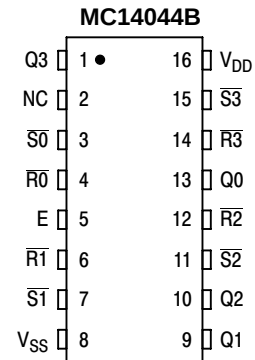
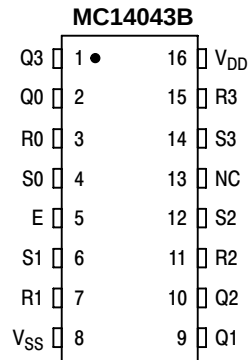
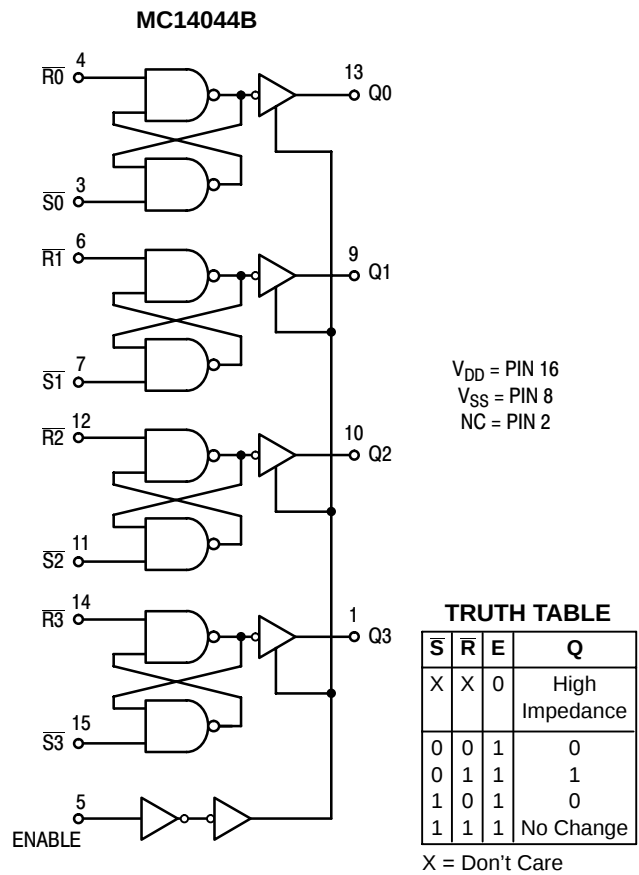
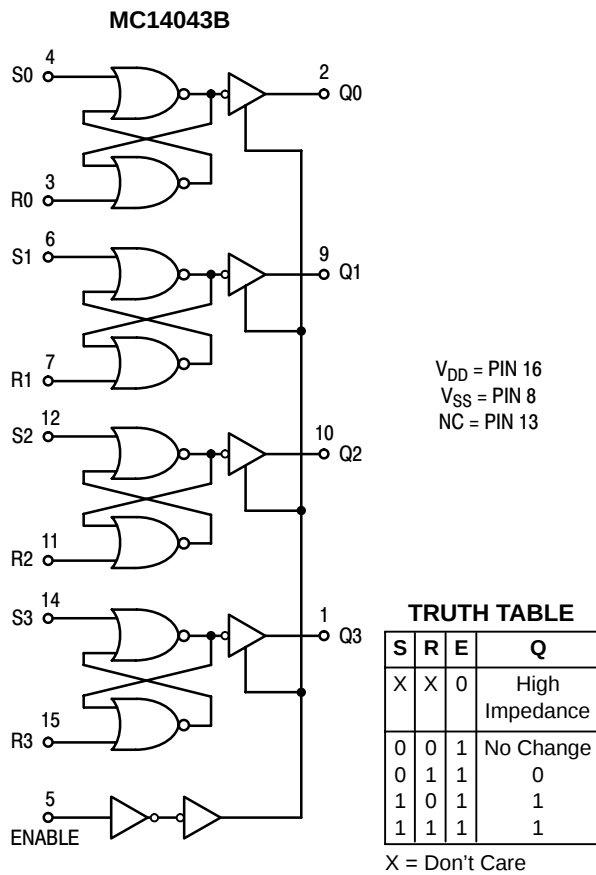


MC14043B, MC14044B

PIN ASSIGNMENT



NC = NO CONNECTION



MC14043B, MC14044B

ELECTRICAL CHARACTERISTICS (Voltages Referenced to V_{SS})

Characteristic	Symbol	V _{DD} Vdc	– 55°C		25°C			125°C		Unit
			Min	Max	Min	Typ (Note 2)	Max	Min	Max	
Output Voltage V _{in} = V _{DD} or 0	V _{OL}	5.0 10 15	– – –	0.05 0.05 0.05	– – –	0 0 0	0.05 0.05 0.05	– – –	0.05 0.05 0.05	Vdc
V _{in} = 0 or V _{DD}	V _{OH}	5.0 10 15	4.95 9.95 14.95	– – –	4.95 9.95 14.95	5.0 10 15	– – –	4.95 9.95 14.95	– – –	Vdc
Input Voltage (V _O = 4.5 or 0.5 Vdc) (V _O = 9.0 or 1.0 Vdc) (V _O = 13.5 or 1.5 Vdc)	V _{IL}	5.0 10 15	– – –	1.5 3.0 4.0	– – –	2.25 4.50 6.75	1.5 3.0 4.0	– – –	1.5 3.0 4.0	Vdc
(V _O = 0.5 or 4.5 Vdc) (V _O = 1.0 or 9.0 Vdc) (V _O = 1.5 or 13.5 Vdc)	V _{IH}	5.0 10 15	3.5 7.0 11	– – –	3.5 7.0 11	2.75 5.50 8.25	– – –	3.5 7.0 11	– – –	Vdc
Output Drive Current (V _{OH} = 2.5 Vdc) (V _{OH} = 4.6 Vdc) (V _{OH} = 9.5 Vdc) (V _{OH} = 13.5 Vdc)	I _{OH}	5.0 5.0 10 15	– 3.0 – 0.64 – 1.6 – 4.2	– – – –	– 2.4 – 0.51 – 1.3 – 3.4	– 4.2 – 0.88 – 2.25 – 8.8	– – – –	– 1.7 – 0.36 – 0.9 – 2.4	– – – –	mAdc
(V _{OL} = 0.4 Vdc) (V _{OL} = 0.5 Vdc) (V _{OL} = 1.5 Vdc)	I _{OL}	5.0 10 15	0.64 1.6 4.2	– – –	0.51 1.3 3.4	0.88 2.25 8.8	– – –	0.36 0.9 2.4	– – –	mAdc
Input Current	I _{in}	15	–	± 0.1	–	±0.00001	± 0.1	–	± 1.0	μAdc
Input Capacitance (V _{in} = 0)	C _{in}	–	–	–	–	5.0	7.5	–	–	pF
Quiescent Current (Per Package)	I _{DD}	5.0 10 15	– – –	1.0 2.0 4.0	– – –	0.002 0.004 0.006	1.0 2.0 4.0	– – –	30 60 120	μAdc
Total Supply Current (Notes 3 & 4) (Dynamic plus Quiescent, Per Package) (C _L = 50 pF on all outputs all buffers switching)	I _T	5.0 10 15	I _T = (0.58 μA/kHz) f + I _{DD} I _T = (1.15 μA/kHz) f + I _{DD} I _T = (1.73 μA/kHz) f + I _{DD}							μAdc
Three-State Output Leakage Current	I _{TL}	15	–	± 0.1	–	± 0.0001	± 0.1	–	± 3.0	μAdc

2. Data labelled "Typ" is not to be used for design purposes but is intended as an indication of the IC's potential performance.

3. The formulas given are for the typical characteristics only at 25°C.

4. To calculate total supply current at loads other than 50 pF:

$$I_T(C_L) = I_T(50 \text{ pF}) + (C_L - 50) \text{ Vfk}$$

where: I_T is in μA (per package), C_L in pF, V = (V_{DD} – V_{SS}) in volts, f in kHz is input frequency, and k = 0.004.

MC14043B, MC14044B

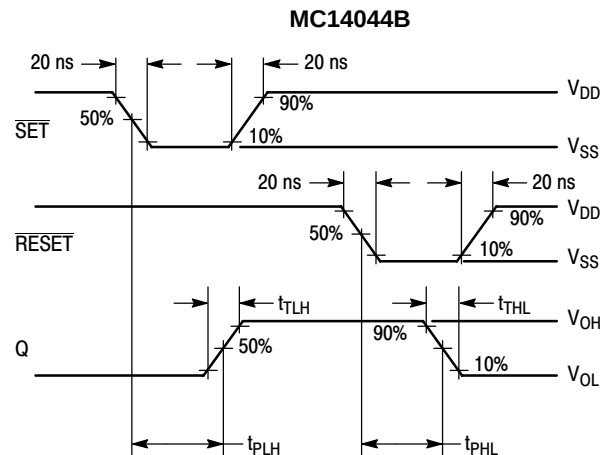
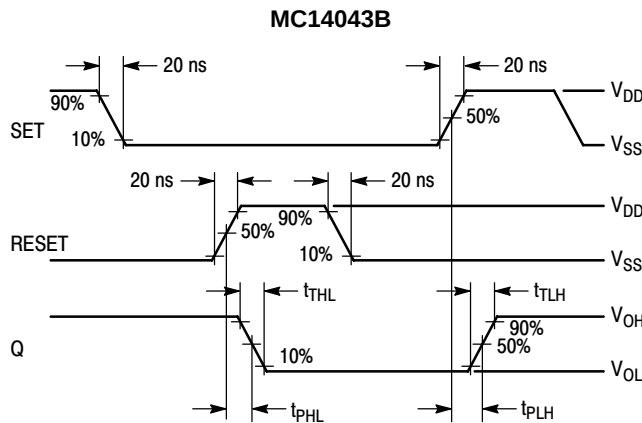
SWITCHING CHARACTERISTICS (Note 5) ($C_L = 50 \text{ pF}$, $T_A = 25^\circ\text{C}$)

Characteristic	Symbol	V_{DD} Vdc	Min	Typ (Note 6)	Max	Unit
Output Rise Time $t_{TLH} = (1.35 \text{ ns/pF}) C_L + 32.5 \text{ ns}$ $t_{TLH} = (0.60 \text{ ns/pF}) C_L + 20 \text{ ns}$ $t_{TLH} = (0.40 \text{ ns/pF}) C_L + 20 \text{ ns}$	t_{TLH}	5.0 10 15	– – –	100 50 40	200 100 80	ns
Output Fall Time $t_{THL} = (1.35 \text{ ns/pF}) C_L + 32.5 \text{ ns}$ $t_{THL} = (0.60 \text{ ns/pF}) C_L + 20 \text{ ns}$ $t_{THL} = (0.40 \text{ ns/pF}) C_L + 20 \text{ ns}$	t_{THL}	5.0 10 15	– – –	100 50 40	200 100 80	ns
Propagation Delay Time $t_{PLH} = (0.90 \text{ ns/pF}) C_L + 130 \text{ ns}$ $t_{PLH} = (0.36 \text{ ns/pF}) C_L + 57 \text{ ns}$ $t_{PLH} = (0.26 \text{ ns/pF}) C_L + 47 \text{ ns}$ $t_{PHL} = (0.90 \text{ ns/pF}) C_L + 130 \text{ ns}$ $t_{PHL} = (0.90 \text{ ns/pF}) C_L + 57 \text{ ns}$ $t_{PHL} = (0.26 \text{ ns/pF}) C_L + 47 \text{ ns}$	t_{PLH} t_{PHL}	5.0 10 15 5.0 10 15	– – – – – –	175 75 60 175 75 60	350 175 120 350 175 120	ns ns
Set, $\overline{\text{Set}}$ Pulse Width	t_W	5.0 10 15	200 100 70	80 40 30	– – –	ns
Reset, $\overline{\text{Reset}}$ Pulse Width	t_W	5.0 10 15	200 100 70	80 40 30	– – –	ns
Three-State Enable/Disable Delay	t_{PLZ} , t_{PHZ} , t_{PZL} , t_{PZH}	5.0 10 15	– – –	150 80 55	300 160 110	ns

5. The formulas given are for the typical characteristics only at 25°C .

6. Data labelled "Typ" is not to be used for design purposes but is intended as an indication of the IC's potential performance.

AC WAVEFORMS

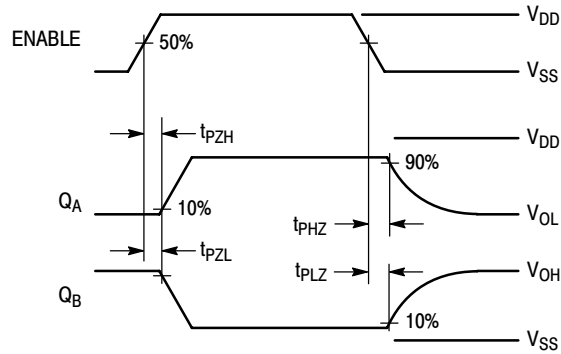
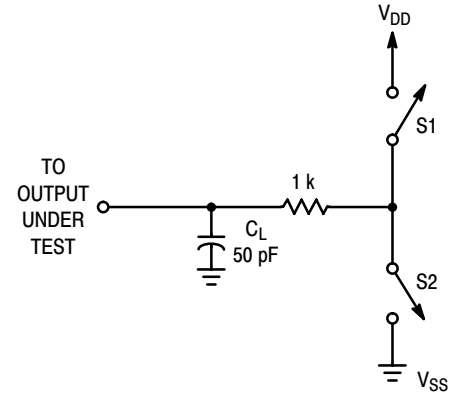


MC14043B, MC14044B

THREE-STATE ENABLE/DISABLE DELAYS

Set, Reset, Enable, and Switch Conditions for 3-State Tests

Test	Enable	S1	S2	Q	MC14043B		MC14044B	
					S	R	$\bar{S}$	$\bar{R}$
t_{PZH}		Open	Closed	A	V_{DD}	V_{SS}	V_{SS}	V_{DD}
t_{PZL}		Closed	Open	B	V_{SS}	V_{DD}	V_{DD}	V_{SS}
t_{PHZ}		Open	Closed	A	V_{DD}	V_{SS}	V_{SS}	V_{DD}
t_{PLZ}		Closed	Open	B	V_{SS}	V_{DD}	V_{DD}	V_{SS}



ORDERING INFORMATION

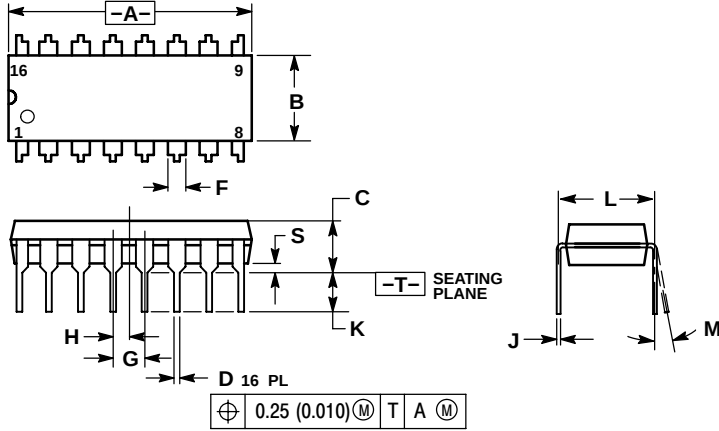
Device	Package	Shipping [†]
MC14043BCP	PDIP-16	500 Units / Rail
MC14043BCPG	PDIP-16 (Pb-Free)	500 Units / Rail
MC14043BD	SOIC-16	48 Units / Rail
MC14043BDG	SOIC-16 (Pb-Free)	48 Units / Rail
MC14043BDR2	SOIC-16	2500 Units / Tape & Reel
MC14043BDR2G	SOIC-16 (Pb-Free)	2500 Units / Tape & Reel
MC14043BFEL	SOEIAJ-16	2000 Units / Tape & Reel
MC14044BCP	PDIP-16	500 Units / Rail
MC14044BCPG	PDIP-16 (Pb-Free)	500 Units / Rail
MC14044BD	SOIC-16	48 Units / Rail
MC14044BDG	SOIC-16 (Pb-Free)	48 Units / Rail
MC14044BDR2	SOIC-16	2500 Units / Tape & Reel
MC14044BDR2G	SOIC-16 (Pb-Free)	2500 Units / Tape & Reel

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MC14043B, MC14044B

PACKAGE DIMENSIONS

PDIP-16
P SUFFIX
 PLASTIC DIP PACKAGE
 CASE 648-08
 ISSUE T

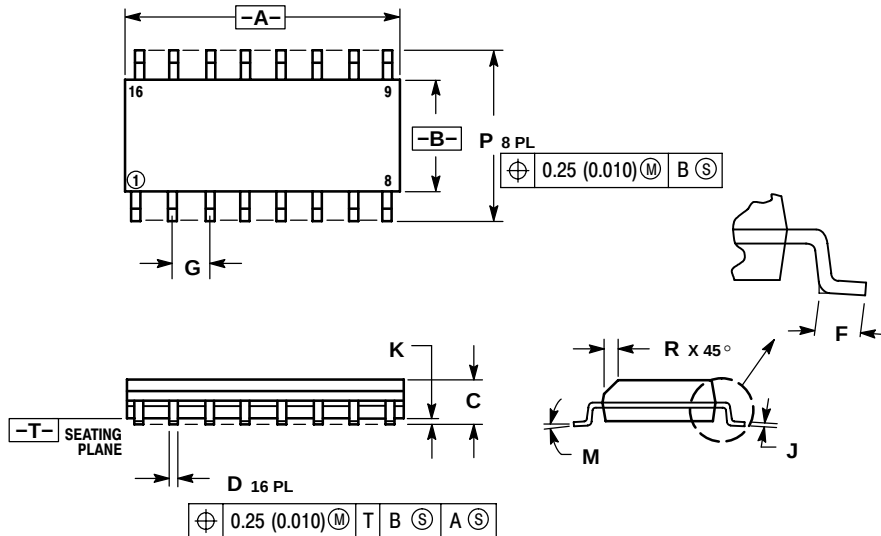


NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. DIMENSION L TO CENTER OF LEADS WHEN FORMED PARALLEL.
4. DIMENSION B DOES NOT INCLUDE MOLD FLASH.
5. ROUNDED CORNERS OPTIONAL.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.740	0.770	18.80	19.55
B	0.250	0.270	6.35	6.85
C	0.145	0.175	3.69	4.44
D	0.015	0.021	0.39	0.53
F	0.040	0.70	1.02	1.77
G	0.100 BSC		2.54 BSC	
H	0.050 BSC		1.27 BSC	
J	0.008	0.015	0.21	0.38
K	0.110	0.130	2.80	3.30
L	0.295	0.305	7.50	7.74
M	0°	10°	0°	10°
S	0.020	0.040	0.51	1.01

SOIC-16
D SUFFIX
 PLASTIC SOIC PACKAGE
 CASE 751B-05
 ISSUE J



NOTES:

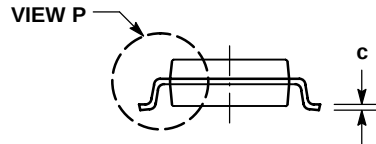
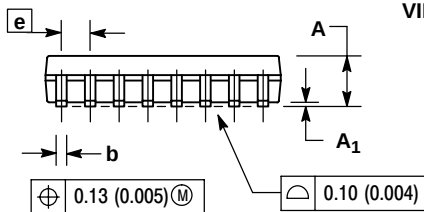
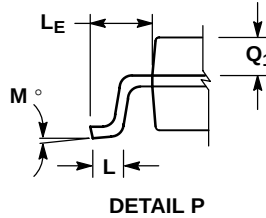
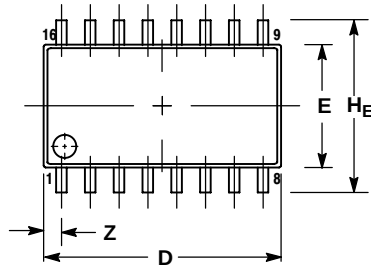
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 (0.006) PER SIDE.
5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 (0.005) TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.80	10.00	0.386	0.393
B	3.80	4.00	0.150	0.157
C	1.35	1.75	0.054	0.068
D	0.35	0.49	0.014	0.019
F	0.40	1.25	0.016	0.049
G	1.27 BSC		0.050 BSC	
J	0.19	0.25	0.008	0.009
K	0.10	0.25	0.004	0.009
M	0°	7°	0°	7°
P	5.80	6.20	0.229	0.244
R	0.25	0.50	0.010	0.019

MC14043B, MC14044B

PACKAGE DIMENSIONS

SOEIAJ-16
F SUFFIX
PLASTIC EIAJ SOIC PACKAGE
CASE 966-01
ISSUE O



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS AND ARE MEASURED AT THE PARTING LINE. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. TERMINAL NUMBERS ARE SHOWN FOR REFERENCE ONLY.
5. THE LEAD WIDTH DIMENSION (b) DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE LEAD WIDTH DIMENSION AT MAXIMUM MATERIAL CONDITION. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE FOOT. MINIMUM SPACE BETWEEN PROTRUSIONS AND ADJACENT LEAD TO BE 0.46 (0.018).

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	---	2.05	---	0.081
A ₁	0.05	0.20	0.002	0.008
b	0.35	0.50	0.014	0.020
c	0.18	0.27	0.007	0.011
D	9.90	10.50	0.390	0.413
E	5.10	5.45	0.201	0.215
e	1.27 BSC		0.050 BSC	
H _E	7.40	8.20	0.291	0.323
L	0.50	0.85	0.020	0.033
L _E	1.10	1.50	0.043	0.059
M	0°	10°	0°	10°
Q ₁	0.70	0.90	0.028	0.035
Z	---	0.78	---	0.031

MC14043B, MC14044B

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