

RoHS 2 DIRECTIVE 2011/65/EU MATERIAL CONFIRMATION CERTIFICATE FOR INTERGRATED CIRCUITS & μ MODULES

Linear Technology Corporation certifies deliverable products are Analog Integrated Circuits and when ordered as lead-free, conform to the RoHS 2 DIRECTIVE 2011/65/EU & RoHS-Recast.

RoHS-Recast Definitions

Article 3 – Definitions: The object of the declaration described below, is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment. Restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE). EEE means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1,000 volts for alternating current and 1,500 volts for direct current. Linear Technology's Analog Integrated Circuits are neither electrical nor electronic equipment and do not require the "CE" or "CCC" marking.

Annex II, Article 4(1): Linear Technology Corporation's products do not contain any of the listed substances except for lead (Pb) which utilizes RoHS Exemption 7a & 7c-1 (Pb in glass).

- **Concentration limit of 0.1% by mass (1000 PPM)** of homogeneous material for Lead (Pb), Mercury (Hg), Hexavalent Chromium (Cr), Polybrominated Biphenyl (PBB), Polybrominated Diphenyl Ether (PBDE), Decabromodiphenyl Ether (Deca-BDE), Toluene, Trichlorobenzene, and Hexabromocyclododecane (HBCDD), Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutylphthalate (DBP), DIBP – Diisobutyl phthalate.
- **Concentration limit of 0.01% by mass (100 PPM)** of homogeneous material for Cadmium (Cd)
- **Concentration limit of 0.005% by mass (50 PPM)** of homogeneous material for Perfluorooctane Sulfonates (PFOS) and Perfluorooctanoic Acid (PFOA)

RoHS Exemptions

Annex III, Article 4(1):


- Products in the TO-220, DDPACK, SOT223 and TO247 packages are currently assembled with a Soft Solder Die Attach material containing Lead (Pb). **Exemption 7a** (>85% Lead, Pb, in high melting point solders) exempts this material at this time. **Exemption 7c-1** limit of >0.1% by mass (>1000 PPM) of homogeneous material for Lead in glass.

Controlled Substances of Concern

- Antimony Trioxide, Sb_2O_3 (CAS# 1309-64-4) and Bromine, Br (CAS# 10097-32-2) are used as a flame retardants in the mold compound of a few products. Linear Technology Corporation has been evaluating and is qualifying new mold compounds that contain no Sb_2O_3 , or Br. Once qualified these products will be considered Halogen-Free.
- Polyvinyl Chloride (PVC) – in shipping tubes, CAS #9002-86-2.
- Linear Technology Corporation products do not contain or have termination finishes of Pure Lead or Pure Zinc.

Linear Technology Corporation's Device Material Declaration concentrations are estimated and are derived from engineering calculations.

Linear Technology Corporation has a lifetime warranty on all our products, with Linear Technology Corporation standard liability limited to the replacement of confirmed defective products. Linear Technology Corporation's ongoing Environmental Program will help ensure we are in compliance with our customer's environmental needs.



Paul Chantalat
Vice President, Quality and Reliability

LINEAR TECHNOLOGY CORPORATION ACCEPTS NO DUTY TO NOTIFY USERS OF THIS DECLARATION OF UPDATES OR CHANGES TO THIS DECLARATION.

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(This portion of the certificate is completed upon customer request only)

CUSTOMER: _____ **DATE:** _____ **RoHS 2/EEE Compliance**

Customer Part Number	Customer Submitted LTC Part#	Toxic or Hazardous Substances and Elements															
		<1000 PPM PB	<1000 PPM Hg	<100 PPM Cd	<1000 PPM Cr-VI	<1000 PPM PBB	<1000 PPM PBDE	<50 PPM PFOS	<50 PPM PFOA	<1000 PPM Deca-BDE	<1000 PPM HBCD D	<1000 PPM DEHP	<1000 PPM BBP	<1000 PPM DBP	<1000 PPM DIBP	*5 of 6	**6 of 6

*5 of 6 Compliance - LTC Products with solder (Pb15% Sn85%) plated terminations. Exemption 7a does not apply.

**6 of 6 Compliant parts are compliant when ordered with Pb-free terminations, e.g. with a device suffix of “#PBF”, “#TRPBF”, etc.

O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for the part that **is below** the limit requirement.

X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement for 7a.

Y: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement for 7c-1.

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