

**CHANGE NOTIFICATION**

NOW PART OF



Analog Devices, Inc.  
 1630 McCarthy Blvd., Milpitas CA  
 (408) 432-1900

December 04, 2017

PCN\_120417

Dear Sir/Madam:

**Subject: Notification of Change to LT3680 Datasheet**

Please be advised that Analog Devices, Inc. Milpitas, California has made a minor change to the LT3680 product datasheet to facilitate improvement in our manufacturing capability. The change is shown on the attached page of the marked up datasheet. There was no change in form, fit, function, quality or reliability of the product. The product shipped after February 04, 2018 will be tested to the new limits.

Should you have any questions or concerns please contact your local Analog Devices sales representatives or you may contact me at 408-432-1900 ext. 2077, or by e-mail at [JASON.HU@ANALOG.COM](mailto:JASON.HU@ANALOG.COM). If I do not hear from you by February 04, 2018, we will consider this change to be approved by your company.

Sincerely,

Jason Hu  
 Quality Assurance Engineer

**For questions on this PCN, please contact Jason Hu or you may send an email to your regional contacts below or contact your local ADI sales representatives.**

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## LT3680

**ELECTRICAL CHARACTERISTICS** The ● denotes the specifications which apply over the full operating temperature range, otherwise specifications are at  $T_A = 25^\circ\text{C}$ .  $V_{IN} = 10\text{V}$ ,  $V_{RUN/SS} = 10\text{V}$ ,  $V_{BOOST} = 15\text{V}$ ,  $V_{BD} = 3.3\text{V}$  unless otherwise noted. (Note 2)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
Minimum Input Voltage		●	3	3.6	V	
Quiescent Current from $V_{IN}$	$V_{RUN/SS} = 0.2\text{V}$		0.01	0.5	$\mu\text{A}$	
	$V_{BD} = 3\text{V}$ , Not Switching	●	30	65	$\mu\text{A}$	
	$V_{BD} = 0$ , Not Switching		120	160	$\mu\text{A}$	
Quiescent Current from BD	$V_{RUN/SS} = 0.2\text{V}$		0.01	0.5	$\mu\text{A}$	
	$V_{BD} = 3\text{V}$ , Not Switching	●	90	130	$\mu\text{A}$	
	$V_{BD} = 0$ , Not Switching		1	5	$\mu\text{A}$	
Minimum Bias Voltage (BD Pin)			2.7	3	V	
Feedback Voltage			780	790	mV	
		●	775	790	mV	
FB Pin Bias Current (Note 3)	$V_{FB} = 0.8\text{V}$ , $V_C = 0.4\text{V}$	●	10	40	nA	
FB Voltage Line Regulation	$4\text{V} < V_{IN} < 36\text{V}$		0.002	0.01	%/V	
Error Amp $g_m$			500		$\mu\text{Mho}$	
Error Amp Gain			2000			
$V_C$ Source Current			60		$\mu\text{A}$	
$V_C$ Sink Current			60		$\mu\text{A}$	
$V_C$ Pin to Switch Current Gain			5.3		A/V	
$V_C$ Clamp Voltage			2.0		V	
Switching Frequency	$R_T = 8.66\text{k}$		2.2	2.45	2.7	MHz
	$R_T = 29.4\text{k}$		1.0	1.1	1.25	MHz
	$R_T = 187\text{k}$		200	230	260	kHz
Minimum Switch Off-Time		●	60	150	nS	
Switch Current Limit	Duty Cycle = 5%		4.6	5.4	6.0	A
Switch $V_{CESAT}$	$I_{SW} = 3.5\text{A}$		335		mV	
Boost Schottky Reverse Leakage	$V_{BOOST} = 10\text{V}$ , $V_{BD} = 0\text{V}$		0.02	2	$\mu\text{A}$	
Minimum Boost Voltage (Note 4)		●	1.5	2.0	V	
BOOST Pin Current	$I_{SW} = 1\text{A}$		35	50	mA	
RUN/SS Pin Current	$V_{RUN/SS} = 2.5\text{V}$		5	8	$\mu\text{A}$	
RUN/SS Input Voltage High				2.5	V	
RUN/SS Input Voltage Low			0.2		V	
PG Threshold Offset from Feedback Voltage	$V_{FB}$ Rising		65		mV	
PG Hysteresis			10		mV	
PG Leakage	$V_{PG} = 5\text{V}$		0.1	1	$\mu\text{A}$	
PG Sink Current	$V_{PG} = 0.4\text{V}$	●	200	800	$\mu\text{A}$	
SYNC Low Threshold			0.5		V	
SYNC High Threshold				0.7	V	
SYNC Pin Bias Current	$V_{SYNC} = 0\text{V}$		0.1		$\mu\text{A}$	

**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 LT3680E is guaranteed to meet performance specifications from  $0^\circ\text{C}$  to  $125^\circ\text{C}$ . Specifications over the  $-40^\circ\text{C}$  to  $125^\circ\text{C}$  operating temperature range are assured by design, characterization and correlation with statistical process controls. The LT3680I specifications are

guaranteed over the  $-40^\circ\text{C}$  to  $125^\circ\text{C}$  temperature range. The LT3680H specifications are guaranteed over the  $-40^\circ\text{C}$  to  $150^\circ\text{C}$  operating temperature range. High junction temperatures degrade operating lifetimes. Operating lifetime is derated at junction temperatures greater than  $125^\circ\text{C}$ .

**Note 3:** Bias current flows out of the FB pin.

**Note 4:** This is the minimum voltage across the boost capacitor needed to guarantee full saturation of the switch.

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