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Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832 Email & Skype: info@chipsmall.com Web: www.chipsmall.com Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China





RFM products are now Murata products.

OP4005B1

622.08 MHz

Optical Timing Clock

Ρb

• Quartz SAW Stabilized Differential Output Technology

• Very Low Jitter Fundamental-Mode Operation at 622.08 MHz

- Voltage Tunable for Phase Locked Loop Applications
- Timing Reference for Optical Data Communications Systems
- Complies with Directive 2002/95/EC (RoHS)

The OP4005B1 is a voltage-controlled SAW clock (VCSC) designed for phase-locked loop (PLL) applications in optical data communications systems. The differential outputs of the OP4005B1 are generated by high-Q, fundamental mode quartz surface acoustic wave (SAW) technology. This technique provides very low output jitter and phase noise, plus excellent immunity to power supply noise. The OP4005B1 differential outputs feature ±1% symmetry, and can be DC-configured to drive a wide range of high-speed logic families. The OP4005B1 is packaged in a hermetic metal-ceramic LCC.

Absolute Maximum Ratings

Rating	Value	Units
DC Suppy Voltage	0 to 5.5	Vdc
Tuning Voltage	0 to 5.5	Vdc
Case Temperature	-55 to 100	°C



Electrical Characteristics

Characteristic		Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency	Absolute Frequency	f _O	1		622.08		MHz
	Tuning Range		2		±100		ppm
	Tuning Voltage		1	0		3.3	Vdc
	Tuning Linearity		1		±5		%
	Modulation Bandwidth			200			kHz
Q and Q Output	Voltage into 50 ohms (VSWR < 1.2)	Vo	1,3	0.60		1.1	V _{P-P}
	Operating Load VSWR		1,3			2:1	
	Symmetry		3, 4, 5	45		55	%
	Harmonic Spurious		3, 4, 6			-15	dBc
	Nonharmonic Spurious		3, 4, 6, 7			-60	dBc
Phase Noise	@ 100 Hz offset		3, 6		-70		dBc/Hz
	@ 1 kHz offset		3, 6		-100		dBc/Hz
	@ 10 kHz offset		3, 6		-125		dBc/Hz
	Noise Floor		3, 6		-150		dBc/Hz
Q and \overline{Q} Jitter	RMS Jitter (10 kHz to 80 MHz)		3, 4, 6, 7		0.1		ps
	No Noise on V_{CC}		3, 4, 6, 7		12		ps _{P-P}
	200 mV $_{P\text{-}P}$ Noise, from 1 MHz to $^{1\!\!/_2}$ f $_O$ on V $_{CC}$		3		12		ps _{P-P}
Input Impedance (Tunin	g Port)			8	10		KΩ
Output DC Resistance (between Q & Q)		1, 3	50			KΩ
DC Power Supply	Operating Voltage	V _{CC}	1, 3	3.13	3.3 or 5.0	5.25	Vdc
	Operating Current	I _{CC}	1, 3			70	mA
Operating Case Temperature		T _C	1, 3	-40		+85	°C
Lid Symbolization (YY=	Year, WW=Week)	RFM OP4005B1 YYWW					

CAUTION: Electrostatic Sensitive Device. Observe precautions for handling. COCOM CAUTION: Approval by the U.S. Department of Commerce is required prior to export of this device. ৵

Notes:

Unless otherwise noted, all specifications include the combined effects of load VSWR, V_{CC} and T_{C} 1

- 2 Net tuning range after tuning out the effects of initial manufacturing tolerances, VSWR pushing/pulling, V_{CC}, T_C and aging.
- 3. 4.

- 5. 6.
- The internal design, manufacturing processes, and specifications of this device are subject to change without notice. Specified only for a balanced load with a VSWR < 1.2 (50 ohms each side), and a V_{CC} = 3.0 Vdc. Symmetry is defined as the width in (% of total period) measure at 50% of the peak-to-peak voltage of either output. Jitter and other noise outputs due to power supply noise or mechanical vibration are not included in this specification except where noted. Applies to period jitter of either differential output. Measured with a Tektronix CSA803 signal analyzer with at least 1000 samples. One or more of the following United States patents apply: 4, 616,197; 4,670,681; 4,760,352.

^{7.}

OP Performance Curves and Application Information

See the OP4005B Data Sheet for typical OP performance curves and application information.

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SMC-8A 8-Terminal Surface Mount Case



Typical Printed Circuit Board Land Pattern

A typical land pattern for a circuit board is shown below. Grounding of the metallic center pad is optional.



Electrical Connections

Terminal Number	Connection	
1	Tune	
2	*Enable	
3	Ground	
4	Ground	
5	Q Output	
6	Q Output	
7	V _{CC}	
8	Ground	
LID	Ground	

LID Ground

*Enable Sense: Pin 2 Ground-Clock Off

Dimensions

Dimonsion	mm		Inches		
Dimension	MIN	MAX	MIN	MAX	
Α	13.46	13.97	0.530	0.550	
В	9.14	9.66	0.360	0.380	
С	1.93 Nominal		0.076 Nominal		
D	1.93 Nominal		0.076 Nominal		
E	2.54 Nominal		0.100 Nominal		
F	1.27 Nominal		0.050 Nominal		

