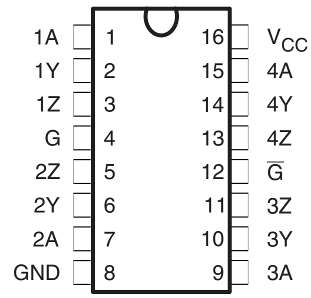
QUADRUPLE DIFFERENTIAL LINE DRIVER

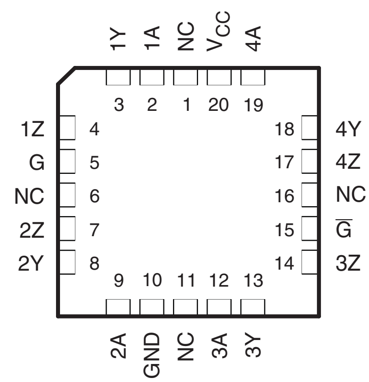
FEATURES

- **Meets or Exceeds the Requirements of TIA/EIA-422-B and ITU Recommendation V.11**
- **Low Power, I_{CC} = 100 μA Typ**
- **Operates From a Single 5-V Supply**
- **High Speed, $t_{PLH} = t_{PHL}$ = 7 ns Typ**
- **Low Pulse Distortion, $t_{sk(p)}$ = 0.5 ns Typ**
- **High Output Impedance in Power-Off Conditions**
- **Improved Replacement for AM26LS31**
- **Available in Q-Temp Automotive**
  - **High-Reliability Automotive Applications**
  - **Configuration Control/Print Support**
  - **Qualification to Automotive Standards**

AM26C31M. . .J OR W PACKAGE
AM26C31Q. . .D PACKAGE
AM26C31C. . .D, DB, OR NS PACKAGE
AM26C31I. . .D, DB, N, NS, OR PW PACKAGE
(TOP VIEW)



AM26C31M. . .FK PACKAGE
(TOP VIEW)



NC – No internal connection

DESCRIPTION/ORDERING INFORMATION

The AM26C31 is a differential line driver with complementary outputs, designed to meet the requirements of TIA/EIA-422-B and ITU (formerly CCITT). The 3-state outputs have high-current capability for driving balanced lines, such as twisted-pair or parallel-wire transmission lines, and they provide the high-impedance state in the power-off condition. The enable functions are common to all four drivers and offer the choice of an active-high (G) or active-low ($\overline{G}$) enable input. BiCMOS circuitry reduces power consumption without sacrificing speed.

The AM26C31C is characterized for operation from 0°C to 70°C, the AM26C31I is characterized for operation from –40°C to 85°C, the AM26C31Q is characterized for operation over the automotive temperature range of –40°C to 125°C, and the AM26C31M is characterized for operation over the full military temperature range of –55°C to 125°C.

ORDERING INFORMATION

T_A	PACKAGE(1)(2)		ORDERABLE PART NUMBER	TOP-SIDE MARKING
0°C to 70°C	PDIP (N)	Tube of 25	AM26C31CN	AM26C31CN
	SOIC (D)	Tube of 40	AM26C31CD	AM26C31C
		Reel of 2500	AM26C31CDR	
	SOP (NS)	Reel of 2000	AM26C31CNSR	26C31
	SSOP (DB)	Reel of 2000	AM26C31CDBR	26C31
–40°C to 85°C	PDIP (N)	Tube of 25	AM26C31IN	AM26C31IN
	SOIC (D)	Tube of 40	AM26C31ID	AM26C31I
		Reel of 2500	AM26C31IDR	
	SOP (NS)	Reel of 2000	AM26C31INSR	26C31I
	SSOP (DB)	Reel of 2000	AM26C31IDBR	26C31I
	TSSOP (PW)	Tube of 90	AM26C31IPW	26C31I
–40°C to 125°C	SOIC (D)	Tube of 40	AM26C31QD	AM26C31QD
		Reel of 2500	AM26C31QDR	
–55°C to 125°C	CDIP (J)	Tube of 25	AM26C31MJ	AM26C31MJ
	CFP (W)	Tube of 150	AM26C31MW	AM26C31MW
	LCCC (FK)	Tube of 55	AM26C31MFK	AM26C31MFK

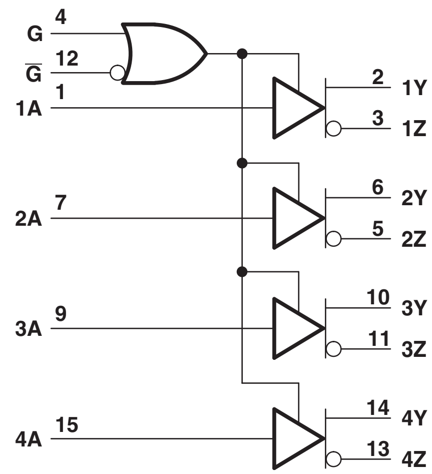
(1) Package drawings, thermal data, and symbolization are available at www.ti.com/packaging.
(2) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI website at www.ti.com.

FUNCTION TABLE
(Each Driver)(1)

INPUT A	ENABLES		OUTPUTS	
	G	$\overline{G}$	Y	Z
H	H	X	H	L
L	H	X	L	H
H	X	L	H	L
L	X	L	L	H
X	L	H	Z	Z

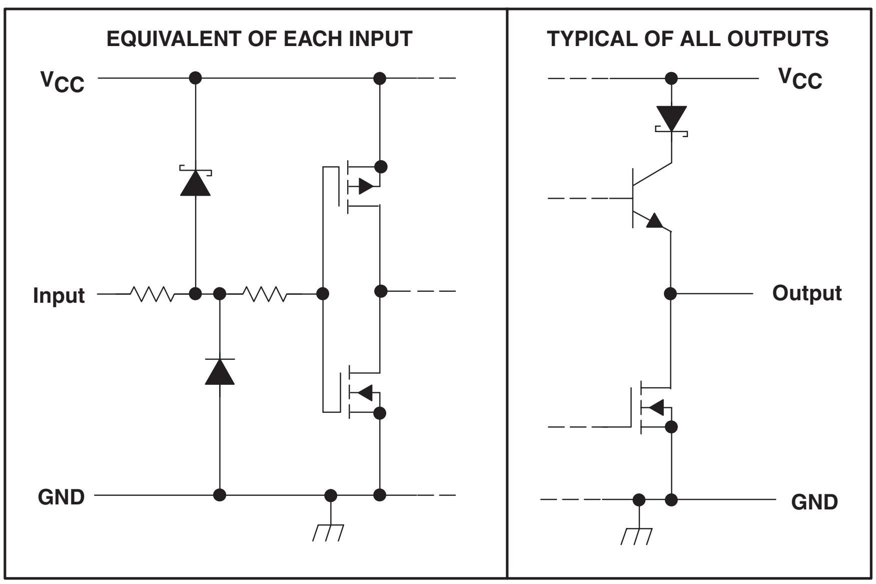
(1) H = High level, L = Low level, X = Irrelevant,
Z = High impedance (off)

LOGIC DIAGRAM (POSITIVE LOGIC)



Pin numbers shown are for the D, DB, J, N, NS, PW, and W packages.

SCHEMATICS OF INPUTS AND OUTPUTS



ABSOLUTE MAXIMUM RATINGS[1]

over operating free-air temperature range (unless otherwise noted)

			MIN	MAX	UNIT
V_{CC}	Supply voltage range[2]		–0.5	7	V
V_I	Input voltage range		–0.5	V_{CC} + 0.5	V
V_{ID}	Differential input voltage range		–14	14	V
V_O	Output voltage range		–0.5	7	
I_{IK} I_{OK}	Input or output clamp current			±20	mA
I_O	Output current			±150	mA
	V_{CC} current			200	mA
	GND current		–200		mA
θ_{JA}	Package thermal impedance[3][4]	D package		73	°C/W
		DB package		82	
		N package		67	
		NS package		64	
		PW package		108	
T_J	Operating virtual junction temperature			150	°C
T_{stg}	Storage temperature range		–65	150	°C

(1) Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
(2) All voltage values, except differential voltages, are with respect to the network ground terminal.
(3) Maximum power dissipation is a function of $T_{J(max)}$, θ_{JA}, and T_A. The maximum allowable power dissipation at any allowable ambient temperature is $P_D = (T_{J(max)} – T_A)/\theta_{JA}$. Operating at the absolute maximum T_J of 150°C can affect reliability.
(4) The package thermal impedance is calculated in accordance with JESD 51-7.

RECOMMENDED OPERATING CONDITIONS

			MIN	NOM	MAX	UNIT
V_{CC}	Supply voltage		4.5	5	5.5	V
V_{ID}	Differential input voltage			±7		V
V_{IH}	High-level input voltage		2			V
V_{IL}	Low-level input voltage				0.8	V
I_{OH}	High-level output current				–20	µA
I_{OL}	Low-level output current				20	mA
T_A	Operating free-air temperature	AM26C31C	0		70	°C
		AM26C31I	–40		85	
		AM26C31Q	–40		125	
		AM26C31M	–55		125	

ELECTRICAL CHARACTERISTICS

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS		AM26C31C AM26C31I MIN	TYP(1)	MAX	UNIT
V_{OH}	High-level output voltage	I_O = –20 mA		2.4	3.4		V
V_{OL}	Low-level output voltage	I_O = 20 mA			0.2	0.4	V
V_{OD}	Differential output voltage magnitude	R_L = 100 Ω,	See Figure 1	2	3.1		V
$\Delta\lvert V_{OD}\rvert$	Change in magnitude of differential output voltage(2)	R_L = 100 Ω,	See Figure 1			±0.4	V
V_{OC}	Common-mode output voltage	R_L = 100 Ω,	See Figure 1			3	V
$\Delta\lvert V_{OC}\rvert$	Change in magnitude of common-mode output voltage(2)	R_L = 100 Ω,	See Figure 1			±0.4	V
I_I	Input current	$V_I = V_{CC}$ or GND				±1	µA
$I_{O(off)}$	Driver output current with power off	V_{CC} = 0	V_O = 6 V			100	µA
			V_O = –0.25 V			–100	
I_{OS}	Driver output short-circuit current	V_O = 0		–30		–150	mA
I_{OZ}	High-impedance off-state output current	V_O = 2.5 V				20	µA
		V_O = 0.5 V				–20	
I_{CC}	Quiescent supply current	I_O = 0	V_I = 0 or 5 V			100	µA
			V_I = 2.4 V or 0.5 V(3)		1.5	3	mA
C_i	Input capacitance				6		pF

(1) All typical values are at V_{CC} = 5 V and T_A = 25°C.
(2) $\Delta\lvert V_{OD}\rvert$ and $\Delta\lvert V_{OC}\rvert$ are the changes in magnitude of V_{OD} and V_{OC}, respectively, that occur when the input is changed from a high level to a low level.
(3) This parameter is measured per input. All other inputs are at 0 or 5 V.

SWITCHING CHARACTERISTICS

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS		AM26C31C AM26C31I MIN	TYP(1)	MAX	UNIT
t_{PLH}	Propagation delay time, low-to-high-level output	S1 is open,	See Figure 2	3	7	12	ns
t_{PHL}	Propagation delay time, high-to-low-level output			3	7	12	
$t_{sk(p)}$	Pulse skew time ($\lvert t_{PLH} - t_{PHL}\rvert$)	S1 is open,	See Figure 2		0.5	4	ns
$t_{r(OD)}$, $t_{f(OD)}$	Differential output rise and fall times	S1 is open,	See Figure 3		5	10	ns
t_{PZH}	Output enable time to high level	S1 is closed,	See Figure 4		10	19	ns
t_{PZL}	Output enable time to low level				10	19	
t_{PHZ}	Output disable time from high level	S1 is closed,	See Figure 4		7	16	ns
t_{PLZ}	Output disable time from low level				7	16	
C_{pd}	Power dissipation capacitance (each driver)(2)	S1 is open,	See Figure 2		170		pF

(1) All typical values are at V_{CC} = 5 V and T_A = 25°C.
(2) C_{pd} is used to estimate the switching losses according to $P_D = C_{pd} \times V_{CC}^2 \times f$, where f is the switching frequency.

ELECTRICAL CHARACTERISTICS

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS		AM26C31Q AM26C31M MIN	TYP[(1)]	MAX	UNIT
V_{OH}	High-level output voltage	I_O = –20 mA		2.2	3.4		V
V_{OL}	Low-level output voltage	I_O = 20 mA			0.2	0.4	V
V_{OD}	Differential output voltage magnitude	R_L = 100 Ω,	See Figure 1	2	3.1		V
$\Delta\lvert V_{OD}\rvert$	Change in magnitude of differential output voltage[(2)]	R_L = 100 Ω,	See Figure 1			±0.4	V
V_{OC}	Common-mode output voltage	R_L = 100 Ω,	See Figure 1			3	V
$\Delta\lvert V_{OC}\rvert$	Change in magnitude of common-mode output voltage[(2)]	R_L = 100 Ω,	See Figure 1			±0.4	V
I_I	Input current	$V_I = V_{CC}$ or GND				±1	µA
$I_{O(off)}$	Driver output current with power off	V_{CC} = 0	V_O = 6 V			100	µA
			V_O = –0.25 V			–100	
I_{OS}	Driver output short-circuit current	V_O = 0				–170	mA
I_{OZ}	High-impedance off-state output current	V_O = 2.5 V				20	µA
		V_O = 0.5 V				–20	
I_{CC}	Quiescent supply current	I_O = 0	V_I = 0 or 5 V			100	µA
			V_I = 2.4 V or 0.5 V[(3)]			3.2	mA
C_i	Input capacitance				6		pF

(1) All typical values are at V_{CC} = 5 V and T_A = 25°C.
(2) $\Delta\lvert V_{OD}\rvert$ and $\Delta\lvert V_{OC}\rvert$ are the changes in magnitude of V_{OD} and V_{OC}, respectively, that occur when the input is changed from a high level to a low level.
(3) This parameter is measured per input. All other inputs are at 0 or 5 V.

SWITCHING CHARACTERISTICS

over recommended ranges of supply voltage and operating free-air temperature (unless otherwise noted)

PARAMETER		TEST CONDITIONS		AM26C31Q AM26C31M MIN	TYP[(1)]	MAX	UNIT
t_{PLH}	Propagation delay time, low-to-high-level output	S1 is open,	See Figure 2		7	12	ns
t_{PHL}	Propagation delay time, high-to-low-level output				6.5	12	
$t_{sk(p)}$	Pulse skew time ($\lvert t_{PLH} - t_{PHL}\rvert$)	S1 is open,	See Figure 2		0.5	4	ns
$t_{r(OD)}$, $t_{f(OD)}$	Differential output rise and fall times	S1 is open,	See Figure 3		5	12	ns
t_{PZH}	Output enable time to high level	S1 is closed,	See Figure 4		10	19	ns
t_{PZL}	Output enable time to low level				10	19	
t_{PHZ}	Output disable time from high level	S1 is closed,	See Figure 4		7	16	ns
t_{PLZ}	Output disable time from low level				7	16	
C_{pd}	Power dissipation capacitance (each driver)[(2)]	S1 is open,	See Figure 2		100		pF

(1) All typical values are at V_{CC} = 5 V and T_A = 25°C.
(2) C_{pd} is used to estimate the switching losses according to $P_D = C_{pd} \times V_{CC}^2 \times f$, where f is the switching frequency.

PARAMETER MEASUREMENT INFORMATION

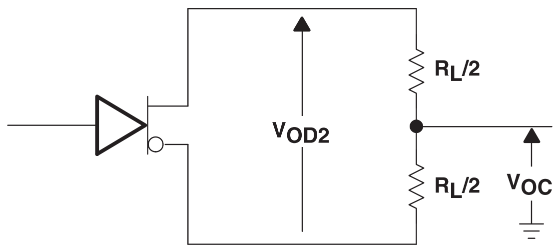
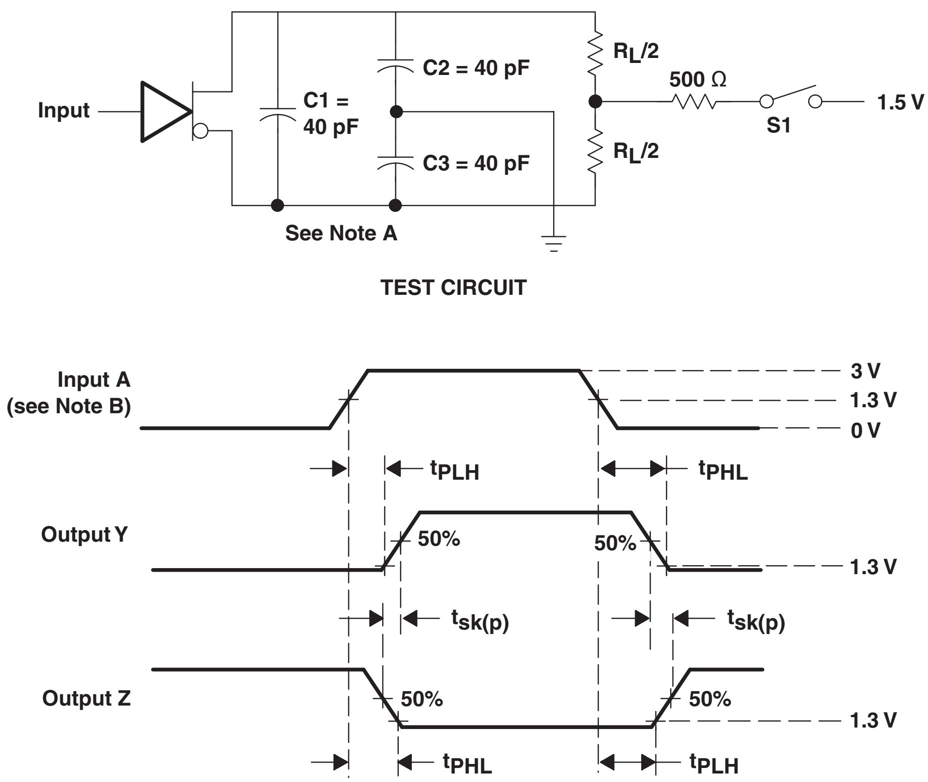


Figure 1. Differential and Common-Mode Output Voltages

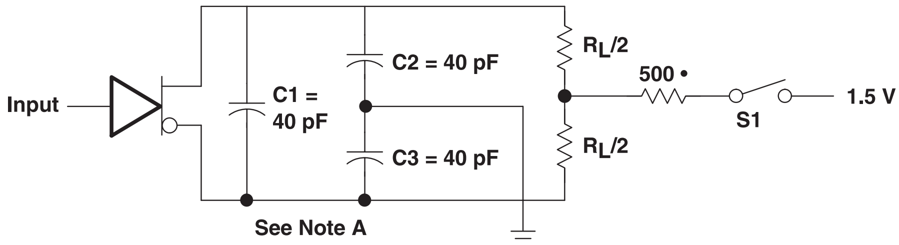


A. C1, C2, and C3 include probe and jig capacitance.

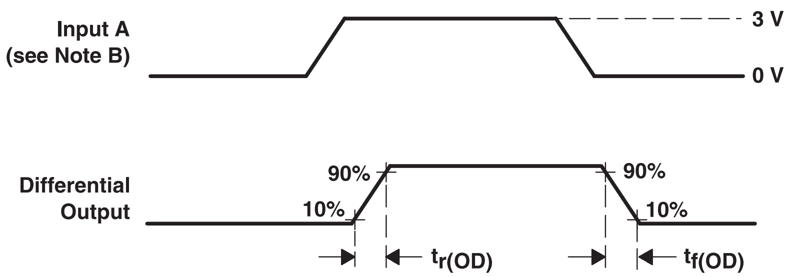
B. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1 MHz, duty cycle ≤ 50%, and t_r, t_f ≤ 6 ns.

Figure 2. Propagation Delay Time and Skew Waveforms and Test Circuit

PARAMETER MEASUREMENT INFORMATION (continued)



TEST CIRCUIT



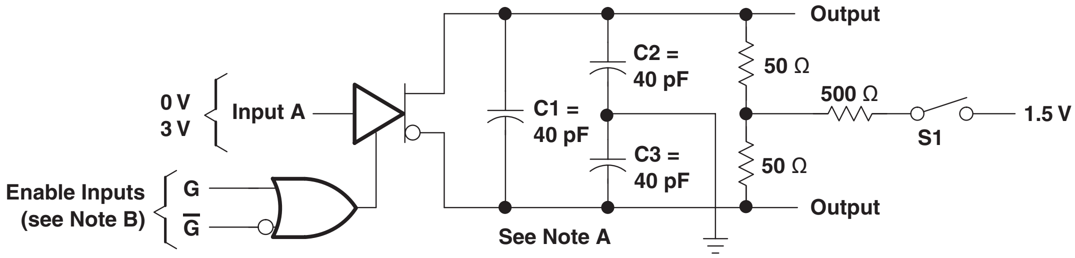
VOLTAGE WAVEFORMS

A. C1, C2, and C3 include probe and jig capacitance.

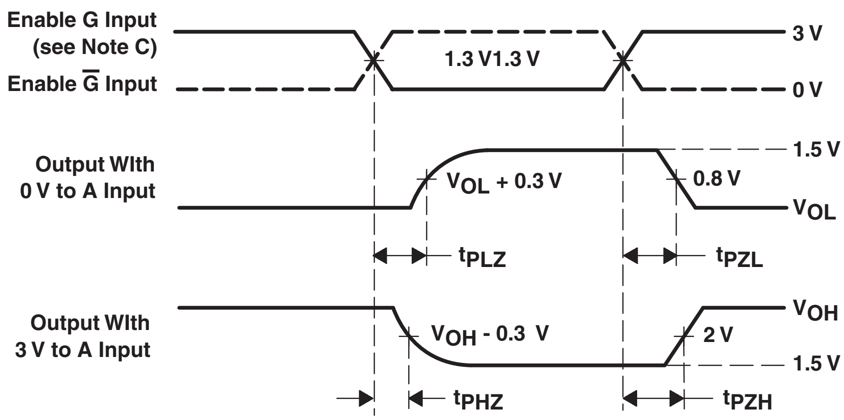
B. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1 MHz, duty cycle ≤ 50%, and t_r, t_f ≤ 6 ns.

Figure 3. Differential-Output Rise- and Fall-Time Waveforms and Test Circuit

PARAMETER MEASUREMENT INFORMATION (continued)



TEST CIRCUIT



VOLTAGE WAVEFORMS

A. C1, C2, and C3 include probe and jig capacitance.
B. All input pulses are supplied by generators having the following characteristics: PRR ≤ 1 MHz, duty cycle ≤ 50%, and t_r, t_f ≤ 6 ns.
C. Each enable is tested separately.

Figure 4. Output Enable- and Disable-Time Waveforms and Test Circuit

TYPICAL CHARACTERISTICS

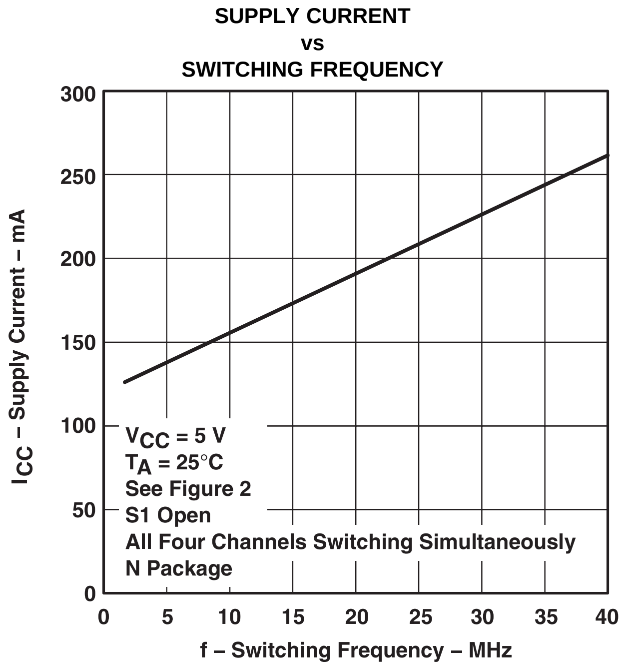


Figure 5.

PACKAGING INFORMATION

Orderable Device	Status (1)	Package Type	Package Drawing	Pins	Package Qty	Eco Plan (2)	Lead/Ball Finish	MSL Peak Temp (3)
AM26C31CD	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDBLE	OBSOLETE	SSOP	DB	16		TBD	Call TI	Call TI
AM26C31CDBR	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDBRE4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDBRG4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDE4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDR	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDRE4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CDRG4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CN	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
AM26C31CNE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
AM26C31CNSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CNSRE4	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31CNSRG4	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31ID	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDBLE	OBSOLETE	SSOP	DB	16		TBD	Call TI	Call TI
AM26C31IDBR	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDBRE4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDBRG4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDE4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDR	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDRE4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IDRG4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IN	ACTIVE	PDIP	N	16	25	Pb-Free	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)
						(RoHS)		
AM26C31INE4	ACTIVE	PDIP	N	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type
AM26C31INSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31INSRG4	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IPW	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IPWE4	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IPWG4	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IPWR	ACTIVE	TSSOP	PW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31IPWRG4	ACTIVE	TSSOP	PW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31QD	ACTIVE	SOIC	D	16	40	TBD	CU NIPDAU	Level-1-220C-UNLIM
AM26C31QDG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
AM26C31QDR	ACTIVE	SOIC	D	16	2500	TBD	CU NIPDAU	Level-1-220C-UNLIM
AM26C31QDRG4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM

(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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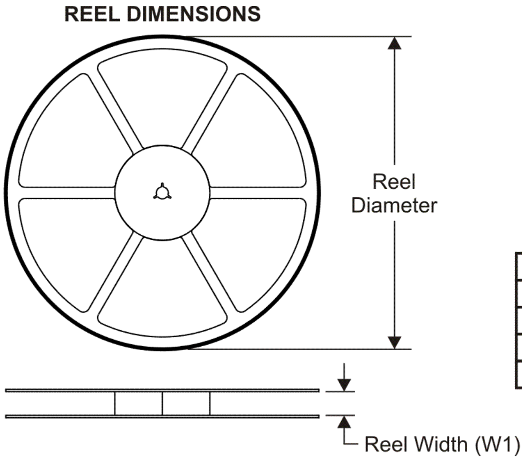
OTHER QUALIFIED VERSIONS OF AM26C31 :

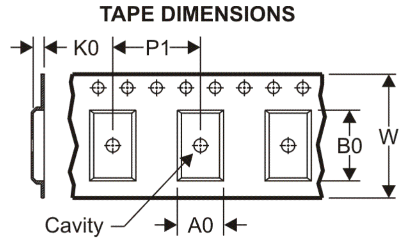
- Enhanced Product: AM26C31-EP
- Military: AM26C31M

NOTE: Qualified Version Definitions:

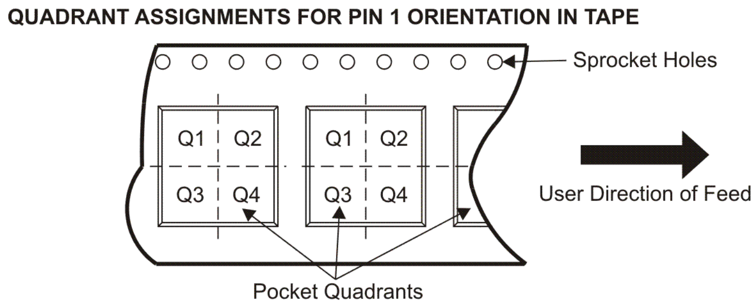
- Enhanced Product - Supports Defense, Aerospace and Medical Applications
- Military - QML certified for Military and Defense Applications

TAPE AND REEL INFORMATION





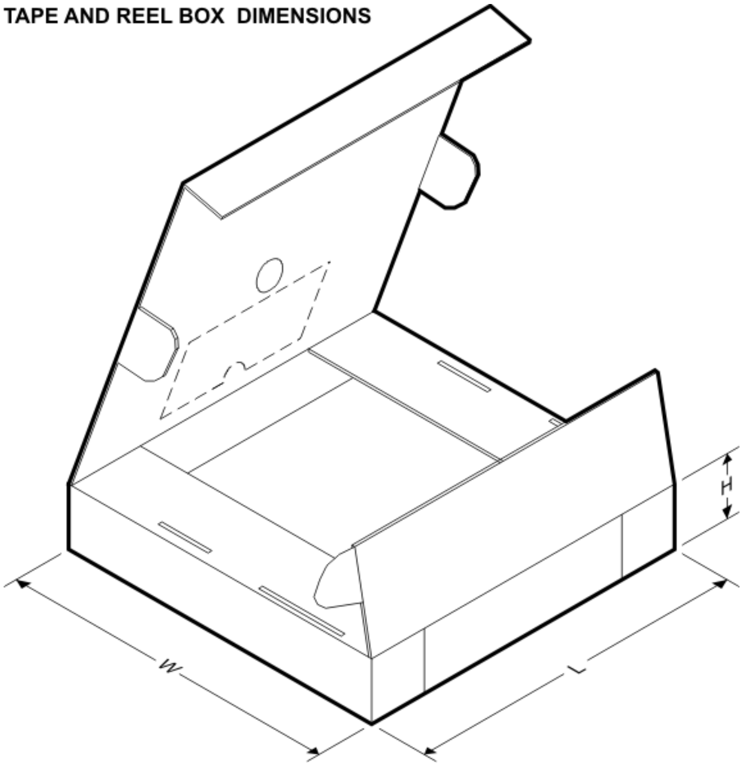
A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers



*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
AM26C31CDBR	SSOP	DB	16	2000	330.0	16.4	8.2	6.6	2.5	12.0	16.0	Q1
AM26C31CDR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
AM26C31CNSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
AM26C31IDBR	SSOP	DB	16	2000	330.0	16.4	8.2	6.6	2.5	12.0	16.0	Q1
AM26C31IDR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
AM26C31INSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
AM26C31IPWR	TSSOP	PW	16	2000	330.0	12.4	7.0	5.6	1.6	8.0	12.0	Q1

TAPE AND REEL BOX DIMENSIONS

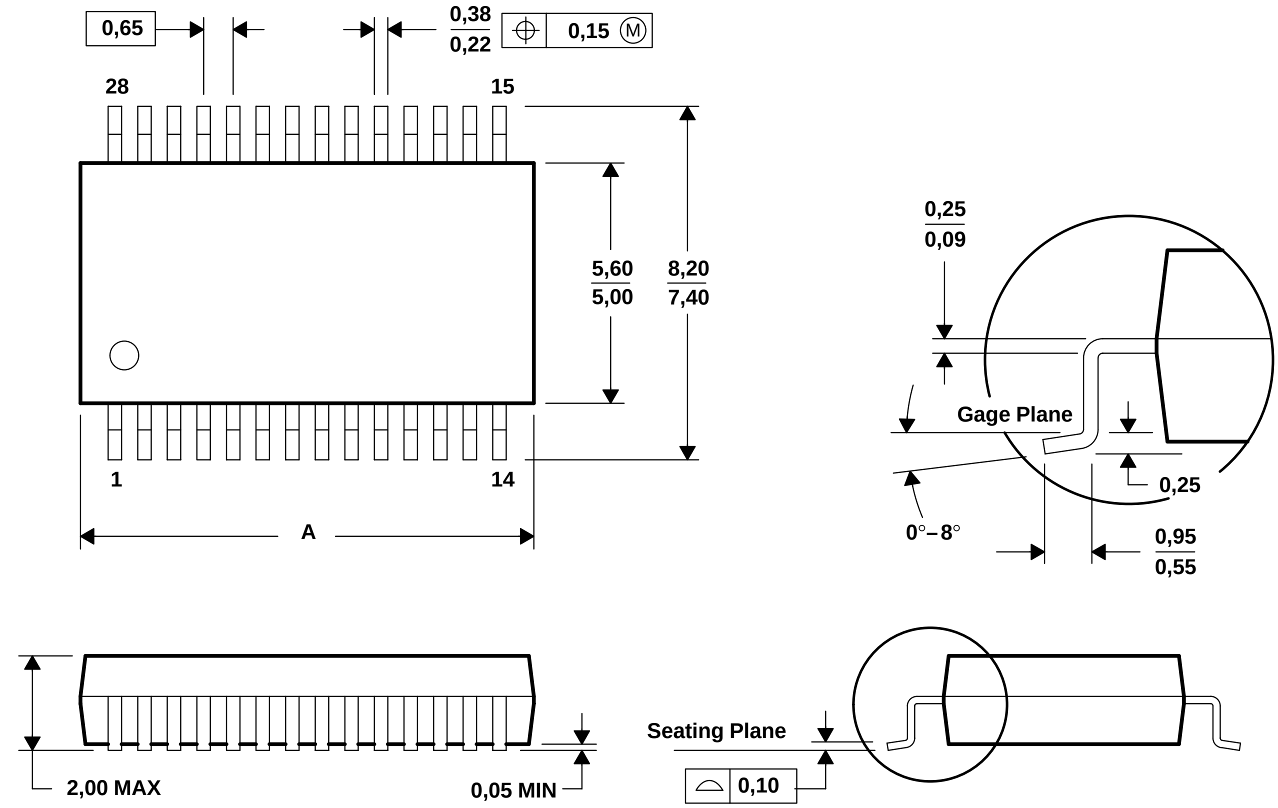


*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
AM26C31CDBR	SSOP	DB	16	2000	346.0	346.0	33.0
AM26C31CDR	SOIC	D	16	2500	333.2	345.9	28.6
AM26C31CNSR	SO	NS	16	2000	346.0	346.0	33.0
AM26C31IDBR	SSOP	DB	16	2000	346.0	346.0	33.0
AM26C31IDR	SOIC	D	16	2500	333.2	345.9	28.6
AM26C31INSR	SO	NS	16	2000	346.0	346.0	33.0
AM26C31IPWR	TSSOP	PW	16	2000	346.0	346.0	29.0

DB (R-PDSO-G)** **PLASTIC SMALL-OUTLINE**

28 PINS SHOWN



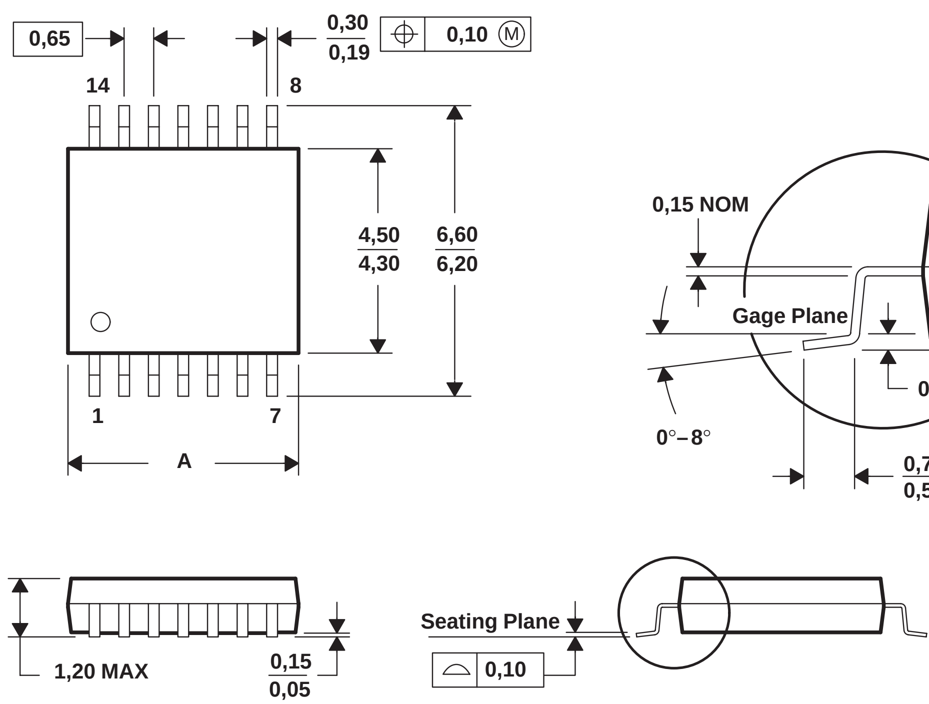
PINS ** / DIM	14	16	20	24	28	30	38
A MAX	6,50	6,50	7,50	8,50	10,50	10,50	12,90
A MIN	5,90	5,90	6,90	7,90	9,90	9,90	12,30

4040065 /E 12/01

NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. Falls within JEDEC MO-150

PW (R-PDSO-G)** **PLASTIC SMALL-OUTLINE PACKAGE**

14 PINS SHOWN



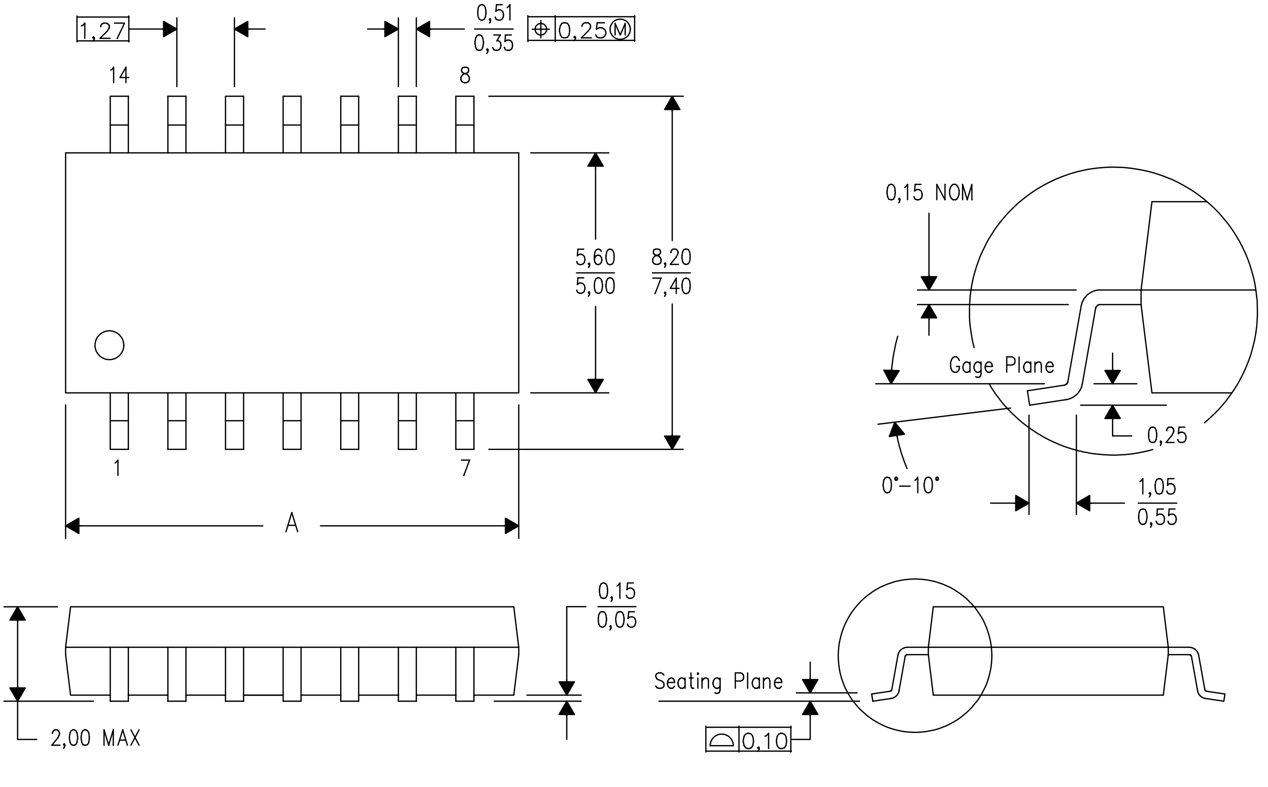
PINS ** / DIM	8	14	16	20	24	28
A MAX	3,10	5,10	5,10	6,60	7,90	9,80
A MIN	2,90	4,90	4,90	6,40	7,70	9,60

4040064/F 01/97

NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. Falls within JEDEC MO-153

NS (R-PDSO-G)** **PLASTIC SMALL-OUTLINE PACKAGE**

14-PINS SHOWN

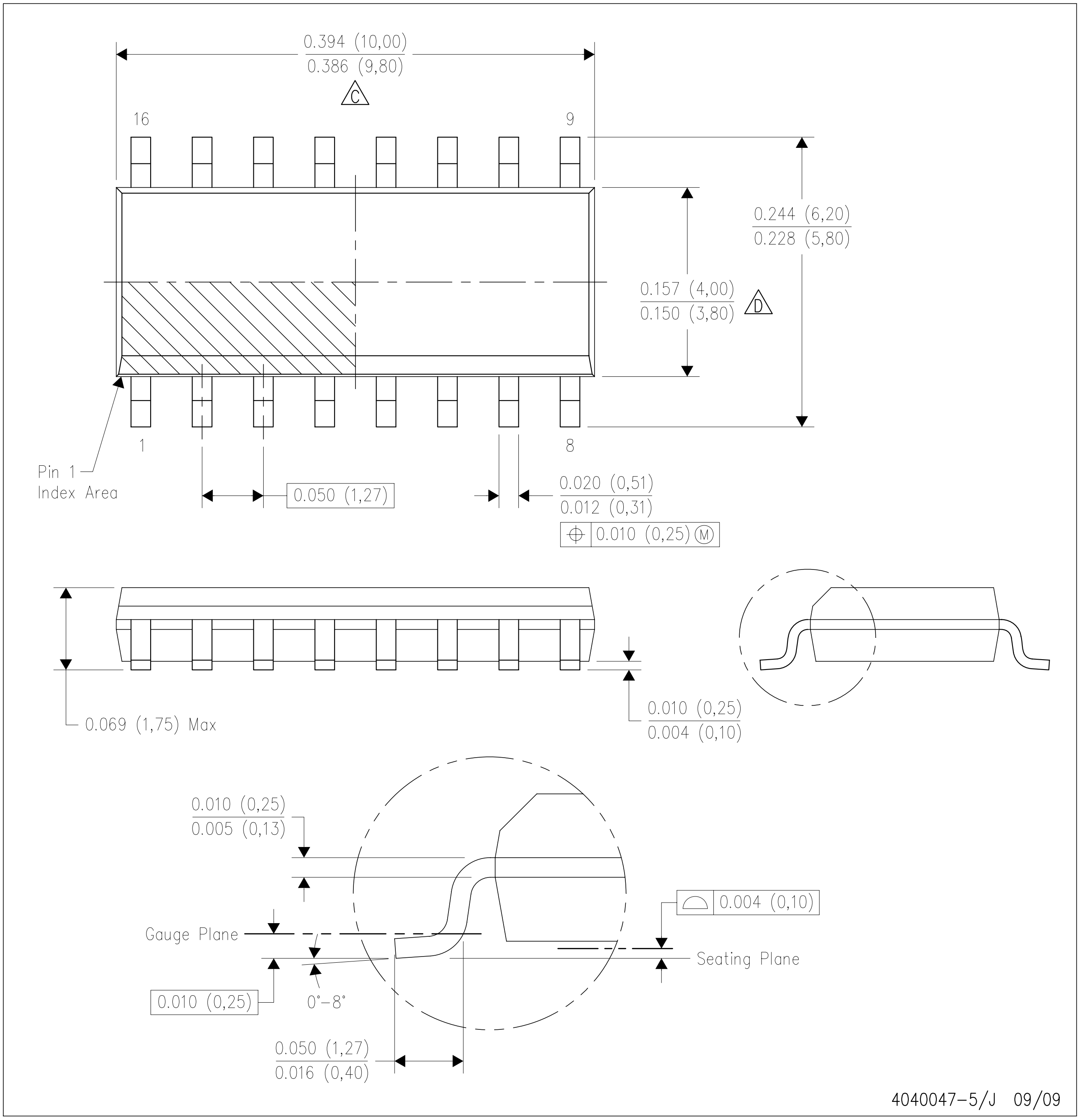


PINS ** / DIM	14	16	20	24
A MAX	10,50	10,50	12,90	15,30
A MIN	9,90	9,90	12,30	14,70

4040062/C 03/03

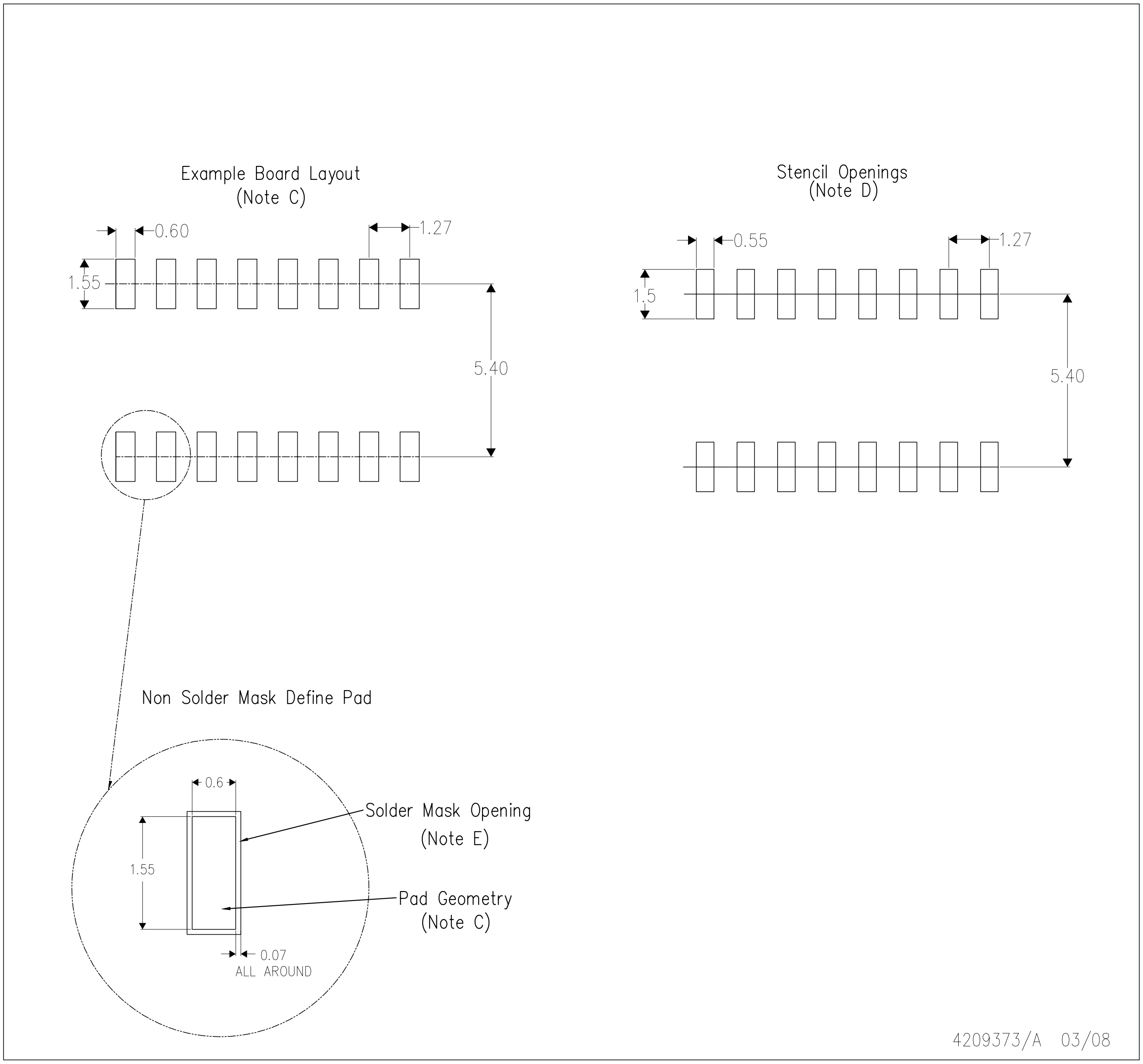
NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.

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)



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.