CHANGE NOTIFICATION

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

October 30 2012 PCN#: 103012

Dear Sir/Madam:

Subject: **Notification of Assembly Process change for LTM8048**

Please be advised that Linear Technology Corporation has made a minor change to the internal package construction to facilitate the use of one attach material for both die and components. The die attach material is changed from epoxy to solder, which is already used for attaching components in the same µModule package. In order to use the solder die attach, the die paddle (DAP) has been modified by splitting the DAP into multiple pads for dice D1, U1, and U2. Linear has been shipping several µModules using solder for die attach and component attach.

Besides these changes, no functional, parametric, mechanical, or datasheet specifications are affected and the component bill of materials remains unchanged. Similarly, there are no changes associated with the package footprint, PCB layout or product top marking, so customer applications will be unaffected.

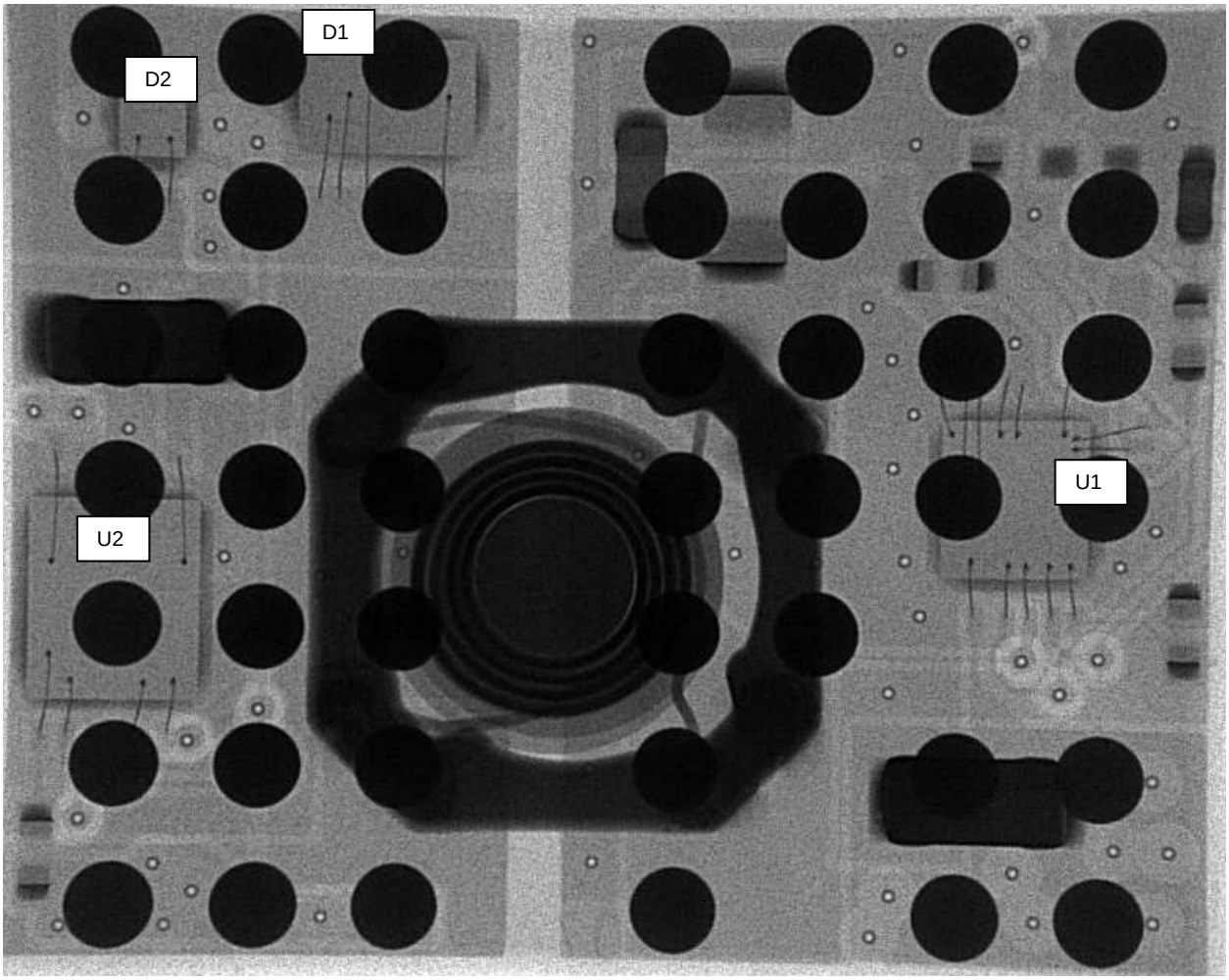
Parts incorporating the new substrate design have been fully characterized and tested for package level reliability. The change was qualified by performing extensive characterization over the full operating voltage and temperature ranges, MSL3 preconditioning. Devices from the same µModule product family have been subjected up to 1000 cycles of temperature cycles and thermal shock. Product built using the improved design is targeted for shipment around late November 2012.

Should you have any further questions, please feel free to contact me at 408-432-1900 ext. 2519, or by E-mail at NGIRN@linear.com. If I do not hear from you by November 30, 2012, we will consider this change approved by your company.

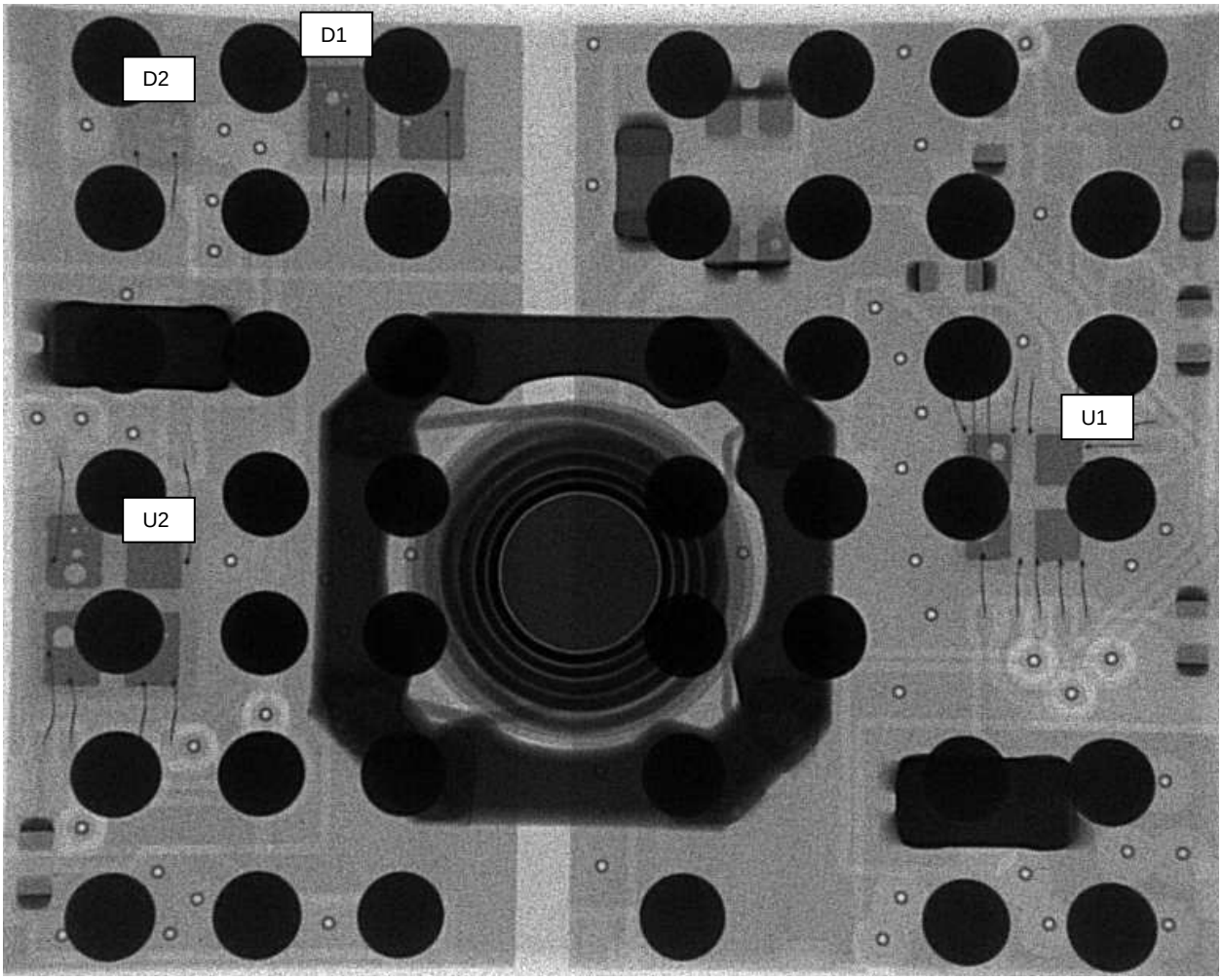
Sincerely,

Naib Girn
Quality Assurance Manager

LTM8048- CURRENT DESIGN
(EPOXY DIE ATTACH)
(No window pane on die attach pads)



LTM8048 - NEW DESIGN
(SOLDER DIE ATTACH)
(Window pane on die attach pads)



PACKAGE RELIABILITY DATA
LTM80xx Solder Die Attach Qualification Report
10/23/2012

• OPERATING LIFE TEST

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +150°C	NUMBER OF FAILURES
LTM8008	77	1210	1210	77.00	0
	77			77.00	0

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

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE		NUMBER OF FAILURES
LTM8008	462	1210	1210		0
LTM8045	152	1225	1225		0
LTM8048	274	1232	1236		0
	888				0

• HIGH TEMPERATURE BAKE at 150°C

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +150°C	NUMBER OF FAILURES
LTM8008	77	1210	1210	77.00	0
LTM8045	50	1225	1225	50.00	0
	127			127.00	0

• HIGHLY ACCELERATED STRESS TEST (+131°C/85%R.H. w BIAS)

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +85°C	NUMBER OF FAILURES
LTM8008	46	1210	1210	88.32	0
	46			88.32	0

• TEMPERATURE/HUMIDITY STORAGE (+85°C/85%R.H.) (1)

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE HOURS AT +85°C	NUMBER OF FAILURES
LTM8008	77	1210	1210	77.00	0
	77			77.00	0

PACKAGE RELIABILITY DATA
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• TEMP CYCLE FROM -65°C to +150°C [1]

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
LTM8008	231	1210	1210	231.00	0
	231			231.00	0

• TEMP CYCLE FROM -55°C to +125°C [1]

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
LTM8045	77	1225	1225	38.50	0
LTM8048	25	1232	1232	12.50	0
	102			51.00	0

• THERMAL SHOCK FROM -65°C to +150°C [1]

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
LTM8008	231	1210	1210	231.00	0
	231			231.00	0

• THERMAL SHOCK FROM -55°C to +125°C [1]

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
LTM8045	75	1225	1225	75.00	0
LTM8048	49	1232	1232	24.50	0
	124			99.50	0

• BOARD MOUNT TEMP CYCLE FROM -40°C to +125°C

DEVICE TYPE	SAMPLE SIZE	OLDEST DATE CODE	NEWEST DATE CODE	K DEVICE CYCLES	NUMBER OF FAILURES
LTM8008	15	1210	1210	22.50	0
	15			22.50	0

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