ONFI Technical Errata

Errata ID	**009**
Affected Spec Ver.	**ONFI 2.0**
Corrected Spec Ver.	

Submission info

Name	Company	Date
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Description of the specification technical flaw (add space as needed)

This erratum removes the parameter “Operating current data output” with symbol ICCQ1. Measuring data output current is largely dependent on test conditions. Output current is difficult to characterize and test as it is a function of the capacitive load of the test environment or system. In addition, the test conditions in Table 8 and Table 9 state IOUT = 0 mA. This is only capable with static outputs and is conflicting with the statement in section 2.10 that states “The ICC and ICCQ definitions assume outputs change between one and zero every other data cycle (once per CLK period, every other DQS transition) for data signals”.

Description of the correction

Modify section 2.10 as shown:

2.10 DC and Operating Characteristics

All operating current ratings in this section are specified per active logical unit (LUN). A LUN is active when there is a command outstanding to it. All other current ratings in this section are specified per LUN (regardless of whether it is active).

For high performance applications it may be desirable to draw increased current for ICC1-ICC3. For these applications, the device may draw up to 100 mA per active LUN in both 3.3V and 1.8V devices. Increased current may be used to improve sustained write performance.

All ICC measurements are measured with each Vcc pin decoupled with a 0.1 µF capacitor. ~~All ICCQ measurements are measured with each VccQ pin decoupled with a 0.1 µF capacitor~~. The ICC ~~and ICCQ~~ definition~~s~~ assumes outputs change between one and zero every other data cycle (once per CLK period, every other DQS transition) for data signals

Modify Table 8 as shown:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
~~Operating current data output~~	~~ICCQ1~~	~~CE#=VIL (DC), tCK=tCK(min) or tRC=tRC(min), IOUT=0mA~~	~~-~~	~~-~~	~~50~~	~~mA~~
Standby current, CMOS	ISBQ	CE#=VccQ-0.2V, WP#=0V/VccQ	-	-	25	µA
Input leakage current	ILI	VIN=0V to VccQ	-	-	+-10	µA
Output leakage current	ILO	VOUT=0V to VccQ	-	-	+-10	µA
DC Input high voltage	VIH (DC)	-	VccQ * 0.7	-	VccQ + 0.3	V
AC Input high voltage	VIH (AC)	-	VccQ * 0.8	-	VccQ + 0.3	V
DC Input low voltage	VIL (DC)	-	-0.3	-	VccQ * 0.3	V
AC Input low voltage	VIL (AC)	-	-0.3	-	VccQ * 0.2	V
Output high voltage	VOH	IOH=-400 µA	VccQ * 0.67	-	-	V
Output low voltage	VOL	IOL=2.1 mA		-	0.4	V
Output low current (R/B#)	IOL(R/B#)	VOL=0.4 V	8	10	-	mA

Table 1 DC and Operating Conditions for VccQ of 3.3V, measured on VccQ rail

Modify Table 9 as shown:

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
~~Operating current data output~~	~~ICCQ1~~	~~CE#=VIL (DC), tCK=tCK(min) or tRC=tRC(min), IOUT=0mA~~	~~-~~	~~-~~	~~50~~	~~mA~~
Standby current, CMOS	ISBQ	CE#=VccQ-0.2V, WP#=0V/VccQ	-	-	25	µA
Input leakage current	ILI	VIN=0V to VccQ	-	-	+-10	µA
Output leakage current	ILO	VOUT=0V to VccQ	-	-	+-10	µA
DC Input high voltage	VIH (DC)	-	VccQ * 0.7	-	VccQ+0.3	V
AC Input high voltage	VIH (AC)	-	VccQ * 0.8	-	VccQ+0.3	V
DC Input low voltage	VIL (DC)	-	-0.3	-	VccQ * 0.3	V
AC Input low voltage	VIL (AC)	-	-0.3	-	VccQ * 0.2	V
Output high voltage	VOH	IOH=-100 µA	VccQ – 0.1	-	-	V
Output low voltage	VOL	IOL=100 µA	-	-	0.1	V
Output low current (R/B#)	IOL(R/B#)	VOL=0.2 V	3	4	-	mA

Table 2 DC and Operating Conditions for VccQ of 1.8V, measured on VccQ rail

Disposition log

10/10/2008	Erratum captured.
10/20/2008	Editorial updates.
12/24/2008	Erratum ratified.

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