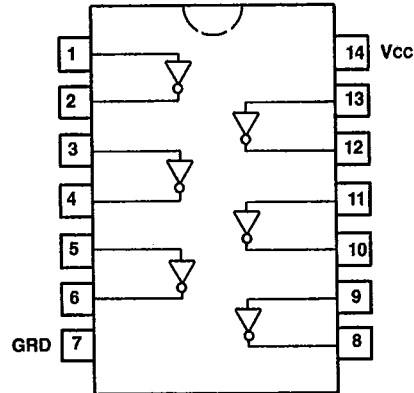


WA-LS04, WP90222 List 3**Hex Inverter**

The LS04 is a bipolar, NPN, sealed-junction, silicon integrated circuit. It is manufactured in low-power Schottky technology and is available in a wire-bonded, 14-pin plastic DIP or surface mount package.

**Electrical Characteristics**

VCC = 5.0 ±0.5 V, TA = -55 to +125°C (WA-LS)

VCC = 5.0 ±0.25 V, TA = 0 to 70°C (WP)

Parameter	Symbol	WA-LS		WP		Units
		Min	Max	Min	Max	
Output Voltage, VCC = 4.5 V (WA-LS), VCC = 4.75 V (WP)						
Low, IOL = 4.0 mA	VOL	—	0.4	—	0.4	V
IOL = 8.0 mA	VOL	—	0.5	—	0.5	V
High, IOH = -0.4 mA	VOH	2.5	—	2.7	—	V
Input Voltage, VCC = 4.5 V (WA-LS), VCC = 4.75 V (WP)						
Low	VIL	—	0.7	—	0.8	V
High	VIH	2.0	7.5	2.0	5.5	V
Clamp, IIN = -18.0 mA	VIK	—	-1.5	—	-1.5	V
Input Current, VCC = 5.5 V (WA-LS), VCC = 5.25 V (WP)						
Low, VIL = 0.4 V	IIL	—	-0.4	—	-0.4	mA
High, VIH = 2.7 V	IiH	—	20.0	—	20.0	μA
@ Vi max, Vi = 7.0 V (WA-LS), Vi = 5.5 V (WP)	Ii	—	0.1	—	0.1	mA
Output Current, VCC = 5.5 V (WA-LS), VCC = 5.25 V (WP)						
Short-Circuit	Ios	-20.0	-100.0	-20.0	-100.0	mA
Supply Current, VCC = 5.5 V (WA-LS), VCC = 5.25 V (WP)						
Output Low	ICCL	—	6.6	—	6.6	mA
Output High	ICCH	—	2.4	—	2.4	mA

T-43-15

Timing Characteristics

VCC = 5.0 V, TA = 25°C, CL = 15 pF

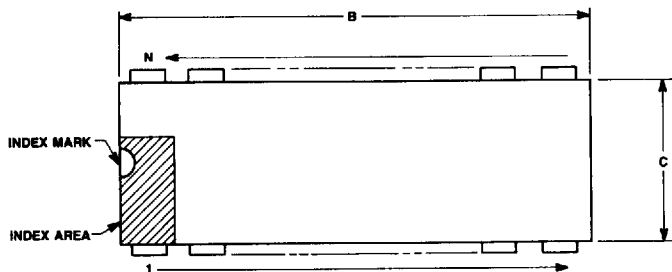
Parameter	Symbol	WA-LS		WP		Units
		Min	Max	Min	Max	
Propagation Delay Low-to-High	tPLH	—	10.0	—	15.0	ns
High-to-Low	tPHL	—	10.0	—	15.0	ns

Maximum Ratings*

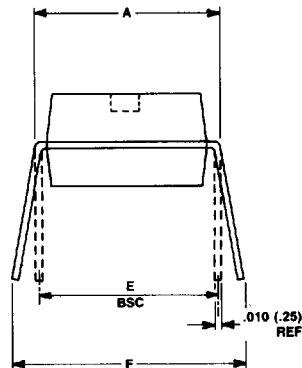
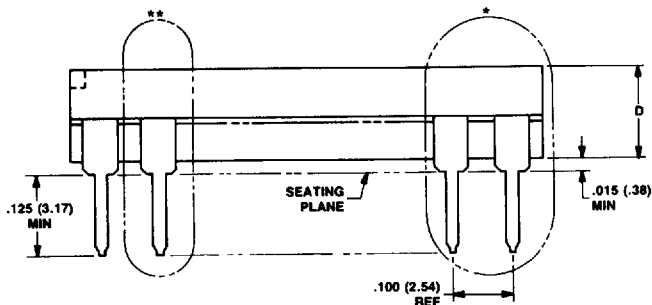
Power supply voltage (VCC)..... 7.0 V
 Operating temperature (TA)..... -55 to +125°C (WA-LS), 0 to 70°C (WP)
 Storage temperature (Tstg)**..... -65 to +150°C

* Maximum ratings are defined as the limiting conditions that the user can apply to the device under all variations of circuit and environmental conditions. If any rating is exceeded, permanent damage to the device may result.

** Bonding or soldering of the external leads of this device can be performed safely at temperatures up to 300°C.



* See End-Lead Configuration for Lead Dimensions (Refer to Detail \bar{A} , \bar{B} , \bar{C} , \bar{D})
 ** See Center-Lead Configuration for Lead Dimensions (Refer to Detail \bar{E} , \bar{F} , \bar{G})



Postmolded Plastic DIP Dimensions†

No. Leads	A Max	B Max	C Max	D Max	E BSC	F Max	Notes	Lead Configuration
14	.320 (8.13)	.795 (20.19)	.255 (6.48)	.140 (3.56)	.300 (7.62)	.400 (10.16)	1,2,3,4	\bar{A} \bar{B} \bar{E} \bar{G}
16	.320 (8.13)	.795 (20.19)	.265 (6.73)	.140 (3.56)	.300 (7.62)	.400 (10.16)	1,2,3,4	\bar{B} \bar{C} \bar{D} \bar{E} \bar{F} \bar{G}
20	.320 (8.13)	1.040 (26.42)	.255 (6.48)	.140 (3.56)	.300 (7.62)	.400 (10.16)	1,2,3,4	\bar{A} \bar{B} \bar{D} \bar{E} \bar{F} \bar{G}

† Dimensions are in inches and (millimeters).

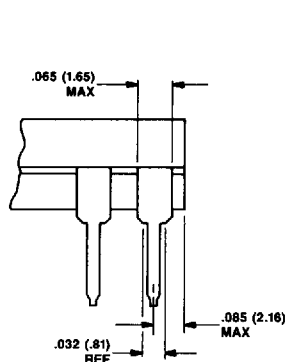
Notes:

1. Meets JEDEC standards.
2. Index mark may be semicircular notch located in index area.
3. Index mark may be circular dimple located in index area.
4. Actual dimensions may vary depending on location of assembly, but all meet limits shown in table.

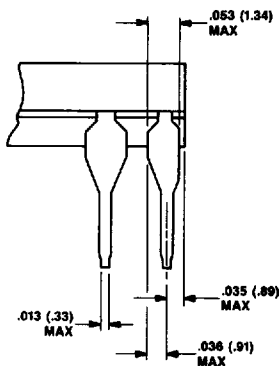
Packaging Information

Postmolded Plastic DIP Lead Configurations

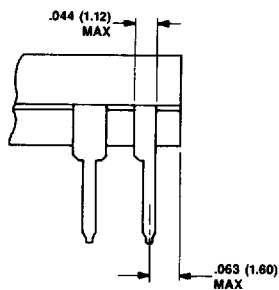
End Leads



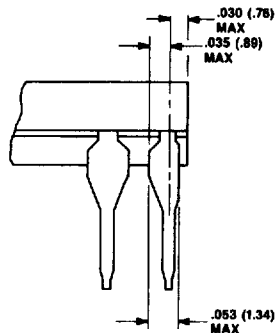
Detail A: Full-Lead/Square Shoulder



Detail B: Full-Lead/Tapered Offset

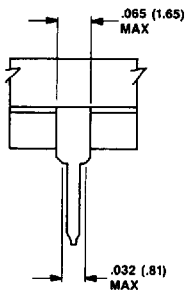


Detail C: Half-Lead/Square Shoulder

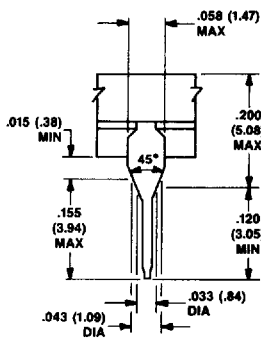


Detail D: Half-Lead/Tapered

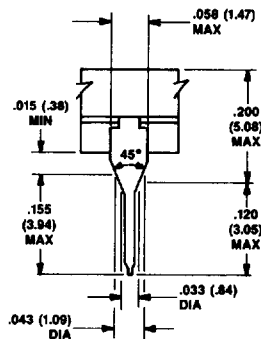
Center Leads



Detail E: Square Shoulder



Detail F: Taper



Detail G: Taper

Notes: Lead configurations vary depending on location of assembly.
Dimensions are in inches and (millimeters).