

## 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.

# MILITARY 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

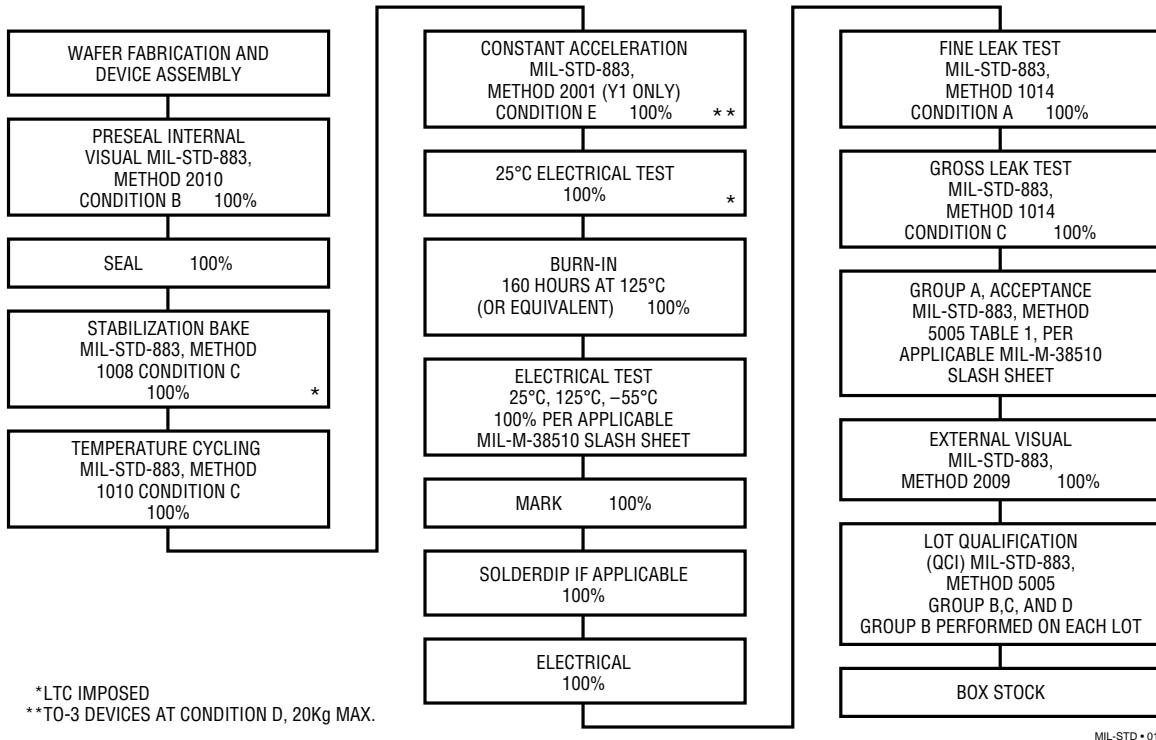
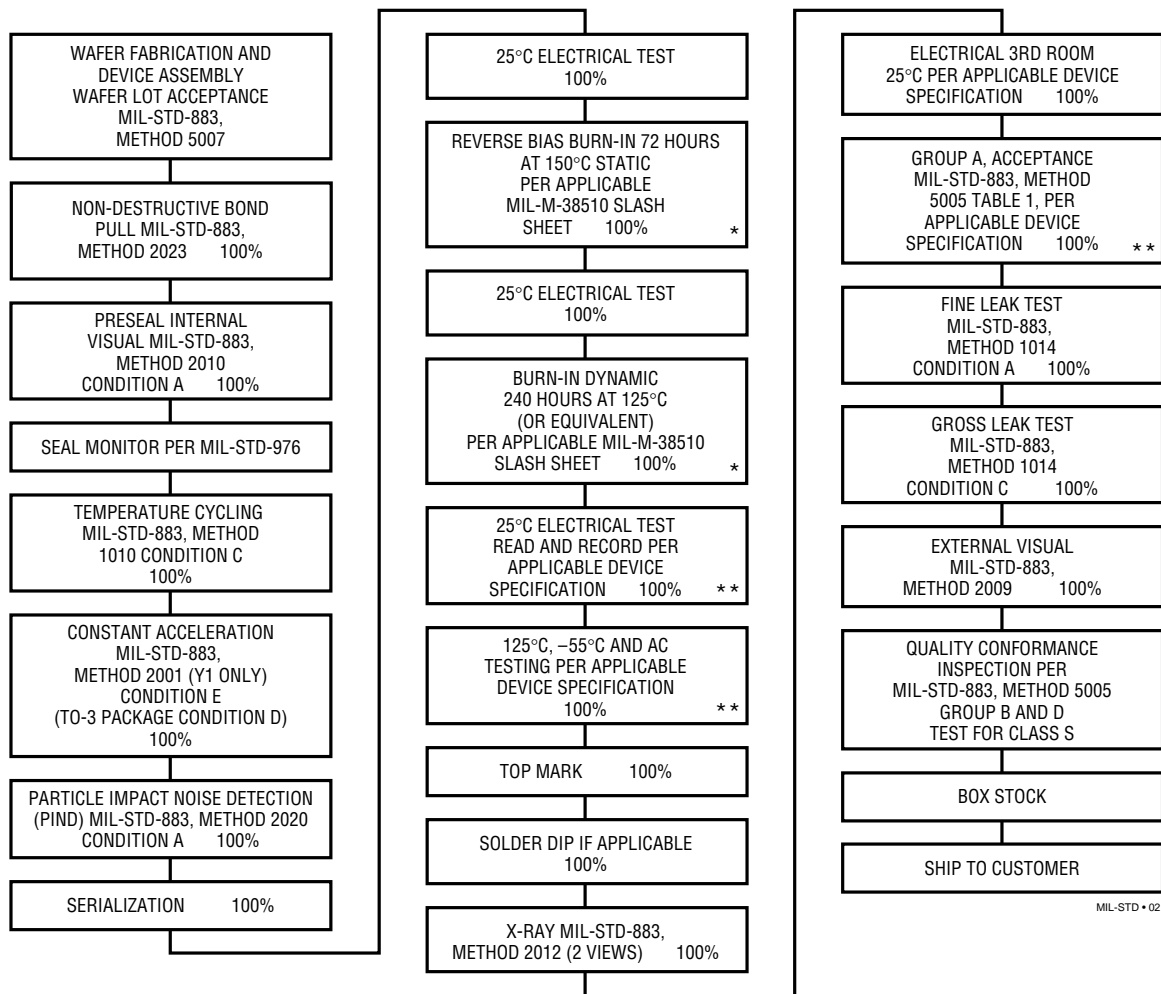


Figure 1. MIL-M-38535 Class B Flow



\* 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.

# MILITARY PRODUCTS

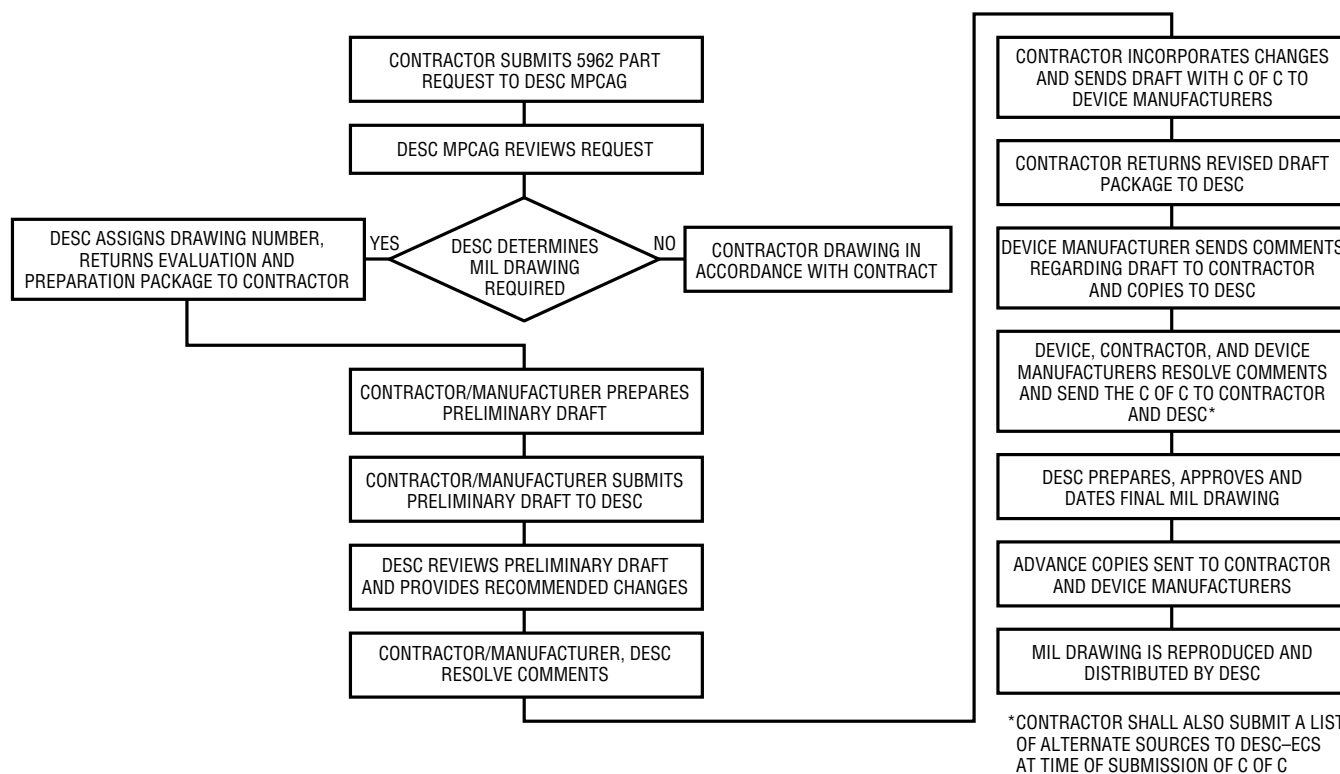


Figure 3. SMD Preparation Flowchart

## 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-XXXXZZ(\_ )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**

TEST	CONDITION	883	
		SAMPLE SIZE	ACCEPT
DC Parametric	$T_A = 25^\circ\text{C}$	116	0
DC Parametric	$T_A = -55^\circ\text{C}$	116	0
	$+125^\circ\text{C}$	116	0
AC Parametric	$T_A = 25^\circ\text{C}$	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.

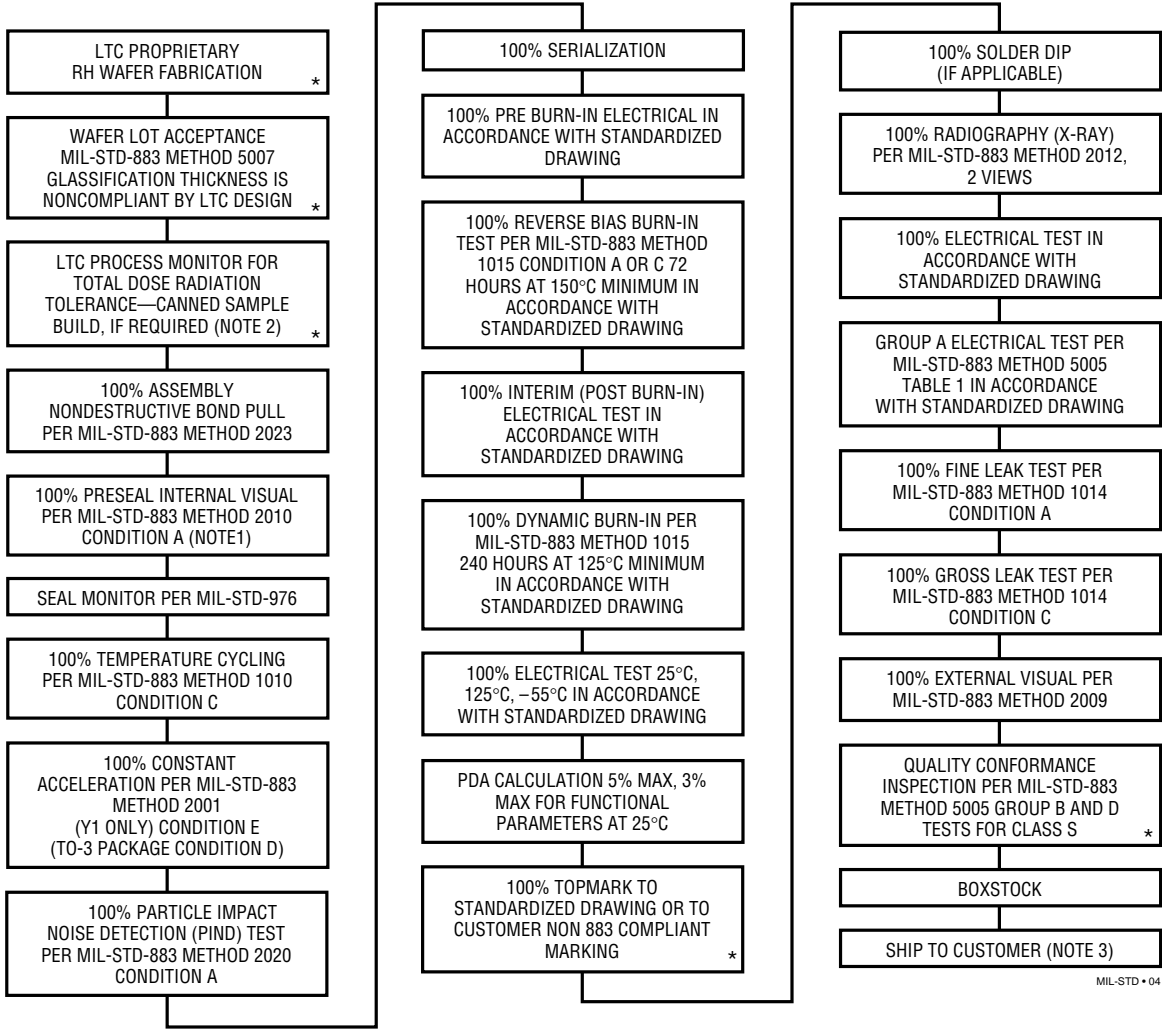
Each RH data sheet specifies the end point electrical test requirements for Total Dose Irradiation testing performed on a sample basis. The radiation sample is typically comprised of a minimum of two wafers per wafer run with total dose irradiation provided by a Cobalt 60 source at a dose of approximately 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.

# MILITARY PRODUCTS



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

EXAMPLE

**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

# MILITARY PRODUCTS

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
<b>SUBGROUP 1</b> Static tests at 25°C	0	116			
<b>SUBGROUP 2</b> Static tests at maximum rated operating temperature	0	116			
<b>SUBGROUP 3</b> Static tests at minimum rated operating temperature	0	116			
<b>SUBGROUP 4</b> Dynamic tests at 25°C	0	116			
<b>SUBGROUP 5</b> Dynamic tests at maximum rated operating temperature	0	116			
<b>SUBGROUP 6</b> Dynamic tests at minimum rated operating temperature	0	116			
<b>SUBGROUP 7</b> Functional tests at 25°C	0	116			
<b>SUBGROUP 8</b> Functional tests at maximum and minimum operating temperature	0	116			
<b>SUBGROUP 9</b> Switching tests at 25°C	0	116			
<b>SUBGROUP 10</b> Switching tests at maximum rated operating temperature	0	116			
<b>SUBGROUP 11</b> Switching tests at minimum rated operating temperature	0	116			

EXAMPLE

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 #
<b>SUBGROUP 2</b> Resistance to Solvents	2015			0	3			
<b>SUBGROUP 3</b> Solderability	2003	Soldering Temp. of 245°C ± 5°C	10	0				
<b>SUBGROUP 5</b> 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 #
<b>SUBGROUP 1</b> Steady State Life Test Electrical Endpoints	1005	T <sub>A</sub> = 125°C (1000 Hours or Equiv.) Test #	5	0	45			

QA APPROVAL: \_\_\_\_\_ DATE: \_\_\_\_\_

FORM No. 00-03-6007

# MILITARY PRODUCTS

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

EXAMPLE

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

**EXAMPLE**

QA APPROVAL: \_\_\_\_\_ DATE: \_\_\_\_\_

# MILITARY PRODUCTS

## MILITARY PARTS LIST

<b>JAN S QPL</b>	JM38510/10103SGA (LM101AH) JM38510/10103SHA (LM101AW) JM38510/10103SPA (LM101AJ8) JM38510/10104SCA (LM108AJ) JM38510/10104SGA (LM108AH) JM38510/10104SHA (LM108AW) JM38510/10104SPA (LM108AJ8) JM38510/10107SGA (LM1118H) 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)	
<b>JAN B QPL</b>	JM38510/10103BCA (LM101AJ) JM38510/10103BGA (LM101AH) JM38510/10103BHA (LM101AW) JM38510/10103BIA (LM101AJ8) JM38510/10104BCA (LM108AJ) JM38510/10104BGA (LM108AH) JM38510/10104BPA (LM108AJ8) JM38510/10106BEA (LH2108AD) JM38510/10107BCA (LM1118J) JM38510/10107BGA (LM1118H) 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)	
<b>DESC Drawings</b>	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)	
<b>Standard Military Drawings (SMD)</b>	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) 5962-8687701CA (OP227AJ) 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 (LM110H) 5962-8760401PA (LM10J8) 5962-8766601YA (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) 5962-8775101YA (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) 5962-8875101YA (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 (LTC1052MJ8) 5962-8978201PA (LTC1052MJ8) 5962-8980201XA (LT1031BMH) 5962-8980202XA (LT1031CMH) 5962-8980203XA (LT1031DMH) 5962-8983002RA (LTC1290BMJ) 5962-8983003RA (LTC1290DMJ) 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) 5962-9073902MCA (LT1084-5MK) 5962-9073903MCA (LT1085-5MK) 5962-9073904MCA (LT1086-5MK) 5962-9081701MCA (LT1057AMH) 5962-9081701MPA (LT1057AMJ8) 5962-9081702MCA (LT1057MH) 5962-9081702MPA (LT1057MJ8) 5962-9082501MCA (LT1070MK) 5962-9082502MCA (LT1071MK) 5962-9082503MCA (LT1072MK)	5962-9082503MCA (LT1072MJ8) 5962-9082504MCA (LT1070HVMK) 5962-9082505MCA (LT1071HVMK) 5962-9082506MCA (LT1072HVMK) 5962-9084101MCA (LT1020MJ) 5962-9084201MCA (LT1012MH) 5962-9084201MPA (LT1012MJ8) 5962-9084202MCA (LT1012AMH) 5962-9084202MPA (LT1012AMJ8) 5962-9159501MCA (LTC1062MJ8) 5962-9161901MCA (LTC1042MJ8) 5962-9163201MCA (LT1079MJ) 5962-9163202MCA (LT1079AMJ8) 5962-9163203MCA (LT1078MJ) 5962-9163204MCA (LM134H-6) 5962-9163204MCA (LT1078AMH) 5962-9163204MCA (LT1078AMJ8) 5962-9172901MCA (LT1180MJ) 5962-9172902MCA (LT1181MJ) 5962-9172903MCA (LT1280MJ) 5962-9172904MCA (LT1281MJ) 5962-9207901MCA (LT1172MJ8) 5962-9207901MPA (LT1172MJ8) 5962-9208001MCA (LTC485MJ8) 5962-9305701MCA (LTC1291CMJ8) 5962-9305702MCA (LTC1292CMJ8) 5962-9305703MCA (LTC1293CMJ8) 5962-9305704MCA (LTC1294CMJ8) 5962-9311901MCA (LT1076MK) 5962-9311902MCA (LT1076HVMK) 5962-9318401MCA (LT1229MJ8) 5962-9318402MCA (LT1011MH) 5962-9319001MCA (LT1241MJ8) 5962-9319002MCA (LT1242MJ8) 5962-9319003MCA (LT1243MJ8) 5962-9319004MCA (LT1244MJ8) 5962-9319005MCA (LT1245MJ8) 5962-9321201MCA (LT1111MJ8) 5962-9322401MCA (LT120M) 5962-9323801MCA (LT1125MJ) 5962-9323802MCA (LT1124MJ8) 5962-9323803MCA (LT1125AMJ) 5962-9323804MCA (LT1124AMJ8) 5962-9451601MCA (LT118AJ8) 5962-9460001MCA (LTC1051MH) 5962-9460002MCA (LTC1051AMH) 5962-9470901MCA (LTC1041MJ8)	
<b>Radiation Hardened</b>	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

