

7.1.2.2 JAN, JANTX, JANTXV, AND JANS SEMICONDUCTORS

Military grade high reliability screened semiconductors are procureable in accordance with MIL-S-19500 and designated as JANTX, JANTXV and JANS quality levels, depending upon the type and amount of screening performed on the semiconductor. The prefix JAN of a semiconductor type designation refers to the military standardization program for semiconductors. These semiconductors have been tested to and have passed the minimum qualification tests specified by MIL-S-19500. The TX suffix to JAN designates "Testing Extra," (i.e., screening). JANTX parts, in addition to JAN processing, undergo specific process and power conditioning tests on a 100% basis (depending upon the detail specification) in addition to the JAN sampling tests to enable further elimination of defective parts. JANTXV quality level semiconductors require all testing performed on JANTX semiconductor devices plus an internal visual PRECAP inspection which further eliminates defective parts and provides greater reliability in the surviving lot. JANS quality level semiconductors, while requiring all the tests performed on JANTXV parts, also requires Particle Impact Noise Detection (PIND) Testing, Failure Analysis, Serialization and traceability to a wafer lot. A diagram depicting the processing and screening for the JAN, JANTX, JANTXV and JANS are shown in Figures 7.1.2.2-1, 7.1.2.2-2, and 7.1.2.2-3.

The sampling procedure and acceptance requirement for JAN testing is in accordance with the Lot Tolerance Percent Defective (LTPD) as defined in MIL-STD-105 and as specified in basic MIL-S-19500 specification and in the detailed specification sheets. Tests methods used in screening of semiconductors are in accordance with MIL-STD-750 for tests specified in the detail specification.

Relative failure rates for various types of semiconductors for a given temperature and electrical stress level and based upon JAN as 1.0 are given in Table 7.1.2.2-1. A listing of these tests is provided in Table 7.1.2.2-2.

TABLE 7.1.2.2-1: RELATIVE FAILURE RATE DIFFERENCES

Screening Level	All Semiconductors Except Microwave	Microwave Detectors and Mixers (Si & Ge)
JANS	.05	.05
JANTXV	.1	.1
JANTX	.2	.3
JAN	1.0	1.0
Lower*	5.0	5.0

\*Hermetic packaged devices