

Features

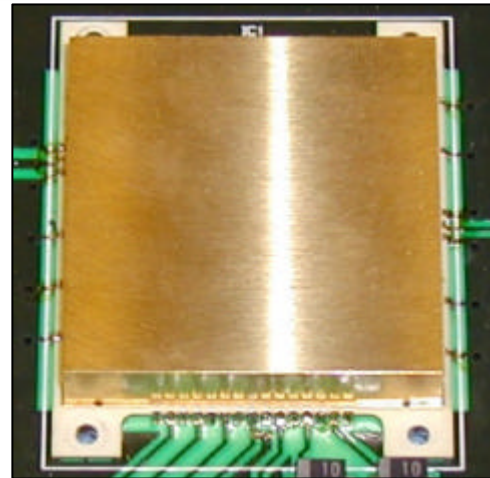
- Full Integration: VCO, PLL, Loop Filter
- Wide Bandwidth (> 2GHz)
- Fast Switching ($\leq 50\mu\text{s}$)
- Low noise: Typ -110 dBc/Hz @ 100kHz offset

Description

This synthesiser is designed for demanding wide bandwidth applications.

The fully integrated design incorporates a VCO, PLL and loop filter in a convenient surface mount package. The lid is fully solder attached to provide optimum electrical shielding.

Programming is via 3 Wire SPI (Serial Peripheral Interface.)



Actual product finish may vary from illustration

Electrical Specification

(Applies over the frequency range @ +25 °C, output and input load impedance of 50 ohms. Unless otherwise stated limits & conditions are indicated values.)

Parameter	Min	Typ	Max	Units	Condition
Frequency	3.15	4.35	5.55	GHz	Over T _{OP} - See Note 1.
Step Size		2.5		MHz	
RF Output power	0	+3	+6	dBm	
Output Return Loss		12		dB	
Settling Time		50		μs	To within $\pm 10\text{kHz}$
Output Harmonic		-20	-15	dBc	
Spurious		-63	-60	dBc	
Phase Noise (Noise <1kHz offset dependent upon external reference)		-90	-75	dBc/Hz	Offset 1kHz
		-85	-75	dBc/Hz	Offset 10kHz
		-110	-100	dBc/Hz	Offset 100kHz
External Ref		100		MHz	See Note 2.
Lock Monitor	2.0	2.5	3.3	Volt	Out of Lock
	0	0.1	0.8	Volt	In Lock
V _{PLL} DC Supply voltage	+23.75	+24	+24.25	Volt	
V _{PLL} DC Current		10	15	mA	V _{cc} = +24V
V _{VCO} DC Supply voltage	+9.75	+10	+10.25	Volt	
V _{VCO} DC Current		100	150	mA	V _{cc} = +10 V

Note 1: T_{OP} = -40°C ~ +85°C Case operating temperature

Note 2: External Reference, 0dBm min input power, with stability of 20 ppm (max) over temperature.

Reference phase noise: -98 dBc/Hz @ 10 Hz, -110 dBc/Hz @ 100 Hz, -120 dBc/Hz @ 1 kHz

Note 3: Programming 3 Wire SPI (Serial Peripheral Interface) - contact factory for details.

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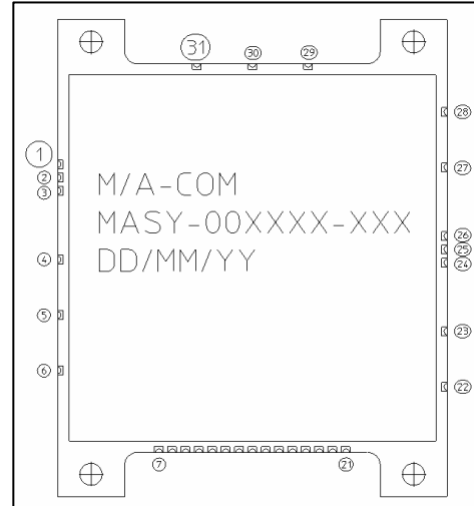
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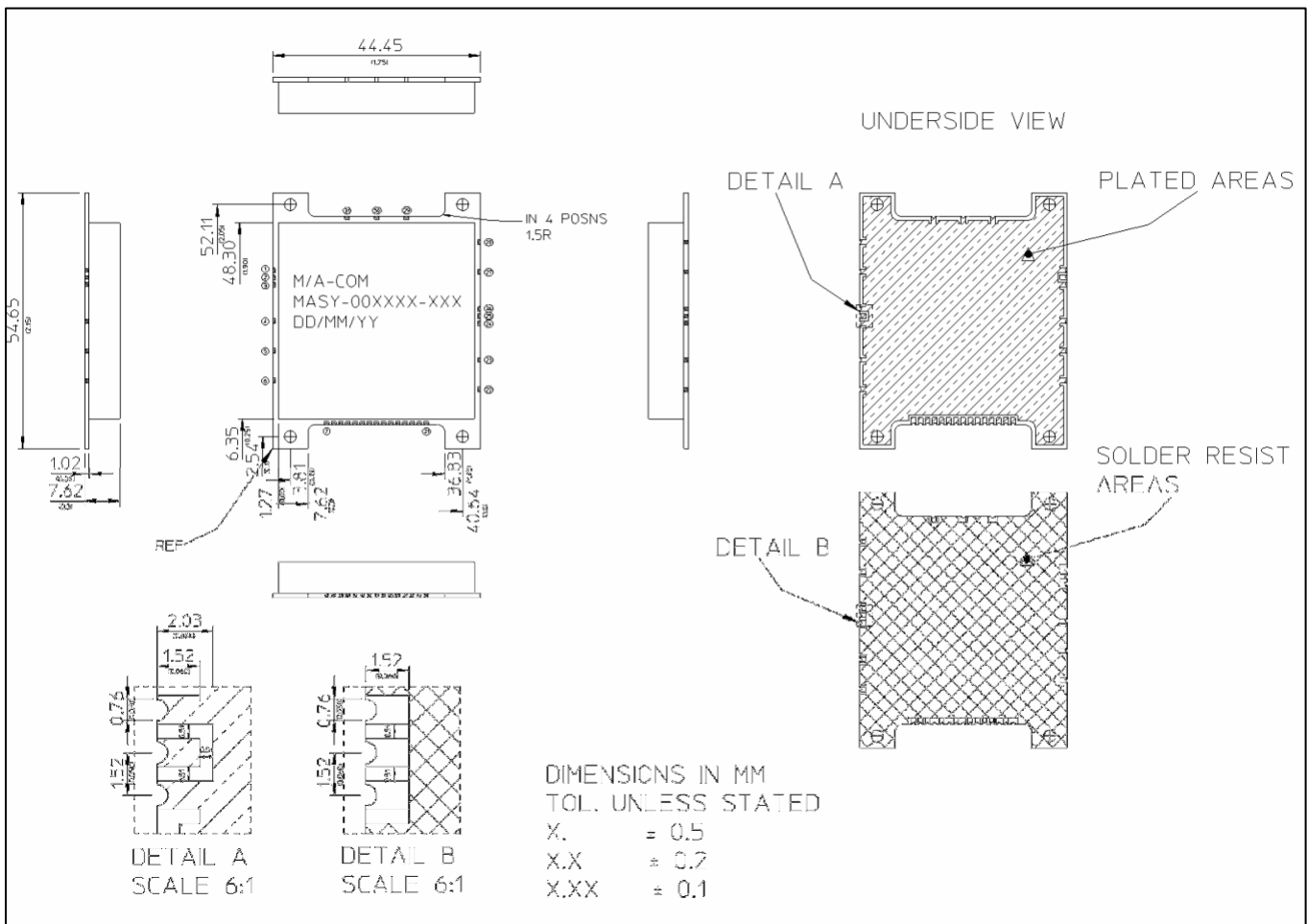
Visit www.macom.com for additional data sheets and product information.

Pin Assignment

Pin Number	Assignment
2	RF_Out
8	Clock
10	Data
12	LE (Load Enable)
16	LD (Lock Detect)
18	+10V V _{CC}
20	+24V V _{CC}
21	NC (No Connection)
25	REF_IN (Reference Input)
All other pins	GND



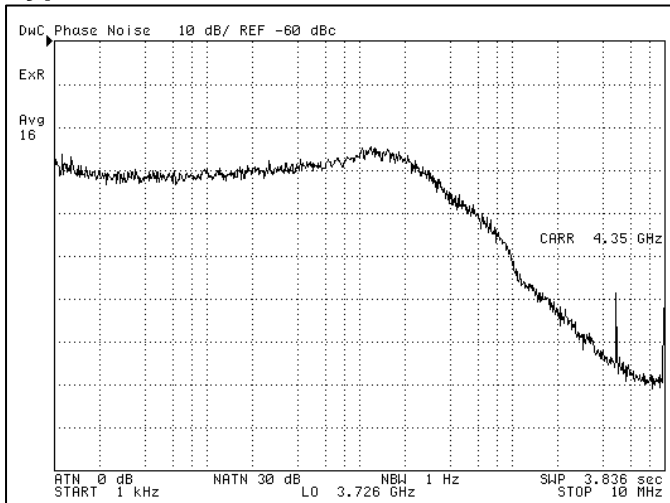
Mechanical



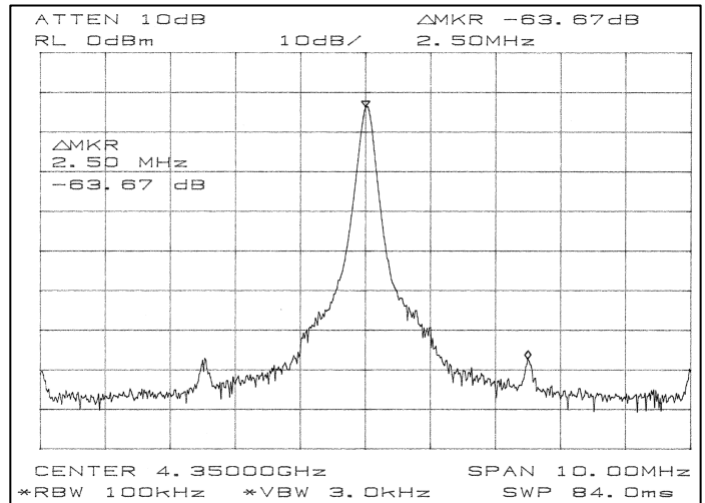
Environmental

Parameter	Min	Max	Units
Case Operating Temperature (T _{OP})	-40	+85	°C
Storage Temperature	-45	+120	°C

Typical Performance Plots



Phase noise at centre frequency 4.35GHz.



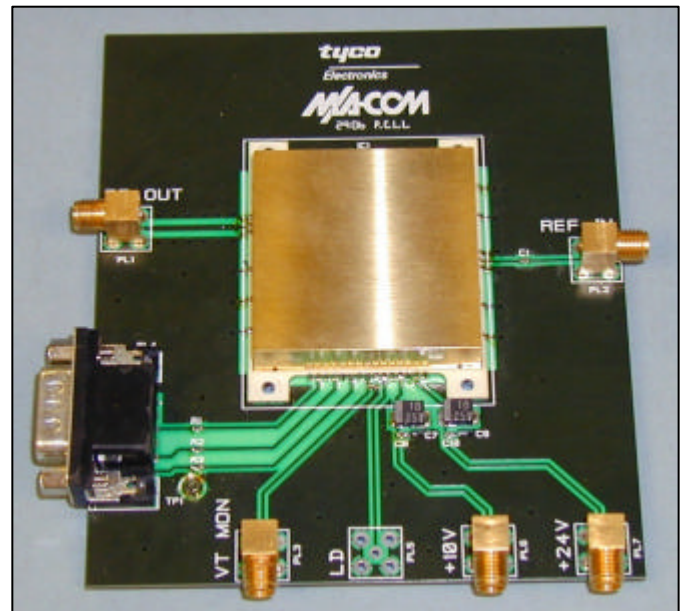
Frequency Spectrum at centre frequency 4.35GHz.

Demonstration Board

To enable early system integration and performance verification, this part is available on a demonstration board (pictured.)

The demonstration board comes with test results for the on-board unit, with programming software, control cable (PC Printer port) and instructions.

For more information about this demonstration system, please contact factory for details.



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