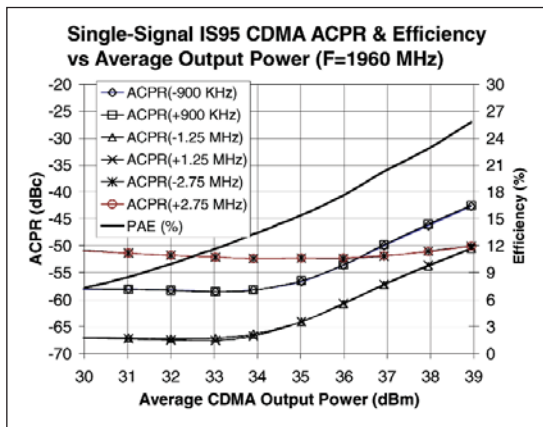# 30-Watt Module Covers the 1930-1990 PCS Wireless Band

This device is an easy-to-implement module for IS95 CDMA, WCDMA, and EDGE applications, combining two stages of amplification with interstage matching

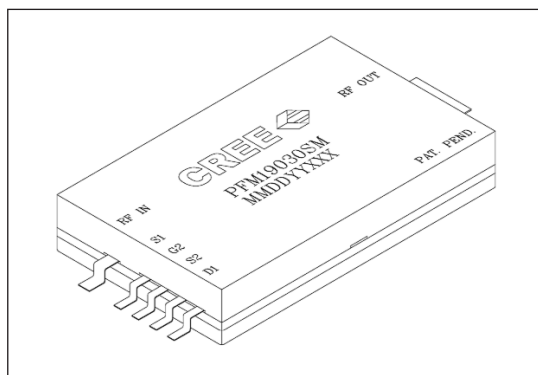Cree Microwave has introduced a new amplifier module for linear PCS systems. The PFM19030SM combines a 5 watt LDMOS driver and a 30 watt LDMOS PA with internal interstage matching. The input and output are partially matched, with recommended source and load impedances of 19 +j1.9 and 21 +j6.3 respectively.

Internal Thermal Sensing

Each silicon LDMOS device in the PFM19030SM has an internal sense FET for improved bias control. These FETs are fabricated from the same epi material as the power devices, with identical physical characteristics. If desired by the designer, these devices may be used to drive external bias circuitry to maintain optimum performance over a wide range of operating temperatures.

Cree Microwave offers the PFM19030SM surface mount LDMOS module for PCS base station designs.

The module is constructed on a high conductivity copper base, 40 mils thick, that is thermally matched to typical PCB material. The base serves as a heat spreader in surface mount installations; data sheet thermal specifications were obtained with the module soldered to a 20 mil thick PCB with an array plated-through holes for electrical grounding and heat sinking.

At 1 dB gain compression, the power output is nominally 45 dBm, with approximately 0.5 dB variation with a 2 volt change in V_{dc}. With this 30 watts peak power capability, the amplifier module provides 5 watts average power output in IS95 CDMA service. Small signal gain is 28 dB minimum, power-added efficiency is 20% and ACPR is –49 dBc, as shown in the accompanying graph.

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IS95 CDMA ACPR and efficiency data for the PFM19030 amplifier module.