



MILITARY DATA SHEET

MNDM54LS245-X REV 0A0

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OCTAL BIDIRECTIONAL TRANSCEIVER WITH 3-STATE INPUTS/OUTPUTS

General Description

The LS245 octal bus transceiver is designed for asynchronous two-way communication between data buses. The control function implementation minimizes external timing requirements. The device allows data transmission from the A bus to the B bus or from the B bus to the A bus depending upon the logic level at the direction control (DIR) input. The enable input (\bar{C}) can be used to disable the device so that the buses are effectively isolated.

Industry Part Number

DM54LS245

NS Part Numbers

DM54LS245E/883
 DM54LS245J/883
 DM54LS245W/883

Prime Die

L245

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

- Non-Inverting Buffers
- Bidirectional Data Path
- Outputs sink/source 12mA

(Absolute Maximum Ratings)

(Note 1)

Storage Temperature	-65 C to +150 C
Ambient Temperature under Bias	-55 C to +125 C
Junction Temperature under Bias	-55 C to +175 C
Vcc Pin Potential to Ground Pin	-0.5V to +7.0V
Input Voltage	
DIR OR \bar{G}	-0.5V to +10.0V
A OR B	-0.5V to +5.5V

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.

Recommended Operating Conditions

Free Air Ambient Temperature	
Military	-55 C to +125 C
Supply Voltage	
Military	+4.5V to +5.5V

Electrical Characteristics

DC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
DC: VCC 4.5V to 5.5V, Temp range: -55C to 125C

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
IIH	Input High Current	VCC=5.5V, VM=2.7V, VINH=4.5V, VINL=0.0V	1, 3	INPUTS		20	uA	1, 2, 3
IBVI1	Input High Current	VCC=5.5V, VM=5.5V, VINH=4.5V, VINL=0.0V	1, 3	A OR B INPUTS		100	uA	1, 2, 3
IBVI2	Input High Current	VCC=5.5V, VM=10.0V, VINH=4.5V, VINL=0.0V	1, 3	DIR/EX INPUTS		100	uA	1, 2, 3
IIL	Input LOW Current	VCC=5.5V, VM=0.4V, VINH=4.5V, VINL=0.0V	1, 3	INPUTS	-0.5	-200	uA	1, 2, 3
VOL	Output LOW Voltage	VCC=4.5V, VIL=0.7V, VIH=2.2V, IOL=12mA, VINH=4.5V, VINL=0.0V	1, 3	OUTPUTS		0.4	V	1, 2, 3
VOH1	Output HIGH Voltage	VCC=4.5V, VIL=0.7V, VIH=2.2V, IOH=-3mA, VINH=4.5V, VINL=0.0V	1, 3	OUTPUTS	2.4		V	1, 2, 3
VOH2	Output HIGH Voltage	VCC=4.5V, VIL=0.7V, VIH=2.2V, IOH=-12mA, VINH=4.5V, VINL=0.0V	1, 3	OUTPUTS	2.0		V	1, 2, 3
IOS	Output Short Circuit Current	VCC=5.5V, VINL=0.0V, VINH=4.5V, VOUT=0.0V	1, 3	OUTPUTS	-50	-225	mA	1, 2, 3
VIC	Input Clamp Diode Voltage	VCC=4.5V, IM=-18mA, VINH=4.5V, VINL=0.0V	1, 3	INPUTS		-1.5	V	1, 2, 3
ICCH	Supply Current	VCC=5.5V, VINH=4.5V, VINL=0.0V	1, 3	VCC		70	mA	1, 2, 3
ICCL	Supply Current	VCC=5.5V, VINL=0.0V, VINH=4.5V	1, 3	VCC		90	mA	1, 2, 3
ICCZ	Supply Current	VCC=5.5V, VINL=0.0V, VINH=4.5V	1, 3	VCC		95	mA	1, 2, 3
IOZH	Tristate Output Leakage Current	VCC=5.5V, VM=2.7V, VIH=2.2V, VIL=0.7V, VINH=4.5V, VINL=0.0V	1, 3	OUTPUTS		20	uA	1, 2, 3
IOZL	Tristate Output Leakage Current	VCC=5.5V, VM=0.4V, VIH=2.2V, VIL=0.7V, VINL=0.0V, VINH=4.5V	1, 3	OUTPUTS		-200	uA	1, 2, 3
VT+/VT-	Hysteresis	VCC=4.5V, VINH=4.5V, VINL=0.0V	1, 3	INPUTS	100		mV	1, 2, 3

Electrical Characteristics

AC PARAMETERS

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: CL=50pf, RL=110 OHMS, R=2.4K OHMS, TR=15ns, TF=6ns

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tpLH	Propagation Delay	VCC=5.0V	2, 4	An/Bn or Bn/An	2.0	18.0	ns	9
			5	An/Bn or Bn/An	2.0	26.0	ns	10, 11
tpHL	Propagation Delay	VCC=5.0V	2, 4	An/Bn or Bn/An	2.0	18.0	ns	9
			5	An/Bn or Bn/An	2.0	26.0	ns	10, 11
tpZH	Output Enable Time	VCC=5.0V	2, 4	OUTPUT ENABLE	2.0	34.0	ns	9
			5	OUTPUT ENABLE	2.0	58.0	ns	10, 11
tpZL	Output Enable Time	VCC=5.0V	2, 4	OUTPUT ENABLE	2.0	28.0	ns	9
			5	OUTPUT ENABLE	2.0	39.0	ns	10, 11
tpHZ	Output Disable Time	VCC=5.0V	2, 4	OUTPUT DISABLE	2.0	35.0	ns	9
			5	OUTPUT DISABLE	2.0	49.0	ns	10, 11
tpLZ	Output Disable Time	VCC=5.0V	2, 4	OUTPUT DISABLE	2.0	26.0	ns	9
			5	OUTPUT DISABLE	2.0	44.0	ns	10, 11

AC PARAMETERS - ALTERNATE ZL/ZH LOAD

(The following conditions apply to all the following parameters, unless otherwise specified.)
AC: CL=50pf, RL=667 OHMS, R=5.0K OHMS, TR=15ns, TF=6ns

tpZL	Output Enable Time	VCC=5.0V	5	OUTPUT ENABLE		30.0	ns	9
tpZH	Output Enable Time	VCC=5.0V	5	OUTPUT ENABLE		30.0	ns	9

Electrical Characteristics

AC PARAMETERS - ALTERNATE LZ/HZ LOAD

(The following conditions apply to all the following parameters, unless otherwise specified.)
 AC: CL=5pf, RL=667 OHMS, R=5.0K OHMS, TR=15ns, TF=6ns

SYMBOL	PARAMETER	CONDITIONS	NOTES	PIN-NAME	MIN	MAX	UNIT	SUB-GROUPS
tpLZ	Output Disable Time	VCC=5.0V	5	OUTPUT DISABLE		25.0	ns	9
tpHZ	Output Disable Time	VCC=5.0V	5	OUTPUT DISABLE		25.0	ns	9

Note 1: Screen tested 100% on each device at +25C, +125C, & -55C temperature, subgroups A1, 2, 3, 7 & 8.

Note 2: Screen tested 100% on each device at +25C temperature, subgroup A9 only.

Note 3: Sample tested (Method 5005, Table 1) on each MFG. lot at +25C, +125C & -55C temperature, subgroups A1, 2, 3, 7 & 8.

Note 4: Sample tested (Method 5005, Table 1) on each MFG. lot at +25C temperature, subgroup A9 only.

Note 5: Guaranteed parameter, not tested.