



PRELIMINARY
QuikPAC Module Data

XD010-42S
10W, 869-894MHz
CDMA Driver Amplifier

General description:

The XD010-42S QuikPAC™ 10W power module is a 2-stage Class A amplifier module for use in the driver stages of linear RF power amplifiers for cellular base stations. The power transistors are fabricated using Sirenza's latest, high performance LDMOS process. This unit operates from a single voltage and has internal temperature compensation of the bias voltage to ensure stable performance over the full temperature range.

Features:

Single Voltage Operation
High Gain
High Efficiency
Advanced, XeMOS II LDMOS FETS
Stable Performance
50 Ω RF impedance
QuikPAC System Compatible

Standard Operating Conditions

| Parameter | Symbol | Min | Nom | Max | Units |
|--|-----------------|-----|-----|------|-------|
| Frequency Range | F | 869 | | 894 | MHz |
| Supply (Drain) Voltage | V _D | | 28 | | VDC |
| Input and Output Impedance | Ω | | 50 | | Ohms |
| Load Impedance for Stable Operation (All Phases) | VSWR | | | 10/1 | |
| Baseplate Temperature | T _{OP} | -20 | | +90 | °C |

Maximum Ratings

| Parameter | Symbol | Value | Units |
|--|------------------|-------------|-------|
| Supply (Drain) Voltage | V _{DD} | 35 | VDC |
| Input RF Power | P _{IN} | +20 | dBm |
| Load Impedance for continuous operation without damage | VSWR | 5/1 | |
| Base Plate Temperature: Operating with no RF present | | 90 | °C |
| Lead Temperature during reflow soldering | | +210 | °C |
| Storage Temperature | T _{STG} | -40 to +100 | °C |

Performance at 25°C

| Parameter | Symbol | Min | Nom | Max | Units |
|--|-------------------|------|------|------|-------|
| Supply Voltage | V _{D1,2} | 27.8 | 28.0 | 28.2 | VDC |
| Power Output at 1 dB Compression (single tone) | P ₋₁ | 7 | 8 | | W |
| Gain at 1W Output (CW) | G | 30.0 | 32.0 | 34.0 | dB |
| Gain Flatness over frequency at 1W Output (CW) | ΔG | | 0.2 | 0.4 | dB |
| Input Return Loss at 1W Output (CW) (50 Ω Ref) | iRL | 14 | 20 | | dB |
| Quiescent Current (total) | I _{DQ} | | 930 | | mA |
| Drain Efficiency at 8W CW output | η _D | 22 | 25 | | % |
| Drain Efficiency at 1W CDMA output (Single Carrier IS-95B) | η _D | | 3.5 | | % |
| ACPR at 1W CDMA Power Output (Single Carrier IS-95B) | | | -51 | | dBc |
| ALT-1 PR at 1W CDMA Output (Single Carrier IS-95B) | | | -80 | | dBc |
| 3 rd order IMD at 8W PEP (two- tone; 1MHz ΔF) | | | -30 | -28 | dBc |
| 3 rd order IMD at 1W PEP (two- tone; 1MHz ΔF) | | | -50 | -40 | dBc |
| Electrical Delay | | | 3.9 | | ns |
| Deviation from linear phase (peak to peak) | | | 0.5 | | deg. |

SIRENZA RESERVES THE RIGHT TO MAKE CHANGES TO THIS SPECIFICATION WITHOUT FURTHER NOTICE. BEFORE THE PRODUCT DESCRIBED HERE IS WRITTEN INTO SPECIFICATIONS OR USED IN CRITICAL APPLICATIONS, THE PERFORMANCE CHARACTERISTICS SHOULD BE VERIFIED BY CONTACTING SIRENZA.

Performance Over Temperature

| Parameter | Symbol | Min | Nom | Max | Units |
|--|------------|-----|------|-----|-------|
| Power Output at 1 dB Compression (single tone) | P_{-1} | | 8 | | W |
| Gain at 1W Output (CW) | G | | 32.0 | | dB |
| Gain Flatness over frequency at 1W Output (CW) | ΔG | | 0.2 | 0.4 | dB |
| Input Return Loss at 1W Output (CW) (50 Ω Ref) | iRL | | 18.0 | | dB |
| Drain Efficiency at 8W CW Output | η_D | | 25 | | % |
| Drain Efficiency at 1W CDMA Output (Single Carrier IS-95B) | η_D | | 3.5 | | % |
| ACPR at 1W CDMA Output (Single Carrier IS-95B) | | | -49 | | dBc |

Notes:

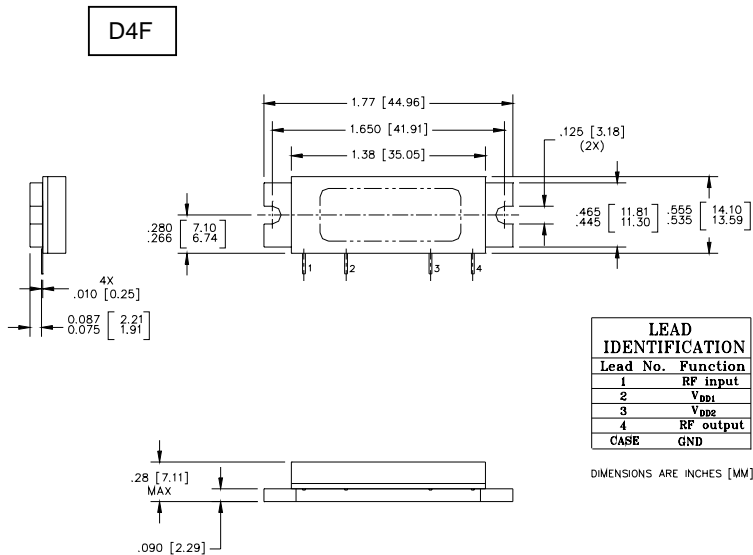
The "Preliminary" designation on this data sheet indicates this product has not yet entered production. The data supplied here is derived from engineering development and pilot production testing and may change.

The internal generated gate voltage is thermally compensated to maintain constant quiescent current over the temperature range listed in the data sheet. No compensation is provided for gain changes with temperature. This can only be provided with AGC external to the module

Internal RF decoupling is included on all bias leads. No additional bypass elements are required, however some applications may require energy storage on the drain leads to accommodate time-varying waveforms.

The RF leads are internally connected to DC ground. Do not apply DC voltages to the RF leads. Care must be taken to protect against video transients that may damage the active devices.

Package



This model is available in the D4F (H12109) package style. Please see the applicable outline drawing for detailed dimensions.