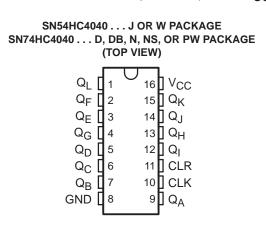
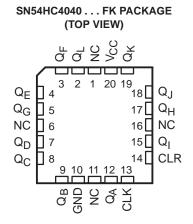
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- Wide Operating Voltage Range of 2 V to 6 V
- Outputs Can Drive Up To 10 LSTTL Loads
- Low Power Consumption, 80-μA Max I<sub>CC</sub>



- Typical t<sub>pd</sub> = 12 ns
- ±4-mA Output Drive at 5 V
- Low Input Current of 1 μA Max



NC - No internal connection

### description/ordering information

The 'HC4040 devices are 12-stage asynchronous binary counters, with the outputs of all stages available externally. A high level at the clear (CLR) input asynchronously clears the counter and resets all outputs low. The count is advanced on a high-to-low transition at the clock (CLK) input. Applications include time-delay circuits, counter controls, and frequency-dividing circuits.

		1		
TA	PACKAGE <sup>†</sup>	PACKAGE <sup>†</sup>	ORDERABLE PART NUMBER	TOP-SIDE MARKING
	PDIP – N	Tube of 25	SN74HC4040N	SN74HC4040N
		Tube of 40	SN74HC4040D	
	SOIC – D	Reel of 2500	SN74HC4040DR	HC4040
		Reel of 250	SN74HC4040DT	
-40°C to 85°C	SOP – NS	Reel of 2000	SN74HC4040NSR	HC4040
	SSOP – DB	Reel of 2000	SN74HC4040DBR	HC4040
		Tube of 90	SN74HC4040PW	
	TSSOP – PW	Reel of 2000	SN74HC4040PWR	HC4040
		Reel of 250	SN74HC4040PWT	
	CDIP – J	Tube of 25	SNJ54HC4040J	SNJ54HC4040J
–55°C to 125°C	CFP – W	Tube of 150	SNJ54HC4040W	SNJ54HC4040W
	LCCC – FK	Tube of 55	SNJ54HC4040FK	SNJ54HC4040FK

### **ORDERING INFORMATION**

<sup>†</sup> Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.



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 Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

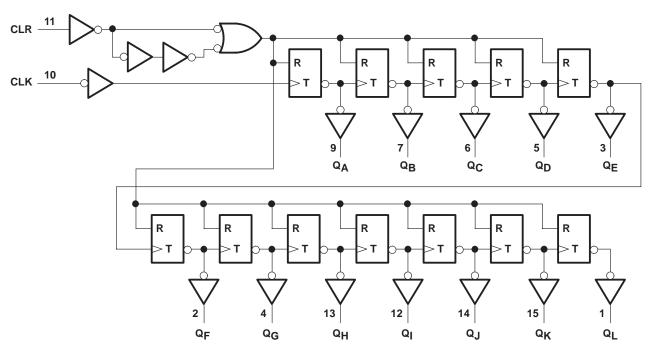


Copyright i 2003, Texas Instruments Incorporated On products compliant to MIL-PRF-3853, all parameters are tested unless otherwise noted. On all other products, production processing does not necessarily include testing of all parameters.

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		FUNCTION TABLE (each buffer)									
INP	INPUTS FUNCTION										
CLK	CLR	FUNCTION									
↑	L	No change									
$\downarrow$	Advance to next stage										
Х	X H All outputs L										

### logic diagram (positive logic)



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

### absolute maximum ratings over operating free-air temperature range (unless otherwise noted)<sup>†</sup>

Supply voltage range, $V_{CC}$ Input clamp current, $I_{IK}$ ( $V_I < 0$ or $V_I > V_{CC}$ ) (see Output clamp current, $I_{OK}$ ( $V_O < 0$ or $V_O > V_{CC}$ Continuous output current, $I_O$ ( $V_O = 0$ to $V_{CC}$ ) Continuous current through $V_{CC}$ or GND Package thermal impedance, $\theta_{JA}$ (see Note 2):	e Note 1) ) (see Note 1) D package	±20 mA ±20 mA ±25 mA ±50 mA 73°C/W
	DB package N package NS package	67°C/W
	PW package	108°C/W

<sup>†</sup> 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.

NOTES: 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. The package thermal impedance is calculated in accordance with JESD 51-7.



SCLS160D - DECEMBER 1982 - REVISED SEPTEMBER 2003

### recommended operating conditions (see Note 3)

			SN	54HC40	40	SN	74HC40	40	
			MIN	NOM	MAX	MIN	NOM	MAX	UNIT
VCC	Supply voltage		2	5	6	2	5	6	V
		$V_{CC} = 2 V$	1.5			1.5			
VIH	High-level input voltage	V <sub>CC</sub> = 4.5 V	3.15			3.15			V
		$V_{CC} = 6 V$	4.2			4.2			
		$V_{CC} = 2 V$			0.5			0.5	
VIL	Low-level input voltage	$V_{CC} = 4.5 V$			1.35			1.35	V
		ACC = $6$ $A$			1.8			1.8	
VI	Input voltage		0		VCC	0		VCC	V
VO	Output voltage		0		VCC	0		VCC	V
		$V_{CC} = 2 V$			1000			1000	
∆t/∆v†	Input transition rise/fall time	V <sub>CC</sub> = 4.5 V			500			500	ns
		VCC = 6 V			400			400	
Тд	Operating free-air temperature		-55		125	-40		85	°C

<sup>†</sup> If this device is used in the threshold region (from  $V_{IL}max = 0.5 V$  to  $V_{IH}min = 1.5 V$ ), there is a potential to go into the wrong state from induced grounding, causing double clocking. Operating with the inputs at  $t_t = 1000$  ns and  $V_{CC} = 2 V$  does not damage the device; however, functionally, the CLK inputs are not ensured while in the shift, count, or toggle operating modes.

NOTE 3: All unused inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

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

DADAMETED	TEOT OF			Т	A = 25°C	;	SN54H	C4040	SN74H	C4040	
PARAMETER	TEST CC	ONDITIONS	Vcc	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNIT
			2 V	1.9	1.998		1.9		1.9		
		I <sub>OH</sub> = -20 μA	4.5 V	4.4	4.499		4.4		4.4		
∨он	$V_{I} = V_{IH} \text{ or } V_{IL}$		6 V	5.9	5.999		5.9		5.9		V
		$I_{OH} = -4 \text{ mA}$	4.5 V	3.98	4.3		3.7		3.84		
		I <sub>OH</sub> = -5.2 mA	6 V	5.48	5.8		5.2		5.34		
			2 V		0.002	0.1		0.1		0.1	
		l <sub>OL</sub> = 20 μA	4.5 V		0.001	0.1		0.1		0.1	
VOL	$V_I = V_{IH} \text{ or } V_{IL}$		6 V		0.001	0.1		0.1		0.1	V
		I <sub>OL</sub> = 4 mA	4.5 V		0.17	0.26		0.4		0.33	
		I <sub>OL</sub> = 5.2 mA	6 V		0.15	0.26		0.4		0.33	
l	$V_I = V_{CC} \text{ or } 0$		6 V		±0.1	±100		±1000		±1000	nA
ICC	$V_I = V_{CC} \text{ or } 0,$	IO = 0	6 V			8		160		80	μA
Ci			2 V to 6 V		3	10		10		10	pF



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

				T <sub>A</sub> = 2	25°C	SN54H	C4040	SN74H	C4040	
			VCC	MIN	MAX	MIN	MAX	MIN	MAX	UNIT
			2 V		5.5		3.7		4.3	
fclock	Clock frequency		4.5 V		28		19		22	MHz
			6 V		33		22		25	
			2 V	90		135		115		
		CLK high or low	4.5 V	18		27		23		
	Dulas duration		6 V	15		23		20		
tw	Pulse duration		2 V	70		105		90		ns
		CLR high	4.5 V	14		21		18		
			6 V	12		18		15		
			2 V	60		90		75		
t <sub>su</sub>	Setup time, CLR inactive before CLK	$\downarrow$	4.5 V	12		18		15		ns
			6 V	10		15		13		

# switching characteristics over recommended operating free-air temperature range, $C_L = 50 \text{ pF}$ (unless otherwise noted) (see Figure 1)

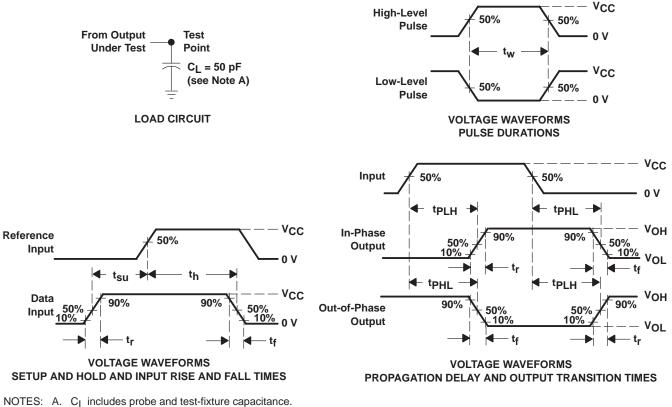
	FROM	то		Τį	ן = 25°C	;	SN54H	C4040	SN74H	C4040	
PARAMETER	(INPUT)	(OUTPUT)	VCC	MIN	TYP	MAX	MIN	MAX	MIN	MAX	UNIT
			2 V	5.5	10		3.7		4.3		
fmax			4.5 V	28	45		19		22		MHz
			6 V	33	53		22		25		
			2 V		62	150		225		190	
<sup>t</sup> pd	CLK	QA	4.5 V		16	30		45		38	ns
			6 V		12	26		38		32	
			2 V		63	140		210		175	
<sup>t</sup> PHL	CLR	Any	4.5 V		17	28		42		35	ns
			6 V		13	24		36		30	
			2 V		28	75		110		95	
t		Any	4.5 V		8	15		22		19	ns
			6 V		6	13		19		16	

### operating characteristics, $T_A = 25^{\circ}C$

	PARAMETER	TEST CONDITIONS	TYP	UNIT
Cpd	Power dissipation capacitance	No load	88	pF



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### PARAMETER MEASUREMENT INFORMATION

- B. Phase relationships between waveforms were chosen arbitrarily. All input pulses are supplied by generators having the following characteristics: PRR  $\leq$  1 MHz, Z<sub>O</sub> = 50  $\Omega$ , t<sub>f</sub> = 6 ns, t<sub>f</sub> = 6 ns.
- C. For clock inputs, fmax is measured when the input duty cycle is 50%.
- D. The outputs are measured one at a time with one input transition per measurement.
- E. tPLH and tPHL are the same as tpd.

#### Figure 1. Load Circuit and Voltage Waveforms





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### **PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/ Ball Finish	MSL Peak Temp <sup>(3)</sup>	Samples (Requires Login)
85004012A	ACTIVE	LCCC	FK	20	1	TBD	Call TI	Call TI	
8500401EA	ACTIVE	CDIP	J	16	1	TBD	Call TI	Call TI	
8500401FA	ACTIVE	CFP	W	16	1	TBD	Call TI	Call TI	
SN54HC4040J	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	
SN74HC4040D	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DBLE	OBSOLETE	SSOP	DB	16		TBD	Call TI	Call TI	
SN74HC4040DBR	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DBRE4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DBRG4	ACTIVE	SSOP	DB	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DE4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DG4	ACTIVE	SOIC	D	16	40	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DR	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DRE4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DRG4	ACTIVE	SOIC	D	16	2500	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DT	ACTIVE	SOIC	D	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DTE4	ACTIVE	SOIC	D	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DTG4	ACTIVE	SOIC	D	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040DWR	OBSOLETE	SOIC	DW	16		TBD	Call TI	Call TI	
SN74HC4040N	ACTIVE	PDIP	Ν	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	
SN74HC4040N3	OBSOLETE	PDIP	Ν	16		TBD	Call TI	Call TI	
SN74HC4040NE4	ACTIVE	PDIP	Ν	16	25	Pb-Free (RoHS)	CU NIPDAU	N / A for Pkg Type	



5-Sep-2011

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/ Ball Finish	MSL Peak Temp <sup>(3)</sup>	Samples (Requires Login)
SN74HC4040NSR	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040NSRE4	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040NSRG4	ACTIVE	SO	NS	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PW	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWE4	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWG4	ACTIVE	TSSOP	PW	16	90	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWLE	OBSOLETE	TSSOP	PW	16		TBD	Call TI	Call TI	
SN74HC4040PWR	ACTIVE	TSSOP	PW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWRE4	ACTIVE	TSSOP	PW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWRG4	ACTIVE	TSSOP	PW	16	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWT	ACTIVE	TSSOP	PW	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWTE4	ACTIVE	TSSOP	PW	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SN74HC4040PWTG4	ACTIVE	TSSOP	PW	16	250	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM	
SNJ54HC4040FK	ACTIVE	LCCC	FK	20	1	TBD	POST-PLATE	N / A for Pkg Type	
SNJ54HC4040J	ACTIVE	CDIP	J	16	1	TBD	A42	N / A for Pkg Type	
SNJ54HC4040W	ACTIVE	CFP	W	16	1	TBD	A42	N / A for Pkg Type	

<sup>(1)</sup> 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.

# PACKAGE OPTION ADDENDUM



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<sup>(2)</sup> 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)

<sup>(3)</sup> 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 SN54HC4040, SN74HC4040 :

Catalog: SN74HC4040

• Military: SN54HC4040

NOTE: Qualified Version Definitions:

Catalog - TI's standard catalog product

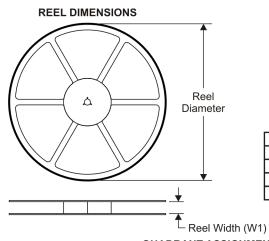
• Military - QML certified for Military and Defense Applications

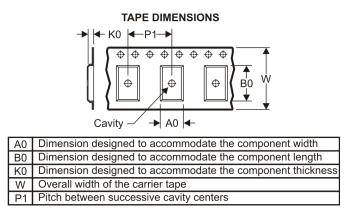
# PACKAGE MATERIALS INFORMATION

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### TAPE AND REEL INFORMATION





### QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



Device	Package Type	Package Drawing		SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74HC4040DBR	SSOP	DB	16	2000	330.0	16.4	8.2	6.6	2.5	12.0	16.0	Q1
SN74HC4040DR	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
SN74HC4040NSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
SN74HC4040PWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
SN74HC4040PWT	TSSOP	PW	16	250	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1

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# PACKAGE MATERIALS INFORMATION

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\*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74HC4040DBR	SSOP	DB	16	2000	346.0	346.0	33.0
SN74HC4040DR	SOIC	D	16	2500	346.0	346.0	33.0
SN74HC4040NSR	SO	NS	16	2000	346.0	346.0	33.0
SN74HC4040PWR	TSSOP	PW	16	2000	346.0	346.0	29.0
SN74HC4040PWT	TSSOP	PW	16	250	346.0	346.0	29.0

J (R-GDIP-T\*\*) 14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



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.

W (R-GDFP-F16)

CERAMIC DUAL FLATPACK



- 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 only.
  - E. Falls within MIL STD 1835 GDFP1-F16 and JEDEC MO-092AC



LEADLESS CERAMIC CHIP CARRIER

FK (S-CQCC-N\*\*) 28 TERMINAL SHOWN



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. Falls within JEDEC MS-004



# 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).
- $\triangle$  The 20 pin end lead shoulder width is a vendor option, either half or full width.



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.
- 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.
- 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.



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# D (R-PDSO-G16) PLASTIC SMALL OUTLINE Stencil Openings (Note D) Example Board Layout (Note C) -16x0,55 - 14x1,27 -14x1,27 16x1,95 4,80 4,80 Example Non Soldermask Defined Pad Example Pad Geometry (See Note C) 0,60 Example 2,00 Solder Mask Opening

(See Note E)

NOTES: A. All linear dimensions are in millimeters.

B. This drawing is subject to change without notice.

← 0,07 All Around

- C. Publication IPC-7351 is recommended for alternate designs.
- 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 for other stencil recommendations.
  E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



PW (R-PDSO-G16)

PLASTIC SMALL OUTLINE



NOTES:

A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994.  $\beta$ . This drawing is subject to change without notice.

Body length does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0,15 each side.

Body width does not include interlead flash. Interlead flash shall not exceed 0,25 each side.

E. Falls within JEDEC MO-153



# LAND PATTERN DATA



NOTES: A. All linear dimensions are in millimeters.

- B. This drawing is subject to change without notice.
- C. Publication IPC-7351 is recommended for alternate designs.
- 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 for other stencil recommendations.
- E. Customers should contact their board fabrication site for solder mask tolerances between and around signal pads.



DW (R-PDSO-G16)

PLASTIC SMALL OUTLINE



NOTES: A. All linear dimensions are in inches (millimeters). Dimensioning and tolerancing per ASME Y14.5M-1994.

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.



### MECHANICAL DATA

### PLASTIC SMALL-OUTLINE PACKAGE

#### 0,51 0,35 ⊕0,25⊛ 1,27 8 14 0,15 NOM 5,60 8,20 5,00 7,40 $\bigcirc$ Gage Plane ₽ 0,25 7 1 1,05 0,55 0-10 Δ 0,15 0,05 Seating Plane — 2,00 MAX 0,10PINS \*\* 14 16 20 24 DIM 10,50 10,50 12,90 15,30 A MAX A MIN 9,90 9,90 12,30 14,70 4040062/C 03/03

NOTES: A. All linear dimensions are in millimeters.

NS (R-PDSO-G\*\*)

**14-PINS SHOWN** 

- B. This drawing is subject to change without notice.
- C. Body dimensions do not include mold flash or protrusion, not to exceed 0,15.



# **MECHANICAL DATA**

MSSO002E - JANUARY 1995 - REVISED DECEMBER 2001

### DB (R-PDSO-G\*\*)

PLASTIC SMALL-OUTLINE

28 PINS SHOWN



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



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