查询UC2708NEG4供应商 捷多邦，专业PCB打样工厂，24小时加急出货

DUAL NON-INVERTING POWER DRIVER

FEATURES

- 3.0A Peak Current Totem Pole Output
- 5 to 35V Operation
- 25ns Rise and Fall Times
- 25ns Propagation Delays
- Thermal Shutdown and Under-Voltage Protection
- High-Speed, Power MOSFET Compatible
- Efficient High Frequency Operation
- Low Cross-Conduction Current Spike
- Enable and Shutdown Functions
- Wide Input Voltage Range
- ESD Protection to 2kV

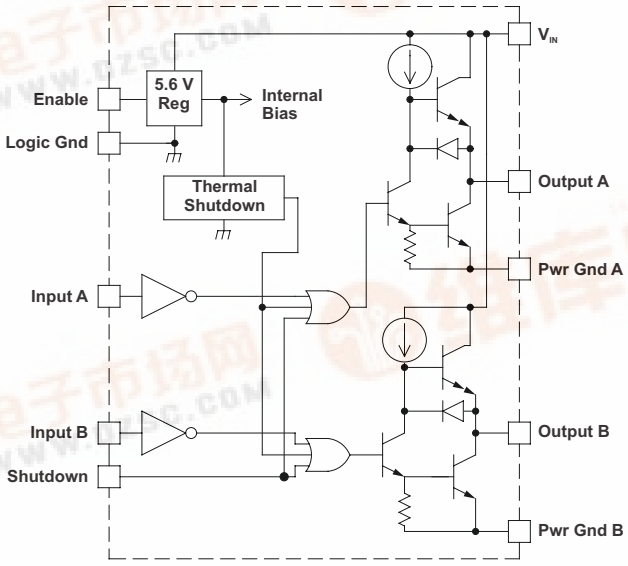
DESCRIPTION

The UC1708 family of power drivers is made with a high-speed, high-voltage, Schottky process to interface control functions and high-power switching devices – particularly power MOSFETs. Operating over a 5 V to 35 V supply range, these devices contain two independent channels. The A and B inputs are compatible with TTL and CMOS logic families, but can withstand input voltages as high as V_{IN}. Each output can source or sink up to 3 A as long as power dissipation limits are not exceeded.

Although each output can be activated independently with its own inputs, they can be forced low in common through the action of either a digital high signal at the Shutdown terminal or by forcing the Enable terminal low. The Shutdown terminal will only force the outputs low, it will not effect the behavior of the rest of the device. The Enable terminal effectively places the device in under-voltage lockout, reducing power consumption by as much as 90%. During under-voltage and disable (Enable terminal forced low) conditions, the outputs are held in a self-biasing, low-voltage, state.

The UC3708 and UC2708 are available in plastic 8-pin MINI DIP and 16-pin *bat-wing* DIP packages for commercial operation over a 0°C to 70°C temperature range and industrial temperature range of –25°C to 85°C respectively. For operation over a –55°C to 125°C temperature range, the UC1708 is available in hermetically sealed 8-pin MINI CDIP, 16 pin CDIP and 20 pin CLCC packages. Surface mount devices are also available.

BLOCK DIAGRAM



NOTE: Shutdown feature is not available in J or N packages only.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Texas

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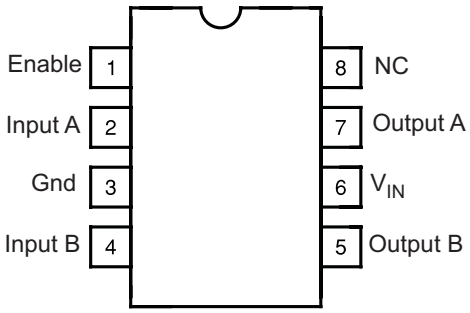
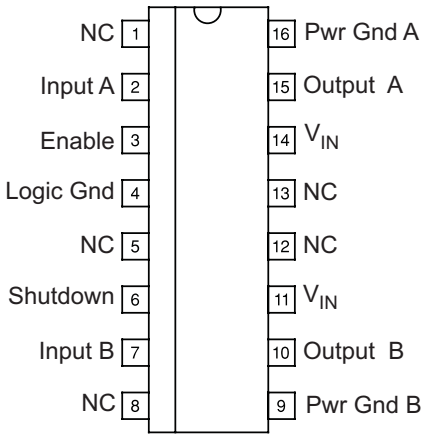
CONNECTION DIAGRAMS

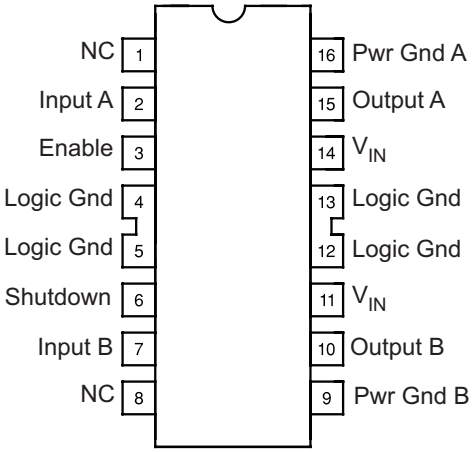
DIL-8 (Top View)
J Or N Package



SOIC-16 (Top View)
DW Package

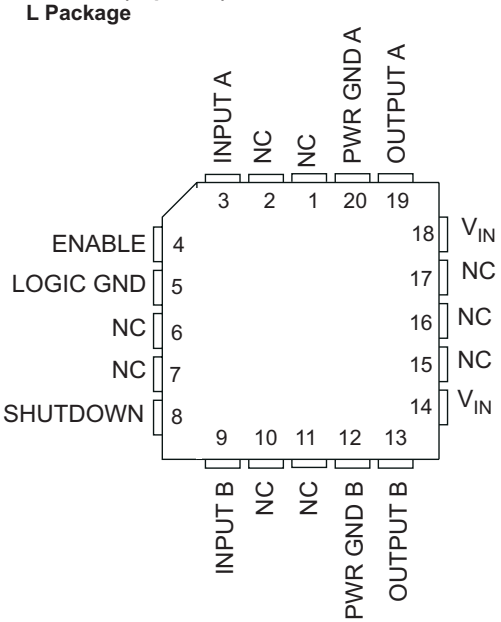


DIL-16 (Top View)
JE Or NE Package



Note: In JE package, Pin 4 is Logic Ground.
Pins 5, 12, and 13 are no connect.

CLCC-20 (Top View)
L Package



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ABSOLUTE MAXIMUM RATINGS(1)

		VALUE	UNIT
Supply Voltage, V_{IN}		35	V
Output Current (Each Output, Source or Sink)	Steady-State	0.5	A
	Peak Transient	3	A
Ouput Voltage		–0.3 to (V_{IN} + 0.3)	V
Enable and Shutdown Inputs		–0.3 to 6.2	V
A and B Inputs		–0.3 to (V_{IN} + 0.3)	V
Operating Junction Temperature(2)		150	°C
Storage Temperature Range		–65 to 150	°C
Lead Temperature (Soldering, 10 Seconds)		300	°C

(1) All voltages are with respect to Logic Gnd pin. All currents are positive into, negative out of, device terminals.r
(2) Consult Unitrode Integrated Circuits databook for information regarding thermal specifications and limitations of packages.

ELECTRICAL CHARACTERISTICS

Unless otherwise stated, V_{IN}=10V to 35V, and these specifications apply for: –55°C<T_A<125°C for the UC1708, –25°C<T_A<85°C for the UC2708, and 0°C<T_A<70°C for the UC3708, T_A = T_J

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
V_{IN}	Supply current	Outputs low		18	26	mA
		Outputs high		14	18	
		Enable = 0 V		1	4	
	A, B and shutdown inputs low level				0.8	V
	A, B and shutdown inputs high level		2.0			V
	A, B Input current low	$V_{A,B}$ = 0.4V	–1	–0.6		mA
	A, B Input current high	$V_{A,B}$ = 2.4V	–200		50	A
	A, B Input leakage current high	$V_{A,B}$ = 35.3V			200	A
	Shutdown input current low	$V_{SHUTDOWN}$ = 0.4V		20	100	A
	Shutdown input current high	$V_{SHUTDOWN}$ = 2.4V		170	500	A
		$V_{SHUTDOWN}$ = 6.2V		0.6	1.5	mA
	Enable input current low	V_{ENABLE} = 0V	–600	–460	200	A
	Enable input current high	V_{ENABLE} = 6.2V			200	A
	Enable threshold rising			2.8	3.6	V
	Enable threshold falling		1.0	2.4	3.4	V
V_{IN} – V_{OUT}	Output High Saturation	I_{OUT} = –50mA			2.0	V
		I_{OUT} = –500mA			2.5	V
V_{OUT}	Output Low Saturation	I_{OUT} = 50mA			0.5	V
		I_{OUT} = 500mA			2.5	V
	Thermal Shutdown			155		°C

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SWITCHING CHARACTERISTICS (see Figure 1)

(VIN = 20V, delays measured to 10% output change.)

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
FROM A,B INPUT TO OUTPUT:						
Rise Time Delay (TPLH)	CL = 0pF			25	40	ns
	CL = 1000pF	UC1708		25	45	ns
		UC2708/UC3708		25	40	
	CL = 2200pF	UC1708		25	50	ns
		UC2708/UC3708		25	45	
10% to 90% Rise (TTLH)	CL = 0pF			55	75	ns
	CL = 1000pF(1)	UC1708		25	80	ns
		UC2708/UC3708		25	50	
	CL = 2200pF	UC1708		40	85	ns
		UC2708/UC3708		40	55	
Fall Time Delay (TPHL)	CL = 0pF			25	40	ns
	CL = 1000pF(1)			25	45	
	CL = 2200pF			35	50	
90% to 10% Fall (TTHL)	CL = 0pF			15	20	ns
	CL = 1000pF(1)			25	45	
	CL = 2200pF			40	55	

(1) These parameters, specified at 1000pF, although ensured over recommended operating conditions, are not tested in production.

SWITCHING CHARACTERISTICS (see Figure 1)

(VIN = 20V, delays measured to 10% output change.)

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
FROM SHUTDOWN INPUT TO OUTPUT:						
Rise Time Delay (TPLH)	CL = 0pF			25	75	ns
	CL = 1000pF(1)	UC1708		30	80	ns
		UC2708/UC3708		30	75	
	CL = 2200pF	UC1708		35	85	ns
		UC2708/UC3708		35	75	
10% to 90% Rise (TTLH)	CL = 0pF			50	75	ns
	CL = 1000pF(1)	UC1708		25	80	ns
		UC2708/UC3708		25	50	
	CL = 2200pF	UC1708		40	85	ns
		UC2708/UC3708		40	55	
Fall Time Delay (TPHL)	CL = 0pF			25	45	ns
	CL = 1000pF(1)			30	50	
	CL = 2200pF			35	55	
90% to 10% Fall (TTHL)	CL = 0pF			25	20	ns
	CL = 1000pF(1)			25	45	
	CL = 2200pF			40	55	
Total Supply Current	F = 200kHz, 50% duty cycle, both channels; CL = 0pF			23	25	mA
	F = 200kHz, 50% duty cycle, both channels; CL = 2200pF			38	45	

(1) These parameters, specified at 1000pF, although ensured over recommended operating conditions, are not tested in production.

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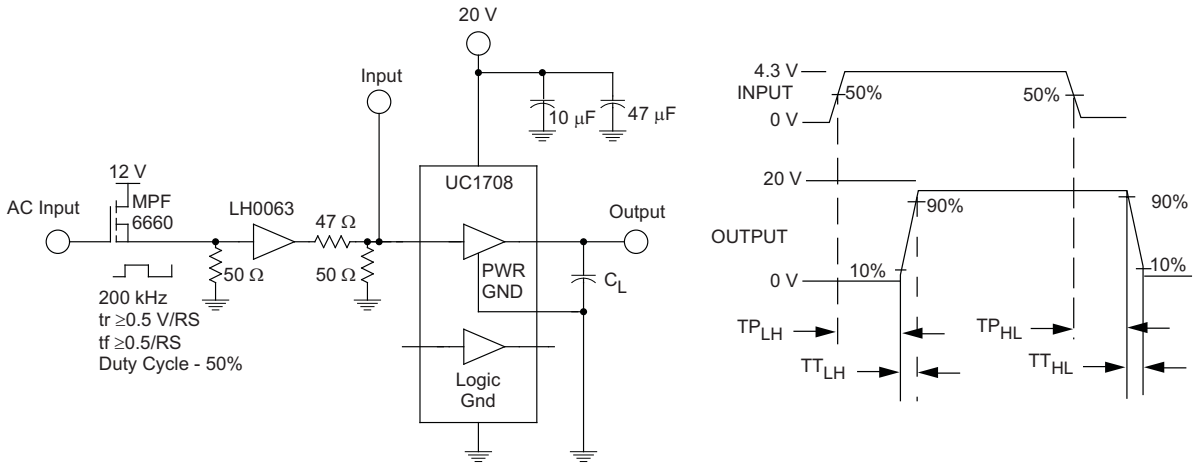
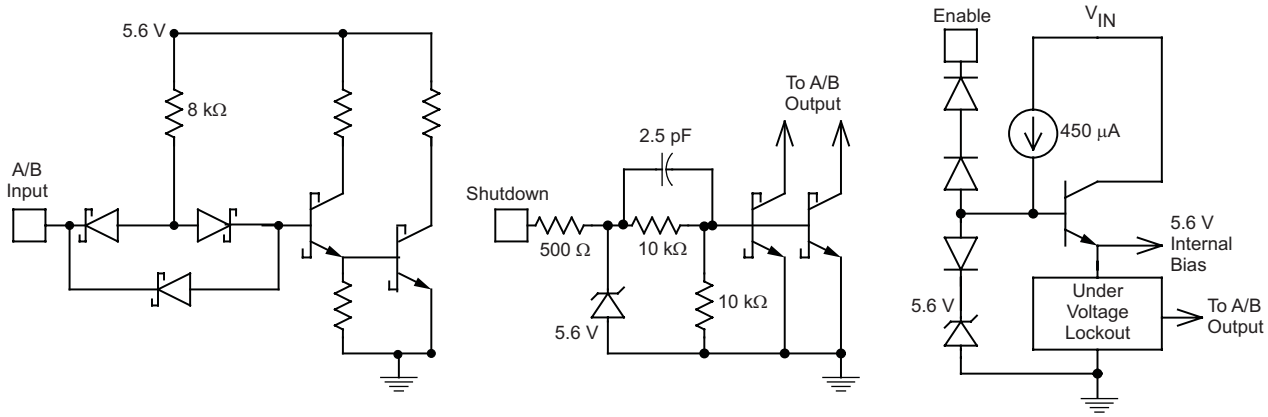


Figure 1. AC Test Circuit and Switching Time Waveforms



NOTE: Shutdown feature available only in JE, NE or DW Packages.

Figure 2. Equivalent Input Circuits

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)
5962-0051401Q2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
5962-0051401QEA	ACTIVE	CDIP	J	16	1	TBD	A42 SNPB	N / A for Pkg Type
5962-0051401QPA	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	N / A for Pkg Type
5962-0051401V2A	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
5962-0051401VEA	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type
5962-0051401VPA	ACTIVE	CDIP	JG	8	1	TBD	A42	N / A for Pkg Type
UC1708J	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	N / A for Pkg Type
UC1708J883B	ACTIVE	CDIP	JG	8	1	TBD	A42 SNPB	N / A for Pkg Type
UC1708JE	ACTIVE	CDIP	J	16	1	TBD	A42 SNPB	N / A for Pkg Type
UC1708JE883B	ACTIVE	CDIP	J	16	1	TBD	A42 SNPB	N / A for Pkg Type
UC1708L883B	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type
UC2708D	OBSOLETE		UTR			TBD	Call TI	Call TI
UC2708DW	ACTIVE	SOIC	DW	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC2708DWG4	ACTIVE	SOIC	DW	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC2708DWTR	ACTIVE	SOIC	DW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC2708DWTRG4	ACTIVE	SOIC	DW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC2708J	OBSOLETE		UTR			TBD	Call TI	Call TI
UC2708JE	OBSOLETE		UTR			TBD	Call TI	Call TI
UC2708N	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC2708NE	ACTIVE	PDIP	N	16	25	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC2708NEG4	ACTIVE	PDIP	N	16	25	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC2708NG4	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC2708Q	OBSOLETE		UTR			TBD	Call TI	Call TI
UC3708DW	ACTIVE	SOIC	DW	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC3708DWG4	ACTIVE	SOIC	DW	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC3708DWTR	ACTIVE	SOIC	DW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC3708DWTRG4	ACTIVE	SOIC	DW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-2-260C-1 YEAR
UC3708N	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC3708NE	ACTIVE	PDIP	N	16	25	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC3708NEG4	ACTIVE	PDIP	N	16	25	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type
UC3708NG4	ACTIVE	PDIP	P	8	50	Green (RoHS & no Sb/Br)	CU NIPDAU	N / A for Pkg Type

Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/Ball Finish	MSL Peak Temp [3]
UC3708Q	OBSOLETE		UTR			TBD	Call TI	Call TI

[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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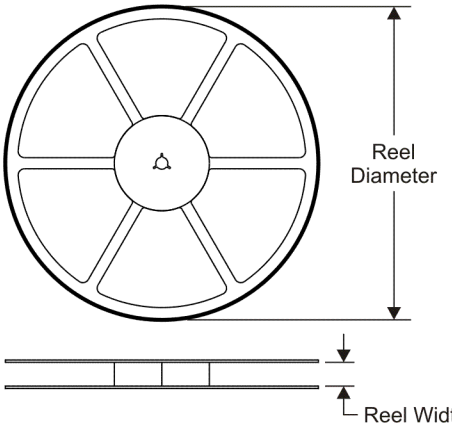
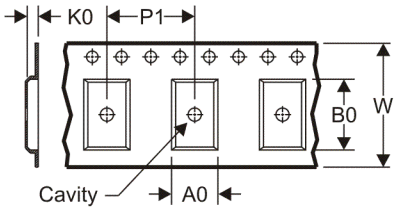
TAPE AND REEL INFORMATION

REEL DIMENSIONS

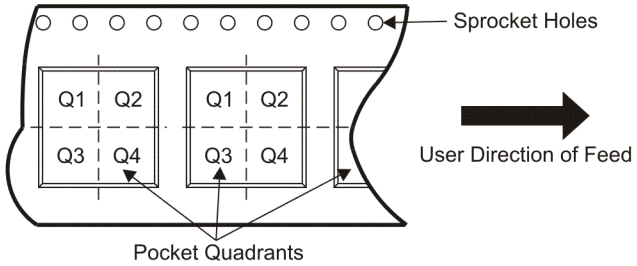


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

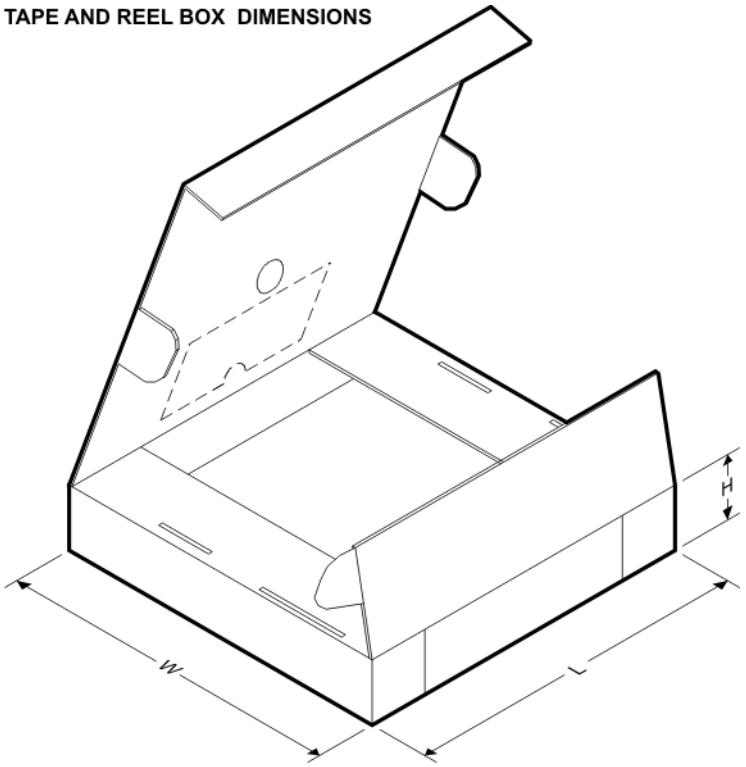
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*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
UC2708DWTR	SOIC	DW	16	2000	330.0	16.4	10.85	10.8	2.7	12.0	16.0	Q1
UC3708DWTR	SOIC	DW	16	2000	330.0	16.4	10.85	10.8	2.7	12.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



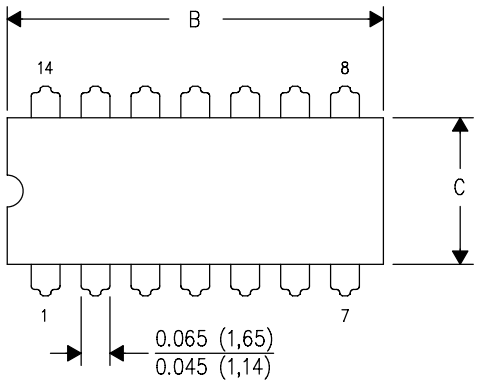
*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
UC2708DWTR	SOIC	DW	16	2000	346.0	346.0	33.0
UC3708DWTR	SOIC	DW	16	2000	346.0	346.0	33.0

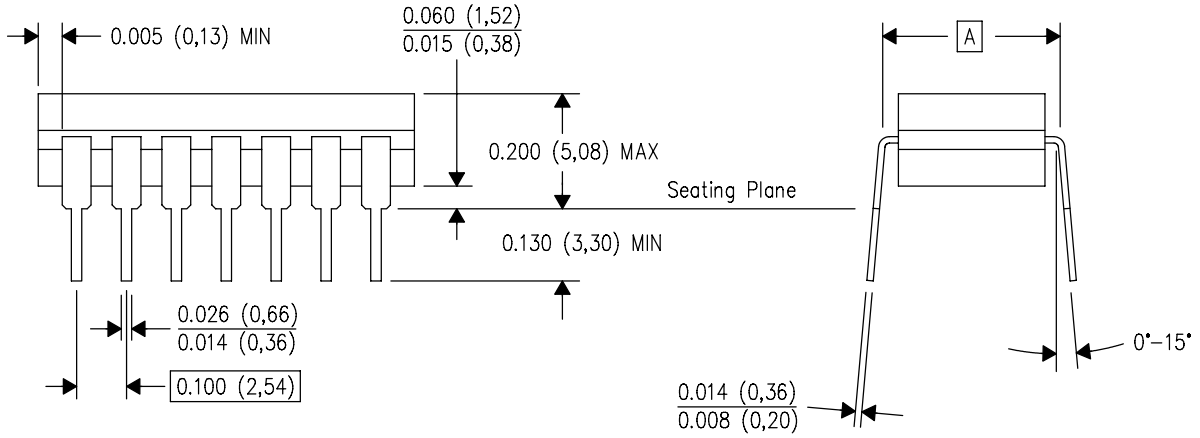
J (R–GDIP–T**)

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)

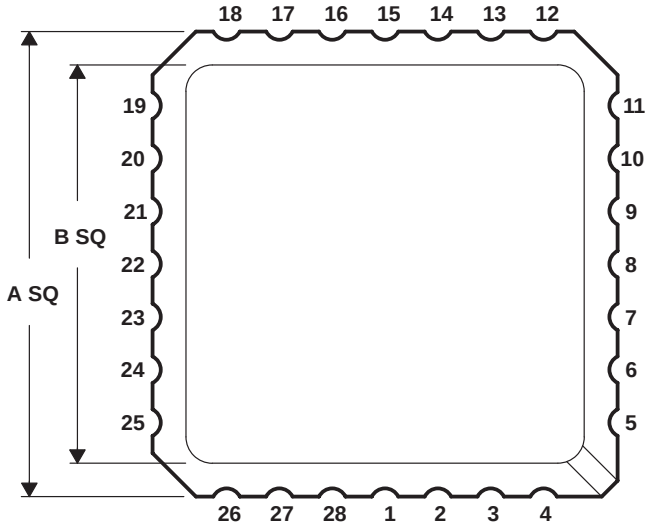


4040083/F 03/03

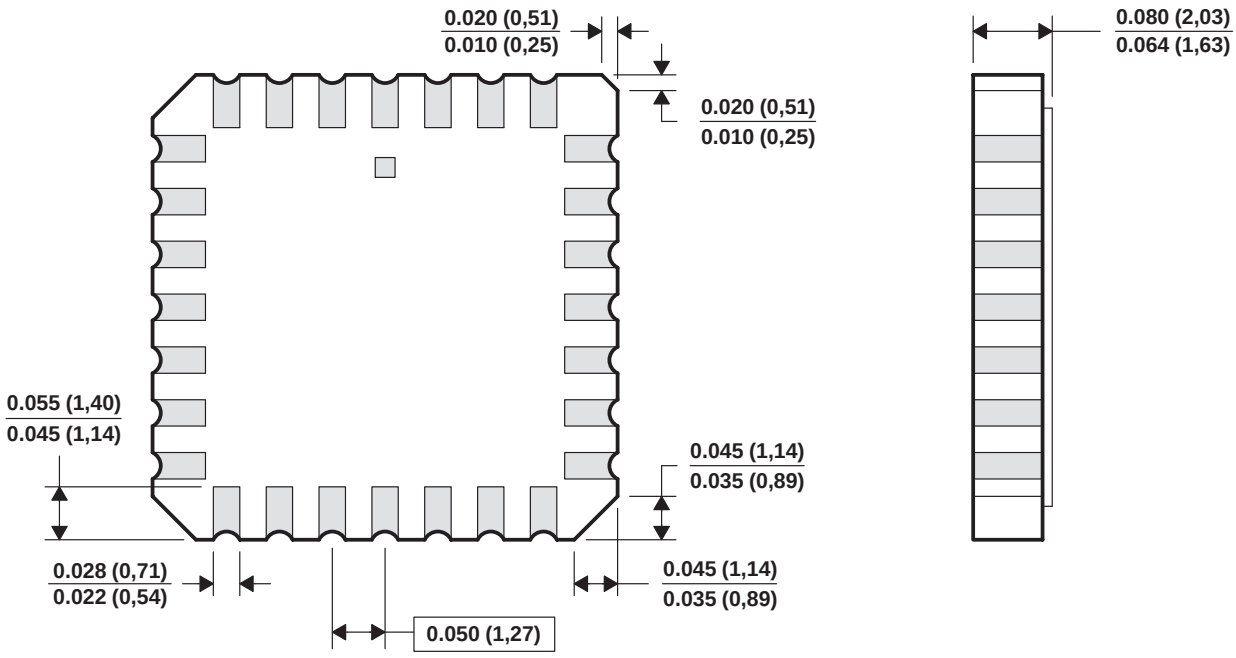
NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package is hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification only on press ceramic glass frit seal only.
E. Falls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

FK (S-CQCC-N)** **LEADLESS CERAMIC CHIP CARRIER**

28 TERMINAL SHOWN



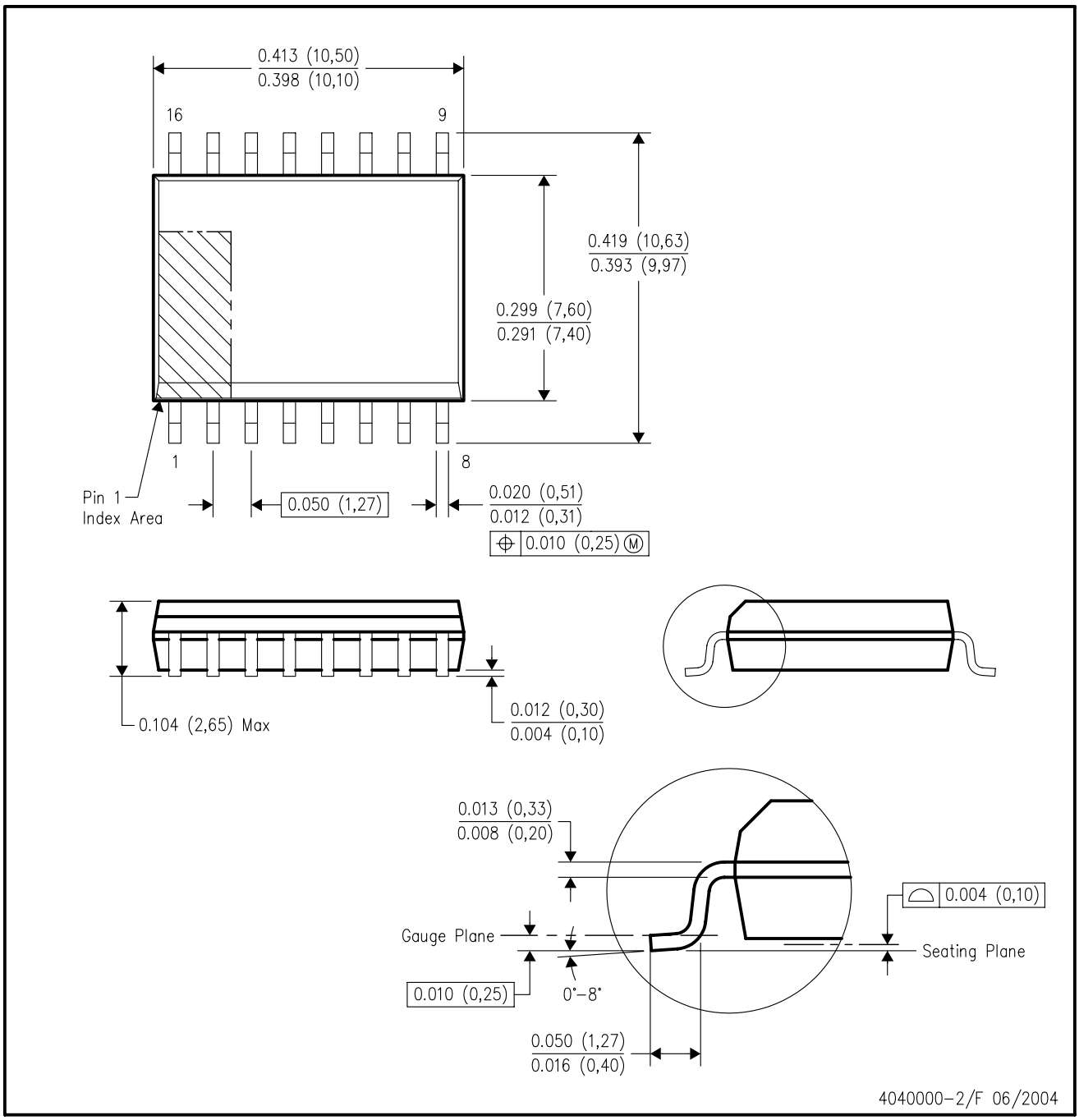
NO. OF TERMINALS **	A		B	
	MIN	MAX	MIN	MAX
20	0.342 (8,69)	0.358 (9,09)	0.307 (7,80)	0.358 (9,09)
28	0.442 (11,23)	0.458 (11,63)	0.406 (10,31)	0.458 (11,63)
44	0.640 (16,26)	0.660 (16,76)	0.495 (12,58)	0.560 (14,22)
52	0.739 (18,78)	0.761 (19,32)	0.495 (12,58)	0.560 (14,22)
68	0.938 (23,83)	0.962 (24,43)	0.850 (21,6)	0.858 (21,8)
84	1.141 (28,99)	1.165 (29,59)	1.047 (26,6)	1.063 (27,0)



4040140/D 10/96

NOTES: A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package can be hermetically sealed with a metal lid.
D. The terminals are gold plated.
E. Falls within JEDEC MS-004

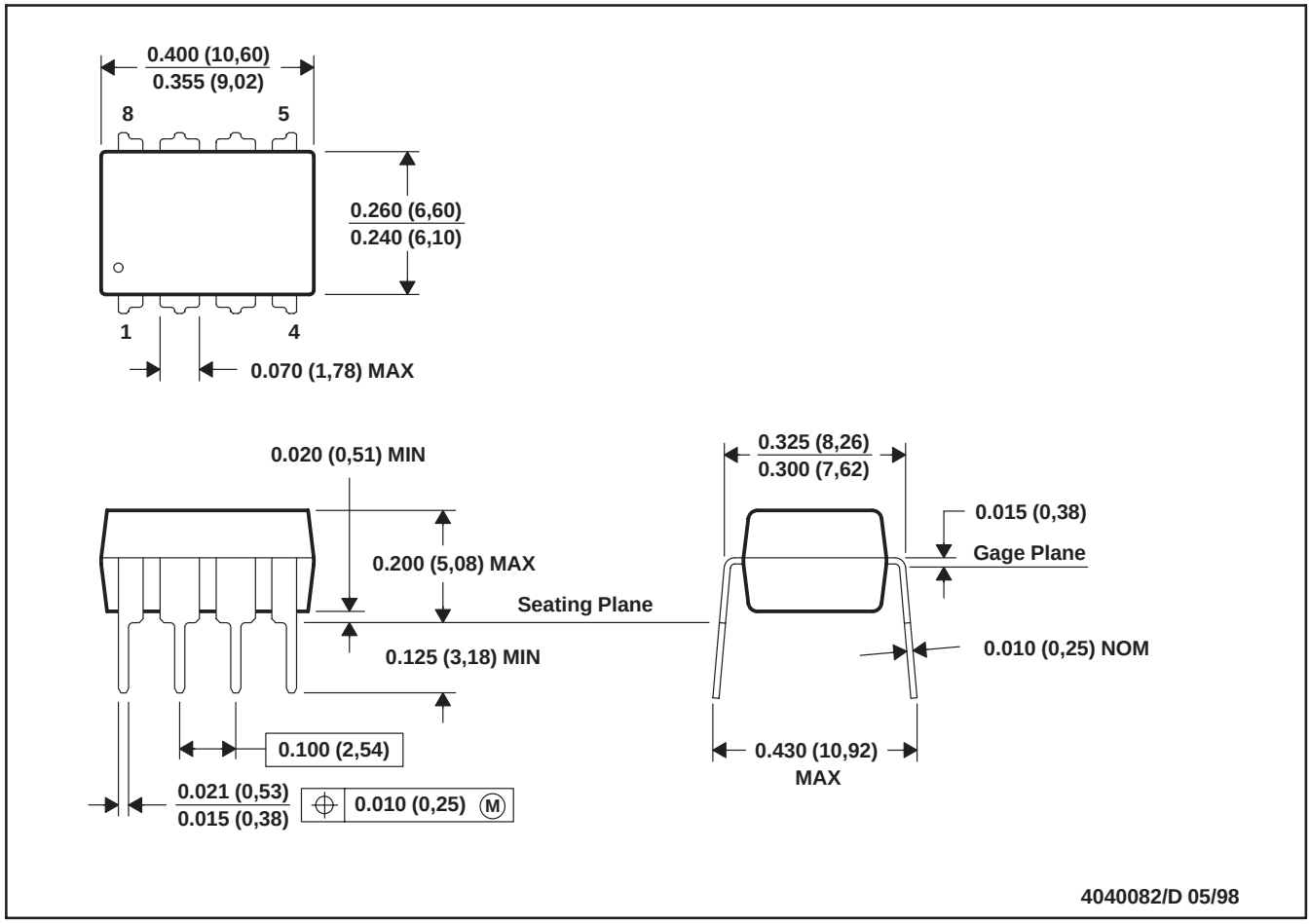
DW (R–PDSO–G16) PLASTIC SMALL–OUTLINE PACKAGE



NOTES:
A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0.006 (0,15).
D. Falls within JEDEC MS–013 variation AA.

MPDI001A – JANUARY 1995 – REVISED JUNE 1999

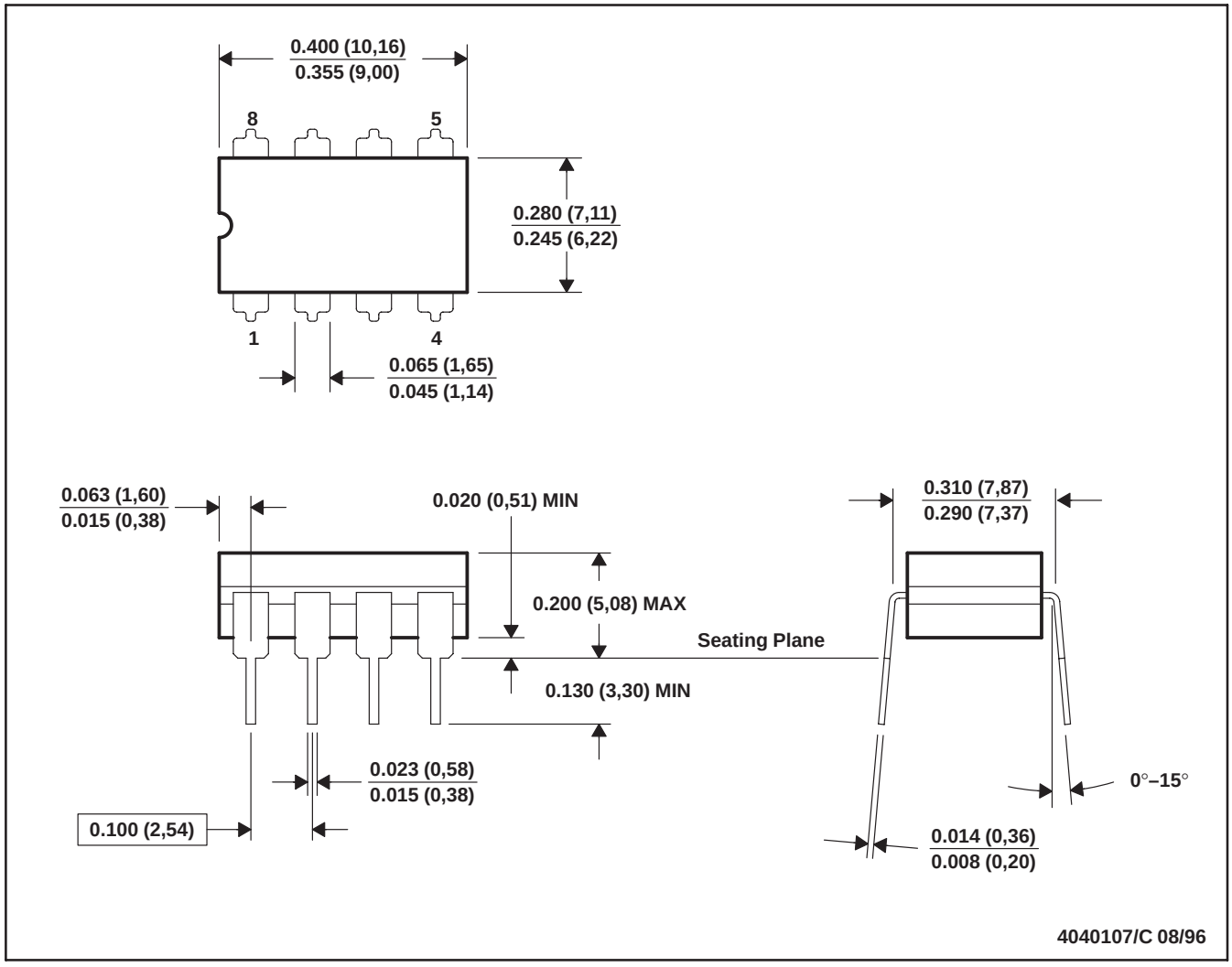
P (R-PDIP-T8) **PLASTIC DUAL-IN-LINE**



NOTES: A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. Falls within JEDEC MS-001

MCER001A – JANUARY 1995 – REVISED JANUARY 1997

JG (R-GDIP-T8) **CERAMIC DUAL-IN-LINE**

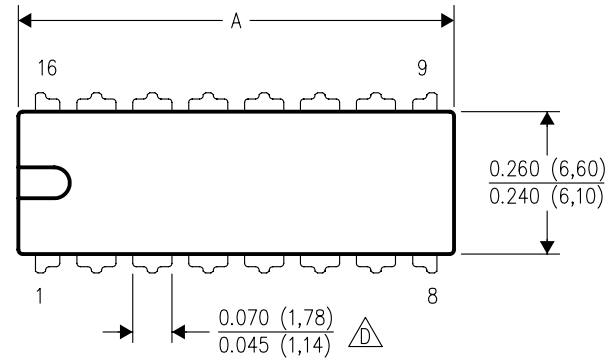


NOTES: A. All linear dimensions are in inches (millimeters).
B. This drawing is subject to change without notice.
C. This package can be hermetically sealed with a ceramic lid using glass frit.
D. Index point is provided on cap for terminal identification.
E. Falls within MIL STD 1835 GDIP1-T8

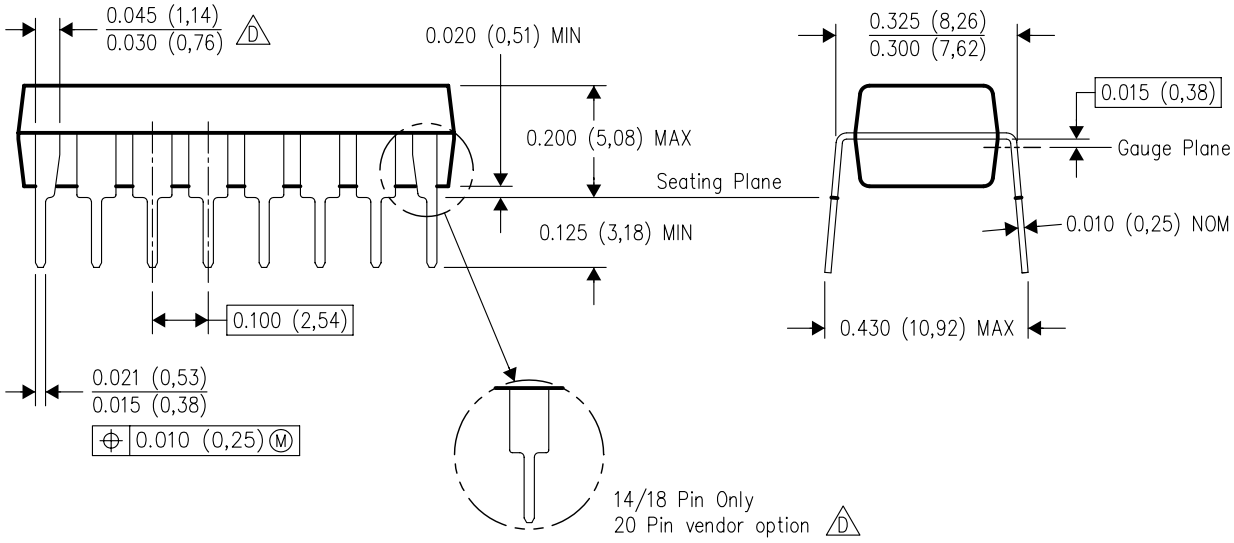
N (R–PDIP–T**)

PLASTIC DUAL–IN–LINE PACKAGE

16 PINS SHOWN



DIM \ PINS **	14	16	18	20
A MAX	0.775 (19,69)	0.775 (19,69)	0.920 (23,37)	1.060 (26,92)
A MIN	0.745 (18,92)	0.745 (18,92)	0.850 (21,59)	0.940 (23,88)
MS–001 VARIATION (C)	AA	BB	AC	AD



4040049/E 12/2002

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

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