

Integrating Time™

PRELIMINARY

CMOS/3.3V/5x3.2mm

MM8201:

Powered by Mobius Microsystems' patented CMOS Harmonic Oscillator (CHO) technology, the MM8201 replaces quartz crystal based oscillators with a monolithic CMOS IC and offers programmable output frequencies at the thinnest possible for its factors without the use of any mechanical frequency source or PLL.

Features:

- All-CMOS Temperature Compensated Oscillator
- No quartz or other mechanical resonators or PLL used
- Excellent reliability: Not affected by shock & vibration
- Low power operation (12mA typ)
- Low jitter leading to low Bit Error Rates (BER) on USB links
- Factory programmable output frequency (10 to 100MHz)
- Available in die form for thinnest and smallest MCP options

Electrical Specifications:

VDD=3.0V to 3.6V, T_A=0 to 70°C unless otherwise noted. Typical values are measured at VDD=3.3V, T_A=35°C

Ordering Information:

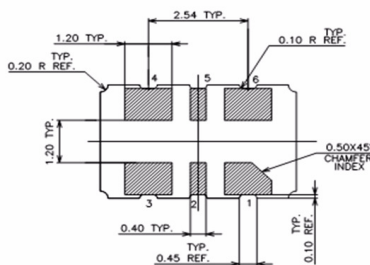
MM8201 -	<u>48</u>	<u>V3</u>	<u>C</u>	<u>P56</u>	<u>C</u>	<u>+</u>	<u>T</u>
	2	3	4	5	6	7	8

- 1) Mobius Microsystems Part Number
- 2) Output frequency (*programmable*)
- 3) Supply Voltage (*V3: 3.3V*)
- 4) Output Signal Type (*C: CMOS*)
- 5) Package Type (*P56: 5x3.2mm package*)
- 6) Temperature Range (*C: 0 to 70°C*)
- 7) Environmental Compliancy (*+: Green, Pb-Free*)
- 8) Tape & Reel (*T: Tape & Reel shipment*)

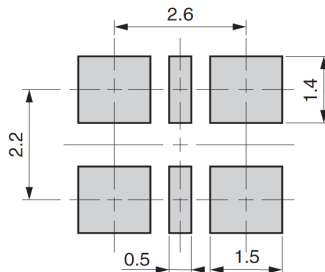
Parameter	Symbol	Conditions	Min	Typ	Max	Units
Storage Humidity	MSL	JEDEC Level, 85°C/85%, 168hours			1	
ElectroStaticDischarge	ESD	Human Body Model, tested per JESD D22-A114	2000			V
Supply Voltage	VDD	Normal Operation	3.0	3.3	3.6	V
Temperature	T _A	Ambient temperature in normal operation	0		70	°C
Input LOW level	V _{IL}	CE pin			30% x VDD	V
Input HIGH level	V _{IH}	CE pin	70% x VDD			V
Supply Current	IDD	Active supply current, VDD=3.3V, T=35°C, no output load		12		mA
Quiescent Current	IDDQ	CE=LOW, output disabled		0.2	1	µA
Output LOW level	V _{OL}	I _{OL} = -8mA			0.45	V
Output HIGH level	V _{OH}	I _{OH} = 8mA	VDD-0.6			V
Output Frequency	F _{OUT}	Factory Programmable. Contact Mobius for frequencies beyond the limit	10		100	MHz
Frequency Stability	F _{TOT}	Total Frequency Stability over temperature, supply variation, aging (1st year at 35°C), shock & vibration.		±400		ppm
Rise Time	RT	20% to 80% x VDD. Output load (C _L) = 8pF			2.0	ns
Fall Time	FT	80% to 20% x VDD. Output load (C _L) = 8pF			2.0	ns
Duty Cycle	DC	Clock output duty cycle. Measured at VDD/2, C _L =8pF	45		55	%
Power-up time	t _{on}	Output valid time after VDD meets the specified range & CE transition		300		µs
Period Jitter	PJ _{RMS}	Total RMS Period Jitter (including random and deterministic) ^{1,2}		3		ps _{RMS}
Cycle-cycle Jitter	CJ _{RMS}	Std dev of the max change in the periods of any 2 adjacent cycles ^{1,2}		6		ps _{RMS}
Phase Noise	PN	1MHz offset from carrier ^{1,2}		-140		dBc/Hz

Notes 1: Measured into 50Ω termination to GND, 2: Measured at 40MHz output frequency

Package Drawing [mm]:



Recommended Land Pattern:



Pin Assignments:

1	CE	Chip Enable. Device active when CE is HIGH
2	NC	No Connect
3	GND	Ground
4	OUT	Clock output
5	NC	No Connect
6	VDD	Power Supply. Connect a 0.1µF cap between VDD and GND pins

CHO and Integrating Time are trademarks of Mobius Microsystems, Inc

THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY EXPRESS REPRESENTATIONS OF WARRANTIES. IN ADDITION, MOBIUS MICROSYSTEMS, INC. DISCLAIMS ALL IMPLIED REPRESENTATIONS AND WARRANTIES, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

Mobius Microsystems, Inc. and its logo are trademarks or registered trademarks of Mobius Microsystems, Inc. in the United States and other countries.

The information contained in this document is not designed or intended for use in on-line control of aircraft, aircraft navigation or aircraft communications; or in the design, construction, operation or maintenance of any nuclear facility. Mobius Microsystems disclaims any express or implied warranty of fitness for such uses.