XEMOD

PRELIMINARY
QuikPAC Module Data

XD010-12S
10W, 869-894MHz
CDMA Driver Amplifier

General description:

The **XD010-12S QuikPAC™** 10W power module is a 2-stage Class A/AB amplifier module for use in the driver stages of CDMA RF power amplifiers for cellular base stations. The power transistors are fabricated using Xemod'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	ºC

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	
Output Device Channel Temperature		200	ºC
Lead Temperature during reflow soldering		+210	ºC
Storage Temperature	T_{STG}	-40 to +100	ºC

Performance at 25ºC

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}		10		W
Gain at 1W Output (CW)	G		32.0		dB
Gain Flatness over frequency at 1W Output (CW)	ΔG		0.1	0.4	dB
Input Return Loss at 1W Output (CW) (50 Ω Ref)	iRL		17.0		dB
Quiescent Current (total)	I_{DQ}		370		mA
Drain Efficiency at 10W CW output	η_D		32		%
Drain Efficiency at 2W CDMA output (Single Carrier IS-95B)	η_D		12		%
Drain Efficiency at 1W CDMA output (Single Carrier IS-95B)	η_D		7		%
ACPR at 2W CDMA Power Output			-51		dB
ALT-1 PR at 2W CDMA Power Output			-70		dB
3^{rd} order IMD at 10W PEP (two- tone)			-30		dBc
Electrical Delay			2.5		ns
Phase Flatness			0.5		deg.

Performance Over Temperature

Parameter	Symbol	Min	Nom	Max	Units
Power Output at 1 dB Compression (single tone)	P_{-1}		10		W
Gain at 1W Output (CW)	G		28.0		dB
Gain Flatness over frequency at 1W Output (CW)	ΔG		0.3	0.6	dB
Input Return Loss at 1W Output (CW) (50 Ω Ref)	iRL		18.0		dB
Drain Efficiency at 10W CW output	η_D		30		%
Drain Efficiency at 2W CDMA output	η_D		11		%
ACPR at 2W CDMA Power Output			-49		dB

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.

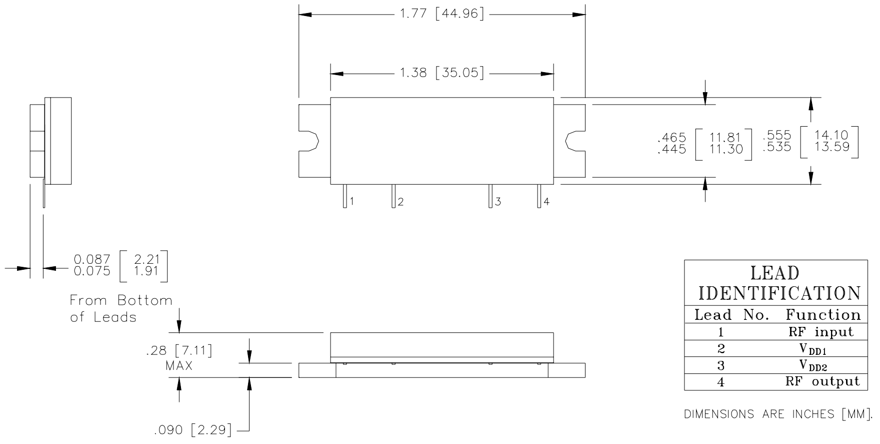
The internal generated gate voltage is thermally compensated to maintain constant quiescent current over the temperature range listed in the data sheet. No compensation is provided for gain changes with temperature. This can only be provided with AGC external to the module

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 protected against DC voltages up to 100V. Care should be taken to avoid video transients that may damage the active devices.

Package Styles

D4F



LEAD IDENTIFICATION

Lead No.	Function
1	RF input
2	V_{DD1}
3	V_{DD2}
4	RF output

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