LINEAR TECHNOLOGY MILITARY PRODUCTS/ PROGRAMS

Linear Technology Corporation (LTC) offers a comprehensive range of high performance analog/linear integrated circuits including; Data Converters, Interface devices, High Speed Amplifiers, Precision Operational Amplifiers, Comparators, Voltage References, DC-DC Converters, Switches, Voltage Regulators, Switching Regulators, PWMs, Switched Capacitor Filters and other special function products serving the rigorous demands of the military marketplace.

The Company's specification system, quality procedures and policies were set up from the beginning to meet the exacting demands of MIL-Q-9858 (Quality Program Requirements), MIL-I-45208 (Inspection System Requirements), MIL-PRF-38535 (General Specification for Microcircuits), MIL-STD-976 (Certification Requirements for Microcircuits), MIL-STD-883 (Test Methods and Procedures for Microelectronics) and more recently the ISO 9000 (Internal Standards for Quality Management).

In addition, the Company has introduced a line of radiation tolerant devices which are offered with two different in-house levels of enhanced reliability processing to serve ground, air and/or space applications, including customer generated Source Controlled Drawings (SCDs) for a variety of missions.

LTC's military programs include:

- JAN Class S
- JAN Class B
- Standard Military Drawings (SMDs)
- 883
- Hi-Rel (SCDs)
- LTC "RH", Radiation hardened devices

LTC JAN

At the end of 1969, the Solid State Applications Branch of the Rome Air Development Center (RADC) issued the first copy of MIL-M-38510. This general specification for microcircuits established the procedures that a manufacturer must follow to have products listed on the Qualified Parts List (QPL).

One major problem faced by defense contractors using semiconductor devices was the inability to interchange devices caused by a proliferation of non-standard electrical specifications. The 38510 (JAN) program addressed this problem by publishing detailed electrical specifications (slash sheets) for each component to be listed on the QPL.

JAN devices are completely processed in the United States or its territories and all wafer fabrication, wafer sort, assembly, testing, and conformance testing are performed onshore.

In August 1984, LTC was visited by a team of Defense Electronics Supply Center (DESC) personnel. This team spent almost four days auditing LTC and at the end of the visit they awarded the Company "Class B Line Certification." *This was a first for any company to receive this distinction on their first audit!*

In early 1985, LTC joined the ranks of the eighteen existing QPL suppliers. Of these eighteen, only a handful of suppliers participate in the linear military JAN market. LTC believes its analog design experience and manufacturing strength has and will continue to make significant contributions to this market.

LTC's first QPL listing was achieved in February 1985, one year after the Company made JAN Class B a corporate goal. Other companies have typically taken 2 to 3 years to achieve this status. The line certification and QPL approvals were awarded to MIL-M-38510 and MIL-STD-883 specifications. Since that time the Company has been re-audited to the latest revisions of these specifications and has maintained an uninterrupted certification record for the manufacture of JAN QPL products.

In November 1987, LTC was audited by a team from DESC, Naval Weapons Support Center and Aerospace Corporation and was awarded "Class S Line Certification."

LTC's policy of providing JAN linear components supports the United States Government's position of standardization to decrease the number of active part types maintained by DESC. This number is currently in excess of 85,000 for all types of components (contrasted to approximately 8,000 industry standard components). Standardization will clearly decrease costs and assist in the maintenance of military weapons systems and equipment now in the field.

LTC maintains its JAN product offerings under the current revision of MIL-PRF-38535, Appendix A. LTC now offers 45 products listed on the Class B Qualified Parts List (Part 1) and 40 products on the Class S Qualified Parts List (Part 1). To receive an updated copy of LTC's current JAN QPL product offering, contact your local LTC sales office or LTC Military Marketing.

For JAN Flows see Figure 1 and Figure 2.

In June 1994, LTC was granted transitional Qualified Manufacturers List (QML) certification to MIL-PRF-38535 by DESC, and will be pursuing full QML certification.

LTC Standard Military Drawings

DESC drawings were initiated in 1976 to standardize the electrical requirements for full temperature-tested military components. These DESC drawings (or minispecs) were initially issued for low power Schottky devices (54LS) used by defense subcontractors on the Air Force's F16. The program accomplished standardization of testing, without the delays associated with the qualification process for JAN components.

The DESC drawing was viewed as a preliminary specification prior to JAN approval, and it ranks second in the order of purchasing hierarchy to JAN. This order is defined in Requirement 64 of MIL-STD-454. If a JAN part is available, it is still preferred, however, there are many types of devices where the volume is such that the cost of a full JAN qualification may not be justified, but where a need exists for electrical standardization.

CMOS and analog circuits were added to the DESC Drawing Program in 1977, 1978 and 1979, but widespread acceptance of these parts was not achieved. Today with more emphasis being placed on standardization, the interest level in DESC drawings has accelerated. This category

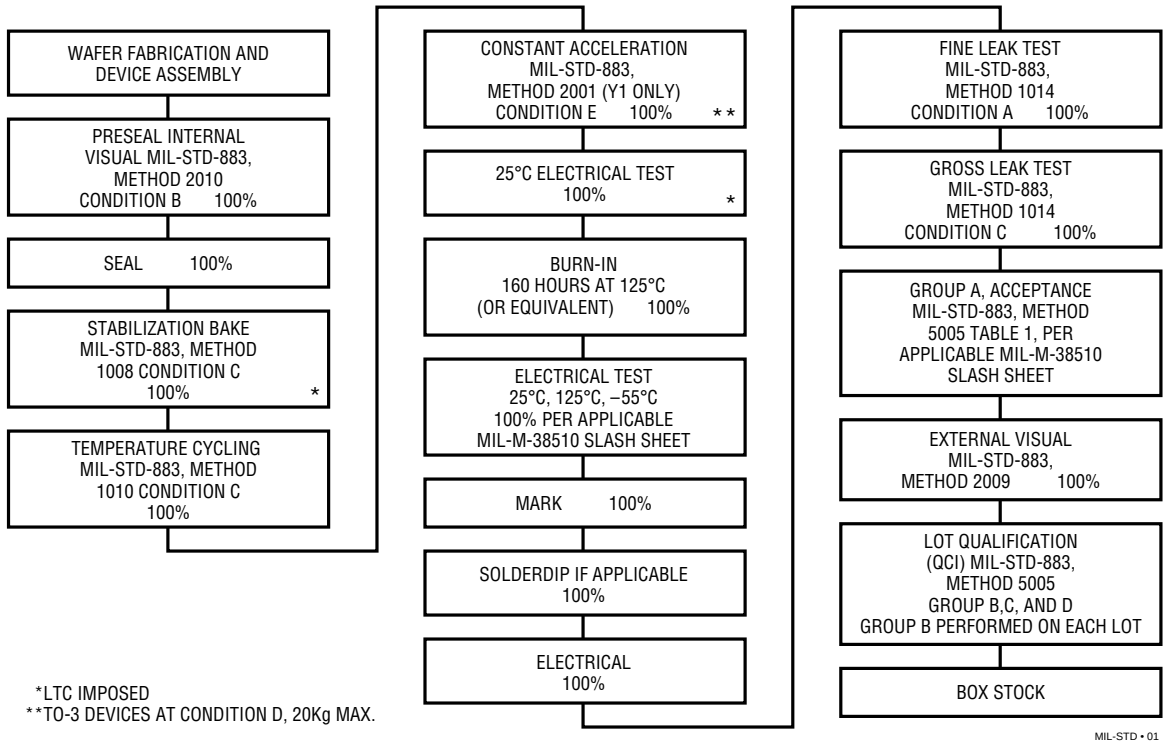
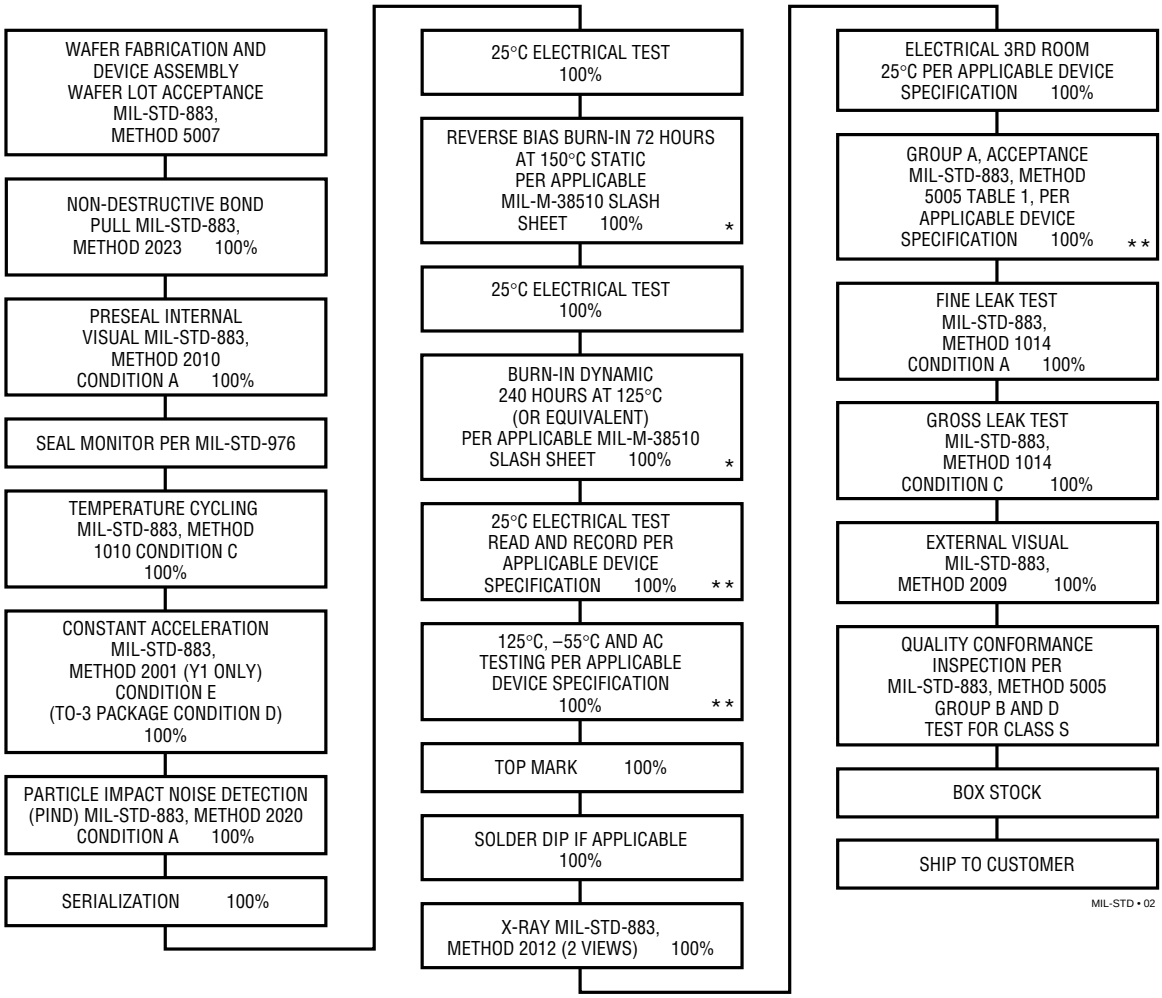


Figure 1. MIL-M-38535 Class B Flow



*IN THE CASE WHERE THERE IS NO APPLICABLE MIL-M38510 SLASH SHEET, THE BURN-IN SCHEMATIC AS WELL AS THE APPLICABILITY OF 100% DYNAMIC BURN-IN SHALL BE NEGOTIATED BETWEEN THE CUSTOMER AND LINEAR TECHNOLOGY CORPORATION.

**APPLICABLE DEVICE SPECIFICATION SHALL BE THE MIL-M-38535 DEVICE SPECIFICATION, OR A DEVICE SPECIFICATION AGREED UPON BETWEEN THE CUSTOMER AND LINEAR TECHNOLOGY CORPORATION.

*CUSTOMER SOURCE INSPECTION WILL BE ADDED AS SPECIFIED IN CUSTOMER'S PURCHASE ORDER.

Figure 2. MIL-M-38535 Class S Flow

of product can be built offshore with 883-level processing and the electrical parameters are tested specifically to the DESC drawing.

To provide parts to a DESC drawing, a manufacturer has to have at least one part on the 38510 QPL. He must also have provided DESC with a certificate of compliance agreeing to the tests and conditions listed on the drawing.

In 1986 a new program named Standard Military Drawings (SMDs) was launched by DESC. This replaced the previous DESC Drawing Program. This new program is aimed directly at standardizing electrical requirements with the objective to decrease the time required to issue a military drawing. To achieve this, we have set up a computer link-up with the DESC Standardized Mil Drawing Group. LTC is actively supporting this Standard Military Drawing program and we are working closely with DESC and OEMs to participate in this government plan toward a greater level of standardization in military specifications.

LTC has over 134 devices listed on DESC and Mil drawings, and we are actively supporting these standardization programs by having parts available off the shelf from LTC and from distribution outlets.

For SMD Flow see Figure 3.

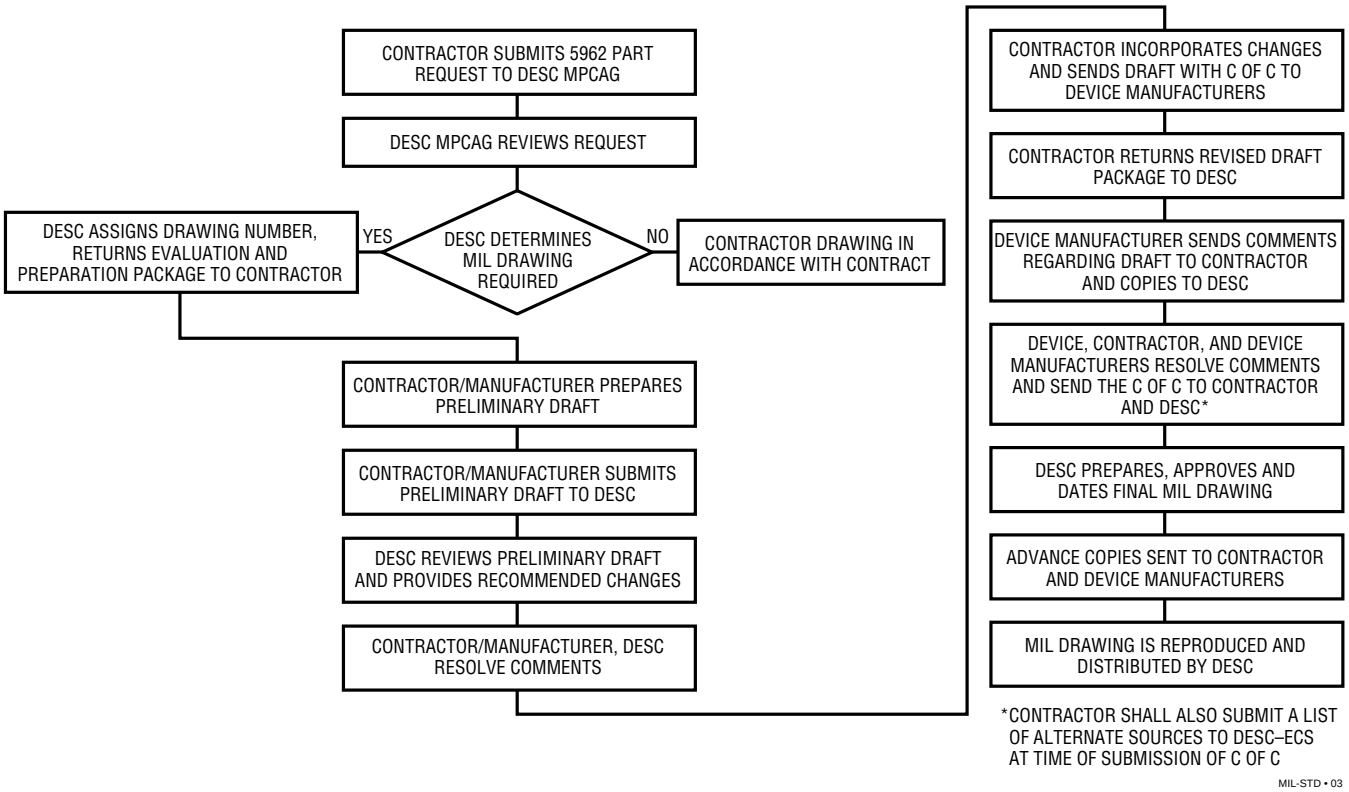


Figure 3. SMD Preparation Flowchart

SMDs Get A New Part Numbering System

A new numbering system has been introduced to standardize the part numbering system for JAN 38510 and SMD (Standard Military Drawing) products.

Under the new system, the SMD number 5962-XXXXXZZ(_)YY will be used, with a minor change for the 38535 + QML qual'd devices. This will make one part have one part number with just the grade identification being different (M = SMD, B = JAN B and S = JAN S). An example of this follows:

Old System

LTC PART NUMBER	"OLD" SMD NO.	JAN PART NUMBER
LT1021CMH-5/883	5962-8876202GA	JM38535/12407BGA

New System

LTC PART NUMBER	"NEW" SMD ONE PART NUMBER SYSTEM
LT1021CMH-5/883	5962-8876202(M, B or S)GA

This was implemented on January 1, 1990, for all SMDs and slash sheets created after this date. Devices listed or approved in the past will retain their respective existing part numbers.

LTC MIL-STD-883 Product

The semiconductor industry 883 designation on military semiconductor components established a defacto standard in response to a significant demand from the military defense contractors. The Government recognized the existence of 883 components in the recent revisions of MIL-STD-883. Requirements for compliant 883 components are now defined very specifically in paragraph 1.2.1 of this document.

MIL-STD-883 is a test procedures and methods document which is revised periodically and defines the conditions for two categories of product, Class B and Class S. Class B is intended for applications where maintenance is difficult or expensive and where reliability is vital. Class S is intended for space and critical applications where replacement is extremely difficult or impossible and where reliability is imperative.

On December 31, 1984, a key clause was added to MIL-STD-883, "paragraph 1.2.1." This states that if a manufacturer advertises, certifies, or marks parts as compliant with MIL-STD-883 those parts must meet all of the provisions of MIL-STD-883, a practice consistent with "Truth in Advertising."

According to the Defense Electronics Supply Center (a branch of the Defense Department's Logistics Agency), the intent of paragraph 1.2.1 was to link MIL-STD-883 with the controls and details contained in MIL-M-38510, and, by extension, MIL-PRF-38535, Appendix A.

LTC can state that all of its 883 products are in full compliance with the latest revision of MIL-STD-883. We have over 333 versions of our 883 products listed in our current catalog, including operational amplifiers, voltage regulators, voltage references, comparators, interface devices and our advanced line of proprietary CMOS circuits including switches, data conversion and filter products.

Table 1. LTC 883 Group A Sampling Plan

		883	
TEST	**CONDITION**	**SAMPLE SIZE**	**ACCEPT**
DC Parametric	T_A = 25°C	116	0
DC Parametric	T_A = –55°C	116	0
	+125°C	116	0
AC Parametric	T_A = 25°C	116	0

LTC Hi-Rel (SCDs)

LTC recognizes the need for Source Controlled Drawings (SCDs) and the Company's DESC-certified line is well equipped to handle these requirements for space and hi-rel applications. The Company has a comprehensive specification review procedure and emphasis is placed on compliance to test methods and procedures. Over 8,000 specifications have been reviewed to date with fast feedback to our customers.

LTC has serviced SCD orders including "S" level specifications with an emphasis on compliance with customer purchase order requirements and on-time delivery performance. A dedicated SL traveller is initiated to baseline the manufacturing and test flow requirements to service each order.

LTC's Product Marketing Group can provide you with more details on a case-by-case basis.

LTC's Radiation Hardness Program

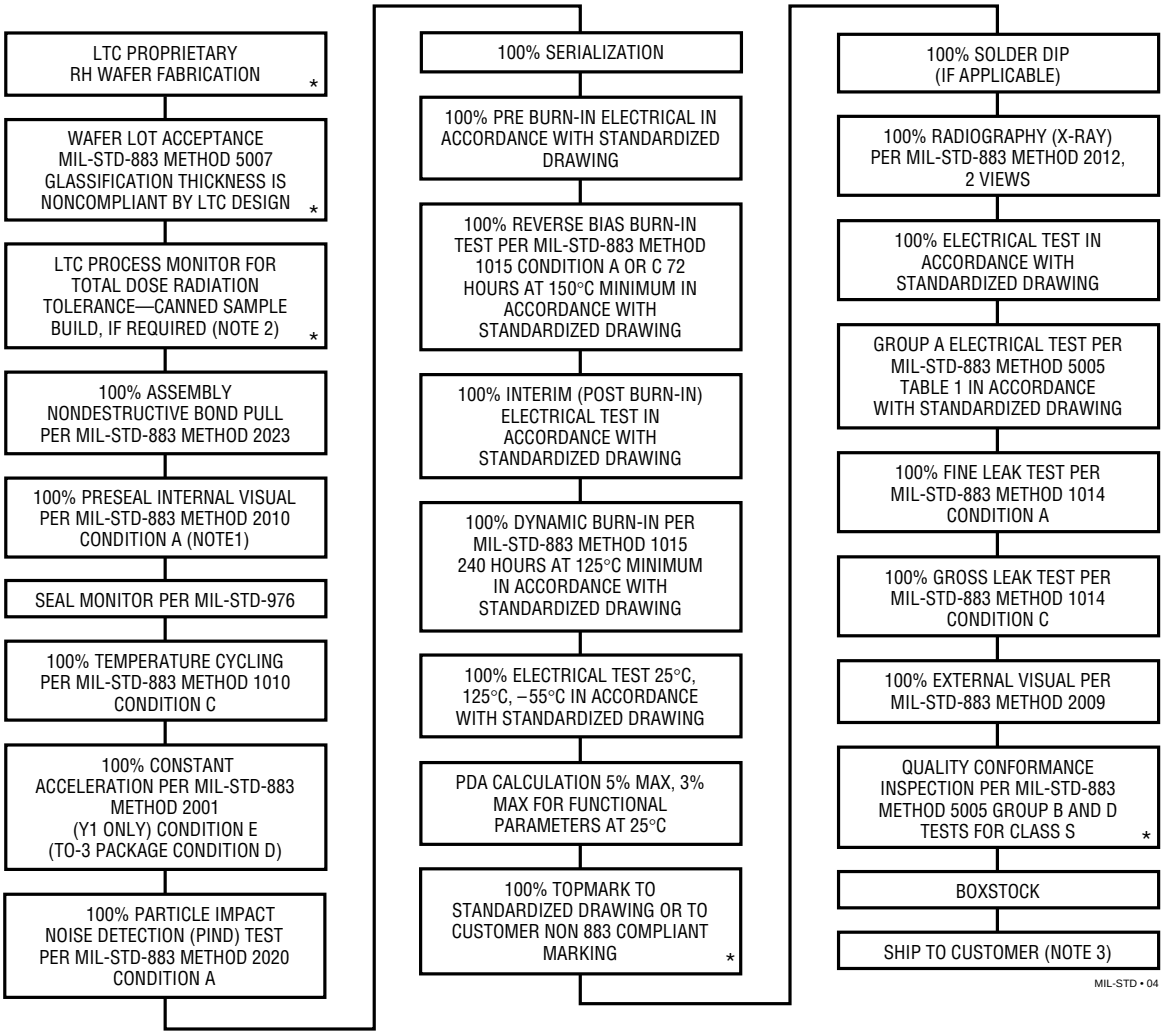
LTC has developed a proprietary design/wafer fabrication process and has introduced a family of RAD HARD (RH prefix) products to support space level applications. The wafer lot acceptance, packaging, test, burn-in, radiation hardness testing, quality assurance and data sheet requirements are specified in a product specific LTC generic RH specification. Standard Military Drawing RH products are also available. Each generic RH specification is complemented with a product specific test traveller which details the test, burn-in and processing requirements.

Each RH data sheet specifies the end point electrical test requirements for Total Dose Irradiation testing performed on a sample basis. The radiation sample is typically comprised of a minimum of two wafers per wafer run with total dose irradiation provided by a Cobalt 60 source at a dose of approximately 20 rads/sec. For guaranteed radiation levels, total dose radiation testing at an outside certified test lab is offered as an option.

Due to the unique wafer processing required to make RH products, the RH products are not totally compliant with all the Class S requirements of MIL-STD-883. Since MIL-STD-883 specifically prohibits the marking of non-compliant products with the 883 compliance (c) indicator, LTC's RH products are marked with the LTC RH prefix part number or with a special mark specified by the customer.

Military Market Commitment

LTC is a focused, dedicated company servicing the needs of the linear military marketplace. We are shipping to the top U.S. defense electronics contractors who have qualified and approved our products. LTC is committed to being the best and most proficient high quality supplier of analog military components.



NOTE: 1. GOVERNMENT SOURCE INSPECTION AT PRE-SEAL INTERNAL VISUAL IS STANDARD.
2. FOR GUARANTEED RADIATION LEVELS, OUTSIDE LAB CHARGES WILL APPLY FOR SAMPLES TO MIL-STD-883, TEST METHOD 1019, TOTAL DOSE IRRADIATION.
3. CUSTOMER SOURCE INSPECTION CAN BE ADDED AT FINAL SHIPMENT PER P.O.

* DENOTES PROCESS STEPS THAT ARE NONCOMPLIANT TO THE CLASS S REQUIREMENTS OF MIL-STD-883.

Figure 4. LTC Standardized "RH" Packaged Product Flowchart

883 CERTIFICATE OF CONFORMANCE — LEVEL B

LTC Part Number _____

Lot Traceability No. _____

Purchase Order No. _____

QUALITY ASSURANCE INSPECTOR	
DATE	SIGNATURE

Customer Name _____ P/N _____ Qty _____

Date Code _____ Shipper # _____ Traveller Lot # _____

Group A = _____ Group B = _____ Group C = _____ Group D = _____

Group B/3 Re-Inspection Date, If Applicable _____

LINEAR TECHNOLOGY CORPORATION HEREBY DECLARES THAT THE COMPONENTS SPECIFIED ON THE ABOVE PURCHASE ORDER COMPLY WITH YOUR SPECIFICATIONS AND REQUIREMENTS OF MIL-STD-883. ALL SUPPORTING DOCUMENTATION AND RECORDS ARE RETAINED ON FILE BY LTC AND ARE AVAILABLE FOR INSPECTION. THE MAJOR ELEMENTS OF THE 883 PROGRAM ARE SHOWN BELOW.

Operation	Screening Procedure MIL-STD-883, Method 5004	
Internal Visual	Method 2010, Condition B	
Temperature Cycling	Method 1010, Condition C, 10 cycles –65°C to 150°C	
Constant Acceleration	Method 2001, Condition E, 30k g Y1 axis (TO-3 PKG Condition D at 20k g)	
Fine Leak	Method 1014, Condition A	
Gross Leak	Method 1014, Condition C	
Burn-in	Method 1015, 160 hrs at 125°C (or equivalent)	
Final Electrical	+25°C DC (per LTC Data Sheet) PDA = 5%	
	+125°C or 150°C DC	
	–55°C DC	
	+25°C AC	
QA Acceptance	Method 5005	Group A (sample/lot)
Quality Conformance		Group B (sample/lot)
		Group C (sample every 6 months/Circuit Group)
		Group D (sample every 6 months/Package Family)
External Visual	Method 2009	

NOTE: Each operation is performed on a 100% basis unless otherwise stated.

FORM No. 00-03-6072

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

GROUP A DATA
Mil-Std-883, METHOD 5005

LTC P/N: _____ LOT #: _____
GENERIC TYPE: _____ PKG: _____ DATE CODE: _____
ASSEMBLY LOC: _____

	ACC #	S/S	# FAILED	DATE TESTED	OPER NUMBER
SUBGROUP 1 Static tests at 25°C	0	116			
SUBGROUP 2 Static tests at maximum rated operating temperature	0	116			
SUBGROUP 3 Static tests at minimum rated operating temperature	0	116			
SUBGROUP 4 Dynamic tests at 25°C	0	116			
SUBGROUP 5 Dynamic tests at maximum rated operating temperature	0	116			
SUBGROUP 6 Dynamic tests at minimum rated operating temperature	0	116			
SUBGROUP 7 Functional tests at 25°C	0	116			
SUBGROUP 8 Functional tests at maximum and minimum operating temperature	0	116			
SUBGROUP 9 Switching tests at 25°C	0	116			
SUBGROUP 10 Switching tests at maximum rated operating temperature	0	116			
SUBGROUP 11 Switching tests at minimum rated operating temperature	0	116			

QA APPROVAL: _____ DATE: _____

FORM No. 00-03-6037

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

GROUP B DATA (Class B)
Mil-Std-883, METHOD 5005

LTC P/N: _____ LOT #: _____
GENERIC TYPE: _____ PKG: _____ DATE CODE: _____
ASSEMBLY LOC: _____

TEST	METHOD	CONDITION	SAMPLE SIZE SERIES	ACC #	S/S	# FAILED	DATE TESTED	OPER #
SUBGROUP 2 Resistance to Solvents	2015			0	3			
SUBGROUP 3 Solderability	2003	Soldering Temp. of 245°C ± 5°C	10	0				
SUBGROUP 5 Bond Strength	2011	C or D	15	0				

QA APPROVAL: _____ DATE: _____

FORM No. 00-03-6006

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

GROUP C DATA (Class B)
Mil-Std-883, METHOD 5005

LTC P/N: _____ LOT #: _____
GENERIC TYPE: _____ PKG: _____ DATE CODE:
_____ CT. GROUP: _____

TEST	METHOD	CONDITION	SAMPLE SIZE SERIES	ACC #	S/S	# FAILED	DATE TESTED	OPER #
SUBGROUP 1 Steady State Life Test Electrical Endpoints	1005	T_A = 125°C (1000 Hours or Equiv.) Test #	5	0	45			

QA APPROVAL: _____ DATE: _____

FORM No. 00-03-6007

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

GROUP B DATA (Class S)
Mil-Std-883, METHOD 5005

LTC P/N: _____ LOT #: _____
GENERIC TYPE: _____ PKG: _____ DATE CODE: _____
ASSEMBLY LOC: _____

TEST	METHOD	CONDITION	SAMPLE SIZE SERIES	ACC #	S/S	# FAILED	DATE TESTED	OPER #
SUBGROUP 1								
Physical Dimensions	2016							
Internal Water-Vapor Content	1018	5000 ppm Max						
SUBGROUP 2								
Resistance to Solvents	2015			0	3			
Internal Visual and Mechanical	2013, 2014	Design and Construction Requirements		0	2			
Bond Strength	2011	C or D	10	0	22 Wires			
Die Shear Test	2019			0	3			
SUBGROUP 3								
Solderability	2003 or 2022	Soldering Temp. of 245°C ±5°C	10	0	22 Leads			
SUBGROUP 4								
Lead Integrity	2004	B_2 (Lead Fatigue)	5	0	45 Leads			
Seal	1014							
Fine								
Gross								
Lid Torque	2024	Glass Frit Seal Only						
SUBGROUP 5								
Electrical End-Points		Test #	5	0	45			
Steady State Life	1005	C, D, or E						
Electrical End-Points		Test #						
SUBGROUP 6								
Electrical End-Points		Test #	15	0	15			
Temperature Cycling	1010	C 100 Cycles						
Constant Acceleration	2001	E Y_1 Only						
Seal	1014	(TO-3 at Condition D, 20Kg)						
Fine								
Gross								
Electrical End-Points		Test #						
SUBGROUP 7								
ESD Classification	3015	Qual or Re-Design Only	15	N/A	—			

QA APPROVAL: _____ DATE: _____

LINEAR TECHNOLOGY CORPORATION
1630 McCarthy Blvd.
Milpitas, CA 95035-7487

GROUP D DATA (Class B or S)

Mil-Std-883, METHOD 5005

LTC P/N: _____ LOT #: _____
GENERIC TYPE: _____ PKG: _____ DATE CODE: _____
ASSEMBLY LOC: _____

TEST	METHOD	CONDITION	SAMPLE SIZE SERIES	ACC #	S/S	# FAILED	DATE TESTED	OPER #
SUBGROUP 1			15	0	15			
Physical Dimensions	2016							
SUBGROUP 2			5	0	45 Leads			
Lead Integrity	2004	B_2 (Lead Fatigue)						
Fine Leak	1014							
Gross Leak	1014							
SUBGROUP 3			15	0	15			
Thermal Shock	1011	B 15 Cycles						
Temperature Cycle	1010	C 100 Cycles						
Moisture Resistance	1004							
Fine Leak	1014							
Gross Leak	1014							
Visual Examination	1004/ 1010							
Electrical End-Points		Test #						
SUBGROUP 4			15	0	15			
Mechanical Shock	2002	B						
Vibration, Variable Frequency	2007	A						
Constant Acceleration	2001	E Y1 Only						
Fine Leak	1014							
Gross Leak	1014	(TO-3 at						
Visual Examination	1010/ 1011	Condition D, 20Kg)						
Electrical End-Points		Test #						
SUBGROUP 5				15	0	15		
Salt Atmosphere	1009	A						
Fine Leak	1014							
Gross Leak	1014							
Visual Examination	1009	Visual Criteria						
SUBGROUP 6				0	3			
Internal Water-Vapor	1018	5000 ppm Max						
SUBGROUP 7			15	0	15			
Adhesion of Lead Finish	2025							
SUBGROUP 8				0	5			
Lid Torque	2024	Glass Frit Seal Only						

QA APPROVAL: _____ DATE: _____

FORM No. 00-03-6008

MILITARY PARTS LIST

JAN S QPL

JM38510/10103SGA (LM101AH)
JM38510/10103SHA (LM101AW)
JM38510/10103SPA (LM101AJ8)
JM38510/10104SCA (LM108AJ)
JM38510/10104SGA (LM108AH)
JM38510/10104SHA (LM108AW)
JM38510/10104SPA (LM108AJ8)
JM38510/10107SGA (LM118H)
JM38510/10304SGA (LM111H)
JM38510/10306SCA (LM119J)
JM38510/10306SIA (LM119H)
JM38510/10306SHA (LM119W)
JM38510/10307SCA (LT119AJ)
JM38510/10307SIA (LT119AH)
JM38510/10307SHA (LT119AW)
JM38510/11401SPA (LF155J8)
JM38510/11402SGA (LF156H)
JM38510/11402SPA (LF156J8)
JM38510/11404SGA (LF155AH)
JM38510/11404SPA (LF155AJ8)
JM38510/11405SGA (LF156AH)
JM38510/11405SPA (LF156AJ8)
JM38510/11703SXA (LM117H)
JM38510/11704SYA (LM117K)
JM38510/11803SXA (LM137H)
JM38510/11804SYA (LM137K)
JM38510/12407SGA (LT1021-5H)
JM38510/12408SGA (LT1021-7H)
JM38510/12409SGA (LT1021-10H)
JM38510/12501SGA (LF198H)
JM38510/13501SGA (OP07AH)
JM38510/13501SPA (OP07AJ8)
JM38510/13502SGA (OP07H)
JM38510/13502SPA (OP07J8)
JM38510/14802SXA (LT1009H)

JAN B QPL

JM38510/10103BCA (LM101AJ)
JM38510/10103BGA (LM101AH)
JM38510/10103BHA (LM101AW)
JM38510/10103BPA (LM101AJ8)
JM38510/10104BCA (LM108AJ)
JM38510/10104BGA (LM108AH)
JM38510/10104BPA (LM108AJ8)
JM38510/10106BEA (LH2108AD)
JM38510/10107BCA (LM118J)
JM38510/10107BGA (LM118H)
JM38510/10107BHA (LM118W)
JM38510/10107BPA (LM118J8)
JM38510/10304BGA (LM111H)
JM38510/10306BIA (LM119H)
JM38510/10306BCA (LM119J)
JM38510/10306BHA (LM119W)
JM38510/10307BCA (LT119AJ)
JM38510/10307BIA (LT119AH)
JM38510/10307BHA (LT119AW)
JM38510/11401BGA (LF155H)
JM38510/11401BPA (LF156J8)
JM38510/11402BGA (LF156H)
JM38510/11402BHA (LF156W)
JM38510/11402BPA (LF156J8)
JM38510/11404BGA (LF155AH)
JM38510/11404BPA (LF155AJ8)
JM38510/11405BGA (LF156AH)
JM38510/11405BHA (LF156W)
JM38510/11405BPA (LF156AJ8)
JM38510/11703BXA (LM117H)
JM38510/11704BYA (LM117K)
JM38510/11706BYA (LM138K)
JM38510/11803BXA (LM137H)
JM38510/11804BYA (LM137K)
JM38510/12407BGA (LT1021-5H)
JM38510/12408BGA (LT1021-7H)
JM38510/12409BGA (LT1021-10H)
JM38510/12501BGA (LF198H)
JM38510/13501BGA (OP07AH)
JM38510/13501BPA (OP07AJ8)
JM38510/13502BGA (OP07H)
JM38510/13502BPA (OP07J8)
JM38510/14802BXA (LT1009H)

DESC Drawings

7703401XA (LM117H)
7703401YA (LM117K)
7703402XA (LM117HVH)
7703402YA (LM117HVK)
7703403XA (LM137H)
7703403YA (LM137K)
7703404XA (LM137HVH)
7703404YA (LM137HVK)
7703405XA (LT117AH)
7703405YA (LT117AK)
7703406XA (LT137AH)
7703406YA (LT137AK)
7703407XA (LT117AHVH)
7703407YA (LT117AHVK)
7703408XA (LT137AHVH)
7703408YA (LT137AHVK)
8203602GA (OP07H)
8203602PA (OP07J8)
8418001XA (LM136AH-2.5)
8551401GA (REF02AH)
8551401PA (REF02AJ8)
8600801EA (LT685)
8601401CA (LM119J)
8601401HA (LM119W)
8601401IA (LM119H)
8601402CA (LT119AJ)
8601402HA (LT119AW)
8601402IA (LT119AH)
8687702XA (LT111AH)
8687702PA (LT111AJ8)

Standard Military Drawings (SMD)

5962-3870701MGA (LTC1044MH)
5962-3870701MPA (LTC1044MJ)
5962-8680601EA (LT1846J)
5962-8680602EA (LT1847J)
5962-8684501IA (LT1016MH)
5962-8684501PA (LT1016MJ8)
5962-8686101XA (LT580SH)
5962-8686102XA (LT580TH)
5962-8686103XA (LT580UH)
5962-8687701GA (LT111AH)
5962-8687701PA (LT111AJ8)
5962-8688201XA (LH0070-0H)
5962-8688202XA (LH0070-1H)
5962-8688203XA (LH0070-2H)
5962-8688701CA (OP227AJ)
5962-8757801GA (LT1007AMH)
5962-8757801PA (LT1007AMJ8)
5962-8759401XA (LM185H-1.2)
5962-8759402XA (LM185H-2.5)
5962-8760401GA (LM10H)
5962-8760401PA (LM10J8)
5962-8766601VA (LT1080MJ)
5962-8766602EA (LT1081MJ)
5962-8767501XA (LM150K)
5962-8767502XA (LT150AK)
5962-8771501CA (LT1002AMJ)
5962-8773801GA (LT1001MH)
5962-8773801PA (LT1001MJ8)
5962-8773803GPA (LT1001AMH)
5962-8773803PA (LT1001AMJ)
5962-8774101XA (LT1033MK)
5962-8777501YA (LM123K)
5962-8777502YA (LM123AK)
5962-8853701GA (OP37AH)
5962-8853701PA (OP37AJ8)
5962-8853702GA (OP37BH)
5962-8853702PA (OP37BJ8)
5962-8853703GA (OP37CH)
5962-8853703PA (OP37CJ8)
5962-8856101XA (LM199AH)
5962-8856102XA (LM199H)
5962-8856201XA (LT1010MH)
5962-8856201YA (LT1010MK)
5962-8856701GA (LT1037AMH)
5962-8856701PA (LT1037AMJ8)
5962-8859701XA (LT1004MH-1.2)
5962-8859702XA (LT1004MH-2.5)
5962-8860001GA (LT1021BMH-10)
5962-8860002GA (LT1021CMH-10)
5962-8860003GA (LT1021DMH-10)
5962-8862201XA (LT1028MH)
5962-8862201PA (LT1028MJ8)
5962-8862202XA (LT1028AMH)
5962-8862202PA (LT1028AMJ8)
5962-8864101RA (LTC1060AMJ)
5962-8864102RA (LTC1060MJ)
5962-8864601XA (LT1085MK)
5962-8864701GA (LT1021BMH-7)
5962-8864702GA (LT1021DMH-7)
5962-8875101VA (LT1039MJ)
5962-8875102EA (LT1039MJ16)
5962-8876001GA (LT1013AMH)
5962-8876001PA (LT1013AMJ8)
5962-8876002GA (LT1013MH)
5962-8876002PA (LT1013MJ8)
5962-8876201GA (LT1021BMH-5)
5962-8876202GA (LT1021CMH-5)
5962-8876203GA (LT1021DMH-5)
5962-8944001CA (LT1032MJ)
5962-8948301LA (LTC1064MJ)
5962-8950401GA (LT1017MH)
5962-8950401PA (LT1017MJ8)
5962-8950402GA (LT1018MH)
5962-8950402PA (LT1018MJ8)
5962-8951101EA (LT1525AJ)
5962-8951102EA (LT1527AJ)
5962-8952101XA (LT1084MK)
5962-8956201GA (LT1054MH)
5962-8956201PA (LT1054MJ8)
5962-8958101GA (REF01AH)
5962-8958101PA (REF01AJ8)
5962-8961001XA (LT1009MH)
5962-8962201GA (LT1022AMH)
5962-8962202GA (LT1022MH)
5962-8967701CA (LT1014AMJ)
5962-8967702CA (LT1014MJ)
5962-8978201CA (LTC1052MJ)
5962-8978201GA (LTC1052MH)
5962-8978201PA (LTC1052MJ8)
5962-8980201XA (LT1031BMH)
5962-8980202XA (LT1031CMH)
5962-8980203XA (LT1031DMH)
5962-8983002RA (LTC1290BMJ)
5962-8983003RA (LTC1290CMJ)
5962-8983004RA (LTC1290DMJ)
5962-8987301YA (LT1003MK)
5962-8989701CA (LT1058AMJ)
5962-8989701XA (LT1058AML)
5962-8989702CA (LT1058MJ)
5962-8992101XA (LM129AH)
5962-8992102XA (LM129BH)
5962-8992103XA (LM129CH)
5962-8997601GA (LT1055AMH)
5962-8997602GA (LT1056AMH)
5962-8997603GA (LT1055MH)
5962-8997604GA (LT1056MH)
5962-8998101XA (LT1086MK)
5962-8998101YA (LT1086MH)
5962-9050701XA (LM134H-3)
5962-9050702XA (LM134H-6)
5962-9050703XA (LM134H)
5962-9051901XA (LT1029AMH)
5962-9051902XA (LT1029MH)
5962-9054501RA (LTC1045MJ)
5962-9056801CA (OP237AJ)
5962-9056802CA (OP237CJ)
5962-9059501GA (LT1019AMH-10)
5962-9059502GA (LT1019AMH-5)
5962-9059503GA (LT1019AMH-4.5)
5962-9059504GA (LT1019AMH-2.5)
5962-9059505GA (LT1019MH-10)
5962-9059506GA (LT1019MH-5)
5962-9059507GA (LT1019MH-4.5)
5962-9059508GA (LT1019MH-2.5)
5962-9062701GA (LT1011AMH)
5962-9062701PA (LT1011AMJ8)
5962-9062702GA (LT1011MH)
5962-9062702PA (LT1011MJ8)
5962-9064901CA (LTC1064-4MJ)
5962-9064901XA (LTC1064-4ML)
5962-9069301MCA (LTC1064-1MJ/883)
5962-9069302MCA (LTC1064-1AMJ/883)
5962-9073902MXA (LT1084-5MK)
5962-9073903MXA (LT1085-5MK)
5962-9073904MXA (LT1086-5MK)
5962-9081701MXA (LT1057AMH)
5962-9081701MPA (LT1057AMJ8)
5962-9081702MXA (LT1057MH)
5962-9081702MPA (LT1057MJ8)
5962-9082501MYA (LT1070MK)
5962-9082502MYA (LT1071MK)
5962-9082503MYA (LT1072MK)
5962-9082503MPA (LT1072MJ8)
5962-9082504MYA (LT1070HVMK)
5962-9082505MYA (LT1071HVMK)
5962-9082506MYA (LT1072HVMK)
5962-9084101MCA (LT1020MJ)
5962-9084201MGA (LT1012MH)
5962-9084201MPA (LT1012MJ8)
5962-9084202MGA (LT1012AMH)
5962-9084202MPA (LT1012AMJ8)
5962-9159501MPA (LTC1062MJ8)
5962-9161901MPA (LTC1042MJ8)
5962-9163201MCA (LT1079MJ)
5962-9163202MCA (LT1079AMJ)
5962-9163203MCA (LT1078MJ)
5962-9163204MCA (LT1078AMJ)
5962-9163204MXA (LT1078AMH)
5962-9163204MPA (LT1078AMJ8)
5962-9172901MVA (LT1180MJ)
5962-9172902MEA (LT1181MJ)
5962-9172903MVA (LT1280MJ)
5962-9172904MEA (LT1281MJ)
5962-9207901MPA (LT1172MJ8)
5962-9207901MPA (LT1172MJ8)
5962-9208001MPA (LTC485MJ8)
5962-9305701MPA (LTC1291CMJ8)
5962-9305702MPA (LTC1292CMJ8)
5962-9305703MEA (LT1293CMJ)
5962-9305704MRA (LTC1294CMJ)
5962-9311901MYA (LT1076MK)
5962-9311902MYA (LT1076HVMK)
5962-9318401MPA (LT1229MJ8)
5962-9318402MCA (LT1230MJ)
5962-9319001MPA (LT1241MJ8)
5962-9319002MPA (LT1242MJ8)
5962-9319003MPA (LT1243MJ8)
5962-9319004MPA (LT1244MJ8)
5962-9319005MPA (LT1245MJ8)
5962-9321201MPA (LT1111MJ8)
5962-9322401MPA (LT1120MJ8)
5962-9323801MCA (LT1125MJ)
5962-9323802MPA (LT1124MJ8)
5962-9323803MCA (LT1125AMJ)
5962-9323804MPA (LT1124AMJ8)
5962-9451601MPA (LT118AJ8)
5962-9460001MGA (LTC1051MH)
5962-9460002MGA (LTC1051AMH)
5962-9470901MPA (LTC1041MJ8)

Radiation Hardened

RH07
RH27C
RH37C
RH101A
RH108A
RH111
RH117
RH118
RH119
RH129
RH137
RH1009
RH1011
RH1013
RH1014
RH1021-5
RH1021-7
RH1021-10
RH1056
RH1078
RH1079
RH1086

MILITARY PARTS LIST

883 Operational Amplifiers

LF155AH/883	LM101AH/883	LT1006MH/883	LT1024MD/883	LT1172MJ8/883	OP-05H/883	OP-27BH/883
LF155H/883	LM101AJ8/883	LT1006MJ8/883	LT1055AMH/883	LT1228MJ8/883	OP-05J8/883	OP-27CH/883
LF156AH/883	LM107H/883	LT1007AMH/883	LT1055MH/883	LTC1050AMH/883	OP-05AW/883	OP-27CJ8/883
LF156H/883	LM107J8/883	LT1007AMJ8/883	LT1078AMH/883	LTC1050AMJ8/883	OP-05W/883	OP-37AH/883
LF156J8/883	LM108AH/883	LT1007MH/883	LT1078AMJ8/883	LTC1050AMJ/883	OP-07AH/883	OP-37AJ8/883
LF156W/883	LM108H/883	LT1007MJ8/883	LT1078MH/883	LTC1050MH/883	OP-07AJ8/883	OP-37BJ8/883
LF412AMH/883	LM108AJ8/883	LT1008MH/883	LT1078MJ8/883	LTC1050MJ8/883	OP-07H/883	OP-37CH/883
LF412MH/883	LT118AH/883	LT1012AMH/883	LT1079AMJ/883	LTC1050MJ/883	OP-07J8/883	OP-37CJ8/883
LF412AMJ8/883	LT118AJ8/883	LT1012MD/883	LT1079MJ/883	LTC1051AMH/883	OP-15AH/883	OP-227CJ/883
LF412MJ8/883	LT1001AMH/883	LT1012MH/883	LT1124AMJ8\883	LTC1051AMJ8/883	OP-15BH/883	OP-237AJ/883
LH0070-0H/883	LT1001AMJ8/883	LT1013AMH/883	LT1124MJ8/883	LTC1051MJ8/883	OP-15CH/883	OP-237CJ/883
LH0070-1H/883	LT1001MH/883	LT1013AMJ8/883	LT1125AMJ8/883	LTC1052MH/883	OP-15CJ8/883	
LH0070-2H/883	LT1001MJ8/883	LT1013MH/883	LT1125MJ8/883	LTC1052MJ/883	OP-16AH/883	
LH2108AD/883	LT1002AMJ/883	LT1013MJ8/883	LT1126AMJ8/883	LTC1052MJ8/883	OP-16BH/883	
LH2108D/883	LT1002MJ/883	LT1014AMJ/883	LT1126MJ8/883	LTC1150MJ8/883	OP-16CH/883	
LM10H/883	LT1006AMH/883	LT1014MJ/883	LT1127AMJ8/883	OP-05AH/883	OP-16CJ8/883	
LM10J8/883	LT1006AMJ8/883	LT1024AMD/883	LT1127MJ/883	OP-05AJ8/883	OP-27BJ8/883	

883 High Speed Op Amps

LM118H/883	LT1028AMH/883	LT1037AMJ8/883	LT1057AMH/883	LT1058AML/883	LT1191MJ8/833	LT1223MJ8/883
LM118J8/883	LT1028AMJ8/883	LT1037MH/883	LT1057AMJ8/883	LT1058MJ/883	LT1192MJ8/883	LT1229MJ8/883
LM118W/883	LT1028MH/883	LT1037MJ8/883	LT1057MH/883	LT1187MJ8/883	LT1193MJ8/883	LT1230MJ/883
LT1022AMH/883	LT1028MJ8/883	LT1056AMH/883	LT1057MJ8/883	LT1189MJ8/883	LT1194MJ8/883	
LT1022MH/883	LT1037AMH/883	LT1056MH/883	LT1058AMJ/883	LT1190MJ8/883	LT1195MJ8/883	

883 Regulators

LM117H/883	LM137HVK/883	LT117AK/883	LT150AK/883	LT1035MK/883	LT1076HVMK/883	LT1086MH/883
LM117HVH/883	LM137K/883	LT123AK/883	LT1003MK/883	LT1036MK/883	LT1083MK-5/883	LT1086MK/883
LM117HVK/883	LM138K/883	LT137AH/883	LT1005MK/883	LT1054MJ8/883	LT1083MK-12/883	LT1086MK-5/883
LM117K/883	LM150K/883	LT137AHVH/883	LT1020MJ/883	LT1054MH/883	LT1084MK/883	LT1086MK-12/883
LM123K/883	LT117AH/883	LT137AHVK/883	LT1026MJ8/883	LT1074MK/883	LT1084MK-5/883	LT1120MJ8/883
LM137H/883	LT117AHVH/883	LT137AK/883	LT1026MH8/883	LT1074HVMK/883	LT1084MK-12/883	
LM137HVH/883	LT117AHVK/883	LT138AK/883	LT1033MK/883	LT1076MK/883	LT1085MK/883	

883 References

LM129AH/883	LM185H-1.2/883	LT581SH/883	LT1019AMH-5/883	LT1021DMH-5/883	LT1031BMH/883	REF-01AJ8/883
LM129BH/883	LM185H-2.5/883	LT581TH/883	LT1019AMH-10/883	LT1021BMH-7/883	LT1031CMH/883	REF-01H/883
LM129CH/883	LM199AH/883	LT581UH/883	LT1019MH-2.5/883	LT1021DMH-7/883	LT1031DMH/883	REF-01J8/883
LM134H/883	LM199AH-20/883	LT1004MH-1.2/883	LT1019MH-4.5/883	LT1021BMH-10/883	LT1034BMH-1.2/883	REF-02AH/883
LM134H-3/883	LM199H/883	LT1004MH-2.5/883	LT1019MH-5/883	LT1021CMH-10/883	LT1034BMH-2.5/883	REF-02AJ8/883
LM134H-6/883	LT580SH/883	LT1009MH/883	LT1019MH-10/883	LT1021DMH-10/883	LT1034MH-1.2/883	REF-02H/883
LM136AH-2.5/883	LT580TH/883	LT1019AMH-2.5/883	LT1021BMH-5/883	LT1029AMH/883	LT1034MH-2.5/883	REF-02J8/883
LM136H-2.5/883	LT580UH/883	LT1019AMH-4.5/883	LT1021CMH-5/883	LT1029MH/883	REF-01AH/883	

883 Comparators

LM111H/883	LM119W/883	LT119AJ/883	LT1011AMJ8/883	LT1016MJ/883	LT1017MJ8/883	
LM111J8/883	LT111AH/883	LT685MH/883	LT1011MH/883	LT1016MJ8/883	LT1018MH/883	
LM119H/883	LT111AJ8/883	LT685MJ/883	LT1011MJ8/883	LT1016ML/883	LT1018MJ8/883	
LM119J/883	LT119AH/883	LT1011AMH/883	LT1016MH/883	LT1017MH/883	LTC1042MJ8/883	

883 Switched-Mode Control Circuits

LT1070MK/883	LT1072MK/883	LT1242MJ8/883	LT1524J/883	LT1847J/883
LT1070HVMK/883	LT1072HVMK/883	LT1243MJ8/883	LT1525AJ/883	SG1524J/883
LT1071MK/883	LT1072MJ8/883	LT1244MJ8/883	LT1527AJ/883	SG1525AJ/883
LT1071HVMK/883	LT1241MJ8/883	LT1245MJ8/883	LT1846J/883	SG1527AJ/883

883 Interface

LT1032MJ/883	LT1080MJ/883	LT1181AMJ/883	LTC485MJ8/883
LT1039MJ/883	LT1081MJ/883	LT1280MJ/883	LTC1045MJ/883
LT1039MJ16/883	LT1180AMJ/883	LT1281MJ/883	

883 Filters

LTC1059MJ/883	LTC1061MJ/883	LTC1064-1AMJ/883	LTC1064-4MJ/883	LTC1164-5MJ/883
LTC1060AMJ/883	LTC1062MJ8/883	LTC1064-1MJ/883	LTC1064-4ML/883	LTC1164-7MJ/883
LTC1060MJ/883	LTC1063MJ8/883	LTC1064-2MJ/883	LTC1164MJ/883	
LTC1061AMJ/883	LTC1064MJ/883	LTC1064-2ML/883	LTC1164AMJ/883	

883 Data Converters

LTC1094MJ/883	LTC1290DMJ/883	LTC1293DMJ/883	LTC1294DMJ/883
LTC1290BMJ/883	LTC1293BMJ/883	LTC1294BMJ/883	
LTC1290CMJ/883	LTC1293CMJ/883	LTC1294CMJ/883	

Other 883

LF198AH/883	LT1010MH/883	LTC201AMJ/883	LTC1043MJ/883	LTC1044MJ8/883
LF198H/883	LT1010MK/883	LTC1041MJ8/883	LTC1044MH/883	