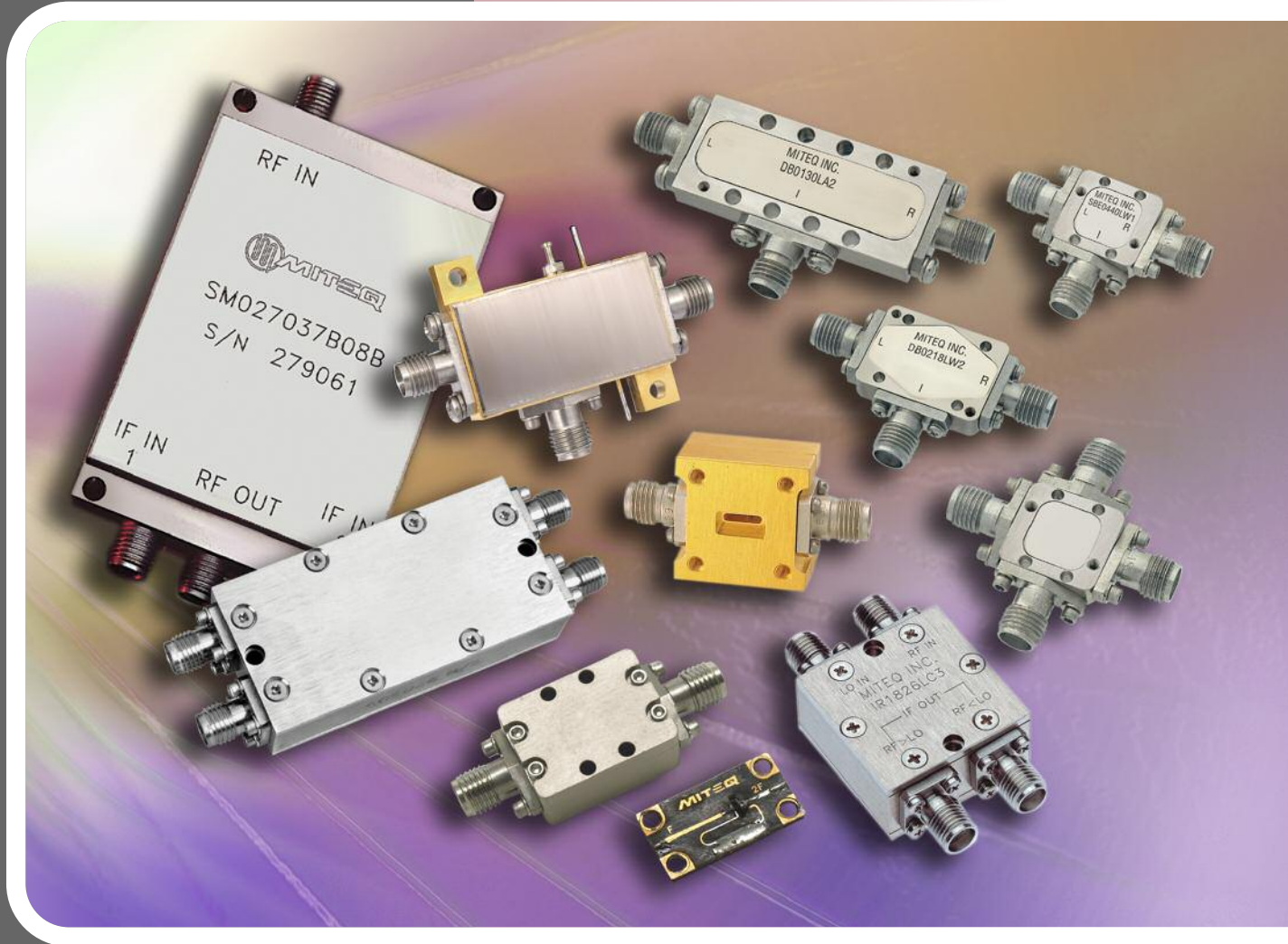


**MICROWAVE AND  
MILLIMETER-WAVE  
CONVERSION PRODUCTS**

**Quality  
Assurance**



- **MIXERS**
- **IMAGE REJECTION MIXERS**
- **MODULATORS**
- **MULTIPLIERS**
- **CUSTOM PRODUCTS**



**MITEQ**

100 Davids Drive, Hauppauge, NY 11788

• TEL: (631) 439-9220 • FAX: (631) 436-7430

[www.miteq.com](http://www.miteq.com)

## QUALITY ASSURANCE

### QUALITY ASSURANCE

MITEQ believes that quality must be built into all of the products that we manufacture. As such, we take extreme care in maintaining a complete and detailed product assurance program. Our product quality is structured to and operates within the precepts of ISO 9001 and to MIL-I-45208. This, in turn, allows us to meet the rigorous requirements generated by our customers in the aerospace, military, and commercial sectors. Internal procedures are used to relate all functions affecting quality, from initial design through final acceptance. These procedures detail the responsibilities and functions necessary to maintain effective controls and to provide a means for evaluating quality disciplines during all phases of a job's performance.

Beginning with the audit of the customer's contract, our Quality Assurance Department will review and evaluate the contract and all of the specifications applicable to the job. Quality requirements and characteristics are highlighted and adequate plans are implemented to ensure the incorporation of all aspects pertaining to overall product quality. Quality assurance activities will be coordinated with engineering, manufacturing, and procurement during all phases of an order to ensure the transmittal of complete quality information to all manufacturing centers and inspection stations in a manner consistent with schedule requirements.

MITEQ, through our Quality Assurance and Purchasing Departments, is responsible for the quality of all purchased items. Procurement sources will

be selected and approved, based upon the supplier's quality history records, facility and quality system surveys, or coordinated industry records. Approved sources will be required to maintain a quality program that is commensurate with the requirements of the items being purchased and in compliance with the contract.

Copies of MITEQ's Quality Manual and Workmanship Standard, that define the methods used for both quality and process control, are available upon request.

### TEST EQUIPMENT

MITEQ maintains a complete inventory of the latest state-of-the-art mechanical, electrical, and manufacturing test equipment. Equipment calibration and maintenance is performed and is traceable to the requirements of MIL-STD-45662A.

## MEAN TIME BETWEEN FAILURE (MTBF)

For the past 35 years, MITEQ has supplied thousands of different models of microwave mixers to the industry.

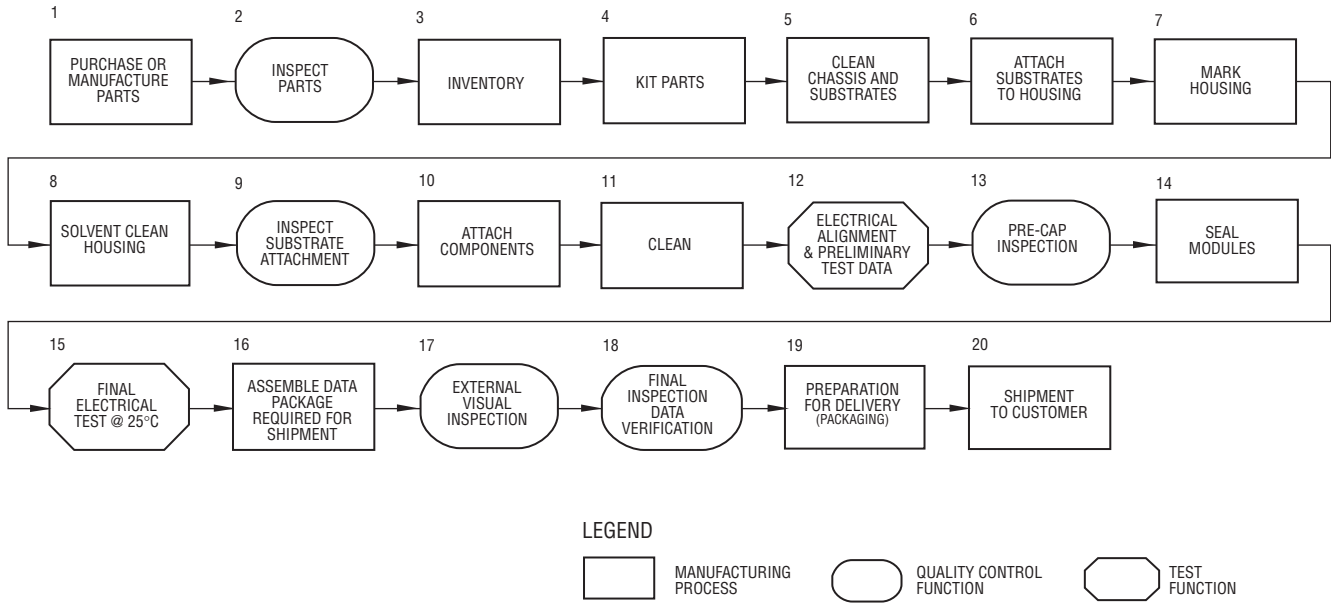
Reliability calculations have been performed in accordance with MIL-HDBK-217F for ground benign equipment at 25°C. From these calculations MITEQ has concluded that these mixers are extremely reliable.

Model Series	Description	Environment	Temperature	TYP. MTBF
DB	Double-Balance Mixer	Ground Fixed (GF <sub>F</sub> )	+40 deg C	4,700,000 HRS.
DM	Double-Balance Mixer	Ground Fixed (GF <sub>F</sub> )	+40 deg C	4,200,000 HRS
TB	Triple-Balance Mixer	Ground Fixed (GF <sub>F</sub> )	+40 deg C	4,775,000 HRS.
IR	Image Reject Mixer	Ground Fixed (GF <sub>F</sub> )	+40 deg C	2,005,550 HRS.
SSM	Single-Sideband Modulator	Ground Fixed (GF <sub>F</sub> )	+40 deg C	2,005,550 HRS.
SDM	QPSK Modulator	Ground Fixed (GF <sub>F</sub> )	+40 deg C	2,005,550 HRS.
DB	Double-Balance Mixer	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	400,000 HRS.
DM	Double-Balance Mixer	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	370,000 HRS.
TB	Triple-Balance Mixer	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	420,000 HRS.
IR	Image Reject Mixer	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	175,000 HRS.
SSM	Single-Sideband Modulator	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	175,000 HRS.
SDM	QPSK	Airborne Uninhabited Fighter (A <sub>UF</sub> )	+85 deg C	175,000 HRS.

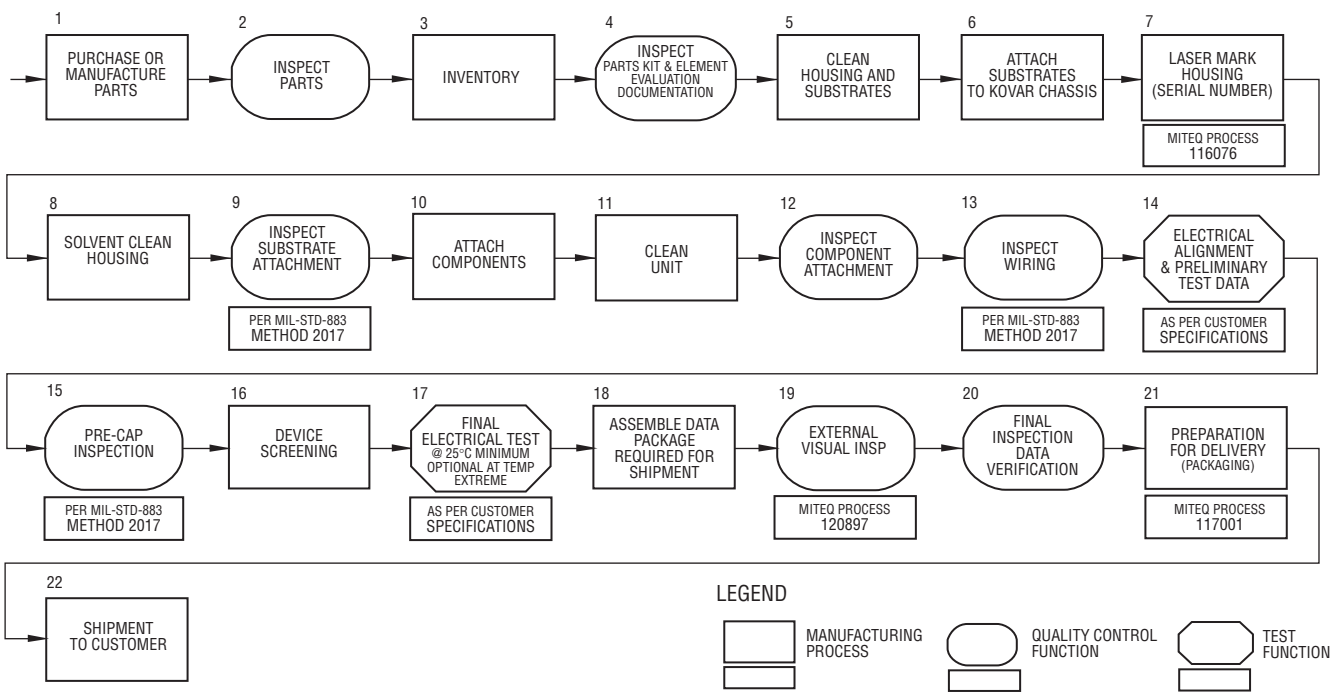
# MIXER MANUFACTURING FLOW DIAGRAMS

The following diagrams depict the process flow for both our commercial and high-reliability mixers:

## COMMERCIAL GRADE MIXERS



## HIGH RELIABILITY HERMETICALLY SEALED MIXERS



FOR MIL-PRF-38534 CLASS K RADIOGRAPHIC INSPECTION REQUIRED ALSO

FOR MIL-PRF-38534 CLASS K 100% WIRE BOND PULL REQUIRED

IF REQUIRED BY CONTRACT

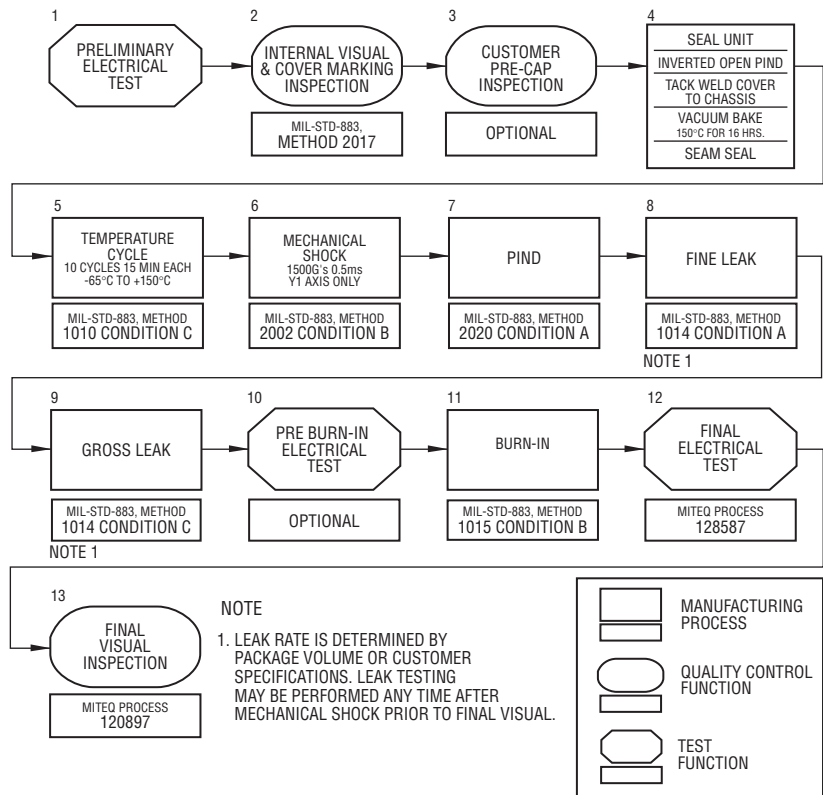


## DEVICE 883 SCREENING

MITEQ maintains an assortment of its own environmental testing equipment to further ensure product quality and facilitate the testing of our products. Our environmental lab is capable of testing the following:

- Mechanical shock
- Vibration
- Burn-in
- Temperature cycling
- Thermal shock
- Gross leak
- Fine leak

The optional device screening shown here is as per MIL-PRF-38534E Table C-1X Class H and MITEQ Traveler.



## GENERAL SPECIFICATIONS

MITEQ's standard mixers have been designed to meet the following environmental conditions:

Operating temperature..... -54 to +85°C  
 Storage temperature..... -65 to +125°C  
 Humidity ..... 95% relative humidity, noncondensing

Vibration..... 7 g's rms, 50-5000 CPS, per MIL-STD-810B, Method 514, Procedure 5

Data curves are at 25°C..... There will be some variation in the typical data shown as a function of temperature