

TMA SERIES SYNCHRONOUS TIMING MODULES

8kHz to 77.760MHz Inputs, up to 77.760MHz CMOS output

DESCRIPTION

TMA (Synchronous Timing Module, model A) parts serve as a frequency translator in telecommunications systems. The device translates any CMOS input reference frequencies (8, 16, 32, 64kHz up to 77.760MHz) into jitter-attenuated, phase locked reference synchronized output frequencies up to 77.760MHz.

FEATURES

- Loss of Reference (LOR) and Loss of Lock (LOL) active alarms.
- Continuous input reference monitoring of external references.
- Automatic FREE RUN mode on Loss Of Reference (LOR)
- ±15ppm output accuracy guaranteed.
- Manually forced FREE-RUN mode by software control.
- Tristate (output high impedance) for external testing.
- +3.3V leadframe package, current <80mA.
- 1 second acquisition time

GENERAL SPECIFICATION

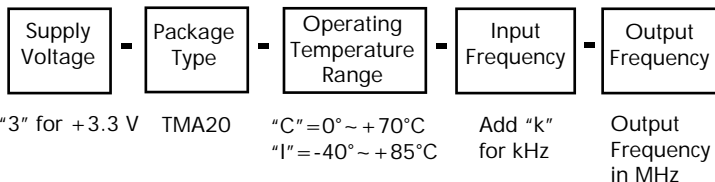
Input Reference Frequency:	8, 16, 32 or 64kHz or <77.76MHz Selectable by SELA & SELB pads
Output Frequency:	from 1.544MHz to 77.760MHz
Supply Voltage:	+3.3 Volts ±5%
Current Consumption:	Less than 80mA
Input Jitter Tolerance:	2us at 10Hz
Acquisition Time:	1 second
Capture/Pull-in Range:	±40ppm
Input Logic:	CMOS
Output Logic:	CMOS
Duty Cycle:	40%60% at 50% level
Rise and Fall Times:	2ns (20%~80% output levels)
Free Run Accuracy:	±15ppm maximum
Jitter at 77.760MHz:	7.5ps RMS typ. at 10Hz~1MHz 12kHz to 20MHz bandwidth
Operating Temperature Range	
COMMERCIAL:	0° ~ +70°C (Code 'C')
INDUSTRIAL:	-40° ~ +85°C (Code 'I')

ABSOLUTE MAXIMUM RATINGS

Symbol	Description	Rating
Vcc	Supply Voltage relative to ground	-0.5V to 4.0V
Vin	Input Voltage relative to ground	-0.5V to 5.5V
Tstg	Storage Temperature (Ambient)	-65° to +150°C
Tref	Maximum reflow Temperature	240°C

PART NUMBERS

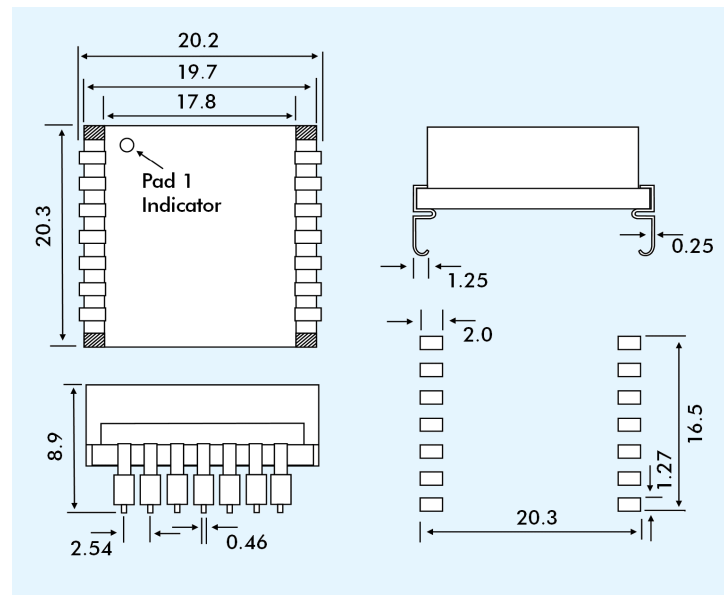
Part numbers are generated according to this scheme:



EXAMPLE: 3TMA20-C-8K-77.760

Representing: +3.3V supply, TMA package, Commercial operating temperature range, 8kHz input frequency and output frequency of 77.760MHz.

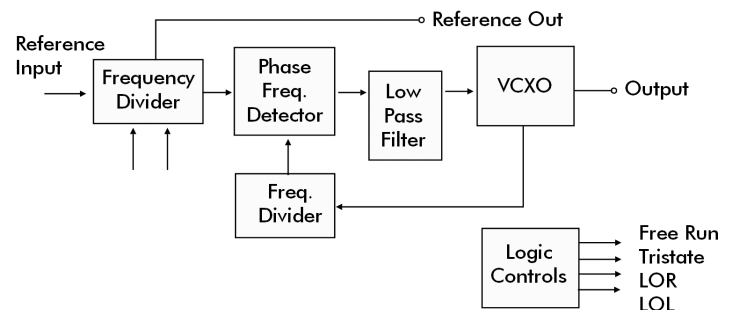
OUTLINES & DIMENSIONS



PAD CONNECTIONS

Pad No.	Pad Name	Description of Function
1	REF OP	Reference Output
2	NC	Do not connect - factory use only
3	NC	Do not connect - factory use only
4	GND	Ground
5	FREE RUN	Control input to force FREE RUN
6	LOR	Logic 1 indicates Loss Of Reference
7	LOL	Logic 1 indicates Loss Of Lock
8	REFIN	Reference input
9	OUTPUT	VCXO output
10	E/D	Enable/Disable output
11	VCC	Supply Voltage
12	TDO	Do not connect - factory use only
13	SEL A	Second bit reference frequency selection
14	SEL B	First bit reference frequency selection

FUNCTIONAL BLOCK DIAGRAM



TMB SERIES SYNCHRONOUS TIMING MODULES
8kHz to 77.760MHz Inputs, up to 77.760MHz CMOS output**LOGIC CONTROLS****OUTPUT PROGRAMMING**

TriState	Free Run	Output
0	0	Locked to reference
1	X	High impedance Tristate
0	1	Free run at nominal frequency

REFERENCE SELECTION

SEL A	SEL B	Reference Selected
0	0	8 kHz
0	1	16 kHz
1	0	32 kHz
1	1	64 kHz

Contact Euroquartz for custom value reference inputs

ALARM STATE

LOL	LOR	Alarm
0	0	No Alarm
1	0	Loss of Lock (LOL)
1	1	Loss of Reference (LOR)