

CD4518B, CD4520B Types

CMOS Dual Up-Counters

High-Voltage Types (20-Volt Rating)

CD4518B Dual BCD Up-Counter
CD4520B Dual Binary Up-Counter

■ CD4518 Dual BCD Up-Counter and CD4520 Dual Binary Up-Counter each consist of two identical, internally synchronous 4-stage counters. The counter stages are D-type flip-flops having interchangeable CLOCK and ENABLE lines for incrementing on either the positive-going or negative-going transition. For single-unit operation the ENABLE input is maintained high and the counter advances on each positive-going transition of the CLOCK. The counters are cleared by high levels on their RESET lines.

The counter can be cascaded in the ripple mode by connecting Q4 to the enable input of the subsequent counter while the CLOCK input of the latter is held low.

The CD4518B and CD4520B types are supplied in 16-lead hermetic dual-in-line ceramic packages (F3A suffix), 16-lead dual-in-line plastic packages (E suffix), 16-lead small-outline packages (M, M96, and NSR suffixes), and 16-lead thin shrink small-outline packages (PW and PWR suffixes).

MAXIMUM RATINGS, Absolute-Maximum Values:

DC SUPPLY-VOLTAGE RANGE, (V_{DD})

Voltages referenced to V_{SS} Terminal) -0.5V to +20V

INPUT VOLTAGE RANGE, ALL INPUTS -0.5V to V_{DD} +0.5V

DC INPUT CURRENT, ANY ONE INPUT ± 10 mA

POWER DISSIPATION PER PACKAGE (P_D):

For $T_A = -55^\circ\text{C}$ to $+100^\circ\text{C}$ 500mW

For $T_A = +100^\circ\text{C}$ to $+125^\circ\text{C}$ Derate Linearity at 12mW/ $^\circ\text{C}$ to 200mW

DEVICE DISSIPATION PER OUTPUT TRANSISTOR

FOR $T_A = \text{FULL PACKAGE-TEMPERATURE RANGE (All Package Types)}$ 100mW

OPERATING-TEMPERATURE RANGE (T_A) -55°C to $+125^\circ\text{C}$

STORAGE TEMPERATURE RANGE (T_{stg}) -65°C to $+150^\circ\text{C}$

LEAD TEMPERATURE (DURING SOLDERING):

At distance 1/16 $\pm$ 1/32 inch (1.59 $\pm$ 0.79mm) from case for 10s max $+265^\circ\text{C}$

Features:

- Medium-speed operation –
6-MHz typical clock frequency at 10 V.
- Positive- or negative-edge triggering
- Synchronous internal carry propagation
- 100% tested for quiescent current at 20 V
- Maximum input current of 1 μA at 18 V
over full package-temperature range;
100 nA at 18 V and 25°C
- Noise margin (over full package-temperature range): 1 V at $V_{DD} = 5$ V
2 V at $V_{DD} = 10$ V
2.5 V at $V_{DD} = 15$ V
- 5-V, 10-V, and 15-V parametric ratings
- Standardized, symmetrical output characteristics
- Meets all requirements of JEDEC Tentative Standard No. 13B, "Standard Specifications for Description of 'B' Series CMOS Devices"



Applications:

- Multistage synchronous counting
- Multistage ripple counting
- Frequency dividers

TRUTH TABLE

CLOCK	ENABLE	RESET	ACTION
	1	0	Increment Counter
0		0	Increment Counter
	X	0	No Change
X		0	No Change
	0	0	No Change
1		0	No Change
X	X	1	Q1 thru Q4 = 0

X = Don't Care 1 $\equiv$ High State 0 $\equiv$ Low State



CD4518B, CD4520B TERMINAL ASSIGNMENT

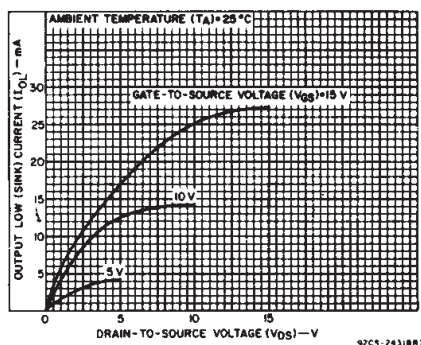


Fig. 1 – Typical output low (sink) current characteristics.

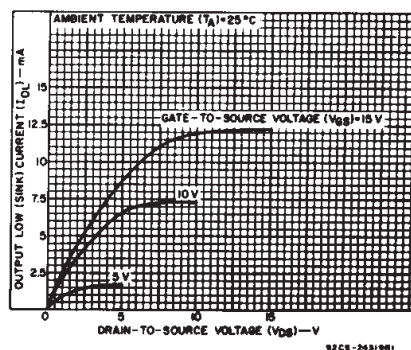


Fig. 2 – Minimum output low (sink) current characteristics.

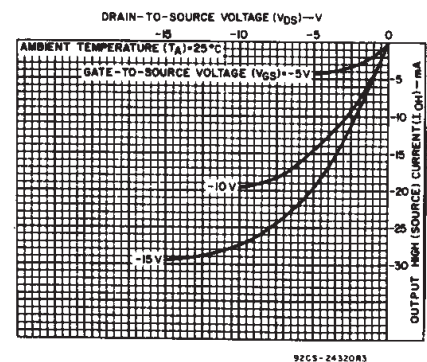


Fig. 3 – Typical output high (source) current characteristics.

CD4518B, CD4520B Types

STATIC ELECTRICAL CHARACTERISTICS

CHARACTER- ISTIC	CONDITIONS			LIMITS AT INDICATED TEMPERATURES (°C)							UNITS
	V _O (V)	V _{IN} (V)	V _{DD} (V)					+25			
				-55	-40	+85	+125	Min.	Typ.	Max.	
Quiescent Device Current, I _{DD} Max.	—	0,5	5	5	5	150	150	—	0.04	5	μA
	—	0,10	10	10	10	300	300	—	0.04	10	
	—	0,15	15	20	20	600	600	—	0.04	20	
	—	0,20	20	100	100	3000	3000	—	0.08	100	
Output Low (Sink) Current I _{OL} Min.	0.4	0,5	5	0.64	0.61	0.42	0.36	0.51	1	—	mA
	0.5	0,10	10	1.6	1.5	1.1	0.9	1.3	2.6	—	
	1.5	0,15	15	4.2	4	2.8	2.4	3.4	6.8	—	
Output High (Source) Current, I _{OH} Min.	4.6	0,5	5	-0.64	-0.61	-0.42	-0.36	-0.51	-1	—	mA
	2.5	0,5	5	-2	-1.8	-1.3	-1.15	-1.6	-3.2	—	
	9.5	0,10	10	-1.6	-1.5	-1.1	-0.9	-1.3	-2.6	—	
	13.5	0,15	15	-4.2	-4	-2.8	-2.4	-3.4	-6.8	—	
Output Voltage: Low-Level, V _{OL} Max.	—	0,5	5	0.05				—	0	0.05	V
	—	0,10	10	0.05				—	0	0.05	
	—	0,15	15	0.05				—	0	0.05	
Output Voltage: High-Level, V _{OH} Min.	—	0,5	5	4.95				4.95	5	—	V
	—	0,10	10	9.95				9.95	10	—	
	—	0,15	15	14.95				14.95	15	—	
Input Low Voltage, V _{IL} Max.	0.5, 4.5	—	5	1.5				—	—	1.5	V
	1, 9	—	10	3				—	—	3	
	1.5, 13.5	—	15	4				—	—	4	
Input High Voltage, V _{IH} Min.	0.5, 4.5	—	5	3.5				3.5	—	—	V
	1, 9	—	10	7				7	—	—	
	1.5, 13.5	—	15	11				11	—	—	
Input Current I _{IN} Max.	—	0,18	18	±0.1	±0.1	±1	±1	—	±10 ⁻⁵	±0.1	μA

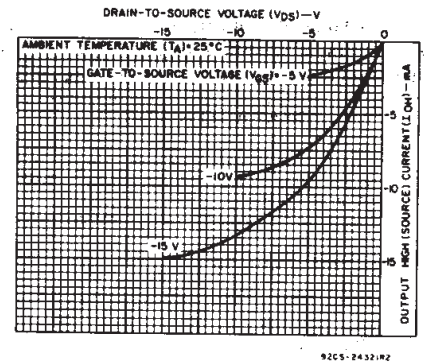


Fig. 4 — Minimum output high (source) current characteristics.

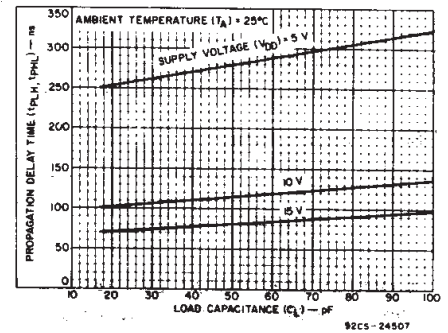


Fig. 5 — Typical propagation delay vs. load capacitance, clock or enable to output.



Fig. 6 — Typical propagation delay time vs. load capacitance, reset to output.



Fig. 7 — Typical transition time vs. load capacitance.

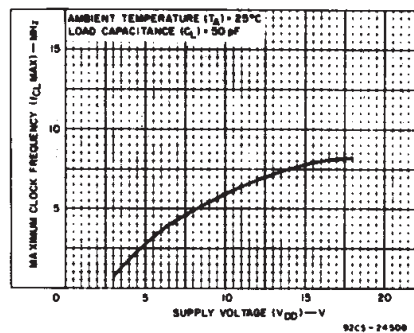


Fig. 8 — Typical maximum-clock-frequency vs. supply voltage.

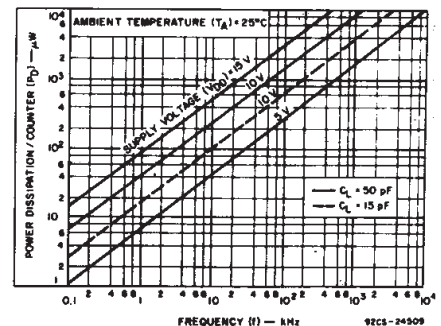


Fig. 9 — Typical power dissipation characteristics.

CD4518B, CD4520B Types

RECOMMENDED OPERATING CONDITIONS at $T_A = 25^\circ\text{C}$, Except as Noted.
For maximum reliability, nominal operating conditions should be selected so that operation is always within the following ranges:

CHARACTERISTIC	V_{DD} (V)	LIMITS		UNITS
		Min.	Max.	
Supply Voltage Range (For T_A = Full Package Temperature Range)		3	18	V
Enable Pulse Width, t_W	5	400	—	ns
	10	200	—	
	15	140	—	
Clock Pulse Width, t_W	5	200	—	ns
	10	100	—	
	15	70	—	
Clock Input Frequency, f_{CL}	5	—	1.5	MHz
	10	dc	3	
	15	—	4	
Clock Rise or Fall Time, t_{rCL} or t_{fCL}	5	—	15	μs
	10	—	5	
	15	—	5	
Reset Pulse Width, t_W	5	250	—	ns
	10	110	—	
	15	80	—	

DYNAMIC ELECTRICAL CHARACTERISTICS at $T_A = 25^\circ\text{C}$: Input $t_r, t_f = 20 \text{ ns}$, $C_L = 50 \text{ pF}$, $R_L = 200 \text{ k}\Omega$

CHARACTERISTIC	TEST CONDITIONS	LIMITS			UNITS	
		V _{DD} V	Min.	Typ.		Max.
Propagation Delay Time, t _{PHL} , t _{PLH} : Clock or Enable to Output		5 10 15	— — —	280 115 80	560 230 160	ns
Reset to Output		5 10 15	— — —	330 130 90	650 225 170	
Transition Time, t _{THL} , t _{TLH}		5 10 15	— — —	100 50 40	200 100 80	
Maximum Clock Input Frequency, f _{CL}		5 10 15	1.5 3 4	3 6 8	— — —	MHz
Minimum Clock Pulse Width, t _w		5 10 15		100 50 35	200 100 70	ns
Clock Rise or Fall Time, t _r or t _f :		5 10, 15	— —	— —	15 5	μs
Minimum Reset Pulse Width, t _w		5 10 15	— —	125 55 40	250 110 80	ns
Minimum Enable Pulse Width, t _w		5 10 15	—	200 100 70	400 200 140	ns
Input Capacitance, C _{IN}	Any Input			5	7.5	pF

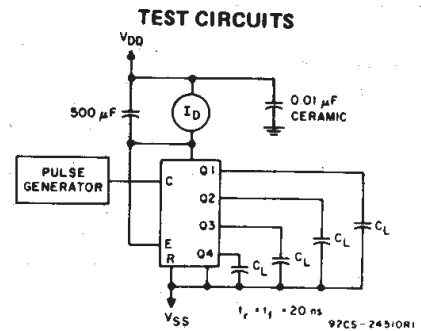


Fig. 10 - Dynamic power dissipation.

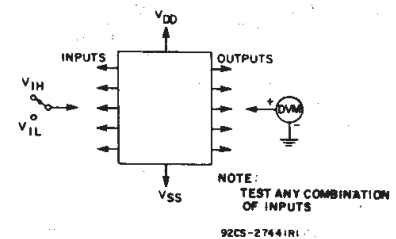


Fig. 11 - Input voltage.

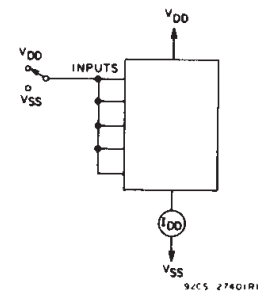


Fig. 12 - Quiescent device current test circuit.



Fig. 13 - Input leakage-current test circuit.

CD4518B, CD4520B Types



Fig. 14 — Decade counter (CD4518B) logic diagram for one of two identical counters.

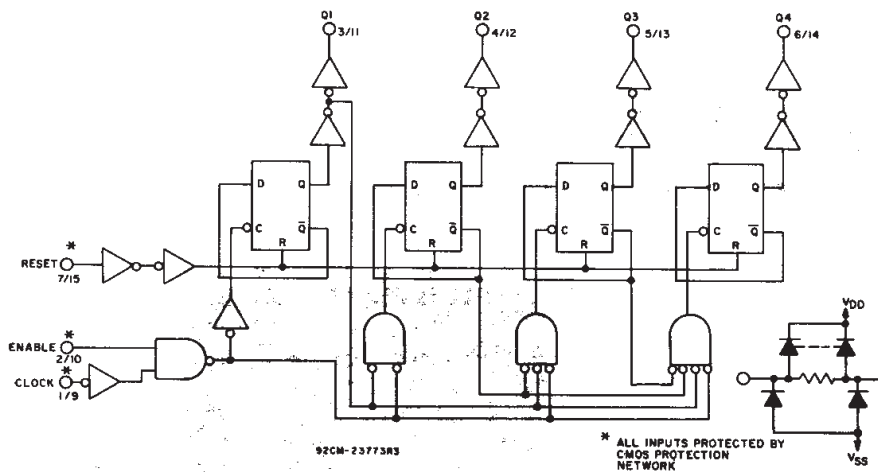


Fig. 15 — Binary counter (CD4520B) logic diagram for one of two identical counters.



Fig. 16 — Timing diagrams for CD4518B and CD4520B.

CD4518B, CD4520B Types



Fig. 17 - Ripple cascading of four counters with positive edge triggering.

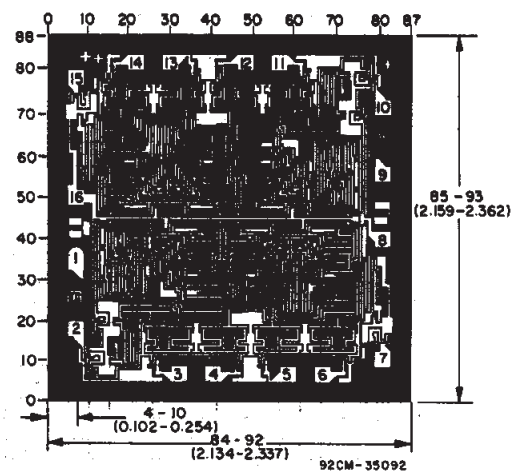


*NOTE:
FOR SYNCHRONOUS CASCADING, THE CLOCK TRANSITION TIME SHOULD BE MADE LESS THAN OR EQUAL TO THE SUM OF THE FIXED PROPAGATION DELAY AT 15 pF AND THE TRANSITION TIME OF THE OUTPUT DRIVER STAGE FOR THE ESTIMATED CAPACITATIVE LOAD.

Fig. 18 - Synchronous cascading of four binary counters with negative edge triggering.



Dimensions and pad layout for CD4518BH chip.



Dimensions and pad layout for CD4520BH chip.

Dimensions in parentheses are in millimeters and are derived from the basic inch dimensions as indicated. Grid graduations are in mils (10^{-3} inch).

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
7702301EA	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	7702301EA CD4520BF3A	Samples
CD4518BE	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD4518BE	Samples
CD4518BEE4	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD4518BE	Samples
CD4518BF	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	CD4518BF	Samples
CD4518BF3A	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	CD4518BF3A	Samples
CD4518BM	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4518BM	Samples
CD4518BM96	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4518BM	Samples
CD4518BNSR	ACTIVE	SO	NS	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4518B	Samples
CD4518BPW	ACTIVE	TSSOP	PW	16	90	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM518B	Samples
CD4518BPWE4	ACTIVE	TSSOP	PW	16	90	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM518B	Samples
CD4518BPWG4	ACTIVE	TSSOP	PW	16	90	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM518B	Samples
CD4518BPWR	ACTIVE	TSSOP	PW	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM518B	Samples
CD4520BE	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD4520BE	Samples
CD4520BEE4	ACTIVE	PDIP	N	16	25	RoHS & Green	NIPDAU	N / A for Pkg Type	-55 to 125	CD4520BE	Samples
CD4520BF	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	CD4520BF	Samples
CD4520BF3A	ACTIVE	CDIP	J	16	1	Non-RoHS & Green	SNPB	N / A for Pkg Type	-55 to 125	7702301EA CD4520BF3A	Samples
CD4520BM	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4520BM	Samples
CD4520BM96	ACTIVE	SOIC	D	16	2500	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4520BM	Samples
CD4520BME4	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4520BM	Samples

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
CD4520BMG4	ACTIVE	SOIC	D	16	40	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4520BM	Samples
CD4520BNSR	ACTIVE	SO	NS	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CD4520B	Samples
CD4520BPW	ACTIVE	TSSOP	PW	16	90	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM520B	Samples
CD4520BPWR	ACTIVE	TSSOP	PW	16	2000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-55 to 125	CM520B	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 CD4518B, CD4518B-MIL, CD4520B, CD4520B-MIL :

- Catalog : [CD4518B](#), [CD4520B](#)
- Military : [CD4518B-MIL](#), [CD4520B-MIL](#)

NOTE: Qualified Version Definitions:

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

TAPE AND REEL INFORMATION



*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
CD4518BM96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD4518BNSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
CD4518BPWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1
CD4520BM96	SOIC	D	16	2500	330.0	16.4	6.5	10.3	2.1	8.0	16.0	Q1
CD4520BNSR	SO	NS	16	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1
CD4520BPWR	TSSOP	PW	16	2000	330.0	12.4	6.9	5.6	1.6	8.0	12.0	Q1

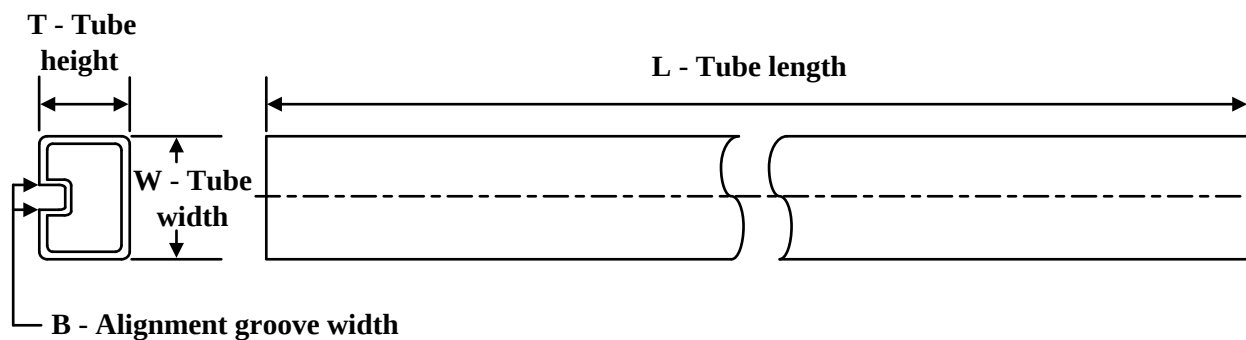
TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

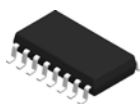
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
CD4518BM96	SOIC	D	16	2500	340.5	336.1	32.0
CD4518BNSR	SO	NS	16	2000	356.0	356.0	35.0
CD4518BPWR	TSSOP	PW	16	2000	356.0	356.0	35.0
CD4520BM96	SOIC	D	16	2500	340.5	336.1	32.0
CD4520BNSR	SO	NS	16	2000	356.0	356.0	35.0
CD4520BPWR	TSSOP	PW	16	2000	356.0	356.0	35.0

TUBE



*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
CD4518BE	N	PDIP	16	25	506	13.97	11230	4.32
CD4518BE	N	PDIP	16	25	506	13.97	11230	4.32
CD4518BEE4	N	PDIP	16	25	506	13.97	11230	4.32
CD4518BEE4	N	PDIP	16	25	506	13.97	11230	4.32
CD4518BM	D	SOIC	16	40	507	8	3940	4.32
CD4518BPW	PW	TSSOP	16	90	530	10.2	3600	3.5
CD4518BPWE4	PW	TSSOP	16	90	530	10.2	3600	3.5
CD4518BPWG4	PW	TSSOP	16	90	530	10.2	3600	3.5
CD4520BE	N	PDIP	16	25	506	13.97	11230	4.32
CD4520BE	N	PDIP	16	25	506	13.97	11230	4.32
CD4520BEE4	N	PDIP	16	25	506	13.97	11230	4.32
CD4520BEE4	N	PDIP	16	25	506	13.97	11230	4.32
CD4520BM	D	SOIC	16	40	507	8	3940	4.32
CD4520BME4	D	SOIC	16	40	507	8	3940	4.32
CD4520BMG4	D	SOIC	16	40	507	8	3940	4.32
CD4520BPW	PW	TSSOP	16	90	530	10.2	3600	3.5

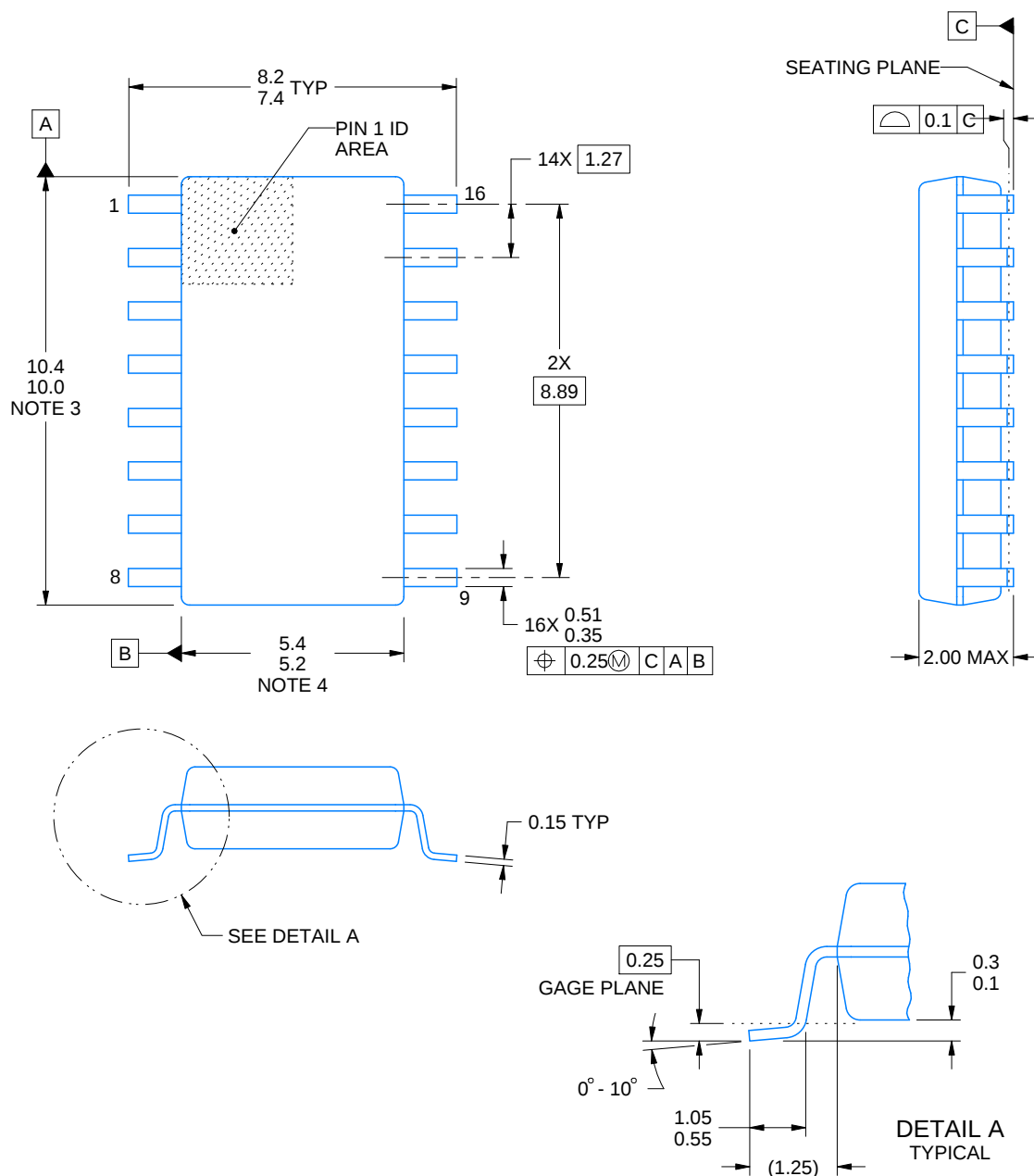


PACKAGE OUTLINE

NS0016A

SOP - 2.00 mm max height

SOP



4220735/A 12/2021

NOTES:

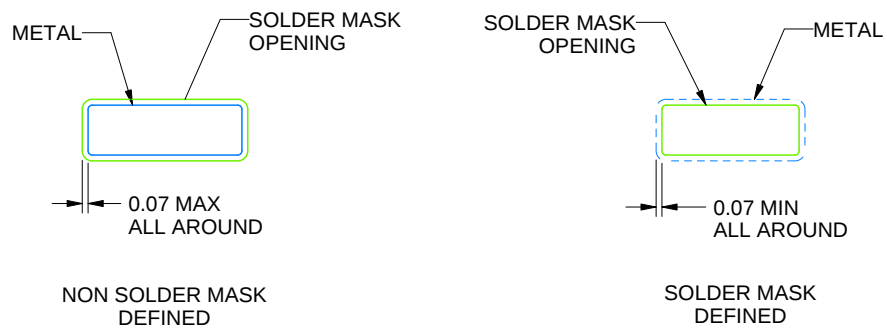
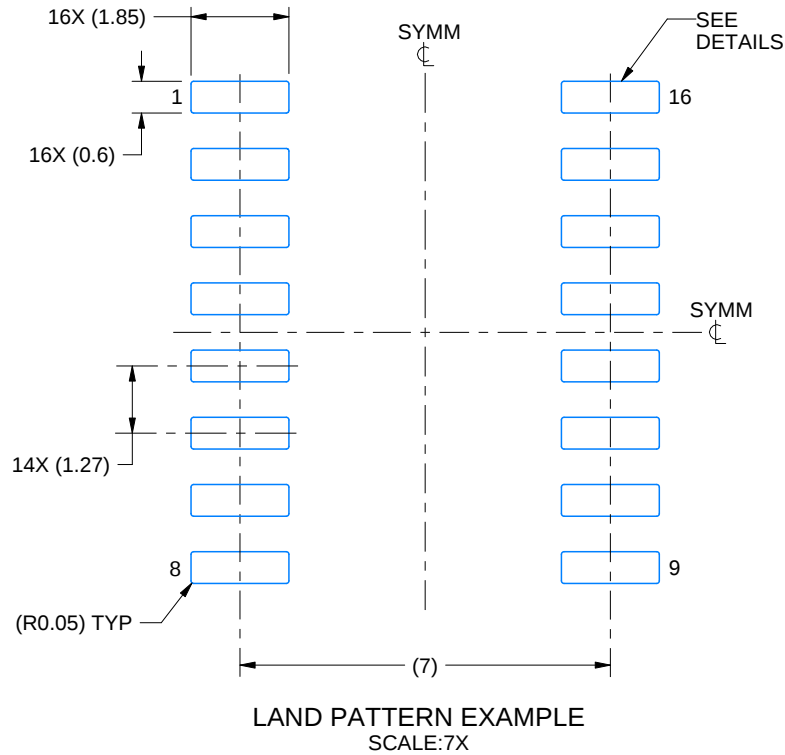
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm, per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm, per side.

EXAMPLE BOARD LAYOUT

NS0016A

SOP - 2.00 mm max height

SOP



SOLDER MASK DETAILS

4220735/A 12/2021

NOTES: (continued)

5. Publication IPC-7351 may have alternate designs.

6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.



SOLDER PASTE EXAMPLE
 BASED ON 0.125 mm THICK STENCIL
 SCALE:7X

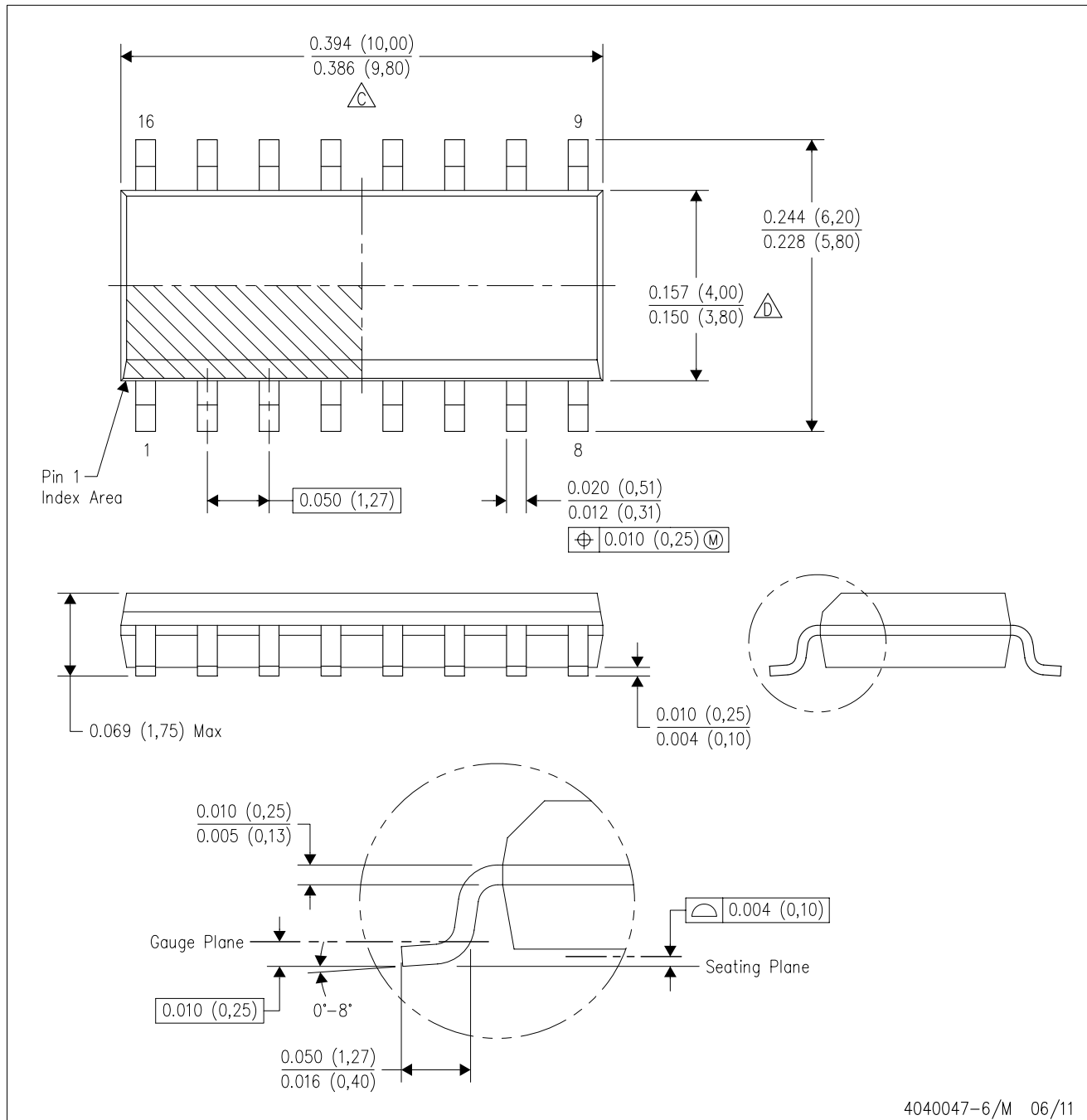
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NOTES: (continued)

7. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
8. Board assembly site may have different recommendations for stencil design.

D (R-PDSO-G16)

PLASTIC SMALL OUTLINE



4040047-6/M 06/11

- 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.



4220204/A 02/2017

NOTES:

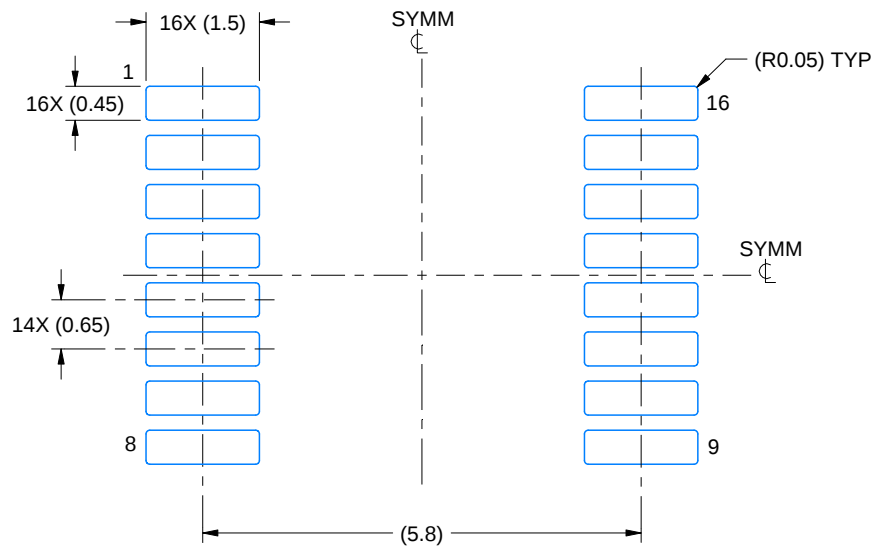
1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.
5. Reference JEDEC registration MO-153.

EXAMPLE BOARD LAYOUT

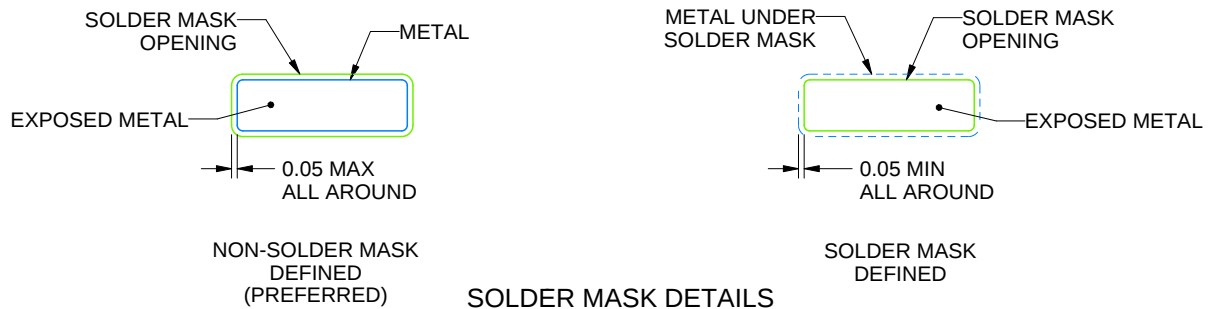
PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 10X



4220204/A 02/2017

NOTES: (continued)

6. Publication IPC-7351 may have alternate designs.

7. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

PW0016A

TSSOP - 1.2 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 10X

4220204/A 02/2017

NOTES: (continued)

8. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
9. Board assembly site may have different recommendations for stencil design.

MECHANICAL DATA

NS (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14-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.

J (R-GDIP-T**)

14 LEADS SHOWN

CERAMIC DUAL IN-LINE PACKAGE



PINS ** DIM	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.

N (R-PDIP-T**)

16 PINS SHOWN

PLASTIC DUAL-IN-LINE PACKAGE



PINS **	14	16	18	20
DIM				
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	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.
 - 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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CD4518BACTIVE

CMOS Dual BCD Up-Counter

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DATA SHEET

CD4518B, CD4520B TYPES datasheet (Rev. D)

Product details

Technical documentation

Design & development

Ordering & quality

Support & training

Product details

Parameters

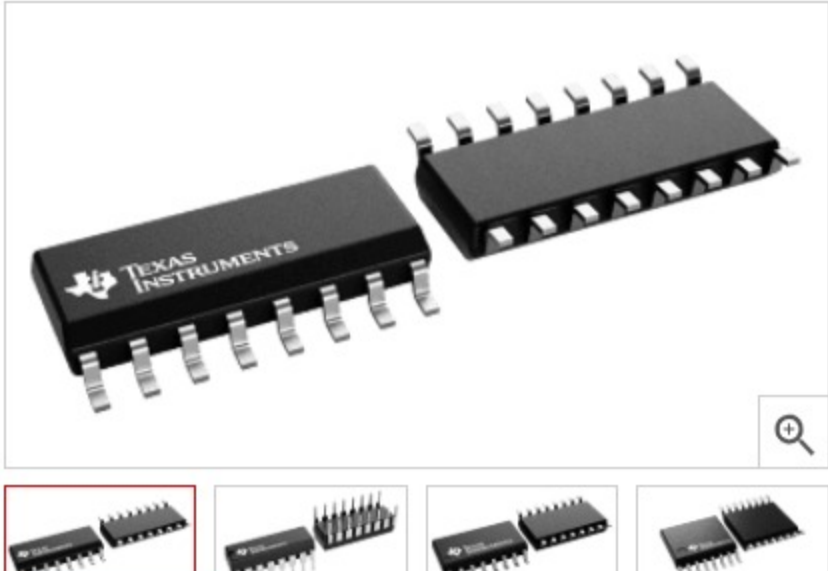
Package | Pins | Size

Features

Description

Function	Counter
Bits (#)	4
Technology Family	CD4000
Supply voltage (Min) (V)	3
Supply voltage (Max) (V)	18
Input type	Standard CMOS
Output type	Push-Pull
Features	Balanced outputs, Standard speed (tpd > 50ns), Positive input clamp diode

Find other Counters



Technical documentation

★ = Top documentation for this product selected by TI

Type	Title	Date
All	Filter title by keyword	
★ Data sheet	CD4518B, CD4520B TYPES datasheet (Rev. D)	03 Mar 2004
Selection guide	Logic Guide (Rev. AB)	12 Jun 2017
Application note	Understanding and Interpreting Standard-Logic Data Sheets (Rev. C)	02 Dec 2015
User guide	LOGIC Pocket Data Book (Rev. B)	16 Jan 2007
Application note	Semiconductor Packing Material Electrostatic Discharge (ESD) Protection	08 Jul 2004
User guide	Signal Switch Data Book (Rev. A)	14 Nov 2003
More literature	Logic Cross-Reference (Rev. A)	07 Oct 2003
Application note	Understanding Buffered and Unbuffered CD4xxB Series Device Characteristics	03 Dec 2001

Design & development

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All

Hardware development

CAD/CAE symbols

Hardware development

EVALUATION BOARD

14-24-LOGIC-EVM — Generic Logic EVM Supporting 14 through 24 Pin PW, DB, D, DW, NS, DYY, and DGV Packages

This EVM is designed to support any logic device that has a D, DW, DB, NS, PW, DYY or DGV package in a 14 to 24 pin count.

User guide

Log in to order

\$10.00 (USD)

Log in to view inventory

Buy from a distributor

Package	Pins	Download
PDIP (N)	16	View options
SO (NS)	16	View options
SOIC (D)	16	View options
TSSOP (PW)	16	View options

Ordering & quality

Part number	Buy	Buy from distributors	Samples	Material type	Operating temperature range (°C)	Lead finish/Ball material	MSL rating/Peak reflow	RoHS	REACH	Quality, reliability & packaging information
CD4518BE	Log in to order	Distributors	Not available	Production	-55 to 125	NIPDAU	N/A for Pkg Type	Yes	Yes	View or download
CD4518BM	Log in to order	Distributors	Not available	Production	-55 to 125	NIPDAU	Level-1-260C-UNLIM	Yes	Yes	View or download
CD4518BM96	Log in to order	Distributors	Not available	Production	-55 to 125	NIPDAU	Level-1-260C-UNLIM	Yes	Yes	View or download
CD4518BPW	Log in to order	Distributors	Not available	Production	-55 to 125	NIPDAU	Level-1-260C-UNLIM	Yes	Yes	View or download
CD4518BPWR	Log in to order	Distributors	Not available	Production	-55 to 125	NIPDAU	Level-1-260C-UNLIM	Yes	Yes	View or download

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[FAQ] [H] Frequently Asked Questions: Logic and Voltage Translation

Select this link to see answers to common questions, detailed use case implementations, and part recommendations for logic and voltage translation devices.

CD4046B: Frequency multiplication circuit with at least 100 times magnification

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Texas support

Hello, In order to process a database of obsolescence, Safran Electronics and Defense wishes to know the status of the life cycle (Active or Obsolete) and the estimated number of years until the...

CD4518B: The difference between CD4518BE4 and CD4518E

Part Number: CD4518B Hello experts, Could you tell me the difference between CD4518BEE4 and CD4518BE? I thought suffix E4 means RoHS : Yes. But from TI's Material Content Search Tool , both...

Videos

THE LOGIC MINUTE

SN74LVC32244ZKER

1G – Single Gate
1T – 1-Bit Voltage Translator
2G – Dual Gate
2T – 2-Bit Voltage Translator
3G – Triple Gate
4T – 4-Bit Voltage Translator
8 – Octal Gate or Buffer
8T – 8-Bit Voltage Translator
16/16T – 16-Bit Transceiver
32/32T – 32-Bit Transceiver

Anatomy of a logic part number

1:27

Learn more about the different TI logic families and their specifications.

Logic part numbers use a formulaic naming system to denote the device's functionality and features. This video reviews the components to a logic part's name.

SN74LVC32244ZKER

Anatomy of a logic part number

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