



MILITARY DATA SHEET

MN100364-X REV 1A0

Original Creation Date: 10/30/95
Last Update Date: 08/28/96
Last Major Revision Date: 08/21/96

LOW POWER 16-BIT MULTIPLEXER

General Description

The F100364 is a 16-input multiplexer. Data paths are controlled by four Select lines (So-S3). Their decoding is shown in the truth table. Output data polarity is the same as the selected input data. All inputs have 50K ohm pulldown resistors.

Industry Part Number

100364

Prime Die

F364

NS Part Numbers

100364DMQB
100364FMQB
100364J-QMLV
100364W-QMLV

Processing

MIL-STD-883, Method 5004

Quality Conformance Inspection

MIL-STD-883, Method 5005

Subgrp Description Temp (°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

- 35% power reduction of the 100164
- 2000V ESD protection
- Pin/function compatible with 100164
- Voltage compensated operating range= -4.2V to -5.7V
- Available to MIL-STD-883
- Available to industrial grade temperature range

(Absolute Maximum Ratings)

(Note 1)

Storage Temperature (Tstg)	-65C to +150C
Maximum Junction Temperature (Tj)	
Ceramic	+175C
Plastic	+150C
Vee Pin Potential to Ground Pin	
	-7.0V to +0.5V
Input Voltage (DC)	
	Vee to +0.5V
Output Current (DC Output HIGH)	
	-50 mA
ESD	
(Note 2)	≥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
Industrial	-40 C to +85C
Military	-55C to +125C
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		300	uA	1, 2
			1, 3	INPUTS		450	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: 50 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: 50 Ohms to -2.0V	1, 3	OUTPUTS	-1830	-1620	mV	1, 2
			1, 3	OUTPUTS	-1830	-1555	mV	3
VOHC	Output HIGH Voltage Corner Point High	Vee=-4.2V/-5.7V, VIH=-1.165V, VIL=-1.475V, Loading: 50 Ohms to -2.0V	1, 3	OUTPUTS	-1035		mV	1, 2
			1, 3	OUTPUTS	-1085		mV	3
VOLC	Output LOW Voltage Corner Point High	Vee=-4.2V/-5.7V, VIH=-1.165V, VIL=-1.475V, LOADING: 50 Ohms to -2.0V	1, 3	OUTPUTS		-1610	mV	1, 2
			1, 3	OUTPUTS		-1555	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	Input LOW Voltage	VEE=-4.2/-5.7V	1, 3	INPUTS	-95	-35	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: 50 Ohms to -2.0V, VCC=VCCA=GND

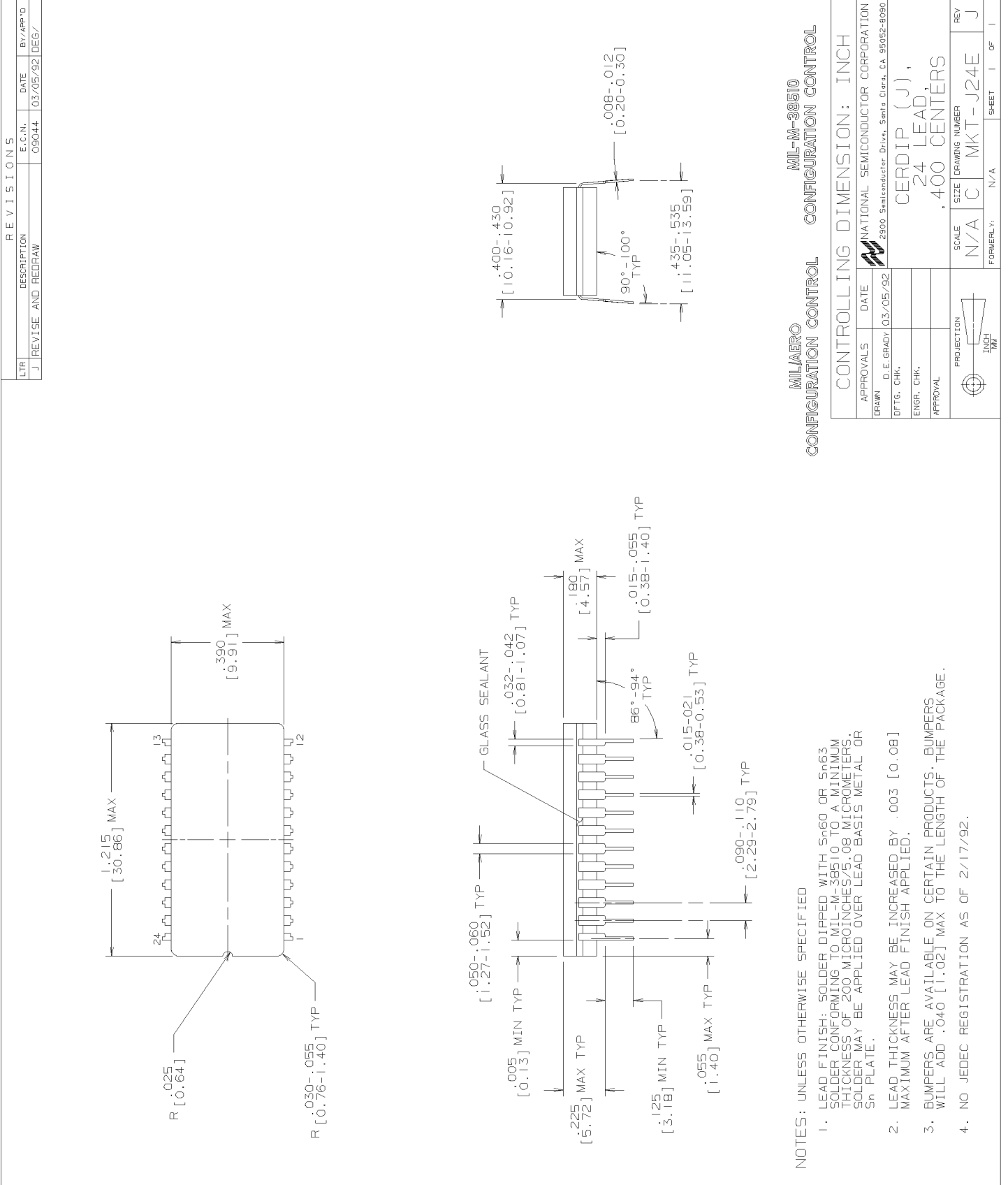
SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tpLH/tpHL(1)	Propagation Delay	VEE=-4.2/-5.7V	2, 4	In to Zn	0.6	2.4	ns	9
			2, 4	In to Zn	0.6	2.8	ns	10
			2, 4	In to Zn	0.5	2.6	ns	11
tpLH/tpHL(2)	Propagation Delay	VEE=-4.2/-5.7V	2, 4	S0, S1 to Zn	0.9	3.1	ns	9
			2, 4	S0, S1 to Zn	1.0	3.5	ns	10
			2, 4	S0, S1 to Zn	0.7	3.3	ns	11
tpLH/tpHL(3)	Propagation Delay	VEE=-4.2/-5.7V	2, 4	S2, S3 to Zn	0.7	2.6	ns	9
			2, 4	S2, S3 to Zn	0.6	3.0	ns	10
			2, 4	S2, S3 to Zn	0.5	2.9	ns	11
tTLH/tTHL	Transistion Time	VEE=-4.2/-5.7V	6	Zn	0.2	1.2	ns	9, 10, 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: For QB devices, screen tested 100% on each device at +25C temperature only, subgroup A9. For QMLV devices, screen tested 100% on each device at +25C, +125C & -55C temperature, subgroups A9, 10 & 11.
- 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.
- 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)
P000088A	CERDIP (J), 24LD .400 CENTERS (PIN OUT)
P000089A	CERPAC, QUAD, 24 LEAD (PIN OUT)
W24BRE	CERPAC, QUAD, 24 LEAD (P/P DWG)

See attached graphics following this page.



MIL/ARO		MIL-M-38510	
CONFIGURATION CONTROL		CONFIGURATION CONTROL	
CONTROLLING DIMENSION: INCH			
APPROVALS	DATE	NATIONAL SEMICONDUCTOR CORPORATION	
DRAMN	D. E. GRADY 03/05/92	2900 Semiconductor Drive, Santa Clara, CA 95052-8090	
DFTG. CHK.		CERDIP (J),	
ENGR. CHK.		24 LEAD	
APPROVAL		.400 CENTERS	
PROJECTION		SCALE	SIZE DRAWING NUMBER
		N/A	C
FORMERLY:		N/A	MKT-J24E
		SHEET	1 OF 1
		REV	J