

Synchronous Timing Modules
8 kHz inputs; LVPECL outputs up to 622.080 MHz

“TMB” series



MERCURY
 Since 1973

Product Description:

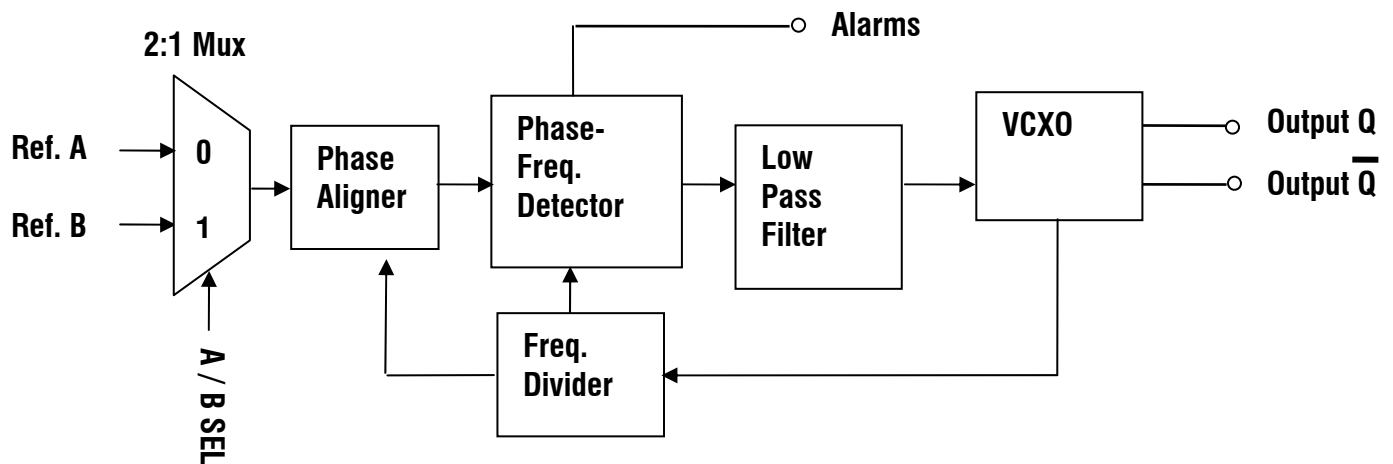
“TMB” (Synchronous Timing Module model B) series is a PLL module that generates LVPECL outputs up to 622.080 MHz from a low jitter VCXO. The module is locked to one of the two 8 kHz reference inputs, which is selectable by the A/B SEL pad. PECL and complimentary PECL outputs can be disabled by the control of pad 1. Pad 12 gives alarm signal when loss-of-lock or loss-of reference. The module will enter into Free Run mode, signaled from pad 9 FRstatus, when both REF A and REF B are absent. Pad 13 allow the user to force the module to run at Free Run mode.

Applications include Line cards and service termination cards for SONET, SDH, ATM and PDH network equipment.

Product Features:

- ◆ Loss of Reference (LOR) and Loss of Lock (LOL) active alarms. Status Signal.
- ◆ Two reference inputs of 8 kHz in CMOS level. Custom input frequencies available upon request.
- ◆ Continuous input reference monitoring of the two external references
- ◆ Automatic **Free -Run** mode on Loss-of-Reference (LOR, both references A and B)
- ◆ Up to 622.080 MHz LVPECL outputs with enable /disable functions
- ◆ Free-run clock output
- ◆ +3.3V SMD, draw 150 mA.

Functional Block Diagram: General Specifications , $T_A = +25^\circ\text{C}$,



Product Availability

Package Types	Availability	Package size (mm), L x W x seat height	Package size (inches), L x W x seated height
Gull Wing Surface Mount Types			
TMB25	Now	1" square (25.4 mm square) 18 pad SMD	[1.0 x 1.0 x 0.40] 25.4 x 25.4 x 10.1

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General Specifications, $T_A = +25^\circ\text{C}$,

Input Reference Frequency A and B	8 kHz or custom
Output Frequency	Up to 622.080 MHz
Supply Voltage	+3.3 V $\pm 5\%$ V D.C.
Current	120 mA min.; 150 mA typical; 200 mA max.
Acquisition Time	1 sec.
Capture / pull in range	± 40 ppm
Input Logic	CMOS
Output Logic	LVPECL. Differential open emitter outputs. Terminating resistors required on all outputs.
Output Logic Levels	High: 2.2 V min.; 2.3 V typical; 2.5 V max. Low: 1.4 V min.; 1.5 V typical; 1.6 V max.
Output Capacitance	10 pF
Duty Cycle	40 to 60% at 50% level
Rise and Fall Time	220 pico. sec.
Free Run Accuracy	± 20 ppm max.
Output Jitter	1 pico sec. RMS. 12 kHz to 20 MHz band width.
Input Jitter Tolerance	7 us
Jitter Filter Band Width	10 Hz max. 3dB loop response.
Operating temperature Range	Commercial, code ‘C’: 0°C to +70°C Industrial, code ‘I’: -40°C to +85°C

Input Selection and Output Response

AUTO	RESET	ENABLE	A/B Select	REF A	REF B	FR	FR status	Alarm	Q	\bar{Q}	Note
0	1	0	X	X	X	X	1	X	X	X	FR
0	X	1	X	X	X	X	X	X	0	1	
0	0	0	X	X	X	1	1	X	X	X	FR
0	0	0	0	A	A	0	0	0	X	X	RA
0	0	0	1	A	A	0	0	0	X	X	RB
0	0	0	0	NA	A	0	0	1	X	X	NL
0	0	0	1	NA	A	0	0	0	X	X	RB
0	0	0	1	A	NA	0	0	1	X	X	NL
0	0	0	0	A	NA	0	0	0	X	X	RA
0	0	0	X	NA	NA	0	1	1	X	X	FR
1	0	0	X	A	A	0	0	0	X	X	RA*
1	0	0	X	A	NA	0	0	0	X	X	RA*
1	0	0	X	NA	A	0	0	0	X	X	RB**
1	0	0	X	NA	NA	0	1	1	X	X	FR

A: Active **FR:** Free run mode **RA:** Locked to A **RB:** Locked to B
NA: Not active **NL:** Not locked **X:** Don't care

* If Auto is on (“1”) the system will lock to “REF A”.

** If “REF A” is lost the system will lock to “REF B” automatically; if both are lost it will go to FR Status.

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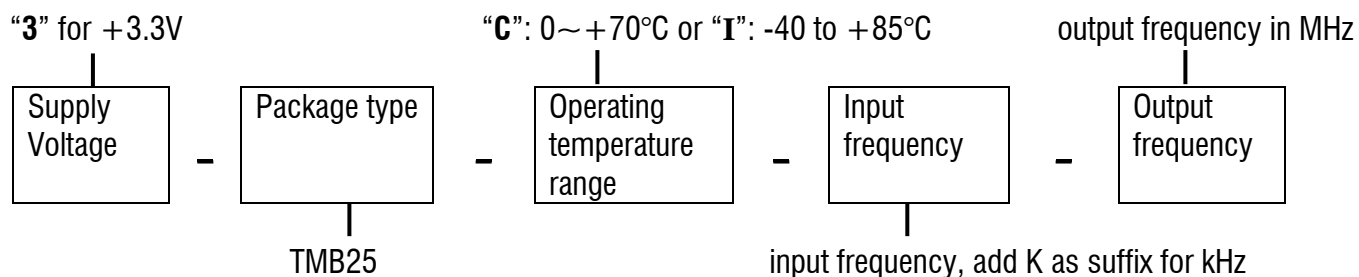
Absolute Maximum Ratings

Symbol	Description	Rating
Vcc	Supply voltage relative to ground	-0.5 V to 4.0 V
Vin	Input voltage relative to ground	-0.5 V to 5.5 V
Tstg	Storage Temperature (ambient)	-65°C to +100°C
Tref	Maximum reflow temperature	240°C

Pin Description:

Pad No.	Pad name	Pad information
1	ENABLE	VCXO Enable (Enable = 0; Disable = 1)
2	N / C	No connection
3	N / C	No Connection
4	REF A	Reference input A
5	A/ B SEL	Reference Select (Input A =0; Input B = 1)
6	RESET	Reset (Reset = 1)
7	REF B	Reference input B
8	GRN	Ground
9	FR Status	Free Run Status (unit on Free Run = 1)
10	Vcc	Supply Voltage (+3.3 V D.C.)
11	AUTO	Automatic Function
12	ALARM	Loss of Reference (Alarm = 1)
13	FR	Force Free Run (Free Run = 1)
14	N / C	No connection
15	N / C	No connection
16	Q	LVPECL complimentary output
17	GNR	Ground
18	Q	LVPECL output

How to Order and Part Number Examples:



3TMB25-C-8K-622.080

represent +3.3V model TMB in 14-pin DIP thru-hoe, 0 to +70°C (commercial) operating temperature range, input frequency is 8 kHz and output frequency is 622.080 MHz



Note:

Custom package, pin configuration or output frequency can be tailored to meet your specific requirement. Please contact Mercury for detail.

Package Dimensions and Suggested Footprint:

units: mm [inches]

