

SN54265, SN74265 QUADRUPLE COMPLEMENTARY-OUTPUT ELEMENTS

SDLS088

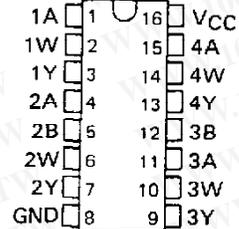
DECEMBER 1983 — REVISED MARCH 1988

FOR SYMMETRICAL GENERATION OF COMPLEMENTARY TTL SIGNALS

- Switching Time Skew of the Complementary Outputs Is Typically 0.5 ns . . . Not More than 3 ns at Rated Loading
- Full Fan-Out to 20 High-Level and 10 Low-Level 54/74 Loads
- Active Pull-Down Provides Square Transfer Characteristics

SN54265 . . . J OR W PACKAGE
SN74265 . . . N PACKAGE

(TOP VIEW)



NC No internal connection

description

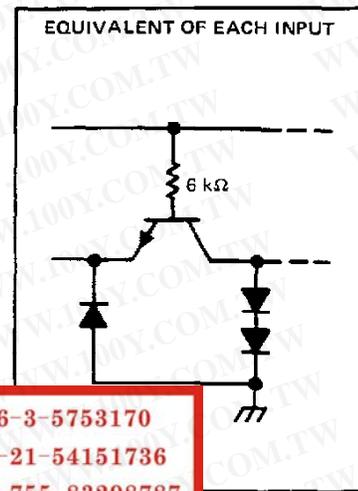
The SN54265 and SN74265 circuits feature complementary outputs from each logic element, which have virtually symmetrical switching time delays from the triggering input. They are designed specifically for use in applications such as:

- Symmetrical clock/clock generators
- Complementary input circuit for decoders and code converters
- Switch debouncing
- Differential line driver

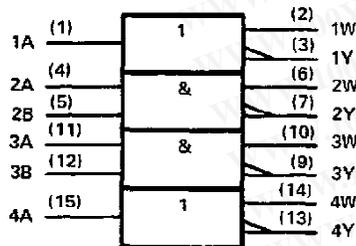
Examples of these four functions are illustrated in the typical application data.

The SN54265 is characterized for operation over the full military temperature range of -55°C to 125°C ; the SN74265 is characterized for operation from 0°C to 70°C .

schematics of inputs and outputs



logic symbol†



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

†This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12.

logic diagrams

ELEMENTS 1 and 4



ELEMENTS 2 and 3

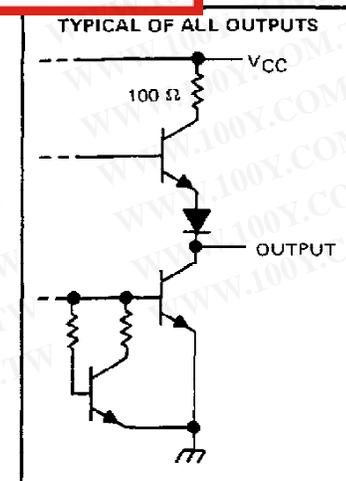


positive logic

$$Y = \bar{A} \quad W = A$$

$$Y = \overline{AB} \text{ or } Y = \bar{A} + \bar{B}$$

$$W = AB \text{ or } W = \bar{A} + \bar{B}$$



PRODUCTION DATA documents contain information current as of publication date. Products conform to specifications per the terms of Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

TEXAS
INSTRUMENTS

POST OFFICE BOX 855012 • DALLAS, TEXAS 75265

SN54265, SN74265 QUADRUPLE COMPLEMENTARY-OUTPUT ELEMENTS

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	5.5 V
Operating free-air temperature range: SN54265	-55°C to 125°C
SN74265	0°C to 70°C
Storage temperature range	-65°C to 150°C

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

NOTE 1. Voltage values are with respect to network ground terminal.

recommended operating conditions

	SN54265			SN74265			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}			-800			-800	μ A
Low-level output current, I_{OL}			16			16	mA
Operating free-air temperature, T_A	-55		125	0		70	°C

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

PARAMETER	TEST CONDITIONS†	MIN	TYP‡	MAX	UNIT
V_{IH} High-level input voltage		2			V
V_{IL} Low-level input voltage				0.8	V
V_{IK} Input clamp voltage	$V_{CC} = \text{MIN}, I_I = -12 \text{ mA}$			-1.5	V
V_{OH} High-level output voltage	$V_{CC} = \text{MIN}, I_{OH} = -800 \mu\text{A}$	2.4	3.4		V
V_{OL} Low-level output voltage	$V_{CC} = \text{MIN}, I_{OL} = 16 \text{ mA}$		0.2	0.4	V
I_I Input current at maximum input voltage	$V_{CC} = \text{MAX}, V_I = 5.5 \text{ V}$			1	mA
I_{IH} High-level input current	$V_{CC} = \text{MAX}, V_I = 2.4 \text{ V}$			40	μ A
I_{IL} Low-level input current	$V_{CC} = \text{MAX}, V_I = 0.4 \text{ V}$			-1.6	mA
I_{OS} Short-circuit output current §	$V_{CC} = \text{MAX},$				mA
	SN54265	-20		-57	
	SN74265	-18		-57	
I_{CC} Supply current	$V_{CC} = \text{MAX},$ See Note 2		25	34	mA

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

‡ All typical values are at $V_{CC} = 5 \text{ V}, T_A = 25^\circ\text{C}$.

§ Not more than one output should be shorted at a time.

NOTE 2: I_{CC} is measured with all outputs open and all inputs grounded.

switching characteristics, $V_{CC} = 5 \text{ V}, T_A = 25^\circ\text{C}$

PARAMETER ¶	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	MIN	TYP	MAX	UNIT
$t_{PLH}(W)$	A or B	W	$R_L = 400 \Omega,$ $C_L = 15 \text{ pF},$ See Note 3		11.6	18	ns
$t_{PHL}(Y)$	(as applicable)	Y			11.3	18	
$t_{PHL}(W)$	A or B	W			9.8	18	ns
$t_{PLH}(Y)$	(as applicable)	Y			10.2	18	
$t_{PLH}(W) - t_{PHL}(Y)$	A or B	W with respect to Y			+0.3	± 3	ns
$t_{PHL}(W) - t_{PLH}(Y)$	(as applicable)				-0.4	± 3	

t_{PLH} = propagation delay time, low-to-high-level output

t_{PHL} = propagation delay time, high-to-low-level output

$t_{PXX}(W) - t_{PXX}(Y)$ = Difference in indicated propagation delay times at the W and Y outputs, respectively.

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.



TYPICAL CHARACTERISTICS†

PROPAGATION DELAY TIME DIFFERENCE
vs
FREE-AIR TEMPERATURE

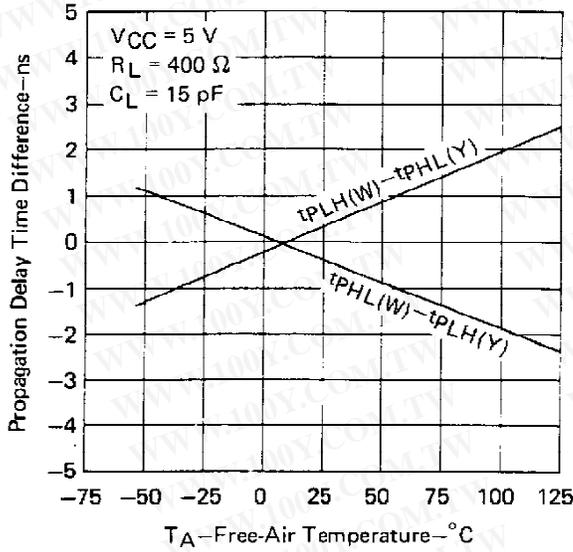


FIGURE 1

PROPAGATION DELAY TIME DIFFERENCE
vs
SUPPLY VOLTAGE

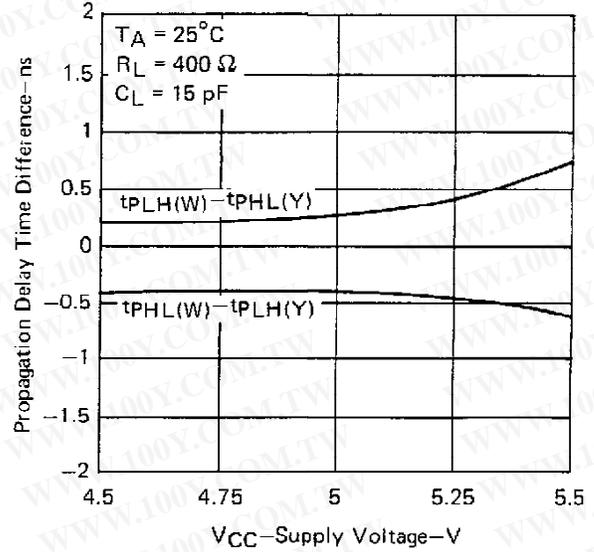


FIGURE 2

PROPAGATION DELAY TIME DIFFERENCE vs LOAD CAPACITANCE

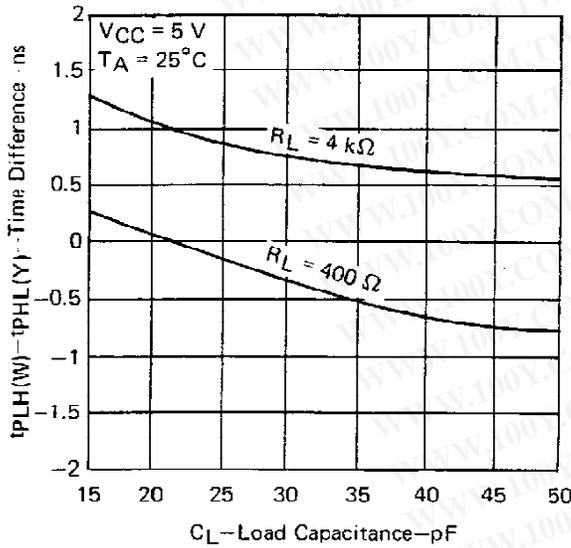


FIGURE 3

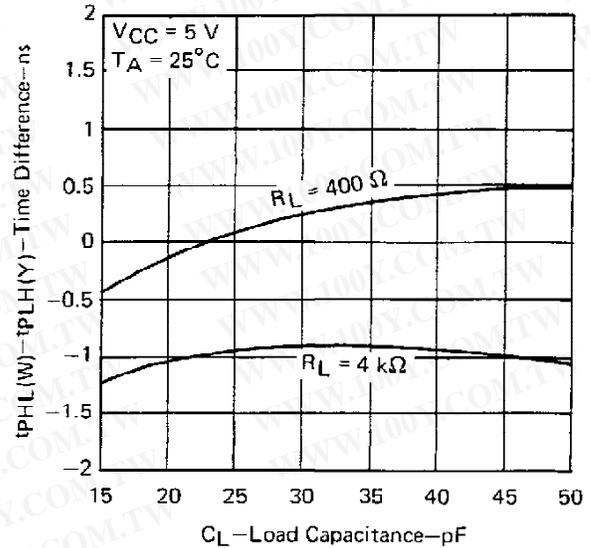


FIGURE 4

† Data for temperatures below 0°C and above 70°C and for supply voltages below 4.75 V and above 5.25 V are applicable for SN54265 only.

**SN54265, SN74265
QUADRUPLE COMPLEMENTARY-OUTPUT ELEMENTS**

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

TYPICAL APPLICATION DATA

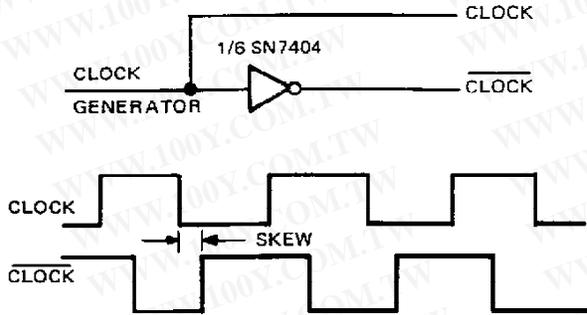


FIGURE A – TYPICAL CLOCK/CLOCK GENERATOR CIRCUIT

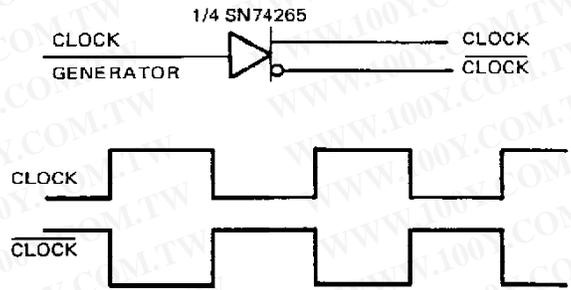


FIGURE B – SKEWLESS CLOCK/CLOCK GENERATOR CIRCUIT

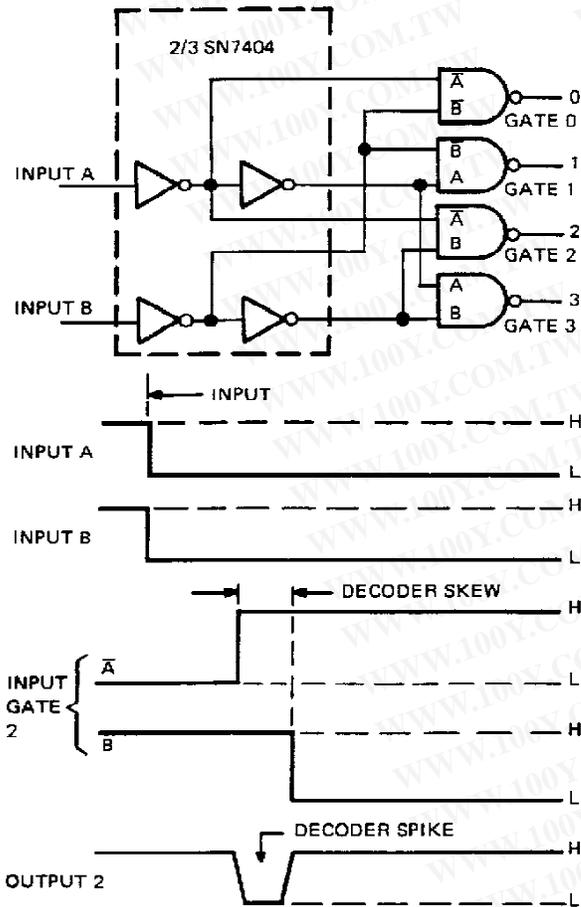


FIGURE C – TYPICAL DECODER/CODE CONVERTER

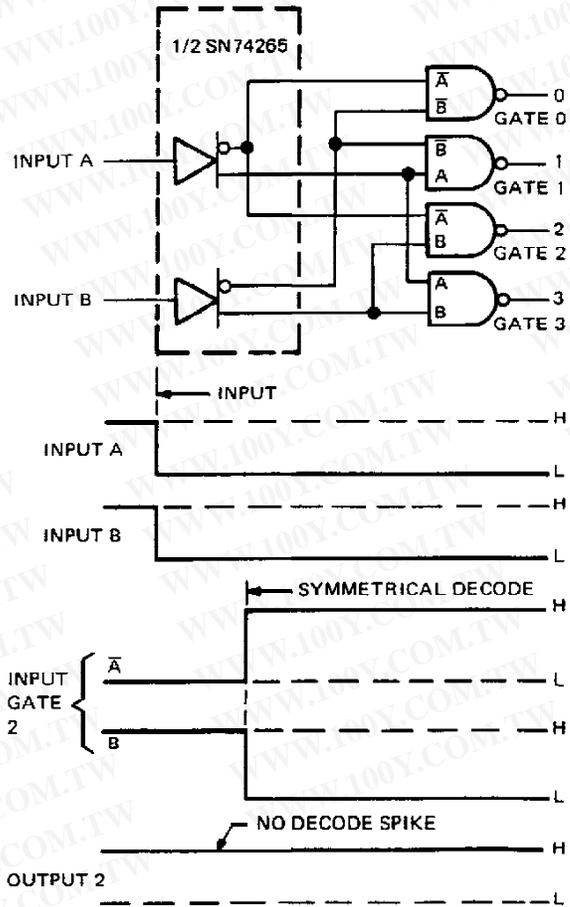


FIGURE D – SYMMETRICAL DECODER/CODE CONVERTER



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
 Http://www.100y.com.tw

SN54265, SN74265
QUADRUPLE COMPLEMENTARY-OUTPUT ELEMENTS

TYPICAL APPLICATION DATA

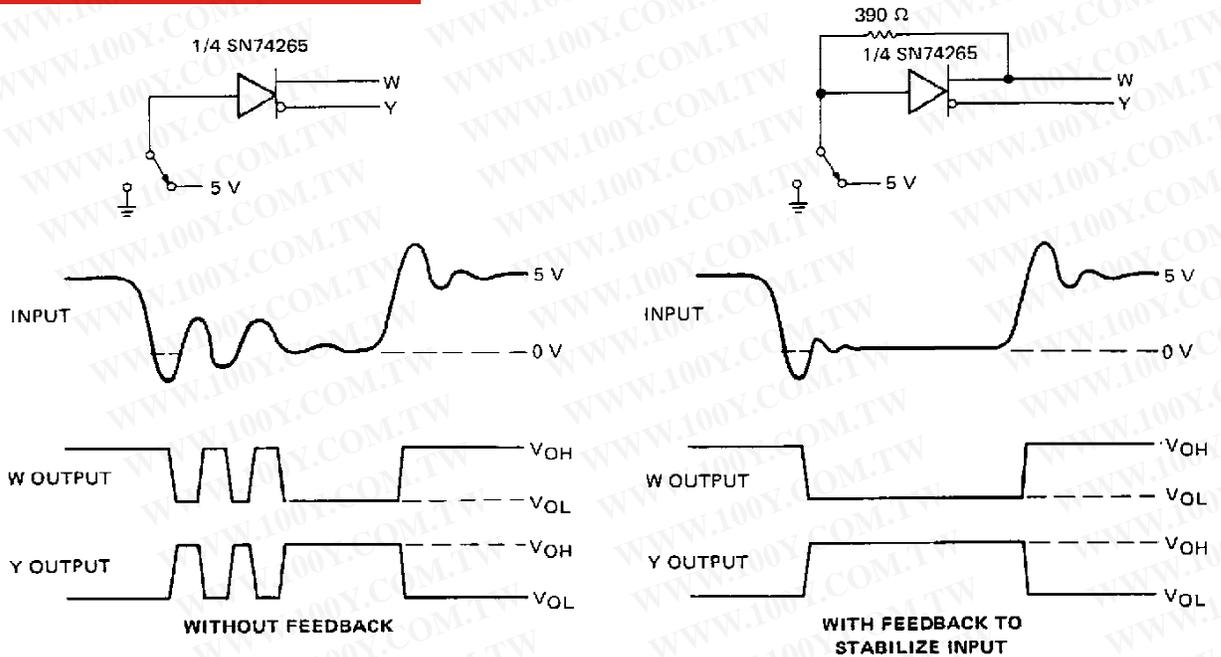


FIGURE E – SWITCH DEBOUNCER

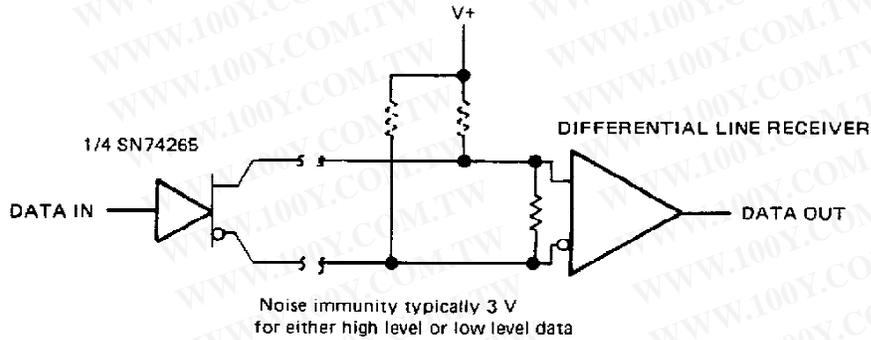


FIGURE F – DIFFERENTIAL LINE DRIVER

IMPORTANT NOTICE

Texas Instruments (TI) reserves the right to make changes to its products or to discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

TI warrants performance of its semiconductor products and related software to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

Certain applications using semiconductor products may involve potential risks of death, personal injury, or severe property or environmental damage ("Critical Applications").

TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS.

Inclusion of TI products in such applications is understood to be fully at the risk of the customer. Use of TI products in such applications requires the written approval of an appropriate TI officer. Questions concerning potential risk applications should be directed to TI through a local SC sales office.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards should be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance, customer product design, software performance, or infringement of patents or services described herein. Nor does TI warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used.

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-54151736
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
SN54265J	OBSOLETE	CDIP	J	16		TBD	Call TI	Call TI
SN74265N	OBSOLETE	PDIP	N	16		TBD	Call TI	Call TI
SN74265N3	OBSOLETE	PDIP	N	16		TBD	Call TI	Call TI
SNJ54265J	OBSOLETE	CDIP	J	16		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) 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.

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.

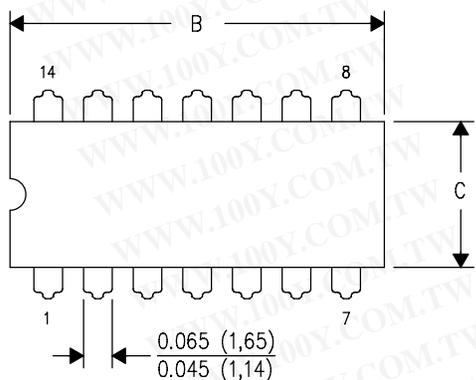
Important Information and Disclaimer:The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

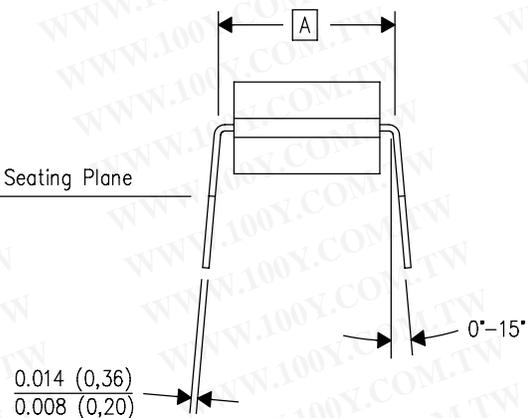
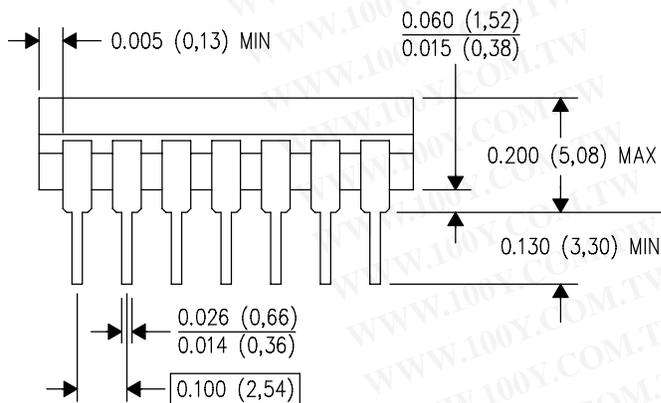
J (R-GDIP-T**)

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)



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

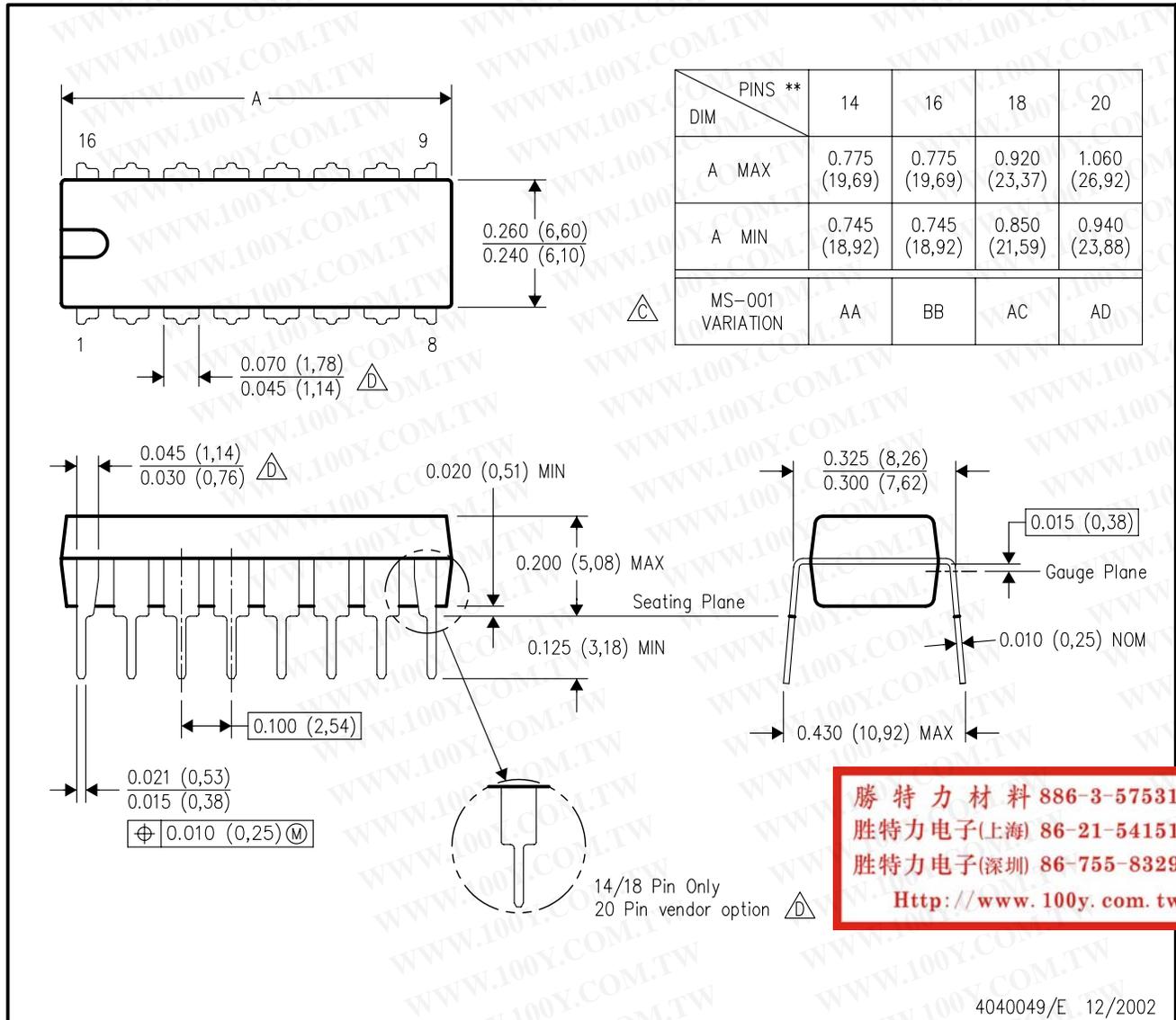
4040083/F 03/03

- 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.

N (R-PDIP-T**)

16 PINS SHOWN

PLASTIC DUAL-IN-LINE PACKAGE



勝特力材料 886-3-5753170
 勝特力电子(上海) 86-21-54151736
 勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

4040049/E 12/2002

- 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.