CHANGE NOTIFICATION



September 06, 2013

Dear Sir/Madam:

PCN# 090613

Subject: Notification of Change to LT3791, LT3791-1 Datasheet

Please be advised that Linear Technology Corporation has made a minor change to the LT3791 and LT3791-1 product family datasheets to better center the parametric distribution within the specification range. The changes are shown on the attached pages of the marked up datasheets. There was no change made to the die. The product shipped after November 7th, 2013 will be tested to the new limits.

Should you have any further questions, please feel free to contact me at 408-432-1900 ext. 2077, or by e-mail at <u>JASON.HU@linear.com</u>. If I do not hear from you by November 6th, 2013, we will consider this change approved by your company.

Sincerely,

Jason Hu Quality Assurance Engineer

LT3791

ELECTRICAL CHARACTERISTICS The • denotes the specifications which apply over the full operating

PARAMETER	ecifications are at T _A = 25°C (Note 2). V _{IN} = 12V, V _{EN} CONDITIONS		MIN	ТҮР	MAX	UNITS
Open LED Falling Threshold (VFB)	CONDITIONS		1.078	1.1	1,122	V
Open LED Falling Threshold (V _(ISP-ISN))	V _{FB} = 1.2V		5	10	1.122	mV
	v _{FB} = 1.2 v		380		450	
Short LED Falling Threshold (VFB)			380	400		mV
OPENLED Pin Output Impedance				1.1	2.0	kΩ
SHORTLED Pin Output Impedance				1.1	2.0	kΩ
SS Latch-Off Threshold				1.75		V
SS Reset Threshold				0.2		V
Oscillator						
Switching Frequency	$R_T = 147k$		190	200	210	kHz
	R _T = 59.0k R _T = 29.1k		380 665	400 700	420 735	kHz kHz
SYNC Frequency	nT = 29.1k		200	700	700	kHz
SYNC Pin Resistance to GND			200	90	700	kΩ
SYNC Threshold Voltage			0.3	90	1.5	V
			0.0		1.0	v
Internal V _{CC} Regulator			4.8	5	5.2	V
INTV _{CC} Regulation Voltage			4.8	-		-
Dropout (V _{IN} – INTV _{CC})	I _{INTVCC} = -10mA, V _{IN} = 5V			240	350	mV
INTV _{CC} Undervoltage Lockout			3.1	3.5	3.9	V
INTV _{CC} Current Limit	VINTVCC = 4V			67		mA
PWM						
PWM Threshold Voltage			0.3		1.5	V
PWM Pin Resistance to GND				90		kΩ
PWMOUT Pull-Up Resistance				10	20	Ω
PWMOUT Pull-Down Resistance				5	10	Ω
NMOS Drivers	•	•				
TG1, TG2 Gate Driver On-Resistance	$V_{BST} - V_{SW} = 5V$					
Gate Pull-Up				2.6		Ω
Gate Pull-Down				1.7		Ω
BG1, BG2 Gate Driver On-Resistance Gate Pull-Up	V _{INTVCC} = 5V			3		Ω
Gate Pull-Down				1.2		Ω
TG Off to BG On Delay	C ₁ = 3300pF			60		ns
BG Off to TG On Delay	C _L = 3300pF			60 2	40 300	ns
TG1, TG2, t _{OFF(MIN)}	R _T = 59.0k			220	268	119

Note 1: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

Note 2: The LT3791E is guaranteed to meet performance from 0°C to 125°C junction temperature. Specification over the -40°C to 125°C operating junction temperature range are assured by design, characterization and correlation with statistical process controls. The LT37911 is guaranteed to meet performance specifications over the -40°C to 125°C operating junction temperature range. The LT3791H is guaranteed to meet performance specifications over the -40°C to 150°C operating junction temperature range. The LT3791MP is guaranteed to meet performance specifications over the -55°C to 150°C operating junction temperature range. High junction temperatures degrade operating lifetimes. Operating lifetime is derated for junction temperatures greater than 125°C.

Note 3: The LT3791 includes overtemperature protection that is intended to protect the device during momentary overload conditions. Junction temperature will exceed the maximum operating junction temperature when overtemperature protection is active. Continuous operation above the specified absolute maximum operating junction temperature may impair device reliability.

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LT3791-1

ELECTRICAL CHARACTERISTICS The \bullet denotes the specifications which apply over the full operating junction temperature range, otherwise specifications are at T_A = 25°C (Note 2). V_{IN} = 12V, V_{ENAULO} = 12V unless otherwise noted.

PARAMETER CONDITIONS MIN TYP MAX UNITS CPT0 Rising Threshold (V_{FB}) V_{FB} =1.2V • 1.1.27 1.1.5 1.1.7 V CPT0 Falling Threshold (V_{FB}) V_{FB} =1.2V 5 10 15 mV CPT0 Falling Threshold (V_{FB}) V_{FB} =1.2V 5 10 15 mV SHORT Falling Threshold (V_{FB}) V 5 10.17.5 mV C Ka SHORT Falling Threshold (V_{FB}) V 8 1.1 2.0 ka STORT Fin Output Impedance 1.1.1 2.0 ka S S V S S V S S V S S V V S S V V S S V V V V V S S V V V V S V V S S S S S S S S S S S <th>junction temperature range, otherwise</th> <th colspan="9">junction temperature range, otherwise specifications are at $I_A = 25^{\circ}C$ (Note 2). $V_{IN} = 12V$, $V_{EN/UVLO} = 12V$ unless otherwise noted.</th>	junction temperature range, otherwise	junction temperature range, otherwise specifications are at $I_A = 25^{\circ}C$ (Note 2). $V_{IN} = 12V$, $V_{EN/UVLO} = 12V$ unless otherwise noted.								
CfT0 Falling Threshold (V _{FB}) Low Solution ● 1.078 1.1 1.122 V CfT0 Falling Threshold (V _{FB}) V _{FB} = 1.2V 5 10 15 mV SHORT Falling Threshold (V _{FB}) 280 400 450 mV SHORT Falling Threshold (V _{FB}) 1.1 2.0 kΩ SHORT Pin Output Impedance 1.1.1 2.0 kΩ SS Latch-Off Threshold 1.1.75 V SS See Threshold 0.2 V V Switching Frequency R _T = 147/k 190 200 210 kHz SYNC Frequency R _T = 9.0 k 665 700 725 kHz SYNC Frequency R _T = 9.0 k 90 kΩ SYNC Frequency 0.3 1.5 V Internal Vog Regulation Voltage 0.3 1.5 V Internal Vog Regulation Voltage MV S5 2.0 MV INTV _{CC} Regulation Voltage 0.3 1.5 V Internal Vog Regulation Voltage MV S5 S0	PARAMETER	CONDITIONS		MIN	TYP	MAX	UNITS			
CFT0 Falling Threshold (V _{(FB})-(SM)) V _{FB} = 1.2V 5 10 15 mV SHORT Falling Threshold (V _{FB}) 380 400 450 mV CFT0 Fulling Threshold (V _{FB}) 1.1 2.0 kQ SHORT Falling Threshold 1.1 2.0 kQ SHORT Fin Output Impedance 1.1.1 2.0 kQ SHORT Fin Output Impedance 1.1.2 V V SS Latch-OT Threshold 0.2 V V Switching Frequency R _T = 147/k R _T = 59.0 k 190 200 210 kHz SYNC Fin Resistance to GND 90 kHz 380 400 420 kHz SYNC Fin Resistance to GND 90 kHz 90 kHz V	C/10 Rising Threshold (V _{FB})	V _(ISP-ISN) = 0V	•	1.127	1.15	1.173	V			
SHORT Failing Threshold (Vig) 380 400 450 mV CTO Pin Output Impedance 1.1 2.0 kΩ SHORT Failing Threshold 1.1 2.0 kΩ STORT Pin Output Impedance 1.1 2.0 kΩ SHORT Failing Threshold 0.2 V Statch-Off Threshold 0.2 V Ss Rest Threshold 0.2 V V Statch-Off Threshold 0.2 V Switching Frequency R _T = 147k R _T = 59.0k 190 200 210 kHz SYNC Frequency R _T = 29.1k 200 700 kHz SYNC Frequency 200 700 kHz SYNC Frequency 200 700 kHz SYNC Frequency 10.3 1.5 V Internal Voc Regulator 90 kG0 INTV _{CC} Regulation Voltage 1 4.8 5 5.2 V Dropout (Vi _N - INTV _{CC}) Intrvcc = -10mA, Vi _N = 5V 240 350 mV INTV _{CC} Regulation Voltage 0.3 1.5 <td>C/10 Falling Threshold (V_{FB})</td> <td></td> <td>•</td> <td>1.078</td> <td>1.1</td> <td>1.122</td> <td>V</td>	C/10 Falling Threshold (V _{FB})		•	1.078	1.1	1.122	V			
CPT0 Pin Output Impedance 1.1 2.0 kaz SHORT Pin Output Impedance 1.1 2.0 kaz SR Latch-Off Threshold 0.2 V SS Latch-Off Threshold 0.2 V Sstatch-Off Threshold 0.2 V Switching Frequency R _T = 147/k R _T = 59.0k 190 200 210 kHz SYNC Frequency R _T = 29.1k 665 700 735 kHz SYNC Frequency 200 700 kHz 57 V 200 700 kHz SYNC Frequency 190 0.3 1.5 V V Internal V _{GC} Regulator NTV _{GC} Current Limit V _{INTVCC} = -10mA, V _{IN} = 5V 240 350 mV NTV _{GC} Regulation Voltage 0.3 1.5 V V 0.3 1.5 V Propout (Var, = NTV _{GC}) Instruct = 4V 67 mA W W MA 90 kaz 10	C/10 Falling Threshold (V(ISP-ISN))	V _{FB} = 1.2V		5	10	15	mV			
SHORT Pin Output Impedance 1.1 2.0 kΩ SS Latch-Off Threshold 1.75 V SS east Threshold 0.2 V Switching Frequency R _T = 147k R _T = 59.0k 190 200 210 kHz SYNC Frequency R _T = 59.0k 380 400 420 kHz SYNC Frequency 200 700 kHz SYNC Frequency 200 700 kHz SYNC Frequency 200 0.3 1.5 V Internal V _{CC} Regulator NO SYNC Frequency 1.5 V SYNC Pin Resistance to GND 90 kΩ SS SS V Internal V _{CC} Regulator NIV _{CC} Regulator 1.5 V V INTV _{CC} Regulator 3.1 3.5 3.9 V NIV _{MCC} SO MV NIV _{CC} Current Limit V _{INTVCC} = 4V 67 mA PWM Mostinee 0.3 1.5 V V V NG NG NG NG NG NG NG <td< td=""><td>SHORT Falling Threshold (VFB)</td><td></td><td></td><td>380</td><td>400</td><td>450</td><td>mV</td></td<>	SHORT Falling Threshold (VFB)			380	400	450	mV			
SS Latch-Off Threshold 1.75 V SS Reset Threshold 0.2 V Ss Reset Threshold 0.2 V Switching Frequency R _T = 147k R _T = 50.0k R _T = 29.1k 190 200 210 kHz kHz SYNC Frequency 200 700 kHz 665 700 735 kHz SYNC Frequency 200 700 kHz 665 700 735 kHz SYNC Fine Resistance to GND 90 0.3 1.5 V Internal V _{CC} Regulator 90 kΩ INTV _{CC} Regulator 115 V V 115 V INTV _{CC} Regulator V(N _N - INTV _{CC}) I _{INTVCC} = -10mA, V _{IN} = 5V 240 350 mV INTV _{CC} Undervoltage Lockout 3.1 3.5 3.9 V INTV _{CC} Undervoltage Lockout 0.3 1.5 V PWM PW 0.3 1.5 V PWM Pin Resistance to GND 90 kΩ RΩ RΩ PWMOUT Pull-Up Resistance	C/10 Pin Output Impedance				1.1	2.0	kΩ			
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	SS Latch-Off Threshold				1.75					
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INTV _{CC} Undervoltage Lockout INTO INTV _{CC} Undervoltage Lockout INTV _{CC} Current Limit INTV _{CC} = 4V INTV _{CC} = 5V INTV _C		1 10-11 51		4.8	-					
NTV _{CC} Current Limit V _{INTVCC} = 4V 67 mA PWM 0.3 1.5 V PWM Threshold Voltage 0.3 1.5 V PWM Pin Resistance to GND 90 kΩ PWMOUT Pull-Up Resistance 10 20 Ω PWMOUT Pull-Down Resistance 5 10 Ω PWMOUT Pull-Down Resistance V _{BST} - V _{SW} = 5V 2.6 Ω Gate Pull-Up 2.6 Ω 1.7 Ω BG1, BG2 Gate Driver On-Resistance V _{INTVCC} = 5V 3 Ω Ω Gate Pull-Up 3 Ω Ω Ω Ω Gate Pull-Down C _L = 3300pF 60 ns 86 Off to TG On Delay 60 240 300 ns		$I_{INTVCC} = -10 \text{mA}, V_{IN} = 5 \text{V}$								
PWM0.31.5VPWM Threshold Voltage0.31.5VPWM Pin Resistance to GND90kQPWMOUT Pull-Up Resistance1020QPWMOUT Pull-Down Resistance1020QPWMOUT Pull-Down Resistance510QPWMOUT Pull-Down Resistance510QPMMOS Drivers510QTG1, TG2 Gate Driver On-Resistance $V_{BST} - V_{SW} = 5V$ 2.6QGate Pull-Up2.6Q1.7QGate Pull-Down1.7Q3QGate Pull-Down1.2Q1.2QGate Pull-DownCL = 3300pF60nsBG Off to TG On DelayCL = 3300pF60240300ns				3.1		3.9				
PWM Threshold Voltage0.31.5VPWM Pin Resistance to GND90kQPWMOUT Pull-Up Resistance1020QPWMOUT Pull-Down Resistance1020QPWMOUT Pull-Down Resistance510QPMMOS Drivers510QTG1, TG2 Gate Driver On-ResistanceV_BST - V_SW = 5V2.6QGate Pull-Down1.7Q1.7QBG1, BG2 Gate Driver On-ResistanceVINTVCC = 5V3QGate Pull-Down1.2QGRGate Pull-DownCL = 3300pF60nsBG Off to TG On DelayCL = 3300pF60240300BG Off to TG On DelayCL = 3300pF60240300		VINTVCC = 4V			6/		mA			
PWM Pin Resistance to GND 90 kΩ PWMOUT Pull-Up Resistance 10 20 Ω PWMOUT Pull-Down Resistance 5 10 Ω PWMOUT Pull-Down Resistance 5 10 Ω PWMOUT Pull-Down Resistance 5 10 Ω NMOS Drivers TG1, TG2 Gate Driver On-Resistance 2.6 Ω Gate Pull-Up 2.6 Ω Ω Gate Pull-Down 1.7 Ω Ω BG1, BG2 Gate Driver On-Resistance VINTVCC = 5V 3 Ω Gate Pull-Up 3 Ω Ω Gate Pull-Down 1.2 Ω Ω Gate Pull-Down C _L = 3300pF 60 ns BG Off to TG On Delay C _L = 3300pF 60 240 300 ns										
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PWMOUT Pull-Down Resistance510 Ω NMOS DriversTG1, TG2 Gate Driver On-Resistance Gate Pull-Up Gate Pull-DownVBST - VSW = 5V2.6 Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-Up Gate Pull-UpVINTVCC = 5V3 Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-Up Gate Pull-DownVINTVCC = 5V3 Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-Up Gate Pull-DownVINTVCC = 5V3 Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-DownVINTVCC = 5V3 Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-Down $C_L = 3300 \text{pF}$ 60nsBG Off to BG On Delay $C_L = 3300 \text{pF}$ 60ns										
NMOS DriversTG1, TG2 Gate Driver On-Resistance Gate Pull-Up Gate Pull-Down $V_{BST} - V_{SW} = 5V$ 2.6 Ω 1.7 Ω Ω BG1, BG2 Gate Driver On-Resistance Gate Pull-Up 										
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$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$		$V_{BST} - V_{SW} = 5V$			0.0					
$ \begin{array}{c c} Gate \ Pull-Up \\ Gate \ Pull-Down \end{array} & \begin{array}{c c} 3 & \Omega \\ 1.2 & \Omega \end{array} \\ \hline TG \ Off \ to \ BG \ On \ Delay \end{array} & \begin{array}{c c} C_L = 3300 pF \end{array} & \begin{array}{c c} 60 & ns \end{array} \\ \hline Got \ C_L = 3300 pF \end{array} & \begin{array}{c c} 60 & 240 & 300 \end{array} \\ \hline \end{array} \\ \hline \end{array} \\ \hline \end{array}$		Vuenece = 5V								
TG Off to BG On Delay CL = 3300pF 60 ns BG Off to TG On Delay CL = 3300pF 60 240 300 ns	Gate Pull-Up	-INTACC - C.					Ω			
BG Off to TG On Delay CL = 3300pF 60 240 300 ns							Ω			
210 200							ns			
TG1, TG2, t _{OFF(MIN)} R _T = 59.0k 220 260 ns							ns			
	TG1, TG2, t _{OFF(MIN)}	R _T = 59.0k			220	260	ns			

Note 1: Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to any Absolute Maximum Rating condition for extended periods may affect device reliability and lifetime.

Note 2: The LT3791E-1 is guaranteed to meet performance from 0°C to 125°C junction temperature. Specification over the -40°C to 125°C operating junction temperature range are assured by design, characterization and correlation with statistical process controls. The LT3791I-1 is guaranteed to meet performance specifications over the -40°C to 125°C operating junction temperature range. The LT3791H-1 is guaranteed to meet performance specifications over the -40°C to 150°C

operating junction temperature range. The LT3791MP-1 is guaranteed to meet performance specifications over the -55°C to 150°C operating junction temperature range. High junction temperatures degrade operating lifetimes. Operating lifetime is derated for junction temperatures greater than 125°C.

Note 3: The LT3791-1 includes overtemperature protection that is intended to protect the device during momentary overload conditions. Junction temperature will exceed the maximum operating junction temperature when overtemperature protection is active. Continuous operation above the specified absolute maximum operating junction temperature may impair device reliability.



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