

PRODUCT ADVISORY

**Data Sheet Specification
Specification Change for
Intersil Product ISL78420***

**Refer to:
PA14061**

Date: November 7, 2014

November 7, 2014

To: Our Valued Intersil Customers

Subject: **Data Sheet Specification Change for Intersil Product ISL78420***

This advisory is to inform you that Intersil has updated the data sheet specification for the ISL78420* product. The change includes corrections to the Electrical Specification Table for various parameters as highlighted on the next page. The change aligns the data sheet with the existing product characteristics. The updated data sheet is available on the Intersil web site at: <http://www.intersil.com/content/dam/Intersil/documents/fn82/fn8296.pdf>.

Products affected:

ISL78420ARTAZ, ISL78420ARTAZ-T, ISL78420AVEZ, ISL78420AVEZ-T

There have been no changes to the die/silicon or product itself. There will be no change in the part number(s) or external marking (branding) of the packaged the parts.

Intersil will take all necessary actions to conform to agreed upon customer requirements and to ensure the continued high quality and reliability of Intersil products being supplied. Customers may expect to continue receiving product processed to the same established conditions and systems used for manufacturing of the material supplied today.

If you have concerns with this advisory, Intersil must hear from you promptly. Please contact the nearest Intersil Sales Office or call the Intersil Corporate line at 1-888-468-3774, in the United States, or 1-321-724-7143 outside of the United States.

Regards,



Jeffrey Touvell

Intersil Corporation

PA14061

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PA14061 Data Sheet Specification Change

From:

Absolute Maximum Ratings (Note 6)

Supply Voltage, V_{DD} , V_{HB} - V_{HS} (Notes 5)	-0.3V to 18V
PWM and EN Input Voltage	-0.3V to $V_{DD} + 0.3V$
Voltage on LO	-0.3V to $V_{DD} + 0.3V$
Voltage on HO	$V_{HS} - 0.3V$ to $V_{HB} + 0.3V$
Voltage on HS (Continuous)	-1V to 110V
Voltage on HB	118V
Average Current in V_{DD} to HB Diode	100mA

Maximum Recommended Operating Conditions (Note 6)

Supply Voltage, V_{DD}	8V to 14V
Voltage on HS	-1V to 100V
Voltage on HS (Repetitive Transient)	-5V to 105V
Voltage on HB	$V_{HS} + 8V$ to $V_{HS} + 14V$ and $V_{DD} - 1V$ to $V_{DD} + 100V$
HS Slew Rate	< 50V/ns
Temperature	-40°C to +125°C

Thermal Information

Thermal Resistance (Typical)	θ_{JA} (°C/W)	θ_{JC} (°C/W)
10 Ld TDFN (Notes 7, 8)	42	4
9 Ld TDFN (Notes 7, 8)	42	4

Max Power Dissipation at +25°C in Free Air	
10 Ld TDFN	3.0W
9 Ld TDFN	3.1W

Storage Temperature Range	-65°C to +150°C
Junction Temperature Range	-55°C to +150°C

Pb-Free Reflow Profile see link below
<http://www.intersil.com/pbfree/Pb-FreeReflow.asp>

ESD Ratings

Human Body Model Class 2 (Tested per JESD22-A114E)	3000V
Machine Model Class B (Tested per JESD22-A115-A)	300V
Charged Device Model Class IV	1500V
Latch Up (Tested per JESD-78B; Class 2, Level A)	100mA

CAUTION: Do not operate at or near the maximum ratings listed for extended periods of time. Exposure to such conditions may adversely impact product reliability and result in failures not covered by warranty.

NOTES:

- The ISL78420 is capable of derated operation at supply voltages exceeding 14V. Figure 17 shows the high-side voltage derating curve for this mode of operation.
- All voltages referenced to V_{SS} unless otherwise specified.

PARAMETERS	SYMBOL	TEST CONDITIONS	$T_A = +25^\circ\text{C}$			$T_A = -40^\circ\text{C to } +125^\circ\text{C}$		UNITS
			MIN	TYP	MAX	MIN (Note 9)	MAX (Note 9)	
SUPPLY CURRENTS								
V_{DD} Quiescent Current	I_{DD8k}	$R_{DT} = 8k$	-	650	950	-	1000	μA
	I_{DD80k}	$R_{DT} = 80k$	-	1.0	2.1	-	2.2	mA
V_{DD} Operating Current	I_{DD08k}	$f = 500\text{kHz}$, $R_{DT} = 8k$	-	2.5	3	-	3	mA
	I_{DD080k}	$f = 500\text{kHz}$, $R_{DT} = 80k$	-	3.4	4	-	4	mA
Total HB Quiescent Current	I_{HB}	$LI = HI = 0V$	-	65	115	-	150	μA
Total HB Operating Current	I_{HBO}	$f = 500\text{kHz}$	-	2.0	2.5	-	3	mA
HB to V_{SS} Current, Quiescent	I_{HBS}	$LI = HI = 0V$; $V_{HB} = V_{HS} = 114V$	-	0.05	1.5	-	10	μA
HB to V_{SS} Current, Operating	I_{HBSO}	$f = 500\text{kHz}$; $V_{HB} = V_{HS} = 114V$	-	1.2	1.5	-	1.6	mA
Tri-Level PWM Input								
High Level Threshold	V_{PMMH}		-	3.6	4.0	-	4.3	V
PARAMETERS	SYMBOL	TEST CONDITIONS	$T_A = +25^\circ\text{C}$			$T_A = -40^\circ\text{C to } +125^\circ\text{C}$		UNITS
			MIN	TYP	MAX	MIN (Note 9)	MAX (Note 9)	
EN Input								
Low Level Input Threshold	V_{ENL}		1.4	1.8	-	1.2	-	V
High Level Input Threshold	V_{ENH}		-	1.8	2.2	-	2.4	V
EN Pull-up Resistance	R_{PU}		-	210	-	100	320	k Ω
UNDERVOLTAGE PROTECTION								
V_{DD} Rising Threshold	V_{DDR}		6.8	7.3	7.8	6.5	8.1	V
V_{DD} Threshold Hysteresis	V_{DDH}		-	0.6	-	-	-	V
HB Rising Threshold	V_{HBR}		6.2	6.9	7.5	5.9	7.8	V
HB Threshold Hysteresis	V_{HBH}		-	0.6	-	-	-	V

To:

Absolute Maximum Ratings (Note 5)

Supply Voltage, V _{DD} , V _{HB} - V _{HS} (Note 6)	-0.3V to 18V
PWM and EN Input Voltage	-0.3V to V _{DD} + 0.3V
Voltage on LO	-0.3V to V _{DD} + 0.3V
Voltage on HO	V _{HS} - 0.3V to V _{HB} + 0.3V
Voltage on HS (Continuous)	-1V to 110V
Voltage on HB	118V
Average Current in V _{DD} to HB Diode	100mA
ESD Ratings	
Human Body Model (Tested per AEC-Q100-002)	2kV
Charged Device Model (Tested per AEC-Q100-011)	1.5kV
Latch-up (Tested per AEC-Q100-004)	100mA

Thermal Information

Thermal Resistance (Typical) (Notes 7, 8)	θ_{JA} (°C/W)	θ_{JC} (°C/W)
14 Ld HTSSOP	35	2.5
10 Ld TDFN	42	4
Max Power Dissipation at +25°C in Free Air (Note 9)		
14 Ld HTSSOP	3.5W	
10 Ld TDFN	3.0W	
Storage Temperature Range	-65°C to +150°C	
Junction Temperature Range	-55°C to +150°C	
Pb-Free Reflow Profile	see TB493	

Maximum Recommended Operating Conditions (Note 5)

Supply Voltage, V _{DD}	8V to 14V
Voltage on HS	-1V to 100V
Voltage on HS (Repetitive Transient)	-5V to 105V
Voltage on HB (Note 6)	V _{HS} + 8V to V _{HS} + 14V
HS Slew Rate	<50V/ns
Temperature	-40°C to +125°C

CAUTION: Do not operate at or near the maximum ratings listed for extended periods of time. Exposure to such conditions may adversely impact product reliability and result in failures not covered by warranty.

NOTES:

- All voltages referenced to V_{SS} unless otherwise specified.
- The operating voltage from HB to GND is the sum of VDD and the HS voltage. The maximum operating voltage from HB to GND is recommended to be under 114V.

PARAMETERS	SYMBOL	TEST CONDITIONS	T _A = +25°C			T _A = -40°C to +125°C		UNITS
			MIN	TYP	MAX	MIN (Note 10)	MAX (Note 10)	
SUPPLY CURRENTS								
V _{DD} Quiescent Current	I _{DD8k}	R _{DT} = 8kΩ; PWM = 12V	-	0.65	0.95	-	1	mA
	I _{DD80k}	R _{DT} = 80kΩ; PWM = 12V	-	1.0	2.1	-	2.2	mA
V _{DD} Operating Current	I _{DD08k}	f _{PWM} = 500kHz, R _{DT} = 8kΩ	-	2.5	3	-	3	mA
	I _{DD080k}	f _{PWM} = 500kHz, R _{DT} = 80kΩ	-	3.4	4	-	4	mA
HB to HS Quiescent Current	I _{HB}	PWM = EN = 0V	-	65	115	-	150	μA
HB to HS Operating Current	I _{HBO}	f _{PWM} = 500kHz	-	2.0	2.5	-	3	mA
HB to V _{SS} Leakage Current	I _{HBS}	PWM = EN = 0V; V _{HB} = V _{HS} = 100V	-	0.05	1.5	-	10	μA
HB to V _{SS} Current, Operating	I _{HBSO}	f _{PWM} = 500kHz; V _{HB} = V _{HS} = 100V	-	1.2	1.5	-	1.6	mA
TRI-LEVEL PWM INPUT								
High Level Threshold	V _{PWMH}		-	3.6	4.0	-	4.1	V

EN INPUT								
Low Level Threshold	V _{ENL}		1.8	2.5	-	1.8	-	V
High Level Threshold	V _{ENH}		-	2.8	4.0	-	4.1	V
EN Pull-down Resistor	R _{EN}	To V _{SS}	-	210	-	100	320	kΩ
UNDERVOLTAGE PROTECTION								
V _{DD} Rising Threshold	V _{DDR}		6.8	7.3	7.8	6.5	8.0	V
V _{DD} Threshold Hysteresis	V _{DDH}		-	0.6	-	-	-	V
V _{HB} Rising Threshold	V _{HBR}		6.2	6.9	7.5	5.9	7.8	V
V _{HB} Threshold Hysteresis	V _{HBH}		-	0.6	-	-	-	V

Note: Changes are shaded in yellow

Other changes outside the electrical table is listed on page 15 and 16 of the revised datasheet.