

# CHANGE NOTIFICATION



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

November 7, 2016

Dear Sir/Madam:

PCN#110716

**Subject: Notification of Change to LTM4630 and LTM4630-1 Product Families for Improved Performance**

Please be advised that Linear Technology Corporation has made changes to the internal bill-of-materials in order to increase power conversion efficiency and lower heat dissipation of the LTM4630 and LTM4630-1 family of dual 18A, single 36A  $\mu$ Module regulators. Higher performance inductors and power stages have been qualified while the PWM controller remains unchanged. The revised products provide the same form, fit and function as before, allowing users to take advantage of the improved efficiency, summarized in Table 1 below, without changing order part number or PCB layout. The product datasheet is unchanged except to reflect the higher power conversion efficiency and correspondingly improved thermal derating performance.

The new components and corresponding internal layout have been qualified through characterization of multiple lots over the full operating junction temperature range and through rigorous engineering bench evaluations. In addition, qualification tests were successfully completed, including power cycling, temperature shock, temperature cycling and high temperature operating life per JEDEC and Linear Technology standards. The qualification results summary is attached.

Table 1: Summary of Improvements:

<b>LTM4630, LTM4630-1A and LTM4630-1B</b>		
<b>Vin = 12V, Vout = 1.0V @ 36A</b>	<b>LTM4630 Original</b>	<b>LTM4630 Improved</b>
<b>Efficiency</b>	<b>84.50%</b>	<b>87.50%</b>
<b>Power Dissipation</b>	<b>6.6W</b>	<b>5.3W</b>
<b>Case Temperature (Ta=25°C, 200LFM)</b>	<b>61°C</b>	<b>48°C</b>
<b>Full power derating starting temperature (200LFM Air, NO Heat Sinking)</b>	<b>65°C</b>	<b>75°C</b>

The list of affected part numbers follow below.

Part Number
LTM4630EY-1A#PBF
LTM4630IY-1A#PBF
LTM4630IY-1A
LTM4630EY-1B#PBF
LTM4630IY-1B#PBF
LTM4630IY-1B
LTM4630EV#PBF
LTM4630IV#PBF
LTM4630EY#PBF
LTM4630IY#PBF
LTM4630IY

Production shipments of product incorporating with new materials will begin no sooner than January 07, 2017. Samples of the revised product are available now.

Should you have any further questions, please feel free to contact your local Linear Technology salesperson or you may contact me at 408-432-1900 ext. 2077, or by E-mail [JASON.HU@LINEAR.COM](mailto:JASON.HU@LINEAR.COM). If I do not hear from you by before January 07, 2017, we will consider this change to be approved by your company.

Sincerely,

Jason Hu  
Quality Assurance Engineer

**QUALIFICATION DATA**  
**LTM4630 Design Improvement**

**10/31/2016**

**• HIGH TEMPERATURE OPERATING LIFE AT 125°C**

DEVICE TYPE	SAMPLE SIZE	DATE CODE	HOURS ON HTOL	DEVICE HOURS AT +125°C	NUMBER OF FAILURES
LTM4630	77	1552	1,000	77	0
LTM4630A	77	1628	500	38.5	0
	154			115.5	0

**• POWER CYCLE JUNCTION TEMPERATURE FROM +50°C to +100°C**

DEVICE TYPE	SAMPLE SIZE	DATE CODE	POWER CYCLES	DEVICE POWER CYCLES	NUMBER OF FAILURES
LTM4630	7	1552	50,000	350,000	0
LTM4630A	8	1628	10,000	80,000	0
	15			430,000	0

**• J-STD-020 MSL3 PRECONDITIONING: 192h +30°C/60% R.H., 3x REFLOW AT +245°C PEAK**

DEVICE TYPE	SAMPLE SIZE	DATE CODE RANGE			NUMBER OF FAILURES
LTM4630	642	1552-1617			0
LTM4630A	231	1628			0
	873				0

**• UNBIASED HIGHLY ACCELERATED STRESS TEST (UBHAST) AT +130°C/85% R.H. <sup>(1)</sup>**

DEVICE TYPE	SAMPLE SIZE	DATE CODE RANGE	HOURS ON HAST	DEVICE HOURS AT +130°C	NUMBER OF FAILURES
LTM4630	199	1552-1617	96	19,104	0
	199			19,104	0

**• TEMP CYCLE FROM -55°C TO +125°C <sup>(1)</sup>**

DEVICE TYPE	SAMPLE SIZE	DATE CODE RANGE	CYCLES ON TC	DEVICE CYCLES	NUMBER OF FAILURES
LTM4630	231	1552-1617	1000	231,000	0
	231			231,000	0

**• THERMAL SHOCK FROM -55°C TO +125°C <sup>(1)</sup>**

DEVICE TYPE	SAMPLE SIZE	DATE CODE RANGE	CYCLES ON TS	DEVICE CYCLES	NUMBER OF FAILURES
LTM4630	199	1552-1617	1000	199,000	0
	199			199,000	0

**• HIGH TEMPERATURE STORAGE AT 150°C**

DEVICE TYPE	SAMPLE SIZE	DATE CODE RANGE	HOURS ON HTS	DEVICE HOURS AT +150°C	NUMBER OF FAILURES
LTM4630	90	1552-1617	1000	90,000	0
	90			90,000	0

(1) Environmental stress are preceded by JEDEC Level 3 Preconditioning: 192h 30°C/60% R.H. plus 3x Reflow at 245°C.