MILITARY DATA SHEET

MN100323-X REV 1A0

Original Creation Date: 10/30/95
Last Update Date: 10/21/96
Last Major Revision Date: 10/16/96

LOW POWER HEX BUS DRIVER

General Description

The 100323 is a monolithic device containing six bus drivers capable of driving terminated lines with terminations as low as 25 ohm. To reduce crosstalk, each output has its own respective ground connection. Transition times were designed to be longer than on other F100K devices. The driver itself performs the positive logic AND of a data input (D1-D6) and the OR of two select inputs (E and either DE1, DE2 or DE3). Enabling of data is possible in multiplies of two, i.e., 2, 4 or all 6 paths. All inputs have 50K ohm pull-down resistors.

The output voltage LOW level is designed to be more negative than normal ECL outputs (cut off state). This allows an emitter-follower output transistor to turn off when the termination supply is -2.0V and thus present a high impedance to the data bus.

Industry Part Number

100323

NS Part Numbers

100323DMQB
100323FMQB

Prime Die

F323

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp	Description	Temp (^{o}C)
1	Static tests at	+25
2	Static tests at	+125
3	Static tests at	-55
4	Dynamic tests at	+25
5	Dynamic tests at	+125
6	Dynamic tests at	-55
7	Functional tests at	+25
8A	Functional tests at	+125
8B	Functional tests at	-55
9	Switching tests at	+25
10	Switching tests at	+125
11	Switching tests at	-55

Features

- 50% power reduction of the 100123
- 2000V ESD protection
- -4.2V to -5.7V operating range
- Drives 25 ohm load

(Absolute Maximum Ratings)

Storage Temperature (Tstg)	-65 C to +150 C
Maximum Junction Temperature (Tj)	
Ceramic	+175 C
Plastic	+150 C
Vee Pin Potential to Ground Pin	-7.0V to +0.5V
Input Voltage (DC)	Vee to +0.5V
Output Current (DC Output HIGH)	-50mA
ESD	≥ 2000V

Note 1: Absolute maximum ratings are those values beyond which the device may be damaged or have its useful life impaired. Functional operation under these conditions is not implied.
Note 2: ESD testing conforms to MIL-STD-883, Method 3015.

Recommended Operating Conditions

Case Temperature (Tc)	
Commercial	0 C to +85 C
Military	-55 C to +125 C
Industrial	-40 C to +85 C
Supply Voltage (Vee)	-5.7V to -4.2V

Electrical Characteristics

DC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: Vee Range: -4.2V to -5.7V, Tc=-55C to +125C, VCC=VCCA=GND

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
IIH	Input HIGH Current	Vee= -5.7V, VM= -0.87V	1, 3	INPUTS		240	uA	1, 2
			1, 3	INPUTS		340	uA	3
IIL	Input Low Current	Vee= -4.2V, VM= -1.83V	1, 3	INPUTS	0.5		uA	1, 2, 3
VOH	Output HIGH Voltage	Vee=-4.2V/-5.7V, VIH=-0.87V, VIL=-1.83V, LOADING: 25 Ohms To -2.0V	1, 3	OUTPUTS	-1025	-870	mV	1, 2
			1, 3	OUTPUTS	-1085	-870	mV	3
VOL	Output LOW Voltage	Vee=-4.2V/-5.7V, VIH=-0.87V, VIL=-1.83V, LOADING: 25 Ohms to -2.0V	1, 3	OUTPUTS (CUTOFF)		-1950	mV	1, 2
			1, 3	OUTPUTS (CUTOFF)		-1850	mV	3
VOHC	Output HIGH Voltage	Vee=-4.2V/-5.7V, VIH=-1.165V, VIL=-1.475V, LOADING: 25 Ohms to -2.0V	1, 3	OUTPUTS	-1035		mV	1, 2
			1, 3	OUTPUTS	-1085		mV	3
VOLC	Output LOW Voltage	Vee=-4.2V/-5.7V, VIH=-1.165V, VIL=-1.475V, LOADING:25 Ohms to -2.0V	1, 3	OUTPUTS (CUTOFF)		-1950	mV	1, 2
			1, 3	OUTPUTS (CUTOFF)		-1850	mV	3
VIH	Input HIGH Voltage		1, 3, 7	INPUTS	-1165	-870	mV	1, 2, 3
VIL	Input LOW Voltage		1, 3, 7	INPUTS	-1830	-1475	mV	1, 2, 3
IEE	Power Supply Current	Vee= -4.2/-4.8V/-5.7V	1, 3	VEE	-155	-53	mA	1, 2, 3

Electrical Characteristics

AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: Vee Range: -4.2V to -5.7V, LOADING: 25 Ohms To -2.0V, VCC=VCCA=GND

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tPZH	Propagation Delay	Vee= -4.2/-5.7V	2, 4	Dn to On	1.1	3.6	ns	9
			2, 4	Dn to On	1.2	3.7	ns	10
			2, 4	Dn to On	0.7	3.7	ns	11
tPHZ (1)	Propagation Delay	Vee= -4.2/-5.7V	2, 4	Dn to On	1.1	3.1	ns	9
			2, 4	Dn to On	1.2	3.5	ns	10
			2, 4	Dn to On	0.5	3.6	ns	11
tPZH(2)	Propagation Delay	Vee= -4.2/-5.7V	2, 4	DEn to On	1.1	3.6	ns	9
			2, 4	DEn to On	1.3	3.8	ns	10
			2, 4	DEn to On	0.6	3.6	ns	11
tPHZ(2)	Propagation Delay	Vee= -4.2/-5.7V	2, 4	DEn to On	1.5	3.6	ns	9
			2, 4	DEn to On	1.6	4.0	ns	10
			2, 4	DEn to On	1.0	4.2	ns	11
tPZH(3)	Propagation Delay	Vee= -4.2/-5.7V	2, 4	E to On	1.0	3.5	ns	9
			2, 4	E to On	1.2	3.6	ns	10
			2, 4	E to On	0.7	3.6	ns	11
tPHZ(3)	Propagation Delay	Vee= -4.2/-5.7V	2, 4	E to On	1.4	3.4	ns	9
			2, 4	E to On	1.4	3.8	ns	10
			2, 4	E to On	0.9	4.0	ns	11
tTZH	Transition Time	Vee= -4.2/-5.7V	6	On	0.2	2.0	ns	9, 10, 11
tTHZ	Transition Time	Vee= -4.2/-5.7V	6	On	0.2	1.6	ns	9, 10
			6	On	0.2	1.8	ns	11

Note 1: Screen tested 100% on each device at -55 C, +25 C and +125 C temp., subgroups 1, 2, 3, 7 & 8.
Note 2: Screen tested 100% on each device at +25 C temp only, subgroup A9.
Note 3: Sample tested (Method 5005, Table 1) on each MFG. lot at +25 C, +125 C & -55 C temp., subgroups A1, 2, 3, 7 & 8.

(Continued)

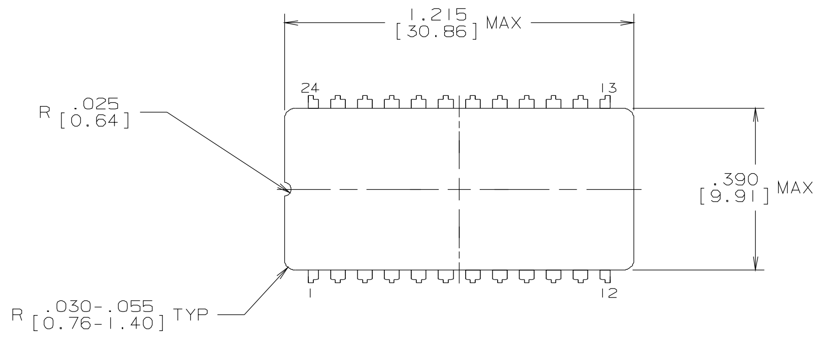
Note 4: Sample tested (Method 5005, Table 1) on each MFG. lot at +25 C, subgroup A9, and at +125 C & -55 C temp., subgroups A10 & 11.
Note 5: Sample tested (Method 5005, Table 1) on each MFG. lot at +25 C temp. only, subgroup A9.
Note 6: Not tested at +25 C, +125 C & -55 C temp. (DESIGN CHARACTERIZATION DATA).
Note 7: Guaranteed by applying specified input condition and testing VOH/VOL.

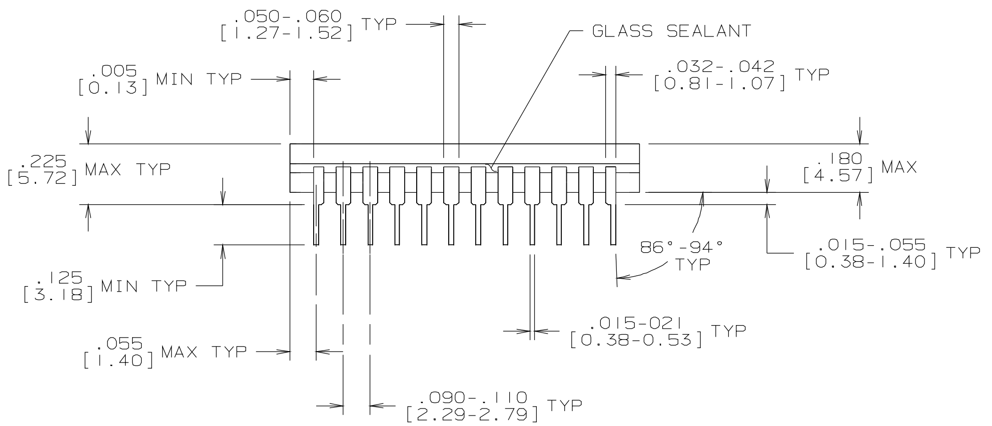
Graphics and Diagrams

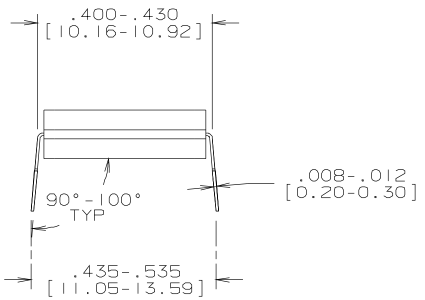
GRAPHICS#	**DESCRIPTION**
J24ERJ	CERDIP(J), 24LD .400 CENTERS (P/P DWG)
P000050A	CERDIP (J), 24LD .400 CENTERS (PIN OUT)
P000051A	CERPAC, QUAD, 24 LEAD (PIN OUT)
W24BRE	CERPAC, QUAD, 24 LEAD (P/P DWG)

See attached graphics following this page.

REVISIONS				
LTR	DESCRIPTION	E.C.N.	DATE	BY/APP'D
J	REVISE AND REDRAW	09044	03/05/92	DEG/







NOTES: UNLESS OTHERWISE SPECIFIED

1. LEAD FINISH: SOLDER DIPPED WITH Sn60 OR Sn63 SOLDER CONFORMING TO MIL-M-38510 TO A MINIMUM THICKNESS OF 200 MICROINCHES/5.08 MICROMETERS. SOLDER MAY BE APPLIED OVER LEAD BASIS METAL OR Sn PLATE.
2. LEAD THICKNESS MAY BE INCREASED BY .003 [0.08] MAXIMUM AFTER LEAD FINISH APPLIED.
3. BUMPERS ARE AVAILABLE ON CERTAIN PRODUCTS. BUMPERS WILL ADD .040 [1.02] MAX TO THE LENGTH OF THE PACKAGE.
4. NO JEDEC REGISTRATION AS OF 2/17/92.

MIL/AERO CONFIGURATION CONTROL

MIL-M-38510 CONFIGURATION CONTROL

CONTROLLING DIMENSION: INCH

APPROVALS		DATE	
DRAWN	D.E.GRADY	03/05/92	NATIONAL SEMICONDUCTOR CORPORATION 2900 Semiconductor Drive, Santa Clara, CA 95052-8090
DFTG. CHK.			CERDIP (J), 24 LEAD, .400 CENTERS
ENGR. CHK.			
APPROVAL			

PROJECTION	SCALE	SIZE	DRAWING NUMBER	REV
INCH/MM	N/A	C	MKT-J24E	J
	FORMERLY: N/A		SHEET 1 OF 1	

National Semiconductor was acquired by Texas Instruments.

http://www.ti.com/corp/docs/investor_relations/pr_09_23_2011_national_semiconductor.html

This file is the datasheet for the following electronic components:

100323DMQB - http://www.ti.com/product/100323dmqb?HQS=TI-null-null-dscatalog-df-pf-null-wwe

100323FMQB - http://www.ti.com/product/100323fmqb?HQS=TI-null-null-dscatalog-df-pf-null-wwe