

Ceramic Crystal Oscillator

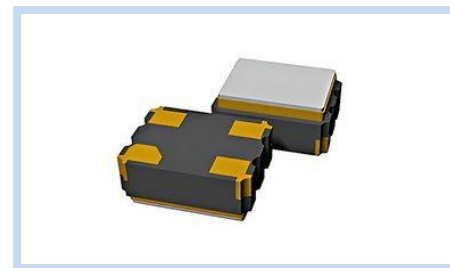
SMD 1.6 x 1.2mm CMOS

MO1 Series

MERITEK

FEATURE

- Output Logic: CMOS
- Tri-State Function
- High Precision and High Frequency Stability
- Applications: Wired Network, Mobile Communication, Bluetooth, WiMAX, WLAN, Set-Top Box, HDTV



ELECTRICAL CHARACTERISTICS

Item	Min	Typ	Max	Units
Nominal Frequency Range	0.032768	-	125.000	MHz
Supply Voltage (V_{DD})	1.8	3.3	3.6	V
Overall Frequency Stability Range	-20	-	+20	ppm
	-50	-	+50	
Operating Temperature Range	0	-	+60	°C
	-40	-	+85	
Storage Temperature Range	-55	-	+125	
Supply Current	-	-	3.5	mA
Symmetry (Duty Cycle)	45	50	55	%
Rise/ Fall Time, T_r (10% ~90% V_{DD}) / T_f (90% ~10% V_{DD})	-	-	10	ns
Output Voltage	High (V_{OH})	90%	-	V_{DD}
	Low (V_{OL})	-	10%	
Output Load (CMOS)	-	-	15	pF
Start Up Time	-	-	2	ms
Frequency Aging First Year at 25°C ± 3°C	-3		3	ppm
Pin 1, Tri-State Function	Pin 1 = "H" or "open": Output active at Pin 3 Pin 1 = "L": Output is high impedance at Pin 3			--

Note:

1. Overall frequency stability range include 25°C tolerance, operating temperature change, input voltage change, load change, aging, shock and vibration.
2. For stable operation, it is recommended that the bypass capacitor (0.01 μ F) placed between V_{DD} and GND to minimize power supply line noise.

DIMENSIONS

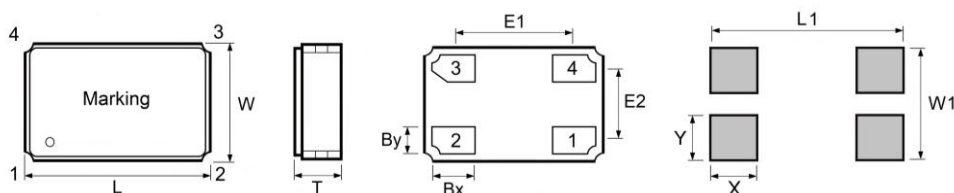


Fig.1

Unit: mm

Size	L	W	T	Bx	By	E1	E2	X	Y	L1	W1	Fig
1612	1.6 ±0.1	1.2 ±0.1	0.50 ±0.08	0.55	0.35	0.95	0.75	0.80	0.60	1.80	1.40	1

Note: Pin 1: Tri-State; Pin 2: GND; Pin 3: Output; Pin 4: V_{DD} .

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PART NUMBERING SYSTEM

MO1 33 F 3 32M0
(1) (2) (3) (4) (5)

No.	Item	Code	Description
(1)	Meritek Series	MO1	Ceramic SMD Crystal Oscillator, 1.6 x 1.2mm, 4 Pads, CMOS
(2)	Supply Voltage	33	33: 3.3V ±5% 1.8~3.6V, See option table
(3)	Frequency Stability	F	F: ±20ppm ±20~±50ppm, See option table
(4)	Operating Temperature	3	3: -40~+85°C See option table
(5)	Frequency	32M0	32M0: 32.00MHz 32K768~125M0, K and M: denotes decimal point
(6)	Pin 1	Blank	Blank: Tri-State N: No Connection
(7)	Output Load	Blank	Blank: 15pF Blank: 15pF (Standard), X: 30pF, Y: 50pF
(8)	Duty Cycle	Blank	Blank: 45/55% T: 40/60%

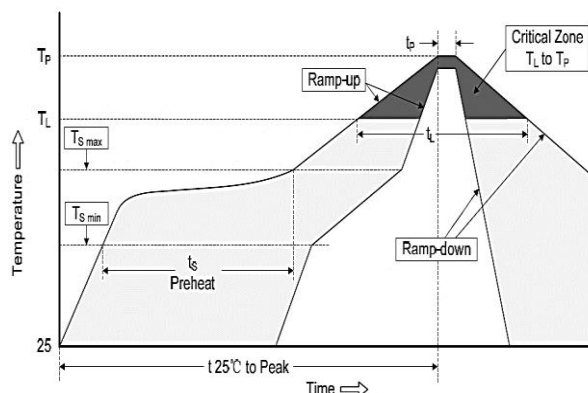
PRODUCTS OPTION CODE

Supply Voltage	(V)	1.8	2.5	2.8	3.0	3.3	5.0	*	
	Code	18	25	28	30	33	50	Z	
Frequency Stability	(ppm)	±10	±15	±20	±25	±30	±50	±100	*
	Code	A	C	F	G	H	J	K	Z
Operating Temperature	(°C)	-40~70	-40~85	-40~105	-40~125	-40~150	-10~60	0~70	*
	Code	4	3/I	2/R	1/Y	0	A	B	Z
Operating Temperature	(°C)	-55~70	-55~85	-55~105	-55~125	-55~150	-20~70	-30~85	*
	Code	9	8	7	6	5	C	K	Z

Note: * Z: None Standard, Custom options available. Contact Meritek for more information.

RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	125°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min. to max.) (t_s)	60~180 seconds
Ramp up rate (T_L to T_P)		3°C/second max.
$T_{s(max)}$ to T_L (Ramp-up rate)		3°C/second max.
Reflow	Temp. (T_L)	217°C
	Time (min. to max.) (t_L)	60~150 seconds
Peak Temperature (T_P)		260°C
t_p within 5°C of Peak Temperature (t_p)		20~40 seconds
Ramp-down Rate		6°C/second max.



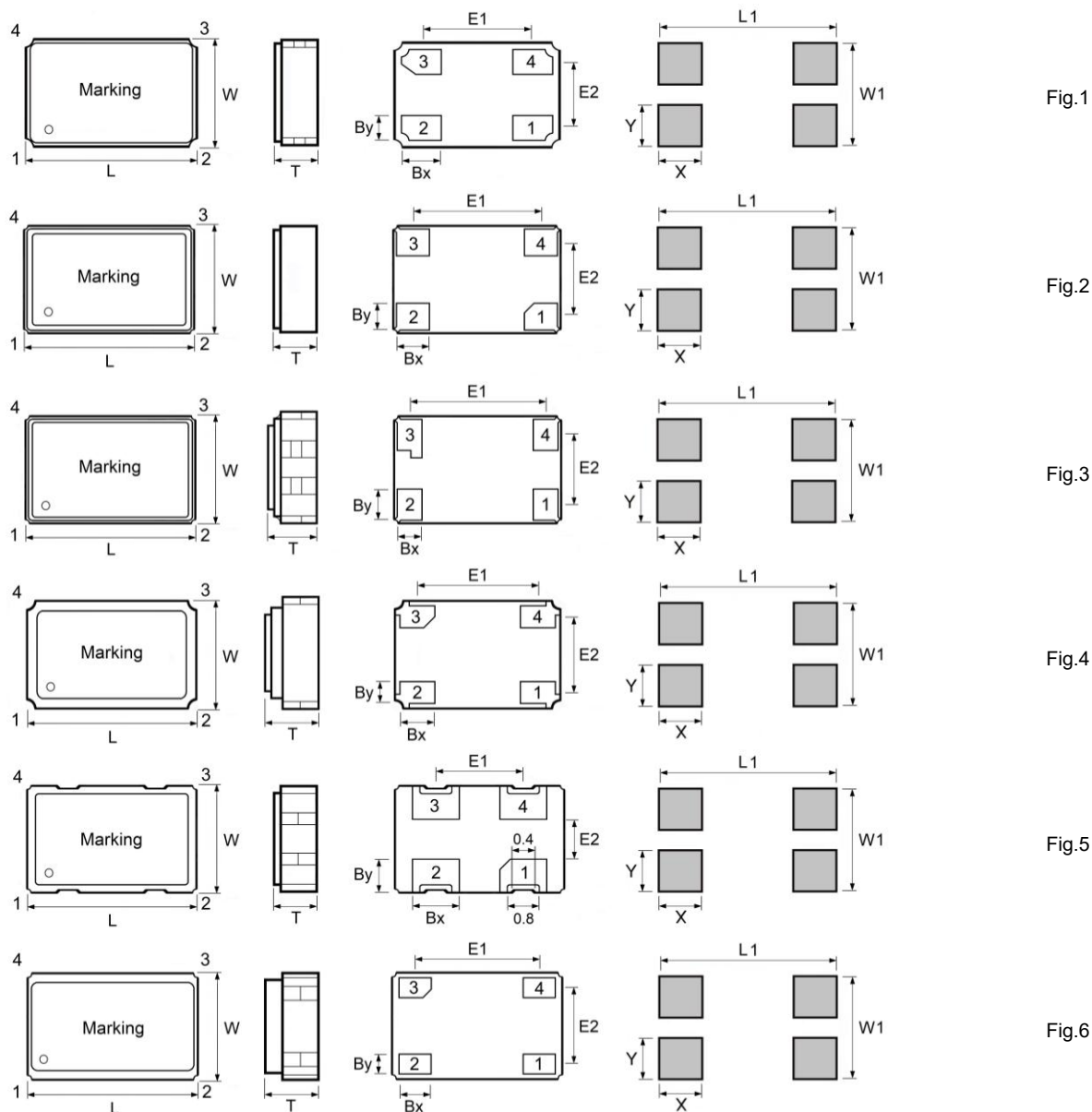
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SMD 1.6 x 1.2mm CMOS

MO1 Series

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DIMENSIONS – MOx Series



Unit: mm

Series	Size	Pad	L	W	T max	Bx	By	E1	E2	X	Y	L1	W1	Fig
MO1	1612	4	1.6 ±0.1	1.2 ±0.1	0.58	0.55	0.35	0.95	0.75	0.80	0.60	1.80	1.40	1
MOA	2016	4	2.0 ±0.1	1.6 ±0.1	0.90	0.55	0.45	1.25	0.95	0.85	0.75	2.20	1.80	2
MO2	2520	4	2.5 ±0.15	2.0 ±0.15	0.90	0.50	0.62	1.90	1.27	0.90	1.00	2.90	2.27	3
MO3	3225	4	3.2 ±0.15	2.5 ±0.15	1.20	0.90	0.65	2.10	1.65	1.30	1.30	3.40	3.20	4
MO5	5032	4	5.0 ±0.2	3.2 ±0.2	1.40	1.20	1.00	2.54	2.20	1.70	1.50	4.24	3.70	5
MO7	7050	4	7.0 ±0.2	5.0 ±0.2	1.50	1.40	1.10	5.08	3.70	1.80	2.00	6.88	6.20	6

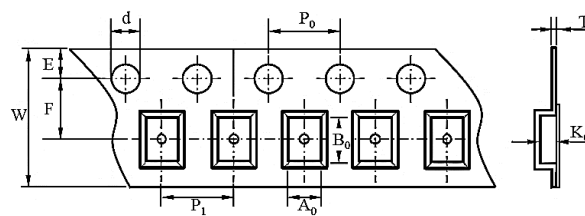
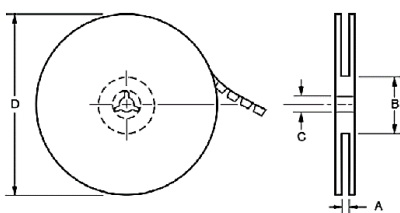
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PACKAGING SPECIFICATION



Series	Size	Reel Dimension (mm)						Tape Dimensions (mm)									
		A	B	C	D	Dia	Pcs/Reel	A0	B0	d	E	F	K0	P0	P1	T	W
MO1	1612	9.0	60	13.0	180	178	3000	1.4	1.8	1.50	1.75	3.5	0.7	4.0	4.0	0.25	8.0
MOA	2016	9.0	60	13.0	180	178	3000	1.8	2.2	1.50	1.75	3.5	1.3	4.0	4.0	0.25	8.0
MO2	2520	9.0	60	13.0	180	178	3000	2.25	2.7	1.50	1.75	3.5	1.15	4.0	4.0	0.25	8.0
MO3	3225	9.0	60	13.0	180	178	3000	2.7	3.4	1.50	1.75	3.5	1.15	4.0	4.0	0.25	8.0
MO5	5032	13.5	60	13.0	180	178	1000	3.6	5.4	1.50	1.75	5.5	1.4	4.0	8.0	0.25	12.0
MO7	7050	17.5	60	13.0	180	178	1000	5.4	7.4	1.50	1.75	7.5	1.8	4.0	8.0	0.25	16.0

Note: Specifications subject to change without notice.