



- **Complies with Directive 2002/95/EC (RoHS)**
- **Fundamental-Mode Oscillation at 718.864 MHz**
- **Quartz SAW Stabilized and Filtered "Diff Sine" Technology**
- **Voltage Tunable for Phase Lock Loop Operations**
- **Optical Timing Reference for Forward Error Correction Applications**



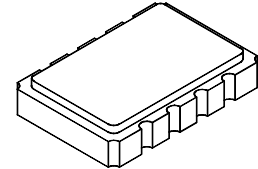
The output of this device is generated and filtered by narrowband quartz SAW elements at 718.864 MHz. The configuration of this clock is intended to provide a pure signal for optical timing applications in noisy signal environments. The Q/Qbar differential output swing of ± 1 volt about 0 vdc has symmetry better than $\pm 1\%$ into loads from 40 ohms to 70 ohms; determined by customer application. The long term frequency accuracy is set by an external reference source allowing this device to complete a Phase Lock Loop design without the usual noise and jitter problems associated with PLL's.

Absolute Maximum Ratings

Rating	Value	Units
DC Supply Voltage	0 to 5.5	VDC
Tune Voltage	0 to 6	VDC
Case Temperature	-55 to 100	°C

OP4018B

718.864 MHz Optical Timing Clock



SMC-08

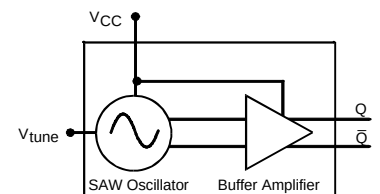
Electrical Characteristics

Characteristic	Sym	Notes	Minimum	Typical	Maximum	Units
Operating Frequency						
Absolute Frequency	f_O	1, 9		718.863785		MHz
Tune Range		2	± 50			ppm
Tune Voltage		1	1.8	2.6	3	VDC
Tuning Linearity		1, 8	± 5	3	5	%
Modulation Bandwidth			100			kHz
Tune DC resistance			100			K Ω
Deviation Slope			150	250	350	ppm/volt
Q and Q Output						
Voltage into 50 Ω (VSWR ≤ 1.2)	V_O	1, 3	0.6		1.1	V _{P-P}
Operating Load VSWR		1, 3			2:1	
Symmetry		3, 4, 5	49		51	%
Harmonic Spurious		3, 4, 6			-15	dBc
Nonharmonic Spurious		3, 4, 6, 7			-65	dBc
Phase Noise						
dBc/Hz@100Hz offset				-70	-65	dBc/Hz
1kHz offset				-100	-95	dBc/Hz
10k offset				-125	-120	dBc/Hz
100k offset				-140	-135	dBc/Hz
Noise Floor				-150		dBc/Hz
Jitter						
RMS Jitter (10kHz to 80MHz)		3, 4, 6, 7			0.5	PS _{P-P}
200 mV _{P-P} from 1MHz to $\frac{1}{2} f_O$ on V _{CC}		3			-50	dBc
Output DC Resistance (between Q & Q)		1, 3	50			K Ω
DC Power Supply						
Operating Voltage	V _{CC}	1, 3	3.135	3.300	3.465	VDC
Operating Current	I _{CC}	1, 3			70	mA
Operating Ambient Temperature	T _C	1, 3	-40°C		+85°C	°C
Lid Symbolization (YY=Year, WW=Week)	RFM OP4018B 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.

BLOCK DIAGRAM



Notes:

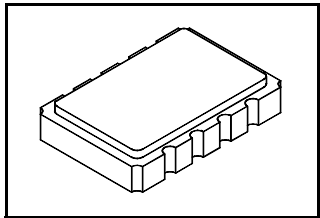
- Unless otherwise noted, all specifications include any combination of load VSWR, VCC, and TC. In addition, Q and Q̄ are terminated into 50 Ω loads to ground. (See: Typical Test Circuit.)
- Customer useful tune range in excess of what part requires over temp, aging, pushing, pulling & accuracy.
- The design, manufacturing process, and specifications of this device are subject to change without notice.
- Only under the nominal conditions of 50 Ω load impedance with VSWR ≤ 1.2 and nominal power supply voltage.
- Symmetry is defined as the pulse width (in percent of total period) measured at the 50% points of Q or Q̄. (See: Timing Definitions.)
- Jitter and other spurious outputs induced by externally generated electrical noise on V_{CC} or mechanical vibration are not included in this specification, except where noted. External voltage regulation and careful PCB layout are recommended for optimum performance.
- Applies to period jitter of Q and Q̄. Measurements are made with the Tektronix CSA803 signal analyzer with at least 1000 samples.
- Linearity is a function of the percentage variation from a permitted linear deviation versus the amount of frequency tune range. See *Linearity Definition*.
- One or more of the following United States patents apply: 4,616,197; 4,670,681; 4,760,352.

718.864 MHz

Optical Timing Clock

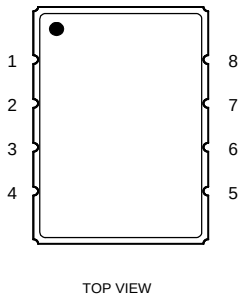
SMC-8

8-Terminal Surface Mount Case



ELECTRICAL CONNECTIONS

Terminal Number	Connection
1	V _{CC}
2	Ground
3	Enable/Disable
4	Q Output
5	$\overline{Q}$ Output
6	Ground
7	
8	TUNE Input
LID	Ground



Dimension	mm		Inches	
	MIN	MAX	MIN	MAX
A	13.46	13.97	0.530	0.550
B	9.14	9.66	0.360	0.380
C	1.93 Nominal		0.076 Nominal	
D	3.56 Nominal		0.141 Nominal	
E	2.24 Nominal		0.088 Nominal	
F	1.27 Nominal		0.050 Nominal	
G	2.54 Nominal		0.100 Nominal	
H	3.05 Nominal		0.120 Nominal	
J	1.93 Nominal		0.076 Nominal	
K	5.54 Nominal		0.218 Nominal	
L	4.32 Nominal		0.170 Nominal	
M	4.83 Nominal		0.190 Nominal	
N	0.50 Nominal		0.020 Nominal	

