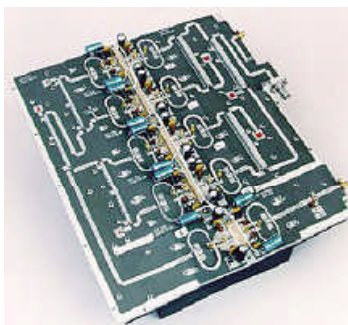


Silicon Carbide Being Developed for High-Definition Television (HDTV) Transmitter Modules

Through a Space Act Agreement, the NASA Lewis Research Center has helped develop the base silicon carbide (SiC) epitaxial growth technology for Westinghouse's efforts to bring silicon carbide products to the marketplace. SiC is a high-temperature, high-voltage semiconductor that can deliver greater than three times the power of conventional silicon devices. The technology was initially disclosed in the 1994 R&T report (refs. 1 to 3). NASA Lewis' High Temperature Integrated Electronics and Sensors (HTIES) team is developing SiC as a material for advanced semiconductor electronic device applications because SiC-based electronics and sensors can operate in hostile environments where conventional silicon-based electronics cannot function.



SiC transmitter module.

SiC transmitters hold great promise for television stations because they can convert broadcasts from analog to digital signals. A modular solid-state design provides broadcasters with an option to gradually add modules, increasing the power of their transmitters as they expand their high-definition television (HDTV) coverage. Using these high-power transistors will significantly reduce the space needed for high-power transmitters at television stations and will offer a solid-state solution, reducing long-term maintenance costs. Thus, transmitter manufacturers will be able to abandon their reliance on tube-based technology for high-power transmitters and will be able to build smaller, high-power, solid-state transmitters.

Find out more about this research : <http://www.grc.nasa.gov/WWW/SiC/SiC.html>

References

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