



AD8460 Data Sheet Revision

Datasheet Specification Comparison – Output 1% Settling Time

Rev. 1 (Old)

PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
DYNAMIC PERFORMANCE						
Small Signal Bandwidth	f_{3db}	$V_{OUT} = 0.1\text{ V p-p}$, $T_J = 85^\circ\text{C}$. See Figure 27 .		4.3		MHz
Large Signal Bandwidth ¹		$V_{OUT} = 80\text{ V p-p}$. See Figure 26 .		1		MHz
Slew Rate, 20% to 80%	SR_{RISE}	$V_{OUT} = 80\text{ V p-p}$. See Figure 8 .		2100		V/ μs
	SR_{FALL}	$V_{OUT} = 80\text{ V p-p}$. See Figure 9 .		1800		V/ μs
Output 1% Settling Time	t_{ST}	$V_{OUT} = 40\text{ V p-p}$. See Figure 4 .		13.5		μs
Output 0.1% Settling Time	t_{ST}	$V_{OUT} = 40\text{ V p-p}$. See Figure 4 .		39.5		μs
NOISE/DISTORTION PERFORMANCE						
Output Noise Spectral Density	V_N	$C_{LOAD} = 0\text{ nF}$, $T_J = 85^\circ\text{C}$, $f = 100\text{ kHz}$		0.6		$\mu\text{V}/\sqrt{\text{Hz}}$
Harmonic Distortion, HD2/HD3		$V_{OUT} = 80\text{ V p-p}$, 1 kHz		-66		dBc
		$V_{OUT} = 80\text{ V p-p}$, 100 kHz		-70		dBc

Rev. 2 (New)

PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
DYNAMIC PERFORMANCE						
Small Signal Bandwidth	f_{3db}	$V_{OUT} = 0.1\text{ V p-p}$, $T_J = 85^\circ\text{C}$. See Figure 36 .		4.3		MHz
Large Signal Bandwidth ¹		$V_{OUT} = 80\text{ V p-p}$. See Figure 30 .		1		MHz
Slew Rate, 20% to 80%	SR_{RISE}	$V_{OUT} = 80\text{ V p-p}$. See Figure 8 .		2100		V/ μs
	SR_{FALL}	$V_{OUT} = 80\text{ V p-p}$. See Figure 9 .		1800		V/ μs
Output 1% Settling Time	t_{ST}	$V_{OUT} = 80\text{ V p-p}$. See Figure 4 .		220		ns
Output 0.1% Settling Time	t_{ST}	$V_{OUT} = 80\text{ V p-p}$. See Figure 4 .		450		ns
NOISE/DISTORTION PERFORMANCE						
Output Noise Spectral Density	V_N	$C_{LOAD} = 0\text{ nF}$, $T_J = 85^\circ\text{C}$, $f = 100\text{ kHz}$		0.6		$\mu\text{V}/\sqrt{\text{Hz}}$
Harmonic Distortion, HD2/HD3		$V_{OUT} = 80\text{ V p-p}$, 1 kHz		-66		dBc
		$V_{OUT} = 80\text{ V p-p}$, 100 kHz		-70		dBc

Datasheet Specification Comparison – Output 0.1% Settling Time

Rev. 1 (Old)

PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
DYNAMIC PERFORMANCE						
Small Signal Bandwidth	f_{3db}	$V_{OUT} = 0.1\text{ V p-p}$, $T_J = 85^\circ\text{C}$. See Figure 27 .		4.3		MHz
Large Signal Bandwidth ¹		$V_{OUT} = 80\text{ V p-p}$. See Figure 26 .		1		MHz
Slew Rate, 20% to 80%	SR_{RISE}	$V_{OUT} = 80\text{ V p-p}$. See Figure 8 .		2100		V/ μs
	SR_{FALL}	$V_{OUT} = 80\text{ V p-p}$. See Figure 9 .		1800		V/ μs
Output 1% Settling Time	t_{ST}	$V_{OUT} = 40\text{ V p-p}$. See Figure 4 .		13.5		μs
Output 0.1% Settling Time	t_{ST}	$V_{OUT} = 40\text{ V p-p}$. See Figure 4 .		39.5		μs
NOISE/DISTORTION PERFORMANCE						
Output Noise Spectral Density	V_N	$C_{LOAD} = 0\text{ nF}$, $T_J = 85^\circ\text{C}$, $f = 100\text{ kHz}$		0.6		$\mu\text{V}/\sqrt{\text{Hz}}$
Harmonic Distortion, HD2/HD3		$V_{OUT} = 80\text{ V p-p}$, 1 kHz		-66		dBc
		$V_{OUT} = 80\text{ V p-p}$, 100 kHz		-70		dBc

Rev. 2 (New)

PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
DYNAMIC PERFORMANCE						
Small Signal Bandwidth	f_{3db}	$V_{OUT} = 0.1\text{ V p-p}$, $T_J = 85^\circ\text{C}$. See Figure 36 .		4.3		MHz
Large Signal Bandwidth ¹		$V_{OUT} = 80\text{ V p-p}$. See Figure 30 .		1		MHz
Slew Rate, 20% to 80%	SR_{RISE}	$V_{OUT} = 80\text{ V p-p}$. See Figure 8 .		2100		V/ μs
	SR_{FALL}	$V_{OUT} = 80\text{ V p-p}$. See Figure 9 .		1800		V/ μs
Output 1% Settling Time	t_{ST}	$V_{OUT} = 80\text{ V p-p}$. See Figure 4 .		220		ns
Output 0.1% Settling Time	t_{ST}	$V_{OUT} = 80\text{ V p-p}$. See Figure 4 .		450		ns
NOISE/DISTORTION PERFORMANCE						
Output Noise Spectral Density	V_N	$C_{LOAD} = 0\text{ nF}$, $T_J = 85^\circ\text{C}$, $f = 100\text{ kHz}$		0.6		$\mu\text{V}/\sqrt{\text{Hz}}$
Harmonic Distortion, HD2/HD3		$V_{OUT} = 80\text{ V p-p}$, 1 kHz		-66		dBc
		$V_{OUT} = 80\text{ V p-p}$, 100 kHz		-70		dBc

Datasheet Specification Comparison – SDN_IO Specifications

Rev. 1 (Old)

Rev. 2 (New)

REFERENCE OUTPUT						
Output Voltage	REFIO_1P2V		1.195	1.22	1.245	V
		T _c = 30°C to 85°C		17		μV/°C
Output Current Drive				100		μA
SDN_IO SPECIFICATIONS						
Output Voltage Range	SDN_IO	SDN_IO Floating	0		V _{CC_5V}	V
Shutdown Threshold	SDN_IO _{RISE}		2.54	2.56	2.57	V
	SDN_IO _{FALL}		2.45	2.47	2.48	V
Output Current Drive Sink	SDN_IO _{SNK}			-180		μA
Output Current Drive Source	SDN_IO _{SRC}			180		μA
Turn Off Time	SDN_IO _{TOFF}	SDN_IO > SDN_IO _{RISE} to shutdown. See DELAYED SHUTDOWN		400		ns

REFERENCE OUTPUT						
Output Voltage	REFIO_1P2V		1.195	1.22	1.245	V
		T _c = 30 °C to 85 °C		17		μV/°C
Output Current Drive				100		uA
SDN_IO SPECIFICATIONS						
Output Voltage Range	SDN_IO	SDN_IO Floating	0		VCC_5V	V
Shutdown Threshold	SDN_IO _{RISE}		2.54	2.56	2.57	V
	SDN_IO _{FALL}		2.45	2.47	2.48	V
Output Current Drive Sink	SDN_IO _{SNK}	SDN_IO = 80% of VCC_5V		-180		uA
Output Current Drive Source	SDN_IO _{SRC}	SDN_IO = 20% of VCC_5V		200		uA

Datasheet Specification Comparison – SDN_IO Specifications (cont.)

Rev. 1 (Old)

Output Current Drive Source	SDN_IO _{SRC}			180		μA
Turn Off Time	SDN_IO _{TOFF}	SDN_IO > SDN_IO _{RISE} to shutdown. See <i>DELAYED SHUTDOWN</i>		400		ns
DC OVERCURRENT PROTECTION						
Sourcing Setpoint Range Max				1		A
Sourcing Code Range			0x06		0x40	
Sinking Setpoint Range Max				-1		A

Rev. 2 (New)

Turn Off Time	SDN_IO _{TOFF}	SDN_IO > SDN_IO _{RISE} to shutdown. See <i>Delayed Shutdown</i> .		400		ns
Turn On Time	SDN_IO _{TON}	I _{OUT} = 0 A, SDN_IO < SDN_IO _{FALL} to turn on. See <i>Delayed Shutdown</i> .		2		μs
		I _{OUT} = 500 mA, SDN_IO < SDN_IO _{FALL} to turn on. See <i>Delayed Shutdown</i> .		11.5		μs
DC OVERCURRENT PROTECTION						
Sourcing Setpoint Range Max				1		A
Sourcing Code Range			0x06		0x40	
Sinking Setpoint Range Max				-1		A
Sinking Code Range			0x06		0x40	
Setpoint Resolution				15.625		mA/lsb
Setpoint Accuracy		Code = 0x06, 93.75mA		3.6		%
Shutdown Response Time		C _{SDN_IO} = DNI, Code = 0x32		1.6		us

Datasheet Specification Comparison – DC Overcurrent Protection

Rev. 1 (Old)

DC OVERCURRENT PROTECTION						
Sourcing Setpoint Range Max				1		A
Sourcing Code Range			0x06		0x40	
Sinking Setpoint Range Max				-1		A
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(HVCC = +50 V, HVEE = -50 V, SET_IQ = 0x00, VCC_5V = +5 V, VREF_5V = +5 V, REFIO_1P2V = +1.2 V, R _{TERM} = 50 Ω, R _{SET} to FS_ADJ = 2 kΩ, COMP_L, COMP_H = 0 pF, C _{LOAD} = 1 nF, T _c = 30°C, unless otherwise noted.)						
PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
Sinking Code Range			0x40		0x06	
Setpoint Resolution				15.625		mA/lb
Setpoint Accuracy		Code = 0x06, 93.75 mA		3.6		%

Rev. 2 (New)

DC OVERCURRENT PROTECTION						
Sourcing Setpoint Range Max				1		A
Sourcing Code Range			0x06		0x40	
Sinking Setpoint Range Max				-1		A
Sinking Code Range			0x06		0x40	
Setpoint Resolution				15.625		mA/lb
Setpoint Accuracy		Code = 0x06, 93.75mA		3.6		%
Shutdown Response Time		C _{SDN_IO} = DNI, Code = 0x32		1.6		us

Datasheet Specification Comparison – DC Overvoltage Protection

Rev. 1 (Old)

DC OVERVOLTAGE PROTECTION						
Positive Voltage Setpoint Range Max				55		V
Positive Code Range			0x01		0x1C	
Negative Voltage Setpoint Range Max				-55		V
Negative Code Range			0x1C		0x01	
Setpoint Resolution				1.953		V/lsb
Setpoint Accuracy		Code = 0x10, 31.25 V		1.4		%
DC OVERTEMPERATURE PROTECTION						
Setpoint Range ^a		Max		150		°C
Setpoint Range		Min		20		°C
Code Range			0x2C		0x40	
Setpoint Resolution				6.51		°C/lsb
Setpoint Accuracy		Code = 0x40, T _J = 150°C		2.3		%

Rev. 2 (New)

DC OVERVOLTAGE PROTECTION						
Positive Voltage Setpoint Range Max				55		V
Positive Code Range			0x06		0x1C	
Negative Voltage Setpoint Range Max				-55		V
Negative Code Range			0x06		0x1C	
Setpoint Resolution				1.953		V/lsb
Setpoint Accuracy		Code = 0x10, 31.25V		1.4		%
Shutdown Response Time		C _{SDN_IO} = DNI, Code = 0x1A		0.9		µs
DC OVERTEMPERATURE PROTECTION						
Max Setpoint Range ^a				150		°C
Min Setpoint Range				-40		°C
Code Range			0x23		0x40	
Setpoint Resolution				6.51		°C/lsb

Datasheet Specification Comparison – DC Overtemperature Protection

Rev. 1 (Old)

DC OVERTEMPERATURE PROTECTION						
Setpoint Range ⁸		Max		150		°C
Setpoint Range		Min		20		°C
Code Range			0x2C		0x40	
Setpoint Resolution				6.51		°C/lsb
Setpoint Accuracy		Code = 0x40, T _J = 150°C		2.3		%
TEMPERATURE MONITOR SPECIFICATIONS						
Initial Voltage	TMP_V _{INITIAL}	T _J = 30°C	1.75	1.78	1.81	V
Scaling	TMP_TC			6		mV/°C

Rev. 2 (New)

DC OVERTEMPERATURE PROTECTION						
Max Setpoint Range ⁸				150		°C
Min Setpoint Range				-40		°C
Code Range			0x23		0x40	
Setpoint Resolution				6.51		°C/lb

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(HVCC = +50 V, HVEE = -50 V, VREF_5V = +5 V, REFIO_1P2V = +1.2 V, R_{TERM} = 50 Ω, R_{SET} to FS_ADJ = 2 kΩ, COMP_L, COMP_H = 0 pF, Feedback Resistor (RF) = 56 kΩ, C_{LOAD} = 1 nF, T_c = 30°C, unless otherwise noted., Unless Otherwise Noted)

PARAMETER	SYMBOL	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNITS
Setpoint Accuracy		Code = 0x40, accuracy with ideal TMP pin voltage		3.6		°C
Shutdown Response Time		C _{SDN_IO} = DNI, Code = 0x40		1		us

Datasheet Specification Comparison – Temperature Monitor Specifications

Rev. 1 (Old)

Setpoint Resolution				6.51		°C/lb
Setpoint Accuracy		Code = 0x40, T _J = 150°C		2.3		%
TEMPERATURE MONITOR SPECIFICATIONS						
Initial Voltage	TMP_V _{INITIAL}	T _J = 30°C	1.75	1.78	1.81	V
Scaling	TMP_TC			6		mV/°C
SYNC INPUT ^{9,10}						
Input High Voltage	VIH _{SYNC}		2		3.47	V
Input Low Voltage	VIL _{SYNC}		0		0.8	V
Input Current	IL _{SYNC}		-1		1	μA
Input Capacitance	C _{SYNC}			12		pF

Rev. 2 (New)

Setpoint Accuracy		Code = 0x40, accuracy with ideal TMP pin voltage		3.6		°C
Shutdown Response Time		C _{SDN_IO} = DNI, Code = 0x40		1		us
TEMPERATURE MONITOR SPECIFICATIONS						
Initial Voltage	TMP_V _{INITIAL}	T _J = 30°C	1.75	1.78	1.81	V
Scaling	TMP_TC			6		mV/°C
Output Impedance Sourcing	TMP_Z			40		Ω
Output Current Sinking	TMP_Z			-100		μA
SYNC INPUT ^{9,10}						
Input High Voltage	VIH _{SYNC}	T _J = 30 °C to 105 °C	2		3.47	V
Input Low Voltage	VIL _{SYNC}	T _J = 30 °C to 105 °C	0		0.8	V
Input Current	IL _{SYNC}	T _J = 30 °C to 105 °C	-1		1	μA
Input Capacitance	C _{SYNC}			12		pF

Datasheet Specification Comparison – Absolute Maximum Ratings

Rev. 1 (Old)

ABSOLUTE MAXIMUM RATINGS	
T _A = 25 °C, unless otherwise specified.	
Table 3. Absolute Maximum Ratings	
PARAMETER	RATING
HVCC to HVEE	115V
OUT	HVEE – 0.3V to HVCC + 0.3V
COMP_H	HVCC – 5V to HVCC + 0.3V
COMP_L	HVEE – 0.3V to HVEE + 5V
COMP_T to GND	–0.3V to VCC_5V + 0.3V
VCC_5V to GND	–0.3V to +6V
SYNC, DB0 – DB13 to GND	–0.3V to DVDD_3P3V + 0.3V
VREF_5V to GND	–0.3V to VCC_5V + 0.3V or +5.85 V (whichever is less)

Rev. 2 (New)

ABSOLUTE MAXIMUM RATINGS	
T _A = 25 °C, unless otherwise specified.	
Table 3. Absolute Maximum Ratings	
PARAMETER	RATING
HVCC to HVEE	115V
HVCC to GND	107.5V
HVEE to GND	–57.5V
OUT	HVEE – 0.3V to HVCC + 0.3V
COMP_H	HVCC – 5V to HVCC + 0.3V
COMP_L	HVEE – 0.3V to HVEE + 5V
COMP_T to GND	–0.3V to VCC_5V + 0.3V
VCC_5V to GND	–0.3V to +6V
SYNC, DB0 – DB13 to GND	–0.3V to DVDD_3P3V + 0.3V
VREF_5V to GND	–0.3V to VCC_5V + 0.3V or +5.85 V (whichever is less)

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