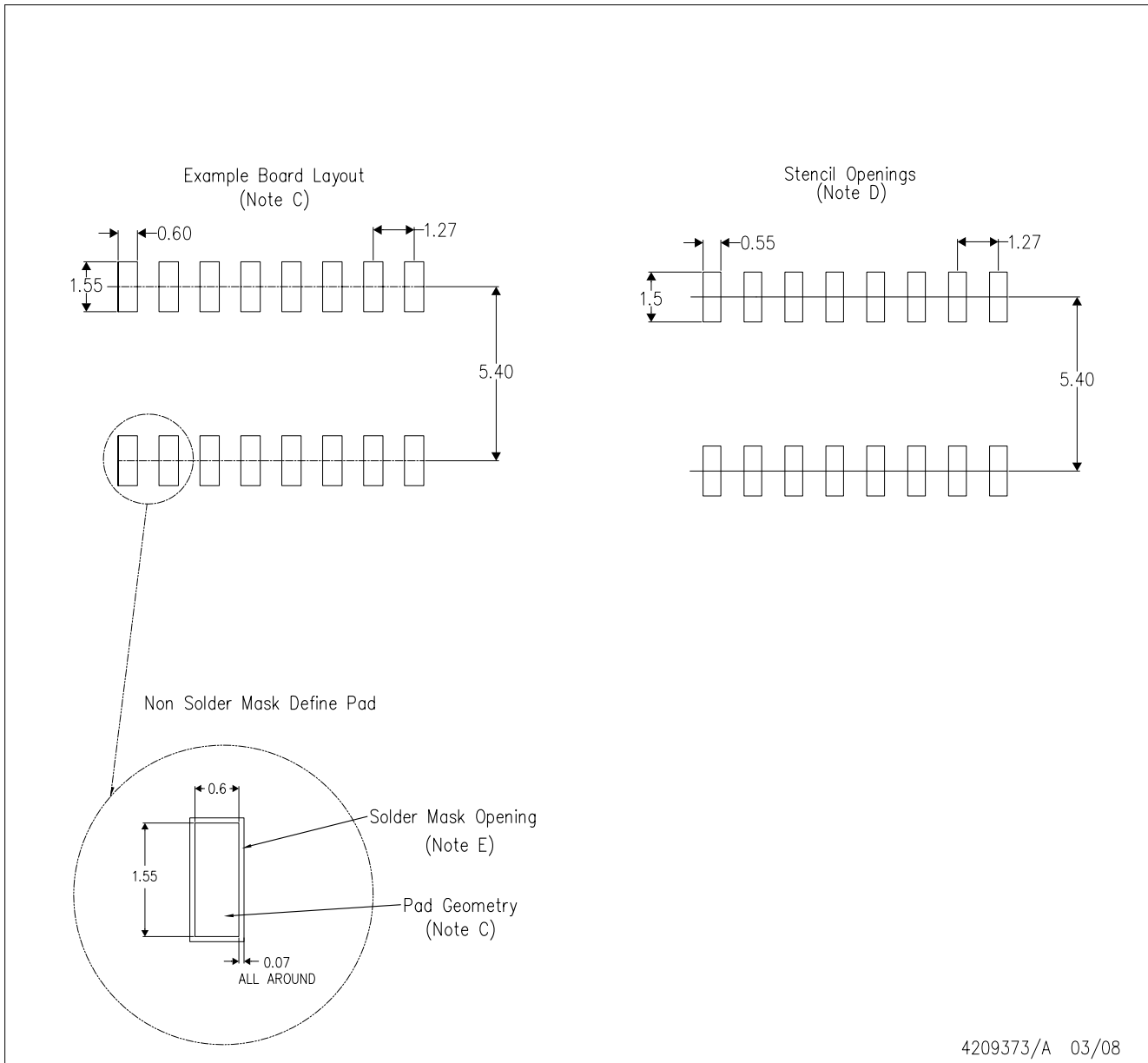
D (R-PDSO-G16)

PLASTIC SMALL-OUTLINE PACKAGE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed .006 (0,15) per end.
 - D. Body width does not include interlead flash. Interlead flash shall not exceed .017 (0,43) per side.
 - E. Reference JEDEC MS-012 variation AC.

D(R-PDSO-G16)



4209373/A 03/08

- NOTES:
- A. All linear dimensions are in millimeters.
 - B. This drawing is subject to change without notice.
 - C. Refer to IPC7351 for alternate board design.
 - D. Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525
 - E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
 - The 20 pin end lead shoulder width is a vendor option, either half or full width.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead finish/ Ball material (6)	MSL Peak Temp (3)	Op Temp (°C)	Device Marking (4/5)	Samples
CD54AC257F3A	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	CD54AC257F3A	Samples
CD54ACT257F3A	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	CD54ACT257F3A	Samples
CD74AC257E	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD74AC257E	Samples
CD74AC257M	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC257M	Samples
CD74AC257M96	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	AC257M	Samples
CD74ACT257E	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD74ACT257E	Samples
CD74ACT257EE4	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD74ACT257E	Samples
CD74ACT257M	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT257M	Samples
CD74ACT257M96	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	ACT257M	Samples
CD74ACT258M	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-2-260C-1 YEAR	-55 to 125	ACT258M	Samples
CD74ACT258M96	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-2-260C-1 YEAR	-55 to 125	ACT258M	Samples

(1) The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

(2) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

(3) MSL, Peak Temp. - The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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OTHER QUALIFIED VERSIONS OF CD54AC257, CD54ACT257, CD74AC257, CD74ACT257 :

● Catalog : [CD74AC257](#), [CD74ACT257](#)

● Military : [CD54AC257](#), [CD54ACT257](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE

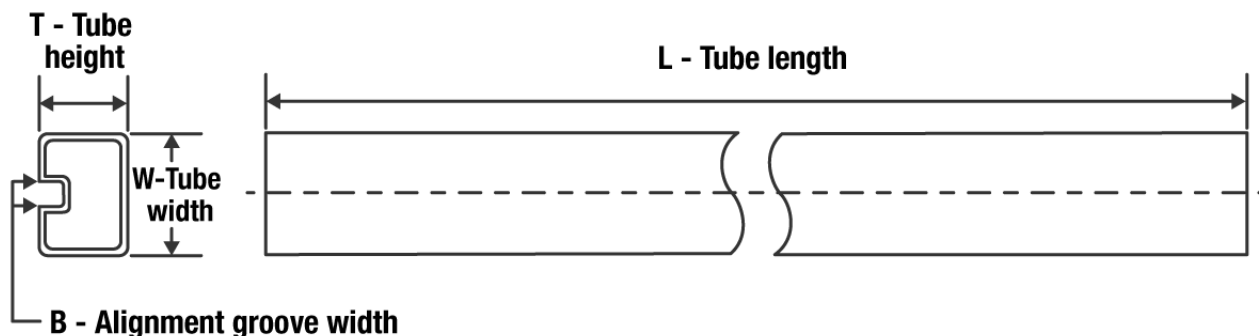

*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
CD74AC257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT257M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD74ACT258M96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CD74AC257M96	SOIC	D	16	2500	340.5	336.1	32.0
CD74ACT257M96	SOIC	D	16	2500	340.5	336.1	32.0
CD74ACT257M96	SOIC	D	16	2500	853.0	449.0	35.0
CD74ACT258M96	SOIC	D	16	2500	340.5	336.1	32.0

TUBE


*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
CD74AC257E	N	PDIP	16	25	506	13.97	11230	4.32
CD74AC257E	N	PDIP	16	25	506	13.97	11230	4.32
CD74AC257M	D	SOIC	16	40	507	8	3940	4.32
CD74ACT257E	N	PDIP	16	25	506	13.97	11230	4.32
CD74ACT257E	N	PDIP	16	25	506	13.97	11230	4.32
CD74ACT257EE4	N	PDIP	16	25	506	13.97	11230	4.32
CD74ACT257EE4	N	PDIP	16	25	506	13.97	11230	4.32
CD74ACT257M	D	SOIC	16	40	506.6	8	3940	4.32
CD74ACT257M	D	SOIC	16	40	507	8	3940	4.32
CD74ACT258M	D	SOIC	16	40	507	8	3940	4.32

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - C. Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.006 (0,15) each side.
 - D. Body width does not include interlead flash. Interlead flash shall not exceed 0.017 (0,43) each side.
 - E. Reference JEDEC MS-012 variation AC.

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



- NOTES:
- All linear dimensions are in millimeters.
 - This drawing is subject to change without notice.
 - Publication IPC-7351 is recommended for alternate designs.
 - Laser cutting apertures with trapezoidal walls and also rounding corners will offer better paste release. Customers should contact their board assembly site for stencil design recommendations. Refer to IPC-7525 for other stencil recommendations.
 - Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.

J (R-GDIP-T**)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



DIM \ PINS **	14	16	18	20
A	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC	0.300 (7,62) BSC
B MAX	0.785 (19,94)	.840 (21,34)	0.960 (24,38)	1.060 (26,92)
B MIN	—	—	—	—
C MAX	0.300 (7,62)	0.300 (7,62)	0.310 (7,87)	0.300 (7,62)
C MIN	0.245 (6,22)	0.245 (6,22)	0.220 (5,59)	0.245 (6,22)



4040083/F 03/03

- NOTES:
- All linear dimensions are in inches (millimeters).
 - This drawing is subject to change without notice.
 - This package is hermetically sealed with a ceramic lid using glass frit.
 - Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
 - Falls within MIL STD 1835 GDIP1-T14, GDIP1-T16, GDIP1-T18 and GDIP1-T20.

N (R-PDIP-T**)

PLASTIC DUAL-IN-LINE PACKAGE

16 PINS SHOWN



- NOTES:
- A. All linear dimensions are in inches (millimeters).
 - B. This drawing is subject to change without notice.
 - Falls within JEDEC MS-001, except 18 and 20 pin minimum body length (Dim A).
 - The 20 pin end lead shoulder width is a vendor option, either half or full width.

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