

# NASA TECH BRIEF

## Marshall Space Flight Center



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### Specification Guidelines For Hybrid Microcircuits

The specification guidelines establishing manufacturing and control procedure for hybrid microcircuits used in aerospace programs may have possible commercial and industrial applications. The guidelines encompass parts, materials, and process controls, as well as assembly, packaging methods, screening, and inspection. The guidelines were established as a result of experience and data formulated in the Hybrid Microcircuit Research Section of the Astrionics Laboratory, MSFC, and are intended for use in the procurement of custom packaged, high reliability, hybrid microcircuits.

The guidelines are established to meet the requirements of MIL-M-38510, Microcircuits Military Specifications. In addition to meeting these general requirements, three levels of quality and reliability assurance, Class "A", "B", and "C" are established. Class A microcircuits are considered to be high-reliability devices and are qualified for man-rated space missions. Class B microcircuits are those that are considered high-reliability, but are not qualified for man-rated missions. Those microcircuits produced for commercial and noncritical aerospace applications with little or no process and manufacturing controls or traceability fall

into Class C. All hybrid microcircuits not meeting the recommended fabrication and assembly techniques of these guidelines are considered to be Class C. The guidelines require that flow charts be made up depicting the typical stages of design, fabrication, and test of the Class A and B hybrid microcircuits.

#### Notes:

1. Information concerning this innovation may be of interest to manufacturers and users of hybrid microcircuits.
2. Requests for further information may be directed to:  
Technology Utilization Officer  
Marshall Space Flight Center  
Code A&TS-TU  
Huntsville, Alabama 35812  
Reference: B72-10474

#### Patent status:

No patent action is contemplated by NASA.

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