

Ceramic SMD Crystal Unit

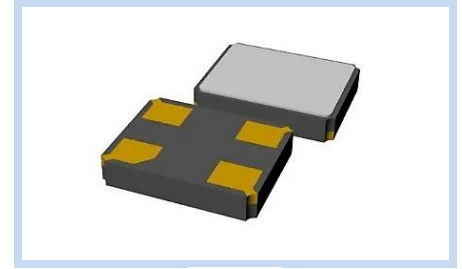
2.0 x 1.6mm MHz Crystal

MXA Series

MERITEK

FEATURE

- Surface Mount Low Profile
- Seam Sealed Ceramic Package
- Excellent Heat Resistance
- High Precision and High Frequency Stability
- Applications: Data Application, Computer Machines, Printers, CPU, Memory, Test Equipment



ELECTRICAL CHARACTERISTICS

Item	Min	Typ	Max	Units
Nominal Frequency Range	12.000	-	60.000	MHz
Operation Mode	Fundamental AT			--
Frequency Tolerance at 25°C ± 3°C	±10	±30	±50	ppm
Frequency Stability Range	±30	-	±50	
Operating Temperature Range	-40	-	+85	°C
Storage Temperature Range	-55	-	+125	
Load Capacitance, CL	6	-	30	pF
Shunt Capacitance, C0	-	-	5	
Equivalent Series Resistance	50	-	300	Ω
Drive Level	-	50	100	μW
Insulation Resistance, at 100VDC	500	-	-	MΩ
Frequency Aging First Year at 25°C ± 3°C	-3	-	3	ppm
Moisture Sensitivity Level, MSL	Level 1 (J-STD-033)			--

Note: see the parts number system for other options

STANDARD ESR

Frequency (MHz)	Operation Mode	ESR Max (Ω)	Frequency (MHz)	Operation Mode	ESR Max (Ω)
12.0 ~ 23.999	Fundamental AT	300	25.0 ~ 35.999	Fundamental AT	50
24.0 ~ 24.999	Fundamental AT	120	36.0 ~ 60.000	Fundamental AT	80

DIMENSIONS AND RECOMMENDED PATTERN

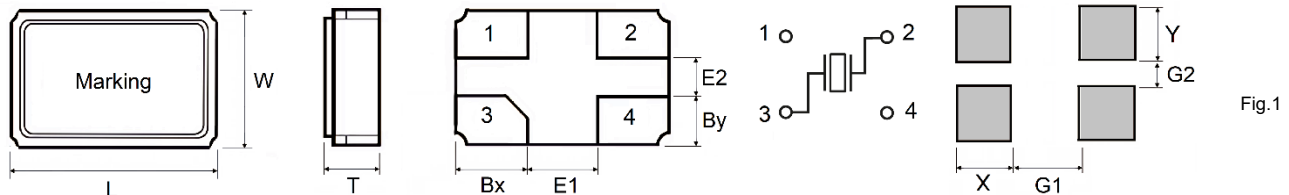


Fig.1

Unit: mm

Size	L	W	T	Bx	By	E1	E2	X	Y	G1	G2	Fig
2016	2.0 ±0.1	1.6 ±0.1	0.50 max	0.55	0.45	0.70	0.50	0.85	0.75	0.50	0.30	1

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PART NUMBERING SYSTEM

MXA F H J C 20M0
 (1) (2) (3) (4) (5) (6)

No.	Item	Code	Description
(1)	Meritek Series	MXA	Ceramic SMD Crystal, MHz 2.0 x 1.6mm, 4 Pads
(2)	Load Capacitance	F	F: 20pF 6~30pF, See option table
(3)	Frequency Tolerance	H	H: ±30ppm ±10~±100, See option table
(4)	Frequency Stability	J	J: ±50ppm ±10~±100, See option table
(5)	Operating Temperature	C	C: -20~+70°C See option table
(6)	Frequency	20M0	20M0: 20.00MHz 12M0~60M0, M: denotes decimal point

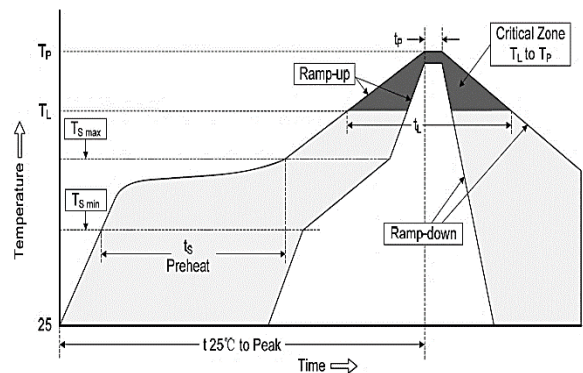
PRODUCTS OPTION CODE

Load Capacitance	(pF) Code	3	4	5	6	7	8	9	10	12	15	16	18	20	22	25	30	32	*
		3	4	5	6	7	8	9	A	B	C	D	E	F	K	G	H	L	Z
Frequency Tolerance	(ppm) Code	±10		±15		±20		±25		±30		±50		±100		*			
		A		C		F		G		H		J		K		Z			
Frequency Stability	(ppm) Code	±10		±15		±20		±25		±30		±50		±100		*			
		A		C		F		G		H		J		K		Z			
Operating Temperature	(°C) Code	-40~70		-40~85		-40~105		-40~125		-40~150		-10~60		0~70		*			
		4		3/I		2/R		1/Y		0		A		B		Z			
Operating Temperature	(°C) Code	-55~70		-55~85		-55~105		-55~125		-55~150		-20~70		-30~85		*			
		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.
Reflow Times		3 times max



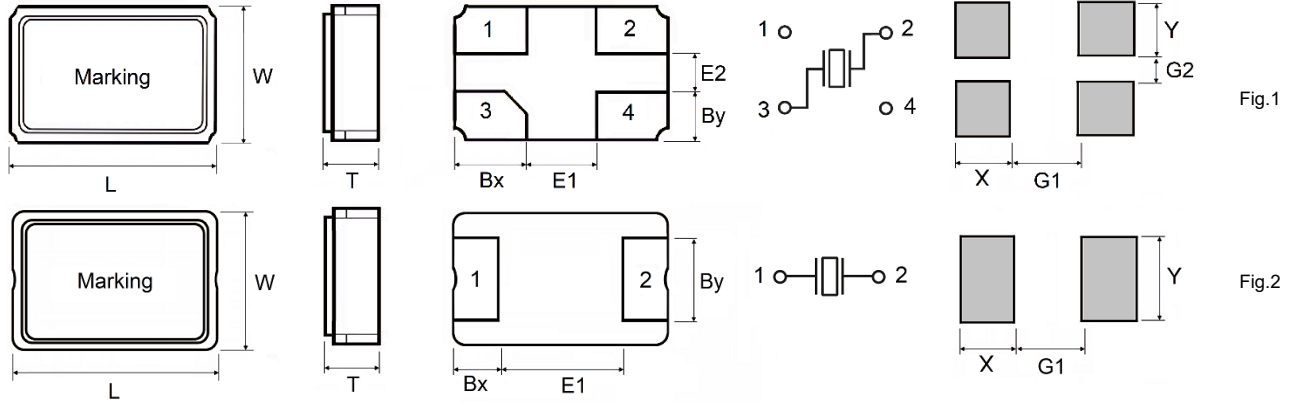
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2.0 x 1.6mm MHz Crystal

MXA Series

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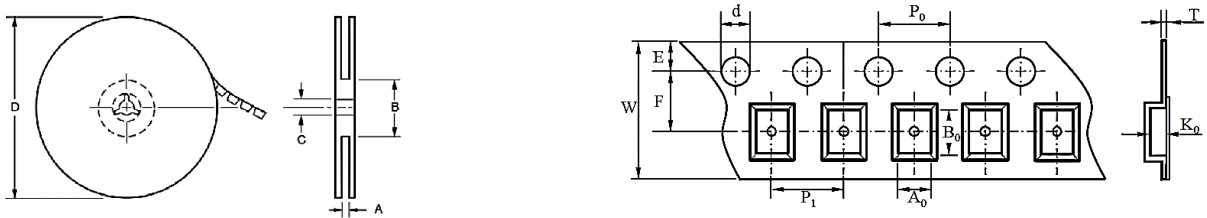
DIMENSIONS – MXx Series



Unit: mm

Series	Size	Pad	L	W	T max	Bx	By	E1	E2	X	Y	G1	G2	Fig
MX1	1612	4	1.6 ±0.1	1.2 ±0.1	0.37	0.55	0.45	0.50	0.30	0.65	0.55	0.40	0.30	1
MXA	2016	4	2.0 ±0.1	1.6 ±0.1	0.50	0.55	0.45	0.70	0.50	0.85	0.75	0.50	0.30	1
MX2	2520	4	2.5 ±0.1	2.0 ±0.1	0.55	0.80	0.70	0.90	0.60	1.20	1.00	0.50	0.30	1
MX3	3225	4	3.2 ±0.1	2.5 ±0.1	0.75	1.00	0.90	1.20	0.70	1.40	1.20	0.80	0.40	1
MX5	5032	4	5.0 ±0.2	3.2 ±0.2	0.90	1.30	0.90	2.40	1.40	1.60	1.35	1.90	0.70	1
MX6	6035	4	6.0 ±0.2	3.5 ±0.2	1.10	1.50	1.00	3.00	1.50	1.95	1.40	2.40	1.10	1
MX7	7050	4	7.0 ±0.2	5.0 ±0.2	1.10	1.20	1.00	4.60	1.54	2.20	1.40	4.00	1.10	1
MXB	5032	2	5.0 ±0.2	3.2 ±0.2	1.20	1.30	2.00	2.40	-	1.80	2.40	2.00	-	2
MXC	6035	2	6.0 ±0.2	3.5 ±0.2	1.10	1.50	2.00	3.00	-	1.70	2.20	3.60	-	2
MX8	8045	2	8.0 ±0.2	4.5 ±0.2	1.60	1.50	2.00	5.00	-	2.50	2.8	4.00	-	2

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
MX1	1612	9.5	60	13.5	180	178	3000	1.4	1.8	1.50	1.75	3.5	0.6	4.0	4.0	0.2	8.0
MXA	2016	9.5	60	13.5	180	178	3000	1.8	2.2	1.50	1.75	3.5	1.3	4.0	4.0	0.3	8.0
MX2	2520	9.5	60	13.5	180	178	3000	2.25	2.75	1.50	1.75	3.5	1.0	4.0	4.0	0.2	8.0
MX3	3225	9.5	60	13.5	180	178	3000	2.7	3.4	1.50	1.75	3.5	1.3	4.0	4.0	0.3	8.0
MX5	5032	13.5	80	13.5	180	178	1000	3.6	5.4	1.50	1.75	5.5	1.3	4.0	8.0	0.3	12.0
MX6	6035	13.5	80	13.5	180	178	1000	3.9	6.4	1.50	1.75	5.5	1.4	4.0	8.0	0.3	12.0
MX7	7050	17.5	80	13.5	180	178	1000	5.4	7.5	1.50	1.75	7.5	1.6	4.0	8.0	0.3	16.0
MXB	5032	17.5	80	13.5	180	178	3000	3.4	5.4	1.50	1.75	7.5	1.3	4.0	8.0	0.3	16.0
MXC	6035	17.5	80	13.5	180	178	1000	4.0	6.4	1.50	1.75	7.5	1.3	4.0	8.0	0.3	16.0
MX8	8045	17.5	80	13.5	180	178	1000	5.4	8.5	1.50	1.75	7.5	1.6	4.0	8.0	0.3	16.0

Note: Specifications subject to change without notice.