

CHANGE NOTIFICATION



Linear Technology Corporation
1630 McCarthy Blvd., Milpitas, CA 95035-7417
(408) 432-1900

August 10, 2015

Dear Sir/Madam:

PCN#081015

Subject: Notification of Change to LTC4155, LTC4156 Datasheet

Please be advised that Linear Technology Corporation has made a minor change to the LTC4155, LTC4156 product datasheets to improve manufacturability and assure consistent lead times and delivery. 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 October 10, 2015 will be tested to the new limits.

Should you have any further questions or concerns please contact your local Linear Technology Sales person or you may contact me at 408-432-1900 ext. 2077, or by e-mail at jason.hu@linear.com. If I do not hear from you by October 10, 2015, we will consider this change to be approved by your company.

Sincerely,

Jason Hu
Quality Assurance Engineer

LTC4155

ELECTRICAL CHARACTERISTICS The ● denotes the specifications which apply over the specified operating junction temperature range, otherwise specifications are at $T_A \approx T_J = 25^\circ\text{C}$ (Note 2). $V_{\text{BUS}} = 5\text{V}$, $\text{BATSNS} = 3.7\text{V}$, $\text{DVCC} = 3.3\text{V}$, $R_{\text{CLPROG1}} = R_{\text{CLPROG2}} = 1.21\text{k}$, $R_{\text{PROG}} = 499\Omega$, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
Switching Battery Charger							
V_{BUS}	Input Supply Voltage		● 4.35		5.5	V	
V_{BUSREG}	Undervoltage Current Reduction	Input Undervoltage Current Limit Enabled		4.30		V	
I_{BUSQ}	Input Quiescent Current	USB Suspend Mode 100mA I_{VBUS} Mode, $I_{\text{VOUT}} = 0\mu\text{A}$, Charger Off 500mA – 3A I_{VBUS} Modes, $I_{\text{VOUT}} = 0\mu\text{A}$, Charger Off		0.060 0.560 17		mA mA mA	
I_{BATQ}	Battery Drain Current	$V_{\text{BUS}} > V_{\text{UVLO}}$, Battery Charger Off, $I_{\text{VOUT}} = 0\mu\text{A}$ $V_{\text{BUS}} = 0\text{V}$, $I_{\text{VOUT}} = 0\mu\text{A}$ Storage and Shipment Mode, $\text{DVCC} = 0\text{V}$		7.0 2.0 0.6	3.0 1.25	μA μA μA	
I_{BUSLIM}	Total Input Current When Load Exceeds Power Limit	100mA I_{VBUS} Mode (USB Lo Power) (Default) 500mA I_{VBUS} Mode (USB Hi Power) 600mA I_{VBUS} Mode 700mA I_{VBUS} Mode 800mA I_{VBUS} Mode 900mA I_{VBUS} Mode (USB 3.0) 1.00A I_{VBUS} Mode 1.25A I_{VBUS} Mode 1.50A I_{VBUS} Mode 1.75A I_{VBUS} Mode 2.00A I_{VBUS} Mode 2.25A I_{VBUS} Mode 2.50A I_{VBUS} Mode 2.75A I_{VBUS} Mode 3.00A I_{VBUS} Mode (Default) 2.5mA I_{VBUS} Mode (USB Suspend)	● ● ●	65 460 550 650 745 800 950 1150 1425 1650 1900 2050 2350 2550 2800	80 480 570 670 770 850 1000 1230 1500 1750 2000 2175 2475 2725 2950 1.8	100 500 600 700 800 900 1025 1300 1575 1875 2125 2300 2600 2900 3100 2.5	mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA
V_{FLOAT}	BATSNS Regulated Output Voltage Selected by I ² C Control. Switching Modes	4.05V Setting (Default) 4.10V Setting 4.15V Setting 4.20V Setting	● ● ● ●	4.02 4.07 4.12 4.17	4.05 4.10 4.15 4.20	4.08 4.13 4.18 4.23	V V V V
I_{CHARGE}	Regulated Battery Charge Current Selected by I ² C Control	12.50% Charge Current Mode 18.75% Charge Current Mode 25.00% Charge Current Mode 31.25% Charge Current Mode 37.50% Charge Current Mode 43.75% Charge Current Mode 50.00% Charge Current Mode 56.25% Charge Current Mode 62.50% Charge Current Mode 68.75% Charge Current Mode 75.00% Charge Current Mode 81.25% Charge Current Mode 87.50% Charge Current Mode 93.75% Charge Current Mode 100.0% Charge Current Mode (Default)		290 430 577 720 870 1013 1162 1316 1458 1601 1743 1881 2024 2166 2309	315 465 590 730 880 1025 1180 1330 1485 1635 1780 1915 2065 2210 2350	340 500 663 810 970 1125 1290 1440 1585 1735 1890 2045 2195 2350 2500	mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA
$I_{\text{CHARGE(MAX)}}$	Regulated Battery Charge Current	100.0% Charge Current Mode, $R_{\text{PROG}} = 340\Omega$		3.44	3.57	3.70	A
V_{OUT}	PowerPath Regulated Output Voltage (V_{BUS} Power Available)	Suspend Mode, $I_{\text{VOUT}} = 1\text{mA}$ Battery Charger Enabled, Charging, $\text{BATSNS} \geq 3.5\text{V}$ Battery Charger Terminated or Battery Charger Disabled			4.35 BATSNS 4.35	4.5 4.5	V V V
$V_{\text{OUT(MIN)}}$	Low Battery Instant-On Output Voltage (V_{BUS} Power Available)	Battery Charger Enabled, Charging, $\text{BATSNS} \leq 3.3\text{V}$		3.40	3.50		V

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This change notice is for Linear Technology's Customers only.
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LTC4156

ELECTRICAL CHARACTERISTICS

The ● denotes the specifications which apply over the specified operating junction temperature range, otherwise specifications are at $T_A = T_J = 25^\circ\text{C}$ (Note 2). $V_{\text{BUS}} = 5\text{V}$, $\text{BATSNS} = 3.3\text{V}$, $\text{DVCC} = 3.3\text{V}$, $\text{R}_{\text{CLPROG1}} = \text{R}_{\text{CLPROG2}} = 1.21\text{k}$, $\text{R}_{\text{PROG}} = 499\Omega$, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
Switching Battery Charger							
V_{BUS}	Input Supply Voltage		● 4.35		5.5	V	
V_{BUSREG}	Undervoltage Current Reduction	Input Undervoltage Current Limit Enabled		4.30		V	
I_{BUSQ}	Input Quiescent Current	USB Suspend Mode 100mA I_{VBUS} Mode, $I_{\text{VOUT}} = 0\mu\text{A}$, Charger Off 500mA – 3A I_{VBUS} Modes, $I_{\text{VOUT}} = 0\mu\text{A}$, Charger Off CLPROG1 Mode, $I_{\text{VOUT}} = 0\mu\text{A}$, Charger Off		0.060 0.560 17 17		mA mA mA mA	
I_{BATQ}	Battery Drain Current	$V_{\text{BUS}} > V_{\text{UVLO}}$, Battery Charger Off, $I_{\text{VOUT}} = 0\mu\text{A}$ $V_{\text{BUS}} = 0\text{V}$, $I_{\text{VOUT}} = 0\mu\text{A}$ Storage and Shipment Mode, $\text{DVCC} = 0\text{V}$		7.0 2.0 0.6	3.0	μA μA μA	
I_{BUSLIM}	Total Input Current When Load Exceeds Power Limit	100mA I_{VBUS} Mode (USB Lo Power) (Default) 500mA I_{VBUS} Mode (USB Hi Power) 600mA I_{VBUS} Mode 700mA I_{VBUS} Mode 800mA I_{VBUS} Mode 900mA I_{VBUS} Mode (USB 3.0) 1.00A I_{VBUS} Mode 1.25A I_{VBUS} Mode 1.50A I_{VBUS} Mode 1.75A I_{VBUS} Mode 2.00A I_{VBUS} Mode 2.25A I_{VBUS} Mode 2.50A I_{VBUS} Mode 2.75A I_{VBUS} Mode 3.00A I_{VBUS} Mode (Default) 2.5mA I_{VBUS} Mode (USB Suspend)	● ● ● ●	65 460 550 650 745 800 950 1150 1425 1650 1900 2050 2350 2550 2800	80 480 570 670 770 850 1000 1230 1500 1750 2000 2175 2475 2725 2950	100 500 600 700 800 900 1025 1300 1575 1875 2125 2300 2600 2900 3100	mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA
V_{FLOAT}	BATSNS Regulated Output Voltage Selected by I ² C Control. Switching Modes	3.45V Setting (Default) 3.55V Setting 3.60V Setting 3.80V Setting	● ● ● ●	3.42 3.52 3.57 3.77	3.45 3.55 3.60 3.80	3.48 3.58 3.63 3.83	V V V V
I_{CHARGE}	Regulated Battery Charge Current Selected by I ² C Control	12.50% Charge Current Mode 18.75% Charge Current Mode 25.00% Charge Current Mode 31.25% Charge Current Mode 37.50% Charge Current Mode 43.75% Charge Current Mode 50.00% Charge Current Mode 56.25% Charge Current Mode 62.50% Charge Current Mode 68.75% Charge Current Mode 75.00% Charge Current Mode 81.25% Charge Current Mode 87.50% Charge Current Mode 93.75% Charge Current Mode 100.0% Charge Current Mode (Default)		290 430 577 599 720 739 870 880 1013 1025 1182 1189 1316 1330 1458 1485 1601 1635 1743 1780 1881 1915 2024 2065 2166 2210 2309 2350	315 465 620 770 925 1075 1230 1385 1535 1685 1835 1980 2130 2280 2430	340 500 659 819 970 1125 1280 1440 1595 1735 1890 2045 2195 2350 2500	mA mA mA mA mA mA mA mA mA mA mA mA mA mA mA
$I_{\text{CHARGE(MAX)}}$	Regulated Battery Charge Current	100.0% Charge Current Mode, $\text{R}_{\text{PROG}} = 340\Omega$		3.44	3.57	3.70	A
V_{OUT}	PowerPath Regulated Output Voltage (V_{BUS} Power Available)	Suspend Mode, $I_{\text{VOUT}} = 1\text{mA}$ Battery Charger Enabled, Charging, $\text{BATSNS} \geq 3.19\text{V}$ Battery Charger Terminated or Battery Charger Disabled			4.35 BATSNS 4.35	4.5 V 4.5	V V V
$V_{\text{OUT(MIN)}}$	Low Battery Instant-On Output Voltage (V_{BUS} Power Available)	Battery Charger Enabled, Charging, $\text{BATSNS} \leq 3.0\text{V}$		3.10	3.19		V

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