

High-Performance/High-Reliability Semiconductor Discrete Devices

Proven Performance and Leadership

As a world-class supplier of RF microwave components for today's wireless communication systems, Skyworks continues to deliver the highest performance Silicon and GaAs discrete products. Building on a proven legacy (which includes products developed at Alpha Industries prior to its merger with Skyworks), these innovative solutions are manufactured using the most advanced processes, driven by decades of experience and industry leadership.

With market demands constantly changing, Skyworks is committed to expanding its microwave portfolio to meet a wider range of applications including radar, point-to-point, point-to-multipoint, cellular, military, space-based communications, and other wireless microwave functions. As always, all of our solutions are backed by world-class customer service, advanced manufacturing capabilities, and leadership technology.

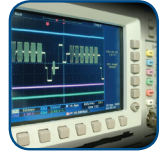
The Right Design Choice Starts Here

We invite you to review our complete catalog of packaged and unpackaged semiconductor diodes, passive elements, and switches for specific RF and microwave applications. Products include silicon varactors, PIN diodes, Schottky diodes, GaAs Schottky diodes, passive elements, and PHEMT-based switches. Design engineers will find this catalog especially useful in finding the key specifications for Skyworks' semiconductor products to easily select appropriate part numbers.

For more information—including how we can help you design the perfect solution for your application—contact our dedicated team of engineers at sales@skyworksinc.com. They have the experience and technical expertise to answer any of your questions.

Visit www.skyworksinc.com for regularly updated technical data, application notes, and new product information.

- **Silicon Diodes:** Limiter, PIN, Schottky, Varactor
- **Silicon Passive Devices:** Fixed Attenuator Pads, MIS Chip Capacitors
- **GaAs Schottky Diodes**
- **GaAs IC Switch Devices**



Certifications

As an industry leader, Skyworks has demonstrated its quality leadership and strengthened its commitment to customer satisfaction through formal, third-party registration to ISO 9001, ISO/TS 16949, ANSI/ESD S.20.20, and ISO 14001.

ISO 9001

ISO 9001 is an internationally recognized Quality Management System standard that promotes customer satisfaction through continual improvement of the system's effectiveness. ISO 9001 provides a model for a Quality Management System which focuses on the effectiveness of the processes in a business to achieve desired results. The standard promotes the adoption of a process approach emphasizing the requirements, added value, process performance and effectiveness, and continual improvement through objective measurements.

ANSI/ESD S.20.20

ANSI/ESD S.20.20 is a standard for the Development of an Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment. The standard covers the requirements necessary to design, establish, implement, and maintain an Electrostatic Discharge (ESD) Control Program.

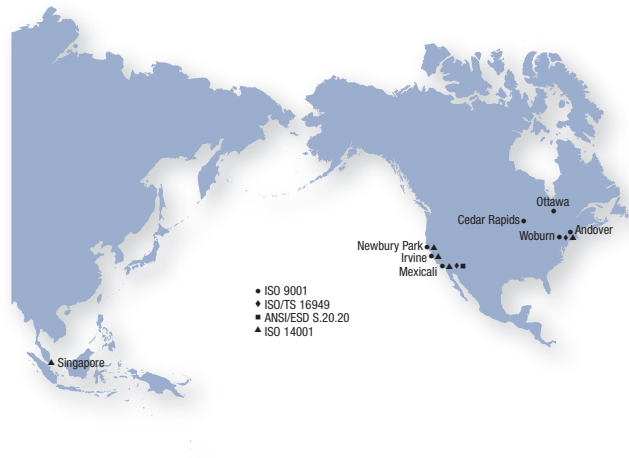
ISO/TS 16949

One of the major challenges facing today's manufacturers is that, even though there is a low failure probability for each individual component, the total failure probability for all parts combined may reach unacceptable levels. The ISO/TS 16949 standard answers this challenge by defining requirements focused on continual improvement, and the understanding of process interaction. It also creates an implementation framework for customer specific requirements, and includes clear requirements for development processes and techniques to prevent problems in the earliest possible stage of product development.

Jointly developed by International Automotive Task Force (IATF), ISO/TS 16949 is the automotive industry's international quality management system standard intended to answer the need for global consistency, continual improvement, and increased customer satisfaction. It is approved and released by the International Organization for Standardization (ISO).

ISO 14001

 Through our Green Initiative™, we are committed to manufacturing products that comply with global government directives and industry requirements.



What Certification Means to You

- Partnering with a company that has made a commitment to quality
- Doing business with an organization with a recognized management system model
- Assurance that necessary resources have been dedicated
- Consistent processes and products
- A management team that has established clear quality objectives and targets that are constantly monitored and analyzed
- Quality systems and procedures that are continuously audited and improved

Quality Policy

Skyworks has adopted a simple yet powerful quality policy that guides business decisions day-in and day-out.

Skyworks is committed to the never-ending quest for perfect quality.

Our ultimate goals:

- No Field Failures
- No Customer Returns
- No Reliability Failures
- No Yield Loss

ISO 14001:2004

As an industry leader, Skyworks is committed to the protection and preservation of the environment in all its business operations. We understand that our actions today can have environmental impacts tomorrow. Improvements at our facility will affect our customers and ultimately consumers. To this end, we have an established ISO 14001 certified Environment Management System by which we operate. We build products in consideration of regulatory and industry requirements, such as Restriction of Hazardous Substances Derivative (RoHS), and offer lead (Pb)-free, RoHS-compliant, and Green™ solutions to meet the needs of our customers in today's environmentally-conscious market.

Quality Testing Programs

Environmental and electrical tests are used to verify and improve the reliability of commercial semiconductor components.

Six Sigma

As we strive for continuous improvement, Skyworks has adopted the Six Sigma approach, a practical methodology that applies statistical tools and methods to aid in continuous process improvement.

Quality Conformance Testing

Quality conformance testing (also called lot acceptance testing), is testing performed on a sample of the lot to determine that the devices meet specified electrical and mechanical requirements.

Qualification Test

Qualification testing is used to determine that the manufacturer of a device can supply devices that meet the full electrical and environmental capability requirements of the customer's specification. Skyworks qualification testing is conducted according to JEDEC standards.

Ongoing Reliability Monitoring Program

The reliability monitor program is administered and executed by the Quality Assurance Department. The intent of this program is to:

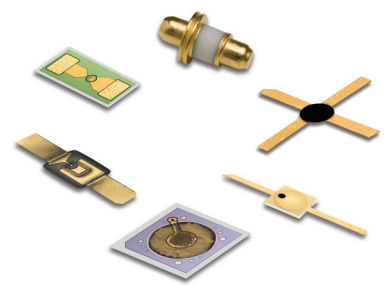
- Provide an ongoing evaluation of our product reliability.
- Maintain a pulse on the fabrication and assembly processes.
- Samples are selected quarterly from representative qualified products from the production line that have passed functional electrical test. The product selection lists will include considerations for forecasted product volume and customer requests.

Please refer to Table 1 for quality testing, and Table 2 for ongoing reliability monitoring program information.

Wide Variety of Devices for High-Performance Applications

Skyworks offers a variety of hermetic and epoxy packaged devices, as well as unpackaged dice and beam-leads, in various configurations for all your high-performance applications from low frequency to 100 GHz. For more information, please refer to Skyworks' complete catalog of packaged and unpackaged semiconductors, *Semiconductor Discretes for RF-Microwave Applications*, CAT501-09A.

- Silicon Diodes: Limiter, PIN, Schottky, Varactor
- GaAs Schottky Devices
- Silicon Passive Devices: Fixed Attenuator Pads, MIS Chip Capacitors
- GaAs IC Switch Devices



When requested, Skyworks will perform JANS level high-reliability testing on packaged devices in accordance with MIL-PRF-19500 and Element Evaluation on unpackaged dice and beam-lead devices in accordance with MIL-PRF-38534. Skyworks also offers lot approval services for sensitive circuits.

Designer Kits Are Available

Skyworks Designer Kits feature samples of a variety of leading-edge components, with data sheets and comprehensive application notes supplied on CD. From amplifiers to front-end modules to varactor diodes, Skyworks designer kits allow you to quickly convert your creativity into working designs.

- KIT606-10A Silicon Limiter Diode Chips
- KIT601-10A MIS Chip Capacitors for Hybrid Circuit Applications
- KIT605-10A GaAs Schottky Diode Flip Chips for Mixer and Detector Applications
- KIT619-10A Fixed Attenuator Pads (ATN3590)
- KIT604-10A Silicon PIN Beam-Lead Diodes for High Frequency Switch Applications
- KIT603-10A Silicon PIN Diode Chips for Switch and Attenuator Applications
- KIT607-10A Silicon Schottky Diode Chips for Mixer and Detector Applications
- KIT609-10A Varactor Diodes for VCO, Phase Shifter and Filtering Applications
- KIT616-10A Varactor Diodes: Hyperabrupt and Abrupt Chips for VCO and Phase Shifter Applications
- KIT615-09A RF Passive Devices
- KIT614-10A Diodes (SMT Limiter, PIN, Schottky, Varactor)
- KIT617-10A Smart Energy Solutions



Innovation to Go™ Designer Kits

Select products and sample/
designer kits available online.

www.skyworksinc.com



Table 1. Product Qualification Testing

Test	Quantity (SS x Lot)	Conditions	Standard	Endpoints	Accept Criteria
Dynamic operating life (HTOL)	77 x 1	T _{CASE} = 125 °C or T _J or T _{CH} = 150 °C; Depends on accel factor and life expectancy. Typically 1000 hours	JESD22-A108	Electrical test, pre and post stress with additional readpoints per qualification plan	0 fail/77
ESD – HBM	3 per level per partition	Post-zap 1 positive discharge and 1 negative discharge per pin for each pin combination	JESD22-A114	Electrical test, pre and post stress	Pass/fail criterion is ATE functional test w/production limits
ESD – MM	3 per level per partition	Post-zap 1 positive discharge and 1 negative discharge per pin for each pin combination	JESD22-A115	Electrical test, pre and post stress	Pass/fail criterion is ATE functional test w/production limits
ESD – CDM	3 per level	Post-zap 3 discharges per pin; field-induced, charge-discharge method	JESD22-C101	Electrical test, pre and post stress	Pass/fail criterion is ATE functional test w/production limits
Preconditioning	231 x 1	Sequence: visual inspection min. 25X, 24 hr bake at 125 °C, moisture soak per MSL, reflow 3x	JESD22-A113	Electrical test, pre and post stress	0 fail/231
HAST or THB or unbiased HAST or autoclave	77 x 1	96 hrs, 130 °C, 85% RH, 18.6 psig or 1000 hrs, 85 °C, 85% RH, or 96 hrs, 121 °C, 100% RH, 15 PSIG; preconditioned samples	JESD22 -A110 (HAST) -A101 (THB) -A102 (AC), -A118 (unbiased HAST)	Electrical test, pre and post stress	3% LTPD (0 fail/77)
Temperature cycling	77 x 1	-65 °C to +150 °C 500 cycles, or -55 °C to +125 °C 1000 cycles. Preconditioned samples	JESD22-A104	Electrical test, pre and post stress	3% LTPD (0 fail/77)
High temperature storage	77 x 1	150 °C 500 hours (preproduction) 1000 hours (production) Preconditioned samples	JESD22-A103	Electrical test, pre and post stress	3% LTPD (0 fail/77)

Table 2. Ongoing Reliability Monitoring Program

Test	Quantity	Standard	Endpoints	Accept Criteria
Dynamic operating life (HTOL)	77/lot	JESD22-A108	48 or 168 hours, and 1000 hours	0 fail/77
Preconditioning (PC)	154/lot	JESD22-A113	3X reflow	0 fail/154
HAST or unbiased HAST or autoclave	77/lot (from PC)	JESD22 -A110 (HAST) -A102 (AC), -A118 (unbiased HAST)	96 hours	3% LTPD (0 fail/77)
Temperature cycling	77/lot (from PC)	JESD22-A104	500 cycles	3% LTPD (0 fail/77)

*Temp. cycle and THB/autoclave will be redone if the moisture sensitivity classification changes, otherwise these tests are repeated each year.

ESD Awareness

Skyworks deploys state-of-the-art ESD controls from wafer fabrication through to assembly, test, and pack. In order to maintain device integrity, Skyworks has outlined critical ESD guidelines that should be followed as a minimum. Skyworks adheres to the requirements outlined in MIL-HDBK-263, MIL-STD-1686 and ESD Association 2.0 Handbook. GaAs products can be damaged at ESD voltages in the 250 V range. In this case, strict adherence to ESD Class 0 guidelines is recommended.

Device Handling

Remove ESD-sensitive devices from protective containers at approved ESD work stations only.

ESD wrist straps are required when handling devices outside their ESD-protective packaging.

All personnel shall be properly grounded (footstraps/wrist straps) prior to opening static shielding bags.

ESD-sensitive devices should always be handled by the part body. Avoid touching the leads. When hand tools are required to accomplish an operation, use only tools that are dissipative, conductive, or treated with topical antistat.

ESD Workstation

Your ESD-safe work area should follow the requirements outlined in MIL-HDBK-263 and ESD Association Handbook 2.0. The following requirements are strongly recommended:

Personnel

The use of constant wrist strap monitors is highly recommended. This monitor guarantees that the connection to ground is continuously made. An alarm will sound when that connection is broken.

Clothing

An ESD-protective garment (smock, etc.) shall be used at the workstation. While a person may be grounded using a wrist strap or foot strap, that does not ensure that certain clothing fabrics can dissipate a charge to ground. The use of a conductive smock is required.

Floors

Conductive or dissipative ESD flooring shall be utilized whenever possible. This flooring shall be checked for ESD properties on a regular basis.

Work Surfaces

Your ESD work surface shall be covered with soft dissipative material. This surface shall be tied to earth ground and shall be configured in a common point ground. In addition, the work surface shall be free of any static generating material, such as nonessential plastics, or cellophane tape.

Equipment

All equipment used to process ESD-sensitive devices shall be checked for the generation of static charging. Whether soldering irons, wave solder machines, device insertion machines or test equipment, the generation of static electricity is of concern.

ESD Component Classifications

ESD-sensitive components are classified according to their ESD withstand voltage using the test procedure described in this standard. The HBM ESDS components classification levels are shown in Table 3. Screening requirements and inspection information are shown in Table 4.

Table 3. ESD Component Classification

JEDEC Standard	Test	Class	Voltage Range
JESD22-C101	Charged-Device Model CDM	1	<200 V
JESD22-C101	Charged-Device Model CDM	2	200–500V
JESD22-C101	Charged-Device Model CDM	3	500–1000 V
JESD22-C101	Charged-Device Model CDM	4	>1000 V
JESD22-A114	Human Body Model HBM	0	<250 V
JESD22-A114	Human Body Model HBM	1A	250–500 V
JESD22-A114	Human Body Model HBM	1B	500–1000 V
JESD22-A114	Human Body Model HBM	1C	1000–2000 V
JESD22-A114	Human Body Model HBM	2	2000–4000 V
JESD22-A114	Human Body Model HBM	3A	4000–8000 V
JESD22-A114	Human Body Model HBM	3B	>8000 V
JESD22-A115	Machine Model (MM)	A	< 200 V
JESD22-A115	Machine Model (MM)	B	200–400 V
JESD22-A115	Machine Model (MM)	C	>400 V

Table 4. Screening Requirement in Accordance with Table E-IV-MIL-PRF-19500

Step	Process	Conditions	Comments	JANS	JANTXV	JANTX
1	Visual Inspection	MIL-STD-750 – Method 2073		•	•	•
2	Pre-Cap Inspection	MIL-STD-750 – Method 2070		•	•	
3	High-Temperature Bake	MIL-STD-750 – Method 1032	t = 340 Hrs.	•	•	•
4	Temperature Cycling	MIL-STD-750 – Method 1051	20 Cycles. Condition C	•	•	•
5	Thermal Impedance	MIL-STD-750 – Method 3101		•	•	•
6	Constant Acceleration	MIL-STD-750 – Method 2006	20,000Gs Min., Y1 Axis Only	•	•	•
7	PIND	MIL-STD-750 – Method 2052	Condition A	•		
8	Initial Electrical Test		Serialize, Read & Record	•	•	•
9	High-Temperature Reverse Bias	MIL-STD-750 – Method 1038	Condition A, t = 48 Hrs.	•	•	•
10	Interim Electricals		Read and Record	•	•	•
11	Burn-in	MIL-STD-750 – Method 1038	Condition B, (JANS t = 240 Hrs., JANTX & JANTXV t = 96 Hrs.)	•	•	•
12	Final Electrical Test		Group A, Subgroup 2 and 3. Read and Record	•	•	•
13	Delta Calculation		Compare Interim Test to Final Test	•	•	•
14	PDA		Percent Defective Allowable (JANS = 5% Max.; JANTX and JANTXV = 10% Max.)	•	•	•
15	Fine Leak	MIL-STD-750 – Method 1071	Condition H	•	•	•
16	Gross Leak	MIL-STD-750 – Method 1071	Condition C	•	•	•
17	X-Ray	MIL-STD-750 – Method 2076		•		
18	External Visual Inspection	MIL-STD-750 – Method 2071		•	•	•

Group A Inspection in Accordance with Table E-V-MIL-PRF-19500

Subgroup 1						
1	Visual and Mechanical Inspection	MIL-STD-750 – Method 2071	Sample Size: JANS = 15(0), JANTX and JANTXV = 45(0)	•	•	•
Subgroup 2						
1	Electrical Testing		DC (static) @ T _A = 25 °C, Sample Size = 116(0)	•	•	•
Subgroup 3						
1	Electrical Testing		DC (static) @ Min. and Max. Operating Temp., Sample Size = 116(0)	•	•	•
Subgroup 4						
1	Electrical Testing		Dynamic @ T _A = 25 °C, Sample Size = 116(0)	•	•	•
Subgroup 5 – Not Applicable						
Subgroup 6 – Not Applicable						
Subgroup 7 – Not Applicable						

Group B Inspection for JANS Devices in Accordance with Table E-VIA-MIL-PRF-19500

Step	Process	Conditions	Comments	JANS	JANTXV	JANTX
Subgroup 1						
1	Physical Dimensions	MIL-STD-750 – Method 2066	Sample Size – Large Lot = 22(0), Small Lot = 8(0)	•		
Subgroup 2						
1	Solderability	MIL-STD-750 – Method 2026	Sample Size – Large Lot = 15(0), Small Lot = 6(0)	•		
2	Resistance to Solvents	MIL-STD-750 – Method 1022	Sample Size – Large Lot = 15(0), Small Lot = 6(0)	•		
Subgroup 3						
1	Temperature Cycling	MIL-STD-750 – Method 1051	100 Cycles. Condition C, Sample Size – Large Lot= 22(0), Small Lot = 6(0)	•		
2	Fine Leak	MIL-STD-750 – Method 1071	Condition H, Sample Size – Large Lot= 22(0), Small Lot = 6(0)	•		
3	Gross Leak	MIL-STD-750 – Method 1071	Condition C, Sample Size – Large Lot= 22(0), Small Lot = 6(0)	•		
4	Electrical Testing		DC @ T _A = 25 °C, Sample Size – Large Lot = 22(0), Small Lot = 6(0)	•		
5	Decap Internal Visual	MIL-STD-750 – Method 2075	Sample size = 6(0)	•		
6	Bond Strength	MIL-STD-750 – Method 2037	Condition D, Sample Size – Large Lot = 22 Wires (0), Small Lot = 12 wires (0)	•		
7	Die Shear	MIL-STD-750 – Method 2017	Condition D, Sample Size = 6 Wires (0)	•		
Subgroup 4						
1	Intermittent Operation Life	MIL-STD-750 – Method 1037	2,000 Cycles. Condition D, Sample Size – Large Lot = 22(0), Small Lot = 12(0)	•		
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size – Large Lot = 22(0), Small Lot = 12(0)	•		
Subgroup 5						
1	Accelerated Steady-State Operation Life	MIL-STD-750 – Method 1027	1,000 Hrs. Sample Size – Large Lot = 22(0), Small Lot = 12(0)	•		
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size – Large Lot = 22(0), Small Lot = 12(0)	•		
Subgroup 6						
1	Thermal Resistance	MIL-STD-750 – Method 4081	Sample Size – Large Lot = 22(0), Small Lot = 8(0)	•		
Subgroup 7						
1	High Temperature Life	MIL-STD-750 – Method 1032	t = 340 Hrs. @ Max. Rated Storage Temp., Large Lot = 32(0), Small Lot = 12(0)	•		
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size – Large Lot = 22(0), Small Lot = 12(0)	•		

Group B Inspection for JANTX and JANTXV in Accordance with Table E-VIB-MIL-PRF-19500

Step	Process	Conditions	Comments	JANS	JANTXV	JANTX
Subgroup 1						
1	Solderability	MIL-STD-750 – Method 2026	Sample Size = 15(0) Leads, Small Lot = 4 (0) Leads		•	•
2	Resistance to Solvents	MIL-STD-750 – Method 1022	Sample Size = 15(0), Small Lot = 3(0)		•	•
Subgroup 2						
1	Temperature Cycling	MIL-STD-750 – Method 1051	25 Cycles. Condition C, Sample Size = 22(0), Small Lot 6(0)		•	•
2	Fine Leak	MIL-STD-750 – Method 1071	Condition H, Sample Size = 22(0), Small Lot 6(0)		•	•
3	Gross Leak	MIL-STD-750 – Method 1071	Condition C, Sample Size = 22(0), Small Lot = 6(0)		•	•
4	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 22(0), Small Lot = 6(0)		•	•
Subgroup 3						
1	Steady-State Operation Life	MIL-STD-750 – Method 1027	t = 340 Hrs. Sample Size = 45(0), Small Lot = 12(0)		•	•
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 45(0), Small Lot = 12(0)		•	•
3	Bond Strength	MIL-STD-750 – Method 2037	Sample Size = 11 Wires(0)		•	•
Subgroup 4						
1	Decap Internal Visual	MIL-STD-750 – Method 2075	Sample Size = 1(0)		•	•
Subgroup 5						
1	Thermal Resistance	MIL-STD-750 – Method 4081	Sample Size = 15(0), Small Lot = 6(0)		•	•
Subgroup 6						
1	High Temperature Life	MIL-STD-750 – Method 1032	t = 340 Hrs. @ Max. Rated Storage Temp., Sample Size = 32(0), Small Lot = 12(0)		•	•
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 32(0), Small Lot = 12(0)		•	•

Group C Inspection in Accordance with Table E-VII-MIL-PRF-19500

Step	Process	Conditions	Comments	JANS	JANTXV	JANTX
Subgroup 1						
1	Physical Dimensions	MIL-STD-750 – Method 2066	Sample Size = 15(0), Small Lot = 6(0)		•	•
Subgroup 2						
1	Thermal Shock	MIL-STD-750 – Method 1056	Sample Size = 22(0), Small Lot = 6(0)	•	•	•
2	Temperature Cycling	MIL-STD-750 – Method 1051	25 Cycles. Condition C, Sample Size = 22(0), Small Lot = 6(0)	•	•	•
3	Terminal Strength	MIL-STD-750 – Method 2036	Sample Size = 22(0), Small Lot = 6(0)	•	•	•
4	Fine Leak	MIL-STD-750 – Method 1071	Condition H, Sample Size = 22(0), Small Lot = 6(0)	•	•	•
5	Gross Leak	MIL-STD-750 – Method 1071	Condition C, Sample Size = 22(0), Small Lot = 6(0)	•	•	•
6	Moisture Resistance	MIL-STD-750 – Method 1021	Sample Size = 22(0), Small Lot = 6(0)	•	•	•
7	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 22(0), Small Lot = 6(0)	•	•	•
Subgroup 3						
1	Shock	MIL-STD-750 – Method 2016	1,500Gs, X1, Y1 & Z1. Sample Size = 22(0), Small Lot = 6(0)	•	•	•
2	Vibration, Variable Frequency	MIL-STD-750 – Method 2056	Sample Size = 22(0), Small Lot = 6(0)	•	•	•
3	Constant Acceleration	MIL-STD-750 – Method 2006	20,000Gs, X1, Y1 & Z1. Sample Size = 22(0)	•	•	•
4	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 22(0), Small Lot = 6(0)	•	•	•
Subgroup 4						
1	Salt Atmosphere	MIL-STD-750 – Method 1041	Sample Size = 15(0), Small Lot = 6(0)	•	•	•
Subgroup 5						
1	Thermal Resistance	MIL-STD-750 – Method 4081	Sample Size = 15(0), Small Lot = 6(0)	•	•	•
Subgroup 6						
1	Steady-State Operation Life	MIL-STD-750 – Method 1026	1,000 Hrs. Sample Size = 22(0), Small Lot = 12(0)	•	•	•
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 22(0), Small Lot = 12(0)	•	•	•
Subgroup 7						
1	Internal Water Vapor	MIL-STD-750 – Method 1018	Sample Size = 3(0) (Hermetic Packages Only)	•	•	•

Group E Inspection in Accordance with Table E-IX-MIL-PRF-19500

Step	Process	Conditions	Comments	JANS	JANTXV	JANTX
Subgroup 1						
1	Temperature Cycling	MIL-STD-750 – Method 1051	500 Cycles. Condition C, Sample Size = 45(0)	•	•	•
2	Fine Leak	MIL-STD-750 – Method 1071	Condition H, Sample Size = 45(0)	•	•	•
3	Gross Leak	MIL-STD-750 – Method 1071	Condition C, Sample Size = 45(0)	•	•	•
4	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 45(0)	•	•	•
Subgroup 2						
1	Steady-State Operation Life	MIL-STD-750 – Method 1026	t = 1,000 Hrs. Sample Size = 45(0)	•	•	•
2	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 45(0)	•	•	•
Subgroup 3 – Not Applicable						
Subgroup 4						
1	Thermal Impedance			•	•	•
Subgroup 5 – Not Applicable						
Subgroup 6						
1	ESD	MIL-STD-750 – Method 1020	Sample Size = 3(0)	•	•	•
Subgroup 7						
1	Resistance to Soldering Heat	MIL-STD-750 – Method 2031	Sample Size = 3(0)	•	•	•
2	External Visual Inspection	MIL-STD-750 – Method 2071	Sample Size = 3(0)	•	•	•
3	Fine Leak	MIL-STD-750 – Method 1071	Condition H, Sample Size = 3(0)	•	•	•
4	Gross Leak	MIL-STD-750 – Method 1071	Condition C, Sample Size = 3(0)	•	•	•
5	Electrical Testing		DC @ T _A = 25 °C, Sample Size = 3(0)	•	•	•
Subgroup 8 – Not Applicable						
Subgroup 9 – Not Applicable						

Table 5. High-Reliability Product Flow for Element Evaluation

Product	MIL-PRF-38534	Application
Bare Die	Class H Class K	Military Space

Skyworks provides discrete “bare die” and beam-lead products with Class H and Class K element evaluation (see Table 5) in accordance with MIL-PRF-38534 Table 6 for microcircuit and semiconductor die, and Table 7 for passive devices.

- IE: CLA4601-000 = Commercial Product Flow
 CLA4601H000 = Class H
 CLA4601K000 = Class K

Table 6. Chip Element Evaluation for Microcircuits and Semiconductors

Test Inspection	MIL-STD-883		Requirement	
	Method	Condition	Class H	Class K
Element Electrical	Per Product Specification	On-wafer	100%	100%
Element Visual	2010	A = Class K B = Class H	100%	100%
Internal Visual	2010		10/0	10/0
Stabilization Bake	1008	C	N/A	10/0
Temperature Cycling	1010	C	N/A	10/0
Mechanical Shock or Constant Acceleration	2002 2001	B, Y1 Direction A, Y1 Direction	N/A	10/0 10/0
Interim Electrical	Per Product Specification	25 °C, Min. and Max. Operating Temps.	N/A	
Burn-in	1015	240 Hrs. Min. @ 125 °C	N/A	10/0
Post Burn-in Electrical	Per Product Specification	25 °C, Min. and Max. Operating Temps.	N/A	10/0
Steady-State Life	1005	1,000 Hrs. Min. @ 125 °C	N/A	10/0
Final Electrical	Per Product Specification	25 °C, Min. and Max. Operating Temps.	10/0	10/0
Wire Bond Evaluation	2011	C	10/0	10/0
SEM	2018		N/A	4/0

Table 7. Chip Element Evaluation for Passive Devices

Subgroup	Class		Test	MIL-STD-883		Quantity (Accept Number) Condition	Reference Paragraph
	K	H		Method			
1	•	•	Element Electrical			100%	C.3.4.1
2	•	•	Visual Inspection	2032		100% 22 (0)	C.3.4.2
3	•	•	Temperature Cycling	1010	C	10 (0)	C.3.4.3
			Mechanical Shock or Constant Acceleration	2002 2001	B, V1 Direction 3,000Gs Y1 Direction	10 (0) 10 (0)	
			Voltage Conditioning or Aging (Capacitors)			10 (0)	
			Visual Inspection	2032		10 (0)	C.3.4.5
			Electrical			10 (0)	C.3.4.4
4	•	•	Wire Bond Evaluation	2011		10 (0) Wires or 20 (1) Wires	C.3.4.3 C.3.4.6



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