



PRODUCT SELECTION GUIDE

Product Summary:

Output Wave Form: Square Wave					
TCXO	VCTCXO	Available Frequency Range	RoHS Compliant Equivalent Model		Package Description
Thru-Hole Types					
M38T	VM38T	32.768 KHz. Other frequencies are available.	M38GT	VM38GT	4 pin DIP
M39T	VM39T		M39GT	VM39GT	4 pin DIP
M14T	VM14T		M14GT	VM14GT	4 pin DIP. Hermetically sealed.
M15T	VM15T		M15GT	VM15GT	4 pin DIP. With trimmer
M8T	VM8T		M8GT	VM8GT	4 pin DIP. Half size. Hermetically sealed.
M9T	VM9T		M9GT	VM9GT	4 pin DIP. Half size. With trimmer
Gull Wing Surface Mount Types					
M55T	VM55T	32.768 KHz Other frequencies are available.	N / A	N / A	4 pin gull wing
M47T	VM47T		M47GT	VM47GT	4 pin gull wing
M24T	VM24T		M24GT	VM24GT	4 pin gull wing. Hermetically sealed.
M25T	VM25T		M25GT	VM25GT	4 pin gull wing. With trimmer
M28T	VM28T		M28GT	VM28GT	4 pin gull wing. Half size. Hermetically sealed.
M29T	VM29T		M29GT	VM29GT	4 pin Gull wing. Half size. With trimmer
Leadless Surface Mount Types					
M62T	VM62T	32.768 KHz Other frequencies are available.	M62GT	VM62GT	6 pad FR4 substrate. 2.5 mm H
M42T	VM42T		M42GT	VM42GT	4 pad FR4 substrate. 2.5mm H
M64T	VM64T		M64GT	VM64GT	6 pad FR4 substrate. 4.7 mm H
M44T	VM44T		M44GT	VM44GT	4 pad FR4 substrate. 4.7 mm H
M57T	VM57T	Under development	Same ⁽¹⁾	Same ⁽¹⁾	4 pad ceramic substrate. 5x7 mm
M53T	VM53T		Same ⁽¹⁾	Same ⁽¹⁾	4 pad ceramic substrate. 5x3.2 mm

For RoHS equivalent model please add “G” after the package code. For example: M14GT.

⁽¹⁾ M57T, VM57T, M53T and VM53T are RoHS compliant and lead free products. .

Note: Frequency tuning by the built-in mechanical trimmer is standard for all models except for M57T, VM57T, M53T and VM53T.

Product Options

- No mechanical Trimmer models are available to allow for aqueous washing.
- Narrow (± 1 ppm max.) or wide electrical tuning range (± 35 ppm max.)
- +15V, +12V, +10V or +9V DC supply voltages are also available in some packages.

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**“TCXO” and “VCTCXO” “T” Series 32.768 KHz
Wave Form: Square Wave**



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Part Number Format and Examples:

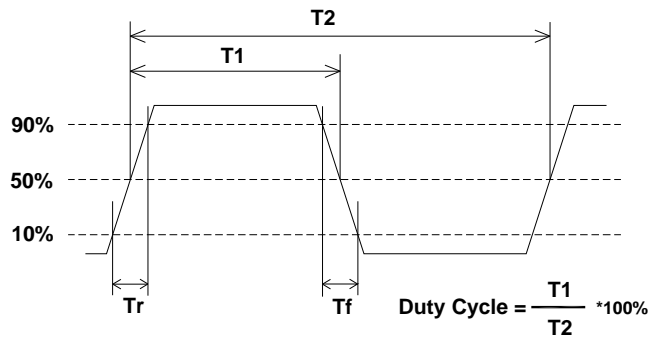
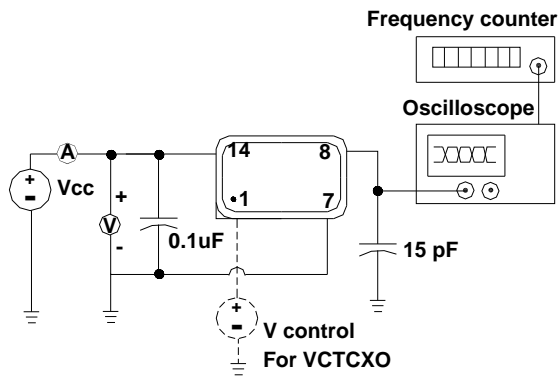
Example of TCXO: M38T33-32.768K-2.5/-30+75;

Example of VCTCXO: VM38T5-32.768K-2.5/-30+75

/	/		/		/		/		/	/ : customer to specify
V	M38	T	5	—	32.768K	—	2.5	/	-30+75	
❶	❷	❸	❹		❺		❻		❼	

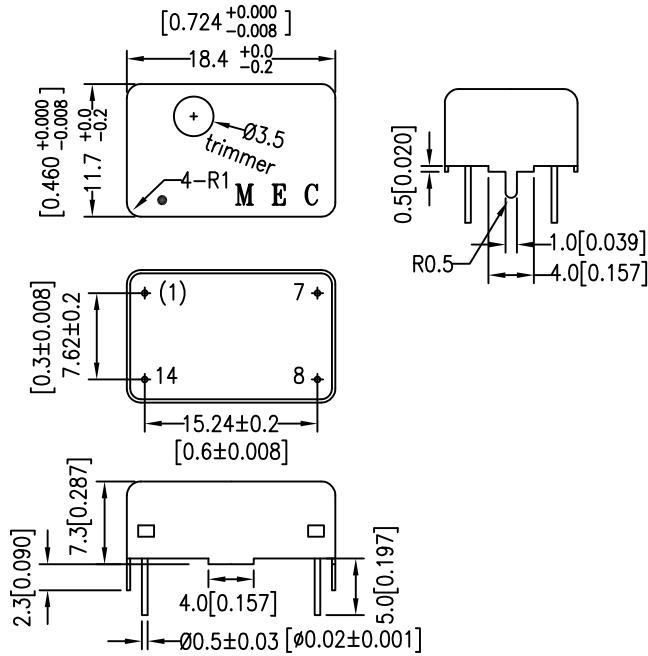
❶: “V” for VCTCXO; “blank” for TCXO ❷: Package code ❸: Wave form code “T” for Square wave ❹: Supply voltage code: “28” for +2.8V, “3” for +3.0V, “33” for “+3.3V, “5” for +5.0V ❺: Frequency in MHz ❻: Frequency stability in ±ppm ❼: Operating temperature range in °C

Square Wave TCXO (VCTCXO) Test Circuit (example of VM14) and Output Wave Form:



Package: M38T,VM38T

Open bottom



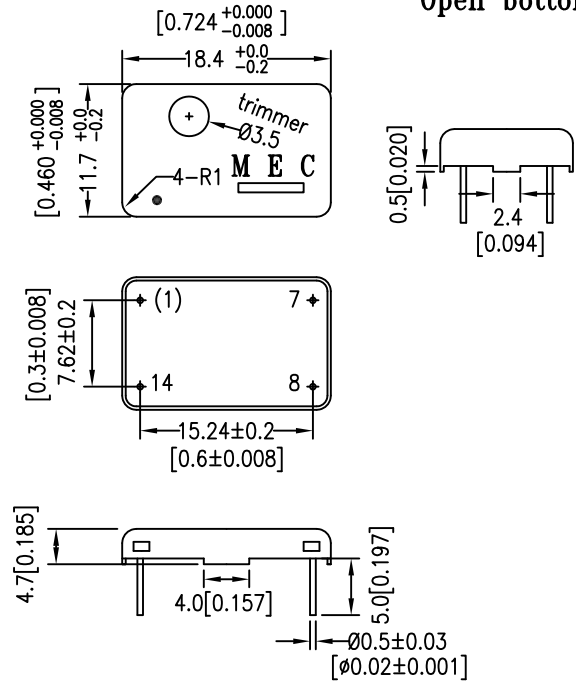
Pin Connections

- Pin 1: Voltage Control for VCTCXO; No physical pin 1 for TCXO
- Pin 7: Ground and case
- Pin 8: Output
- Pin 14: Supply Voltage

Package: M39T,VM39T

Unit: mm [inches]

Open bottom



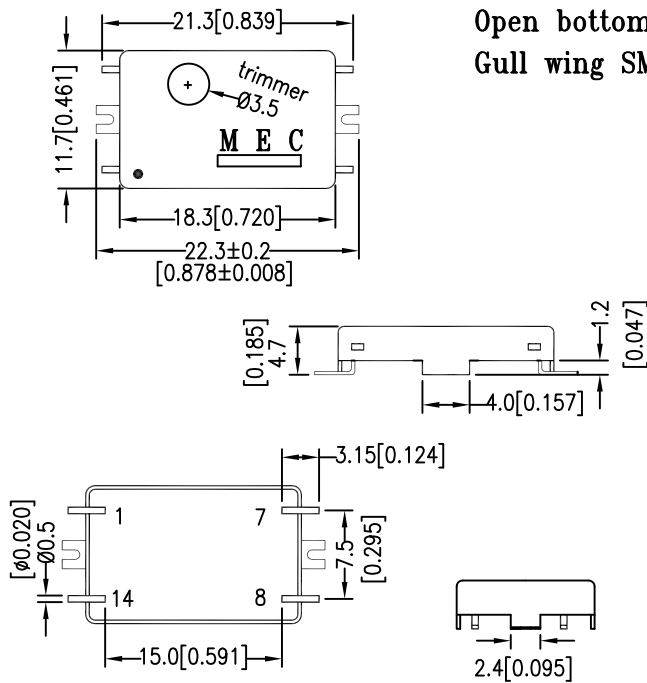
Pin Connections

- Pin 1: Voltage Control for VCTCXO; No physical pin 1 for TCXO
- Pin 7: Ground and case
- Pin 8: Output
- Pin 14: Supply Voltage

TCXO;VCTCXO

Package: M47T,VM47T

**Open bottom
Gull wing SMD**

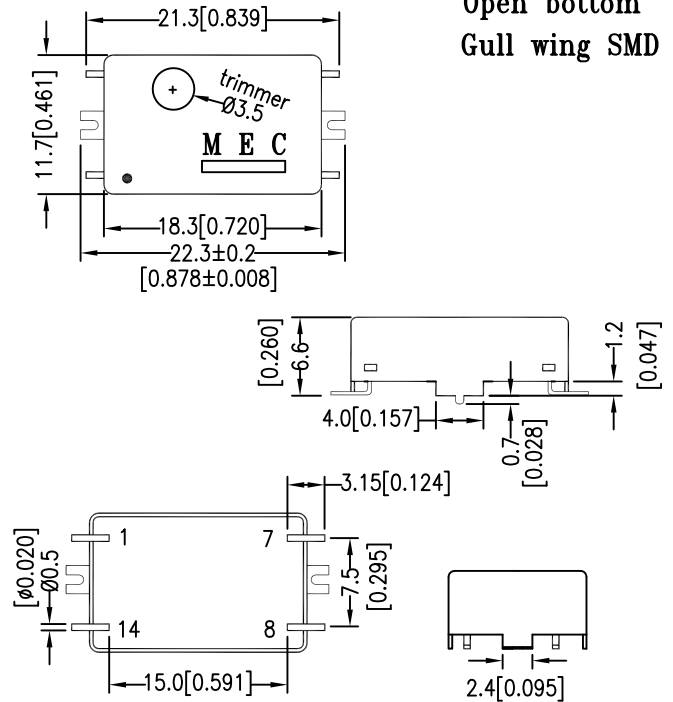


Pin Connections

- Pin 1: Voltage Control for VCTCXO. No Connection for TCXO.
- Pin 7: Ground and case
- Pin 8: Output
- Pin 14: Supply Voltage

Package: M55T,VM55T

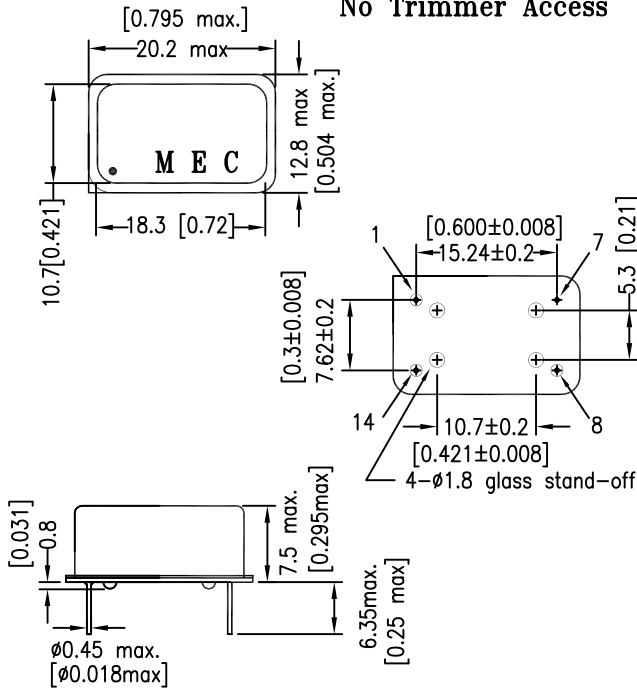
**Open bottom
Gull wing SMD**



Pin Connections

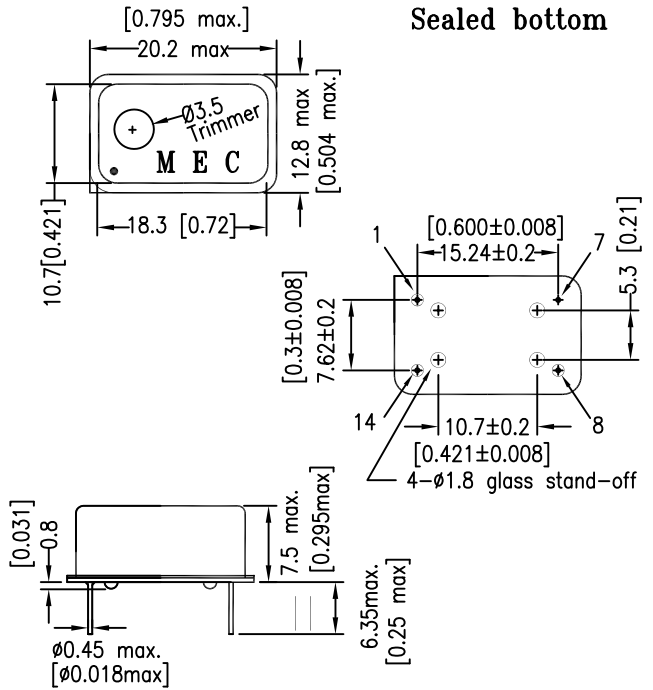
- Pin 1: Voltage Control for VCTCXO. No Connection for TCXO.
- Pin 7: Ground and case
- Pin 8: Output
- Pin 14: Supply Voltage

Package: M14T,VM14T Hermetically Sealed DIP No Trimmer Access



Pin Connections Square corner denotes pin 1
 Pin 1: Voltage Control for VCTCXO; No Connection for TCXO
 Pin 7: Ground and case
 Pin 8: Output
 Pin 14: Supply Voltage

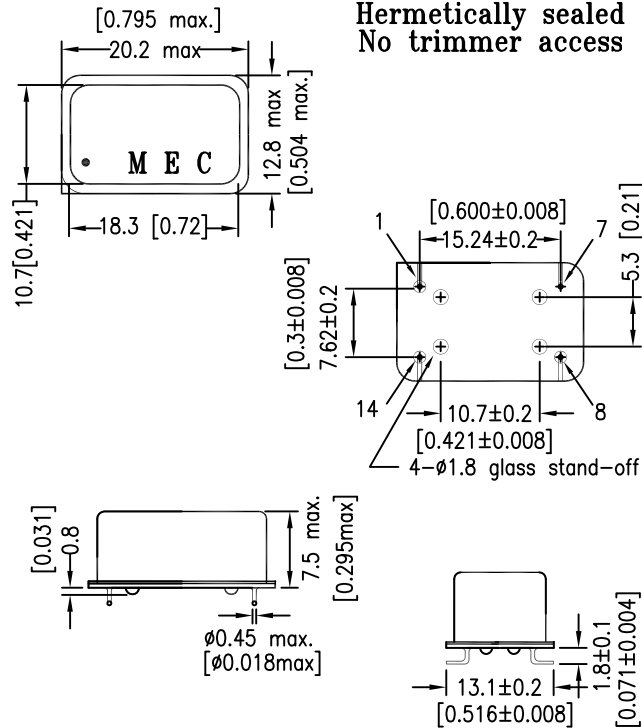
Package: M15T,VM15T Unit: mm [inches] Sealed bottom



Pin Connections Square corner denotes pin 1
 Pin 1: Voltage Control for VCTCXO; No Connection for TCXO
 Pin 7: Ground and case
 Pin 8: Output
 Pin 14: Supply Voltage

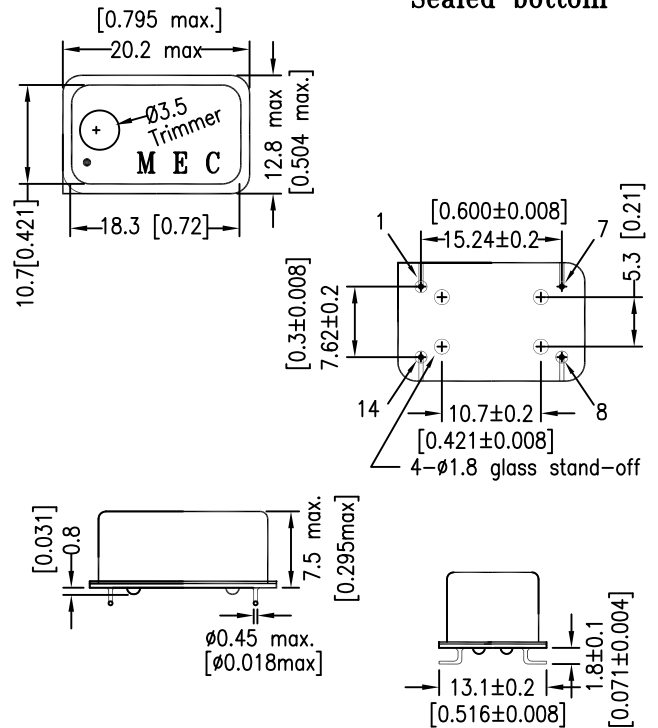
TCXO;VCTCXO

Package: M24T,VM24T Hermetically sealed No trimmer access



Pin Connections Square corner denotes pin 1
 Pin 1: Voltage Control for VCTCXO; No Connection for TCXO
 Pin 7: Ground and case
 Pin 8: Output
 Pin 14: Supply Voltage

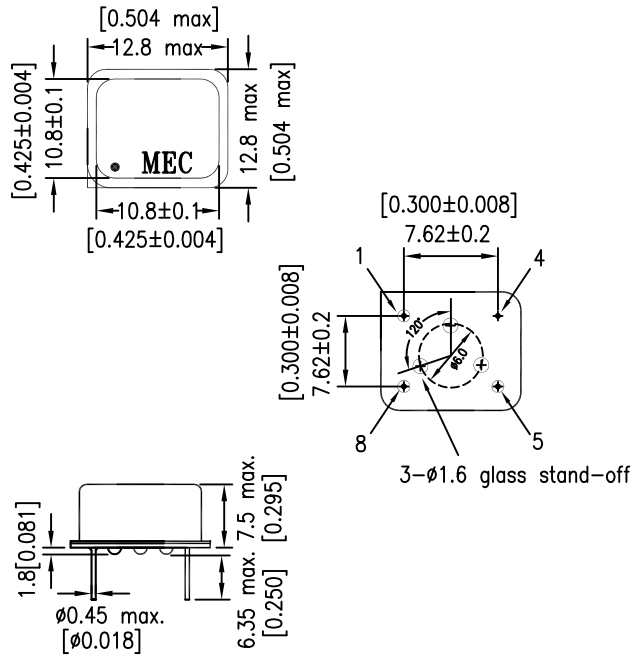
Package: M25T,VM25T Sealed bottom



Pin Connections Square corner denotes pin 1
 Pin 1: Voltage Control for VCTCXO; No Connection for TCXO
 Pin 7: Ground and case
 Pin 8: Output
 Pin 14: Supply Voltage

Package: M8T,VM8T

Hermetically Sealed DIP
No trimmer Access



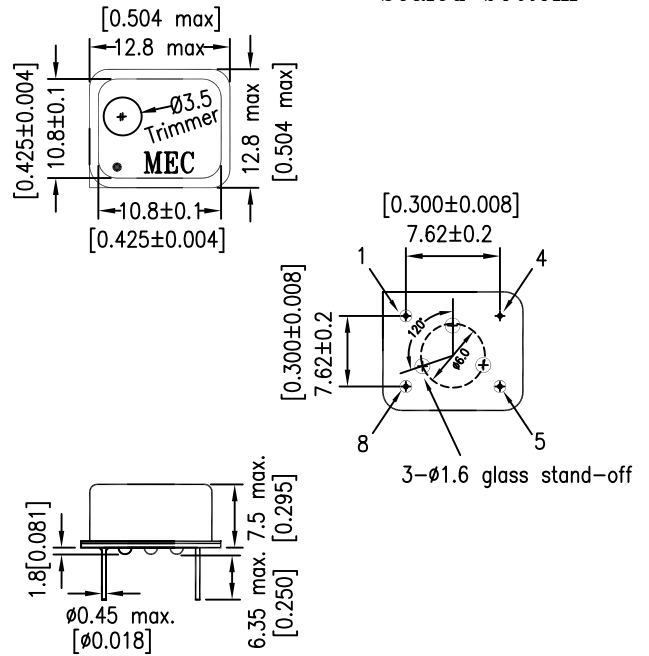
Pin Connections

Square corner denotes pin 1

- Pin 1: Voltage Control for VCTCXO or No Connection for TCXO
- Pin 4: Ground and case
- Pin 5: Output
- Pin 8: Supply Voltage

Package: M9T,VM9T

Unit: mm [inches]
Sealed bottom



Pin Connections

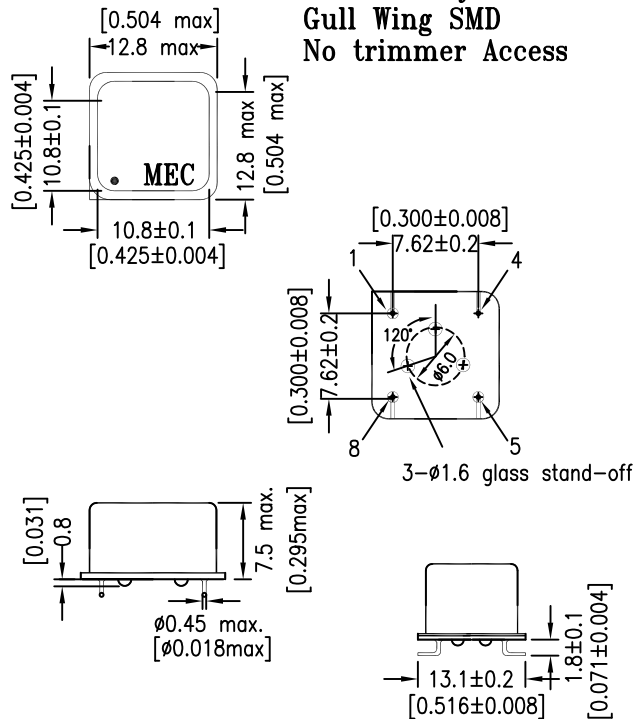
Square corner denotes pin 1

- Pin 1: Voltage Control for VCTCXO or No Connection for TCXO
- Pin 4: Ground and case
- Pin 5: Output
- Pin 8: Supply Voltage

TCXO;VCTCXO

Package: M28T,VM28T

Hermetically Sealed
Gull Wing SMD
No trimmer Access



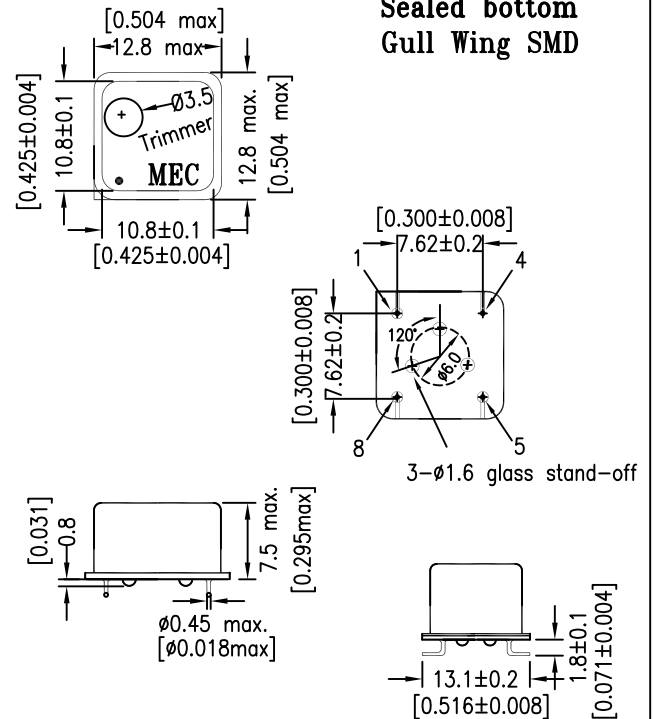
Pin Connections

Square corner denotes pin 1

- Pin 1: Voltage Control for VCTCXO or No Connection for TCXO
- Pin 4: Ground and case
- Pin 5: Output
- Pin 8: Supply Voltage

Package: M29T,VM29T

Sealed bottom
Gull Wing SMD



Pin Connections

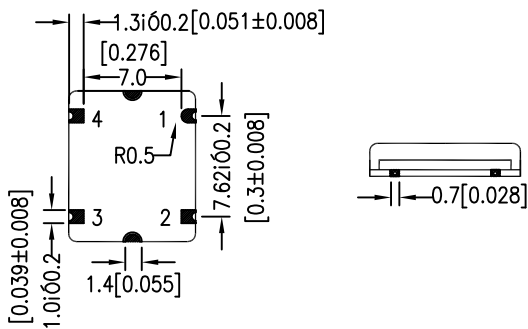
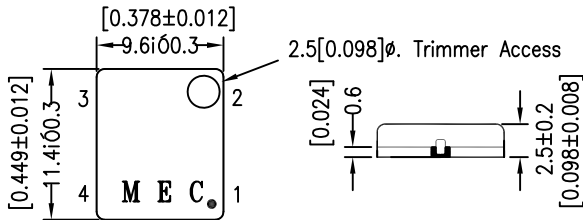
Square corner denotes pin 1

- Pin 1: Voltage Control for VCTCXO or No Connection for TCXO
- Pin 4: Ground and case
- Pin 5: Output
- Pin 8: Supply Voltage

Package: M42T,VM42T

FR4 substrate

"42" represents 4 pads and 2.5 mm overall height



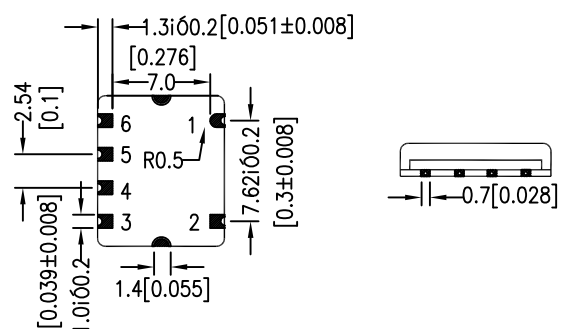
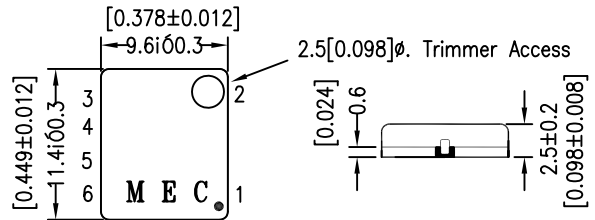
Pad Connections:

- Pad 1: Voltage Control for VCTCXO; No Connection for TCXO
- Pad 2: Ground and case
- Pad 3: Output
- Pad 4: Supply Voltage

Package: M62T,VM62T

FR4 substrate

"62" represents 6 pads and 2.5 mm overall height



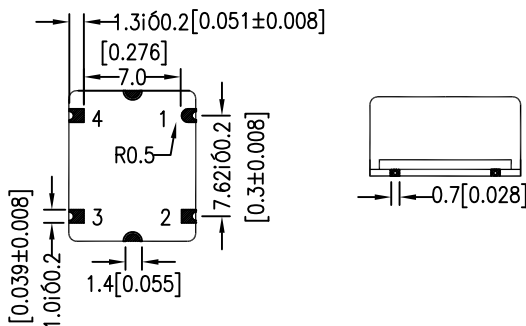
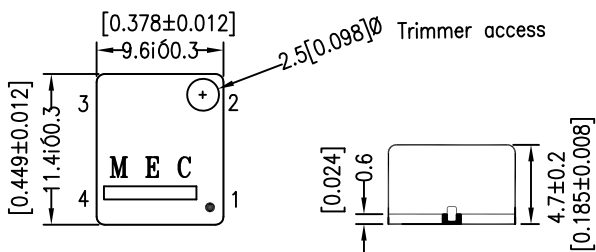
Pad Connections:

- Pad 1,2,4: Ground and case
- Pad 3: Output
- Pad 5: Voltage Control for VCTCXO; No Connection for TCXO
- Pad 6: Supply Voltage

Package: M44T,VM44T

FR4 substrate

"44" represents 4 pads and 4.7 mm overall height



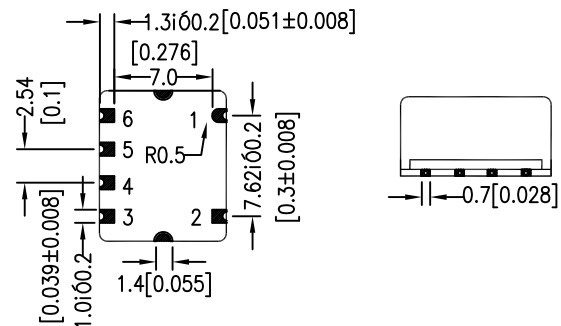
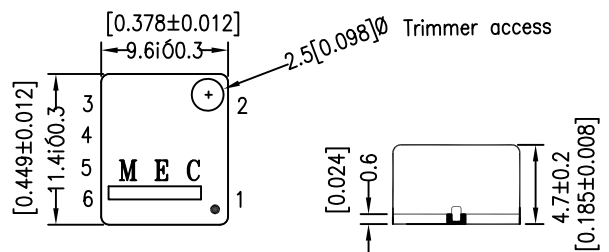
Pad Connections:

- Pad 1: Voltage Control for VCTCXO; No Connection for TCXO
- Pad 2: Ground and case
- Pad 3: Output
- Pad 4: Supply Voltage

Package: M64T,VM64T

FR4 substrate

"64" represents 6 pads and 4.7 mm overall height



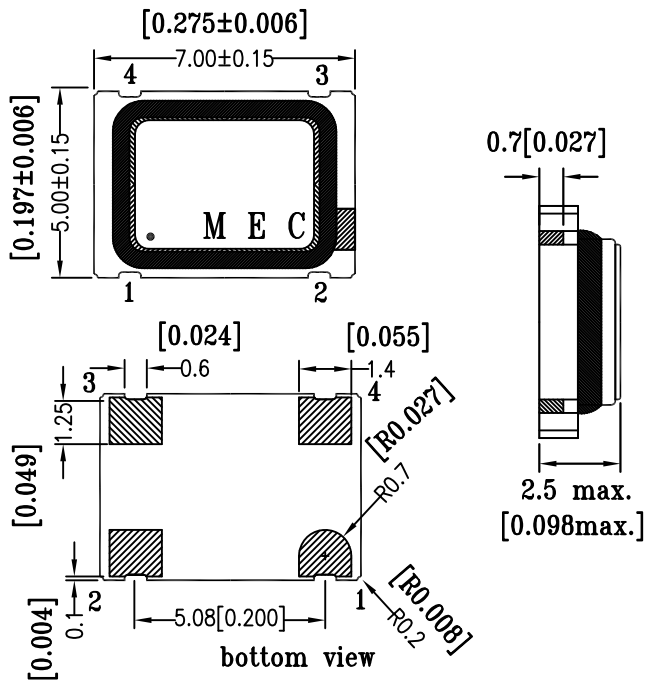
Pad Connections:

- Pad 1,2,4: Ground and case
- Pad 3: Output
- Pad 5: Voltage Control for VCTCXO; No Connection for TCXO
- Pad 6: Supply Voltage

TCXO;VCTCXO

Package: M57T,VM57T

Ceramic SMD

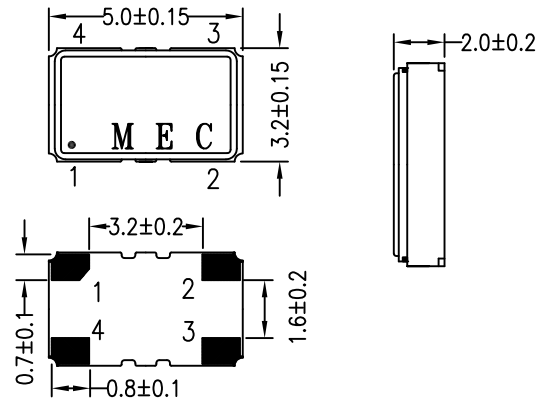


Pad Connections:

- Pad 1: "Do not connect" for TCXO; Voltage Control for VCTCXO
- Pad 2: Ground and metal lid
- Pad 3: Output
- Pad 4: Supply Voltage

Package: M53T,VM53T

Ceramic SMD



Pad Connections:

- Pad 1: "Do not connect" for TCXO; Voltage Control for VCTCXO
- Pad 2: Ground and metal lid
- Pad 3: Output
- Pad 4: Supply Voltage

TCXO;VCTCXO