

Epistar achieves 40% efficiency using inverted metamorphic solar cell

Hsinchu, Taiwan – December 29, 2009 – EPISTAR achieves 40% efficiency using inverted metamorphic solar cell.

HCPV solar cell team of Epistar has achieved over 40% conversion efficiency using IMM (Inverted Metamorphic) solar cell technologies. A small 5.5 mm x 5.5 mm multi-junction solar cell consisted of GaInP, GaAs and InGaAs sub-cells on a Si substrate was illuminated with the high intensity sunlight (92X ~ 652X) .

Since 2007, Epistar has been developing III-V semiconductor solar cells, including lattice-match InGaP/GaAs/Ge triple-junction and inverted metamorphic triple-junction technologies. Using special grading buffer epitaxial techniques, the misfit dislocations are trapped in buffer layers such that the high quality InGaAs cell is grown on the GaAs layer, which is the key for making high efficiency InGaP/GaAs/InGaAs IMM solar cells. In addition to the IMM structure, the average efficiency of lattice-match InGaP/GaAs/Ge solar cells already in mass production has already reached 38%.

About Epistar Corporation

Epistar Corporation, headquartered in the Hsinchu Science-based Industrial Park, Taiwan since September 1996, focuses on developing, manufacturing and marketing high brightness Light Emitting Diode (LED) products. Applying its own proprietary Metal Organic Vapor Phase Epitaxy (MOVPE) technology, Epistar has successfully commercialized the full spectrum range of high brightness LEDs with the characteristics of compact size, low power consumption and long operation lifetime. For further information, please visit: <http://www.epistar.com.tw/news-e.htm>

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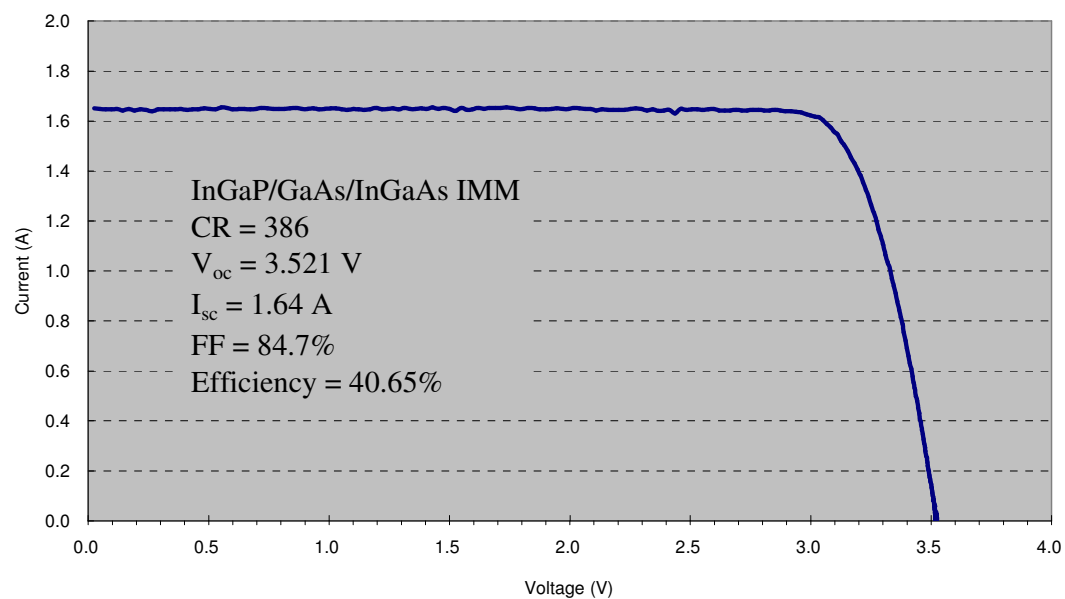


Fig. 1: IV characteristics of the InGaP/GaAs/InGaAs IMM triple junction solar cell at a solar concentration of 386 suns.

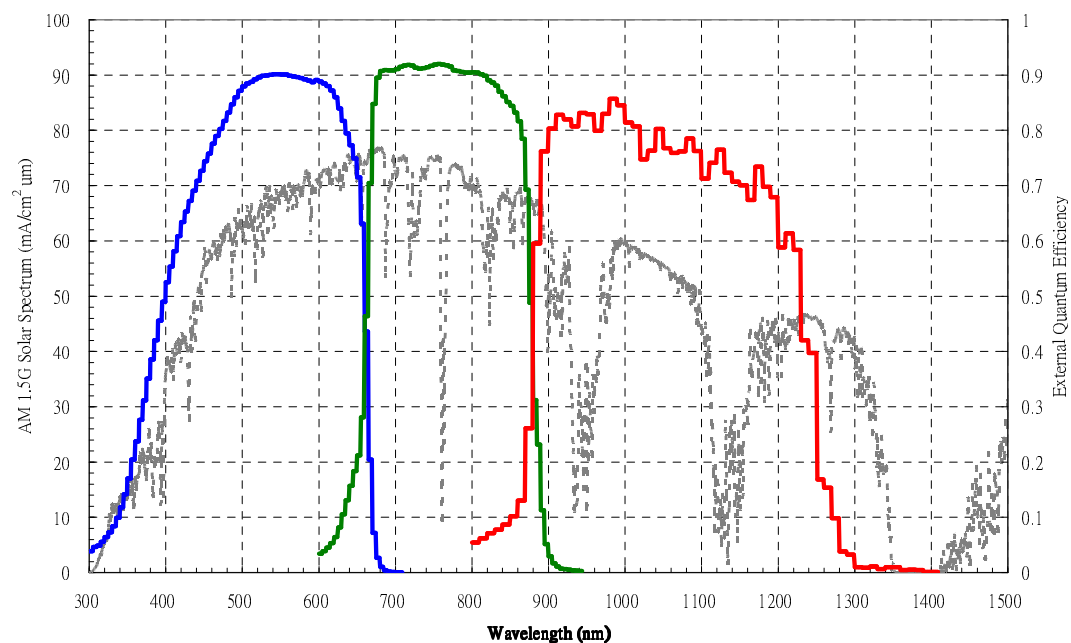


Fig. 2: Spectral response of the InGaP/GaAs/InGaAs IMM triple junction solar cell.