

Temperature Compensated Crystal Oscillators [TCXO " M "]

CMOS Output

TCXO

MER32

± 5 ppm

-40 to +85 °C

CMOS

SMD

30 pF

1.8V

2.5V

3.0V

3.3V

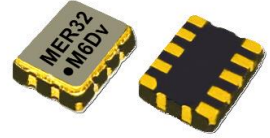
5.0V

1.8V ~ 5.0V

32.768 KHz

Features

- Built-in frequency adjusted 32.768 kHz crystal unit and D-TCXO.
- Operation temperature -40°C to +85°C
- Use of CMOS IC enables reduction of current consumption.



General specifications of all available packages , at Ta=+25°C , CL=15pF

Output Waveform		Square wave [CMOS] , Waveform code is " T "					
Model		MER32					
Package size		3.2 * 2.5 * 0.9 mm					
Nominal Frequency		32.768 KHz					
Supply Voltage (V _{DD}) ± 10% Voltage code		1.8 V	2.5 V	3.0 V	3.3 V	5.0 V	+1.8 V ~ +5.0 V
		" 18 "	" 25 "	" 3 "	" 33 "	" 50 "	" 18V5 "
Current Consumption (With No Load)		0.8 uA (typ.) 3.0 uA (max.)	1.0 uA (typ.) 3.0 uA (max.)	1.1 uA (typ.) 3.0 uA (max.)	1.1 uA (typ.) 3.0 uA (max.)	1.4 uA (typ.) 3.0 uA (max.)	3.0 uA (max.)
Current With Output Disable		0.6 uA (typ.) , 2.6 uA (max.)					
Output Load		30 pF (max.)					
Output Voltage Level	V _{OH}	90% V _{DD} (min.)					
	V _{OL}	10% V _{DD} (max.)					
Start-up Time		3.0 sec (max.)					
Frequency Stability over Temperature (max.)		± 5.0 ppm (-40°C to +85°C)					
Frequency Stability	vs Aging	± 3.0 ppm / year (max.) first year at +25°C					
	vs Load Change	± 0.2 ppm (max.) for a ± 10% loading condition change					
	vs Supply Voltage Delta Freq / V	± 1.0 ppm / V (max.)					
Timing error over time [± 5 ppm (-40°C to +85°C)]		± 0.432 sec/day ; ± 12.960 sec / month ; ± 2.628 minutes / year , w.r.t fo at +25°C.					
Rise Time and Fall Time		100 ns (max.) Measured at 10% ↔ 90% of the waveform					
Duty Cycle		50% ± 10%					
Storage Temperature		-55°C to +125°C					
Output Enable / Disable Function on pin1		V _{DD} of 80% (min.) to enable output					
		V _{DD} of 20% (max.) to disable output					
Power Supply rise time		tR1 : V _{DD} = GND to 1.6 V : 1 ~ 10 ms / V					

Part Number Format and Example

[1]	[2]	[3]		[4]		[5]		[6]
Holder Type	Waveform Code	Supply Voltage	-	Nominal Frequency	-	Frequency Stability	/	Operating Temp. Range

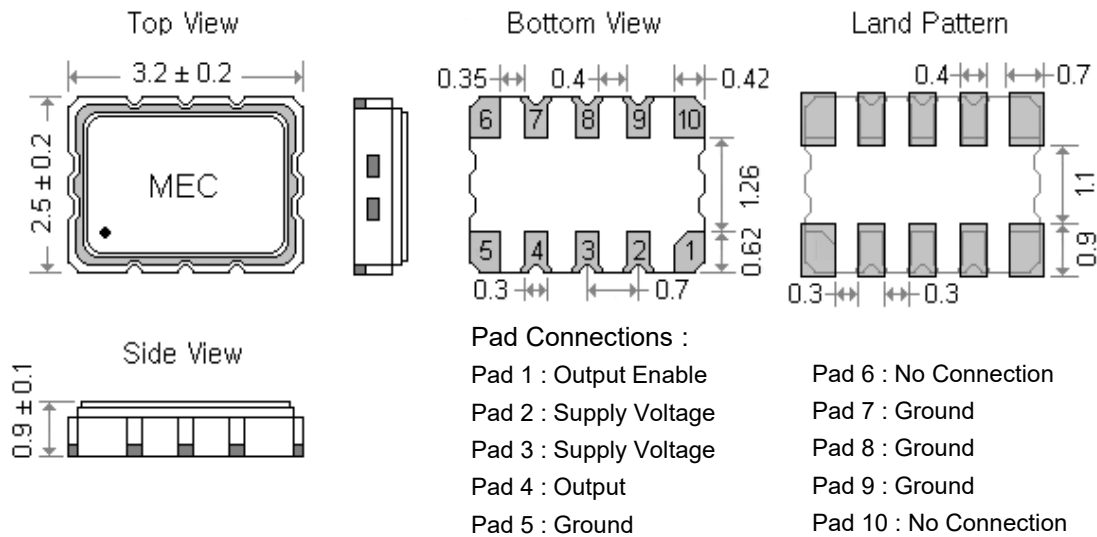
Examples	(1)	MER32	T	33	-	32.768 K	-	5.0	/	-40+85
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Ex (1) : MER32T33 - 32.768K - 5.0 / -40+85 [MER series 3225 type , CMOS , +3.3V , 32.768KHz , ± 5.0ppm from -40°C to +85°C]

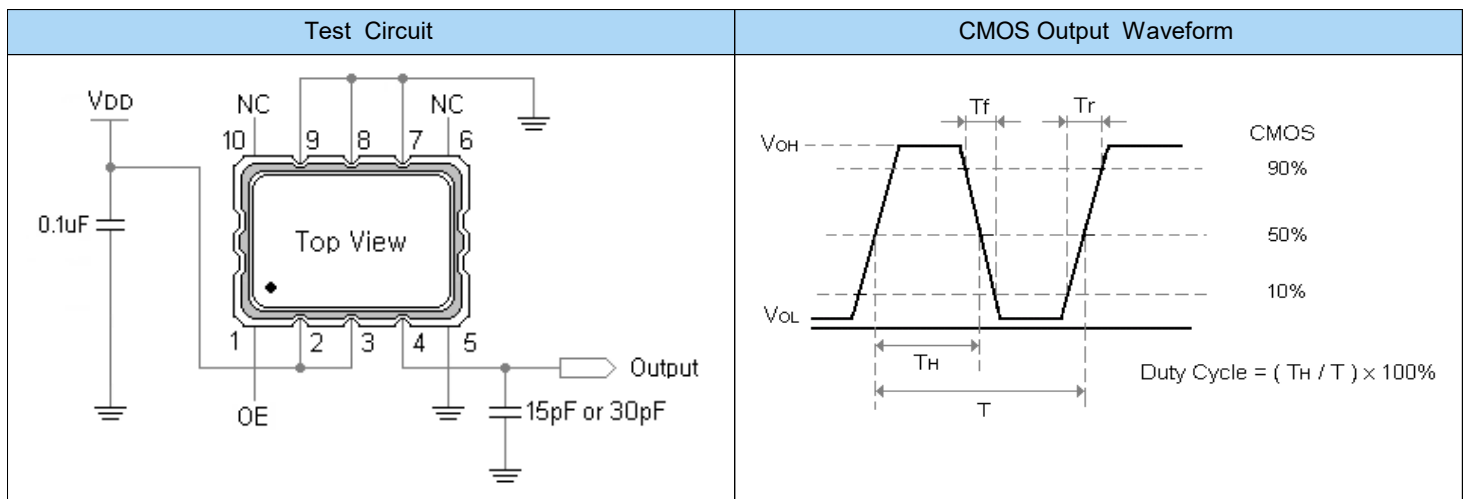
[1]	Holder Type " MER32 " stands for TCXO 3225 type
[2]	" T " stands for CMOS waveform
[3]	Supply Voltage , " 18 " stands for +1.8V ; " 25 " stands for +2.5V ; " 3 " stands for +3.0V ; " 33 " stands for +3.3V ; " 5 " stands for +5.0V ; " 18V5 " stands for +1.8V ~ +5.0V ± 10%
[4]	Nominal Frequency , " K " stands for KHz
[5]	Frequency stability in ± _ ppm ; ex 1 : ± 5.0ppm --- 5.0
[6]	Operating temperature range in °C ex 1 : -40°C to +85°C ----- -40+85

Package Dimensions (Unit : mm)

[MER32]



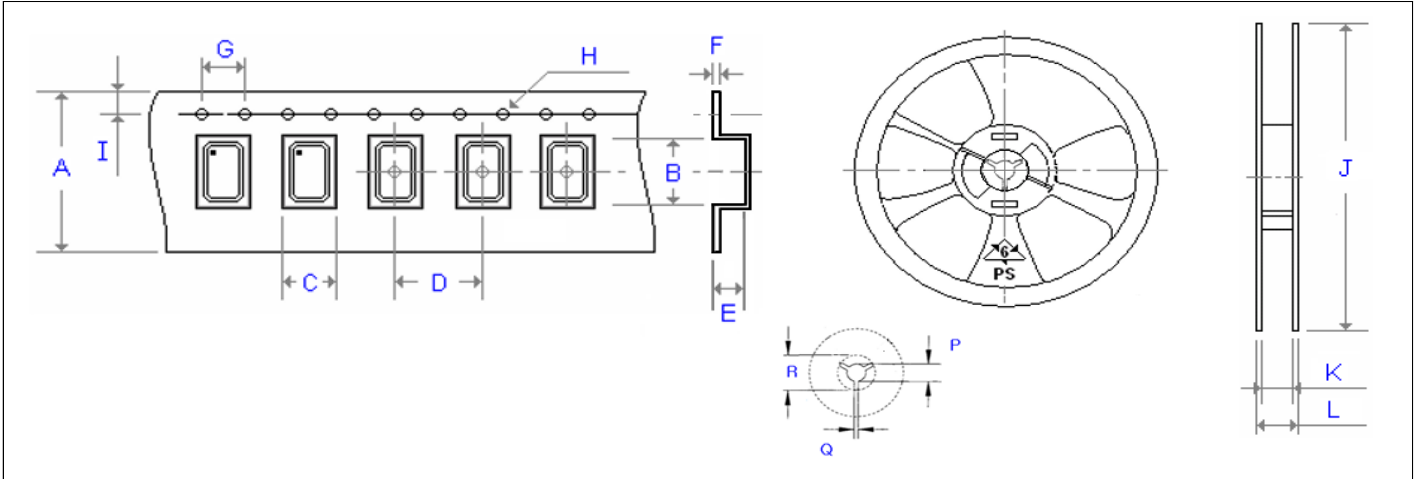
Test Circuit and Output Waveform



Emboss Taping and Reel Specifications

[VCXO]

[(VC)TCXO]



Carrier Type Dimensions (unit : mm) ±0.3mm

	A	B	C	D	E	F	G	H	I	pcs / reel
G_226	8.00	2.80	2.25	4.00	1.10	0.30	4.00	Ø 1.50	1.75	3000
G_326	8.00	3.40	2.70	4.00	1.40	0.25	4.00	Ø 1.50	1.75	3000
G_536	12.00	5.30	3.60	8.00	1.40	0.30	4.00	Ø 1.50	1.75	1000
G_576	16.00	7.30	5.30	8.00	1.90	0.30	4.00	Ø 1.50	1.75	1000
G_538	12.00	5.40	3.60	8.00	1.70	0.30	4.00	Ø 1.50	1.75	1000
G_578	16.00	7.30	5.30	8.00	1.90	0.30	4.00	Ø 1.50	1.75	1000
(V)M21	8.00	2.30	1.90	4.00	0.90	0.25	4.00	Ø 1.50	1.75	3000
ME21	8.00	2.30	1.50	4.00	1.35	0.25	4.00	Ø 1.50	1.75	3000
(V)M22	8.00	2.80	2.25	4.00	1.10	0.30	4.00	Ø 1.50	1.75	3000
(V)M_32	8.00	3.71	2.80	4.00	1.75	0.25	4.00	Ø 1.50	1.75	3000
(V)M_326	12.00	3.60	2.90	4.00	1.70	0.30	4.00	Ø 1.50	1.75	1000
(V)M_53	12.00	5.30	3.60	8.00	1.40	0.30	4.00	Ø 1.50	1.75	1000
(V)M_538	12.00	5.40	3.60	8.00	1.70	0.30	4.00	Ø 1.50	1.75	1000
(V)M_57(2)	16.00	7.40	5.50	8.00	2.80	0.35	4.00	Ø 1.50	1.75	500

Reel Dimensions (unit : mm) +2.0 / -0.0mm

	J	K	L	P	Q	R	pcs / reel
G_226	180.00	9.00	12.00	13.20	2.10	-	3000
G_326	180.00	9.00	12.00	13.20	2.10	-	3000
G_536	180.00	13.00	16.00	13.20	2.50	-	1000
G_576	180.00	17.20	19.30	13.30	2.20	22.00	1000
G_538	180.00	13.00	16.00	13.20	2.50	-	1000
G_578	180.00	17.20	19.30	13.30	2.20	22.00	1000
(V)M21	180.00	9.00	12.00	13.20	2.10	-	3000
ME21	180.00	9.00	12.00	13.20	2.10	-	3000
(V)M22	180.00	9.00	12.00	13.20	2.10	-	3000
(V)M_32	180.00	9.00	12.00	13.20	2.10	-	3000
(V)M_326	180.00	13.00	16.00	13.20	2.50	-	1000
(V)M_53	180.00	13.00	16.00	13.20	2.50	-	1000
(V)M_538	180.00	13.00	16.00	13.20	2.50	-	1000
(V)M_57(2)	180.00	17.20	19.30	13.30	2.20	22.00	500