Series 806
Mighty Mouse Mil-Aero Connectors

Space-grade Guidelines for Series 806 Connectors

Series 806 Connectors for Space Flight

The Series 806 is an ideal interconnect choice for space flight equipment. The series 806 features materials, finishes, and performance specifications that match MIL-DTL-38999 Class G space-grade connectors, except with higher density and lower weight.

Outgassing

Space flight equipment requires low-outgassing components in order to prevent degradation to optics and other sensitive instruments. Series 806 connectors contain nonmetallic materials such as rubber, plastic, adhesives and potting compounds which can give off gasses when subjected to a vacuum or high heat. Unless the connector is specially processed, the TML and CVCM can exceed allowable limits. The space industry has adopted a standardized test procedure, ASTM E595, to evaulate outgassing properties. The MIL-DTL-38999 specification Class G also details specific TVM and CVCM values. In Glenair's 429J process, for example, connectors and connector materials are heated to 175°C at a vacuum of 5 X 10^{-5} torr for 48 hours. Items under test are then weighed to calculate the Total Mass Loss (TML), which may not exceed 1.0% of the total initial mass. A collector plate is used to determine the Collected Volatile Condensable Material (CVCM), which may not exceed 0.1% of the total original specimen mass. Glenair is able to offer outgassing processes which assure all materials comply with their respective standards.

Note on Connector Material and Finish Options

Some types of metals are prohibited for space flight. "Cadmium, zinc, chemically coated cadmium or zinc, or silver shall not be used as a connector or contact finish" (NASA EEE-INST-002 Instructions for EEE Parts Selection, Screening, Qualification, and Derating). NASA recommends electroless nickel or gold finish on connector shells and gold finish for contacts.

Specifying a Space-grade Series 806 Connector

1 ***Choose a NASA EEE-INST-002 Table 2A screening level.*** This table contains three screening levels: ***Level 1*** for missions requiring the highest reliability and lowest level of risk, ***Level 2*** for low to moderate risk missions, and ***Level 3*** missions where enhanced screening and inspection is not invoked.

2 ***Choose outgassing process.*** Three options are available: no special processing, 48 hour bakeout, or thermal vacuum outgassing.

3 ***Select the modification code*** from the table and add it to the Series 806 part number. Example: 806-012-ME8-7PMA-**186T.**

Modification Codes for Nasa and D38999 Class G Levels

Screening Level	Screening Type	No Outgassing Processing	48 Hour Oven Bake 175° C 100%	Thermal Vacuum Outgassing 24 Hour 125° C 100%	Mod Code
3	Standard Reliability			●	186M
			●		186T
2	High Reliability	●			429
				●	429A
			●		429K
1	Highest Reliability	●			429B
				●	429C
			●		429J

NASA EEE-INST-02, TABLE 2A SCREENING LEVELS

Inspection	Level 1	Level 2	Level 3
Visual	100%	100%	100%
Mechanical	2	2	
Dielectric Withstanding Voltage	2	2	
Insulation Resistance	2	2	
Contact Engagement & Separation Force	2		
Hermeticity (Sealed Receptacles Only)	100%	100%	100%
Coupling Force	2		

Note: required inspection quantity is shown. Zero acceptance of failures allowed for all quantities inspected.