

## Device Screening Summary

Spectrum Microwave is equipped to perform screening of our Hybrid Microelectronic Devices. When required by the customer's purchase order or procurement document, MIL-PRF-38534 Class-H Screening is performed on-site and as outlined in the following table.

TABLE C-IX. Device screening.

Test or inspection	MIL-STD-883		Requirement		Reference paragraph
	Method	Condition	Class K	Class H	
Preseal burn-in	1030		Optional	Optional	C.5.3
Nondestructive bond pull	2023		100 percent	N/A	C.5.4
Internal visual	2017		100 percent	100 percent	C.5.5
Temperature cycling	1010	C 10 cycles	100 percent	100 percent	C.5.6
Mechanical shock or constant acceleration	2002 2001	B, (Y1 direction only) 3,000 g's, Y1 direction only	100 percent	100 percent	C.5.6
PIND	2020	Condition A shall be used for Class K, unless otherwise specified	100 percent	N/A	C.5.7
Pre-burn-in Electrical	In accordance with applicable device specification		100 percent	optional	C.5.8
Burn-in	1015		100 percent	100 percent	C.5.9
Final electrical test	In accordance with applicable device specification		100 percent	100 percent	C.5.10
Seal (fine and gross)	1014		100 percent	100 percent	C.5.11
Radiographic	2012		100 percent	N/A	C.5.12
External visual	2009		100 percent	100 percent	C.5.13

### MIL-STD-883 Test Method Notes:

- **Temperature Cycling.** Condition-C of Test Method 1010 in MIL-STD-883 consists of 10 Temperature Cycles ranging from -65°C to +150°C; DC Bias is not applied during this screening step.
- **Constant Acceleration.** The above table gives the manufacturer the choice of performing Mechanical Shock or Constant Acceleration. Spectrum Microwave performs constant acceleration at 5,000 g's in the Y1 Axis even though the above table from MIL-PRF-38534 only requires the screening step be performed at 3,000 g's.
- **Burn-In.** Device is DC biased during this screening step while being exposed to a case temperature of +125°C for 160 hours. Lower temperatures (i.e., Operating Temp.) are used only if specified by the customer's purchasing agreement or procurement document.
- **Fine Leak and Gross Leak.** Hermetic Seal Integrity is confirmed by Condition-C (Perfluorocarbon) Gross Leak Testing, and Condition A1 Fine Leak Testing using a Helium Tracer Gas.

## Device Screening Summary (Continued)

### Standard Component Orders.

Standard components are defined as part numbers that are ordered directly from Spectrum Microwave's data book. The Spectrum Microwave part number found in the data book will be listed on the customer's purchase order; this type of order will not flow-down the requirements of a customer generated procurement document (such as a Specification Control Drawing).

The following table provides a summary of the basic environmental tests that are performed on hybrid devices that are manufactured for a standard component order:

#### Temperature Cycling

5 Cycles ranging from -65°C to +150°C with a 15 Minute Dwell at each temperature.  
DC Bias is not applied during temperature cycling.

#### Fine Leak and Gross Leak

Hermetic Seal Integrity is confirmed in accordance with MIL-STD-883 Test Method 1014, and includes Condition-C (Perfluorocarbon) Gross Leak Testing, and Condition A1 Fine Leak Testing using a Helium Tracer Gas.

#### Final Acceptance Testing

End Point Electrical tests are performed at room ambient conditions ( $\approx +25^{\circ}\text{C}$ ).  
Variables data is not recorded unless specified by customer.

Note: Standard pre-cap and final inspections are also performed (re. Traveler No. FLW21300003)

**Device Screening.** Customer's interested in placing a standard component order along with MIL-PRF-38534 Class-H Device Screening should advise their Spectrum Microwave Sales Associate at time of order placement or when requesting a quotation. When 100% device screening is required, Spectrum Microwave's Sales Associated will assign a part number that is slightly different then the part number listed in the data book.

As an example, a TM6121 part number would be changed to a SM6121 part number to denote device screening.

**Note ...** Customer's interested in device screening should still consult with their Spectrum Microwave Sales Associated. Simply changing the first character of the data book part number to a letter 'S' may not hold true for all component types.