MEC

PRODUCT SPECIFICATION

QUARTZCRYSTAL

FREQUENCY COMPONENTS

PRODUCT TYPE	: SMD-5032
NOMINAL FREQUENCY	: 16.000MHZ
PART NO	: SMD503204SA-16M1620F
REVISION	: A

Mobicon Holdings Limited
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MOBICON
Electronic Components

PRODUCT DESCRIPION

Standard atmospheric conditions

Unless otherwise specified. The standard range of atmospheric conditions for making measurement and tests are as follow:

Ambient temperature 25±2℃
Relative humidity 40%~70%

If there is no doubt the results, measurement shall be made within the following limits:

Ambient temperature 25±2℃
Relative humidity : 40%~70%

Measure equipment

Electrical characteristics measured by S&A250B or equivalent.

Crystal cutting type

The crystal is using AT CUT (thickness shear mode)

ELECTRICAL SPECIFICATIONS

	Parameters	Symbol	Electrical Spec.	UNITS	Notes
1	Nominal Frequency	FL	16.000000	MHz	-
2	Oscillation Mode	-	Fund	-	-
3	Load Capacitance	CL	16.0	p F	-
4	Frequency Tolerance	-	+/-20	ppm	at 25±2℃
5	Operating Temperature	-	-20～+70℃	℃	-
6	Frequency Stability (reference 25℃)	-	+/-10	ppm	-20～+70℃
7	Drive Level	DL	100.0	u W	-
8	Effective Resistance Rr	ESR	< 60.0	ohm	-
9	Shunt Capaitance C0	C0	< 5.0	p F	-
10	Insulation Resistance	IR	>500	M-ohm	at DC 100V
11	Aging	-	+/-5	ppm	1st Year
12	Reflow shift	-	+/-5	ppm	at 265±2℃*10sec
13	Storage Temperature Range	-	-40～+85℃	℃	-
14	ESD	-	HBM>2000V	℃	JESD22-A114-B
15	Others	-	-	-	-

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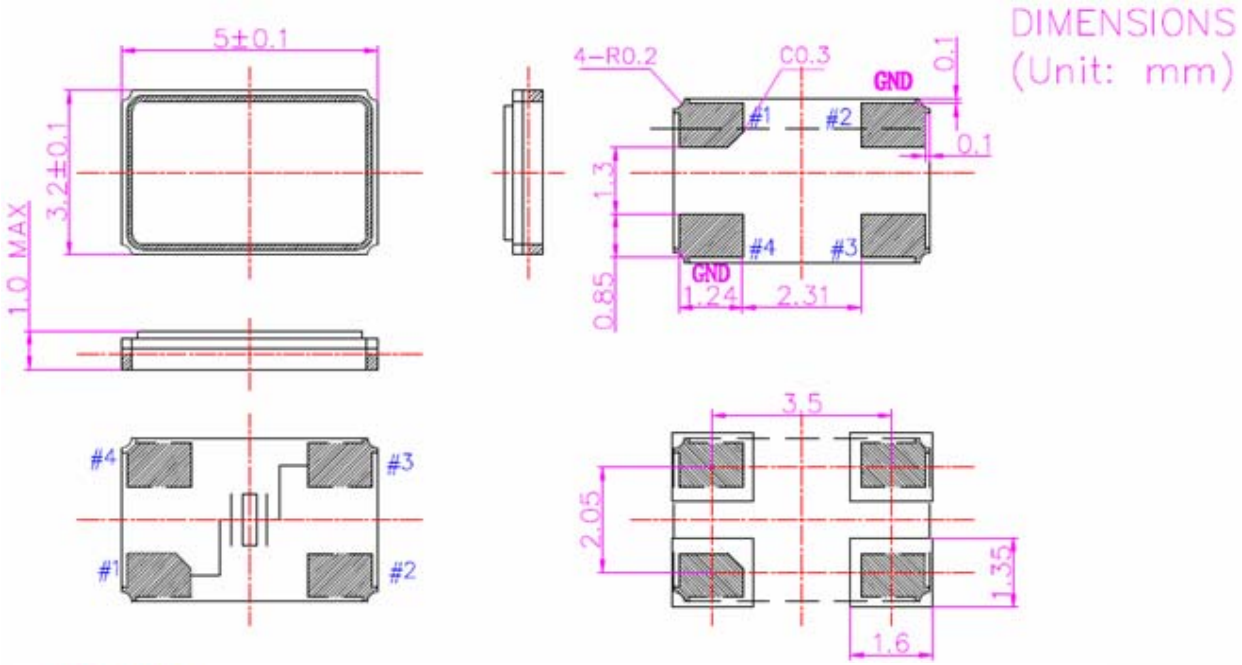
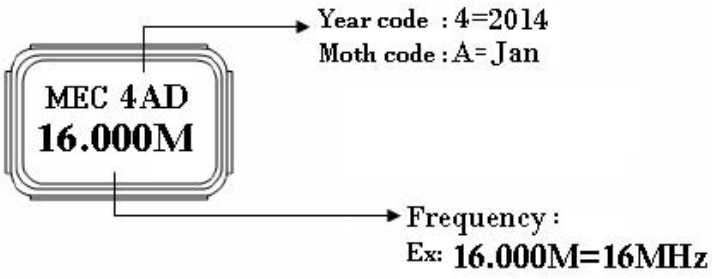
DIMENSIONS unit:mm



MARKING

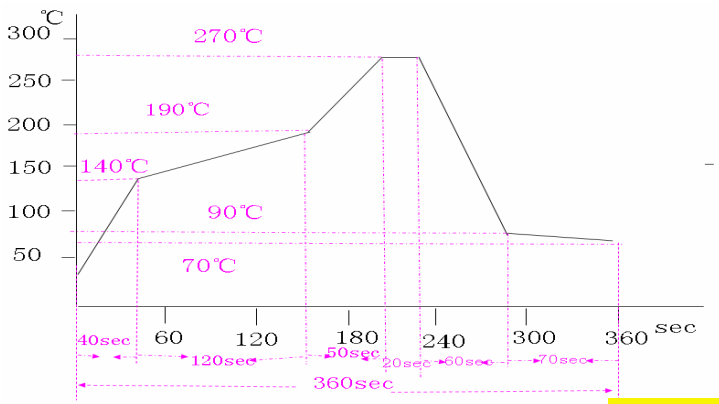


A - Jan	E -May	J - Sept
B - Feb	F - June	K - Oct
C - Mar	G - Jul	L - Nov
D - Apr	H - Aug	M - Dec

SUGGESTED REFLOW PROFILE

Total time : 360 sec. Max.

Solder melting point :185 °C



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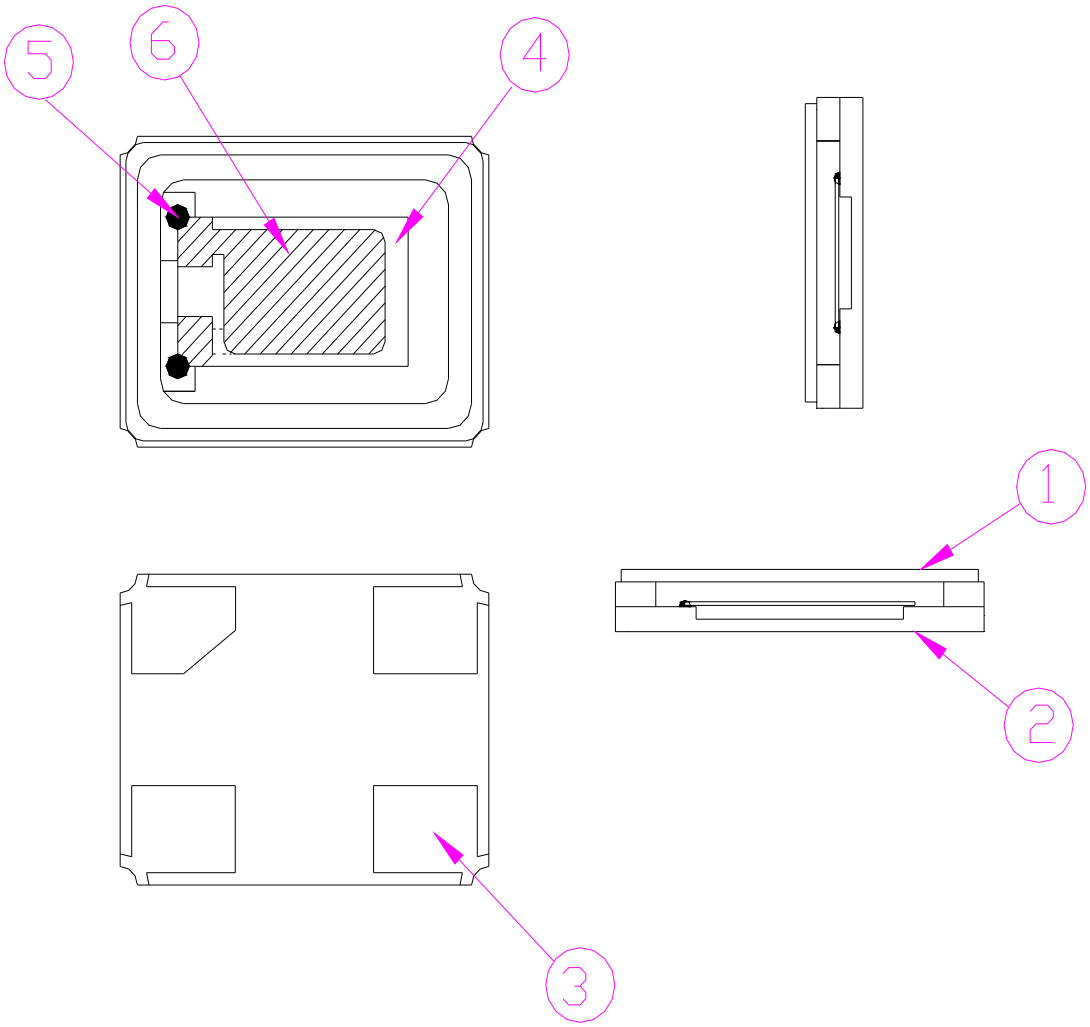
STRUCTURE ILLUSTRATION



NO	COMPONENTS	MATERIALS	QTY	FINISH/SPECIFICATIONS
1	Cap(Lid)	Metal(Fe)	1	-
2	Base(Package)	Ceramic(AI2O3)	1	Alumina ceramics
3	Pad(Package)	Au	4	Tungsten metalize +Ni plating +Au plating
4	Crystal blank	SiO2	1	-
5	Conductive adhesive	Ag	4	Silicone resin
6	Electrode	Ag + Cr	2	-

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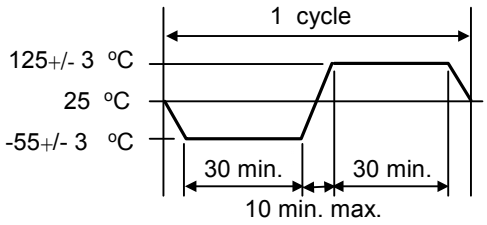
RELIABILITY SPECIFICATIONS

1.MECHANICAL ENDURANCE

No.	Test Item	Test Methods	
1	Drop Test	150 cm height, fall freely onto stainless plate 3 times.	JIS C6701
2	Shock Test	150g/150cm Height,3times in the direction of ±x, ±y, ±z on concrete floor	IEC-68-02-27
3	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually pendicular axes each 3 times. 1.0m sec. duration time	MIL-STD-202F
4	Vibration	Frequency range 10 ~ 55 Hz Amplitude 1.52 mm Pendicular axes each test time 2 hours（x,y,z Axis） Total test time 6 hours	MIL-STD-883E
5	Gross Leak	Standard Sample For Automatic Gross Leak Detector Test Pressure 2kg/cm2	MIL-STD-883E
6	Fine Leak	Helium Bombing 4.5kgf/cm2 for 2 hr	MIL-STD-883E
7	Solderability	Temperature 215 °C +/- 5 °C Immersing depth 0.5 mm minimum Immersion time 10 +/- 0.5 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	MIL-STD-883E
8	Resistance To Soldering Heat	Pre-heat temperature 125 °C Pre-heat time 60 ~ 120 sec. Test temperature 260 +/- 5 °C Test time 5 +/- 1 sec.	MIL-STD-202F

2.ENVIRONMENTAL ENDURANCE

No.	Test Item	Test Methods	
9	High Temp. Storage	+ 125 °C +/- 3 °C for 500 +/- 12 hours	MIL-STD-883E
10	Low Temp. Storage	- 40 °C +/- 3 °C for 500 +/- 12 hours	
11	Thermal Shock	Total 100 cycles of the following temperature cycle 	MIL-STD-883E
12	High Temp&Homidity	85℃±3℃, RH 85%,500Hrs	JIS C5023
13	Pressure Cooker Storage	120 +/- 3°C, RH100%, 2 bar, for 240 hours	JIS C6701

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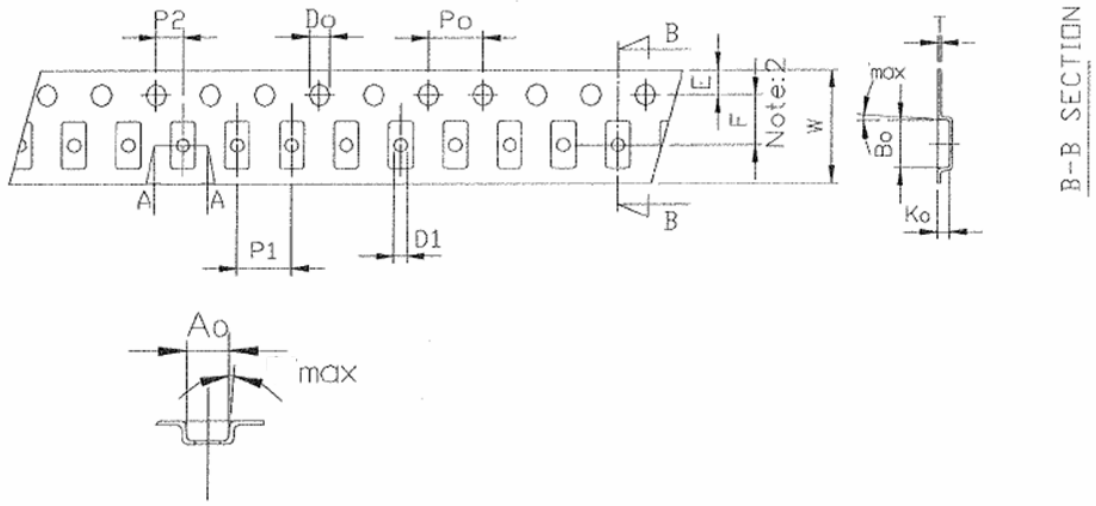
PACKING : (EIA-481-2)



Dimension / PKG Type	Unit : mm						
	A0	**B0**	**K0**	**T**	**W**	**E**	**F**
5032(12mm)	3.6±0.1	5.4±0.1	1.4±0.1	0.3±0.05	12±0.2	1.75±0.2	5.5±0.2
	P1	**P2**	**D1**	**D0**	**P0**		
	8±0.1	2±0.1	1.55±0.05	1.55±0.05	4±0.1		

Standard Reel Quantity is 1,000 pcs per reel.

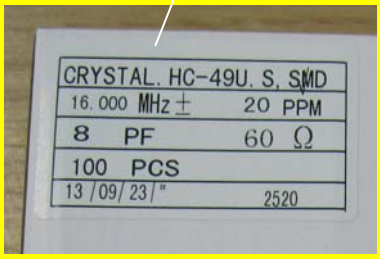
THE INSPECTION FOR TAPE TENSION

ITEM		Defect	Method
Appearance	ALL	1.The tape is not coincidence 2.The bubble	Visual inspection
Tape Tension	8045、7050 6035-12mm 5032-12mm 3225-12mm	overstep 61±6g(55~67g)	Pull test
	3225-8mm	overstep 40±5g(35~45g)	
	2520-8mm	overstep 55±6g(49~61g)	
	2016-8mm	overstep 34±6g(28~40g)	
	1612-8mm	overstep 34±6g(28~40g)	
	6035-16mm 5032-16mm	overstep 60±6g(54~66g)	

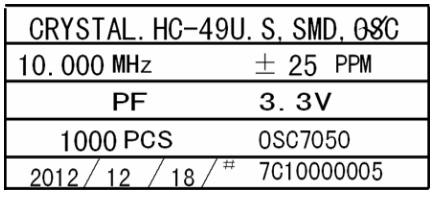
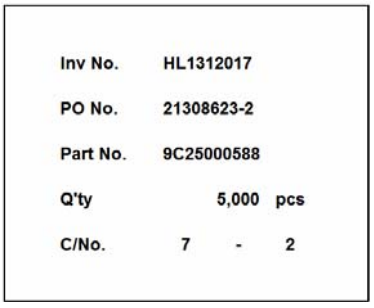
REMARK : NA

SMD PRODUCT PACKING STANDARD

Out-going packing instruction

Reel Packing	Inner Packing	Carton
name：reel standard：diameter 18cm material：plastics	name：inner box standard：L19.0xW19.0xH2.5cm material：B corrugated paper	name：carton standard：L34.0xW22.0xH22.0cm material：AB corrugated paper(10 boxes enter)
		
		

The label instruction

Label Drawing	Mark	Name of Article	Spec.	Size	Printing
	L1	条码标签 Bar Code Label (Chintz Paper)	1.Date Code 2.Lot No. 3.Part No. 4.Freq 5.Q'ty	75x35mm	White
	L2	机打标签 Printing Label (Printing Paper)	1.Freq 2.Electrical Parameters 3.Q'ty 4.Part No. 5.Packing Date	75x35mm	White
	L3	运输标签(唛头) Shipping Mark (Printing Paper)	1.inv No. 2.PO No. 3.Part No. 4.Q'ty 5.C/No.	100x100mm	White

Remark

Specifications on the label is for the use of templates with different product specifications may vary.
If customer specified requirements for labels packaging. please provide the operation pro

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Range	Products	Packing Material	Test Method
Banned Substances	**Maximum concentration ppm(mg/kg)**	**Maximum concentration ppm(mg/kg)**	
1.镉及镉化合物 Cadmium and cadmium compounds	5	5	ICP-AES as per EN1122, method B2001 or other acid digestion.
2.铅及铅化合物 Lead and lead compounds	40	100	ICP-AES after as per EPA 3050B or other acid digestion.
3.汞及汞化合物 Mercury and mercury compounds	5	5	ICP-AES after as per EPA 3052 or other acid digestion.
4.六价铬化合物 Hexavalent-Chromium VI (Cr+6)	10	10	As per US EPA 7196A and US EPA 3060A.
5.聚溴联苯 PBB Polybrominated biphenyls	5	5	With reference to USEPA 3540 or USEPA3550. Analysis was performed by LPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS),83/261/EEC, and76/769/EEC)
6.聚溴二苯醚 PBDE Polybrominated diphenyl ethers	5	5	With reference to USEPA3540or USEPA3550. Analysis was performed by HPLC/DAD LC/MS or GC/MS.(prohibited by 2002/95/EC(RoHS), 83/264/EEC, and 76/769/EEC)
7.多氯联苯 (PCB) Polychlorinated biphenyl	5	5	
8.多氯化萘 (PCN) Polychlorinated naphthalene	5	5	
9.氯代烷烃 (CP) Chiorinated paraffin	5	5	
10.其他有机氯化合物 Other chlorinated organic compounds	5	5	
11.其他有机溴化合物 Other brominated organic compounds	5	5	
12.有机锡化合物 (三丁基锡化合物,三苯基锡化合物) Organic tin compounds (Tributyl tin category & Triphenyl tin category)	5	5	
13.石棉 Asbestos	5	5	
14.偶氮化合物 Azo compounds	5	5	
15.甲醛 Formaldehyde	5	5	
16.聚氯乙烯(PVC)以及聚氯乙烯混合物 Polyvinyl chloride (PVC) and PVC blends	No detect	No detect	
17.包装材料中重金属(汞、镉、六价铬、铅、PBB、PBDE)之总量 Heavy metals (mercury, cadmium, lead, Cr+6,PBB and PBDE) in packing	N/A	<100	

Lead Free Products are “Directive 2002/95/EC of The European Parliament of 27 January 2003 on the restriction of certain hazardous substances (RoHS) in electrical and electronic equipment” and Sony SS-00259 Compliant.

MEC

REVIEW OF SPECIFICATIONS

1) When something get doubtful with this specifications, we shall jointly work to get an agreement.

2) This specification limits the quality of the components as a single unit. Please insure the component is thoroughly evaluated in your application circuit.

3) Please do not use this component in any application that deviates from its intended use as noted within the specification. It may cause any mishaps.

4) Please return one of this specification after your signature of acceptance. In case of no return within 3 months from submission date. This specification should be treated as accepted.

When using our products, the following precautions should be taken.

(1) Safety designing of apparatus or a system allowing for failures of electronic components used in the system

In general, failures will occur in electronic components at a certain probability. MOBICON HOLDINGS LTD makes every effort to improve the quality and reliability of electronic component products. However, it is impossible to completely eliminate the probability of failures. Therefore, when using MOBICON HOLDINGS LTD electronic component products, systems should be carefully designed to ensure redundancy in the event of an accident which would result in injury or death, fire, or social damage, to ensure the prevention of the spread of fire, and the prevention of faulty operation.

(2) Quality Level of various kinds of parts, and equipment in which the parts can be utilized

Electronic components have a standard quality level unless otherwise specified.

(3) This specifications is subject to change without notice.

The contents of this specifications are based on data which is correct as of 2002, and they may be changed without notice. If our products are used for mass-production design, please enquire consult with a member of our company's sales staff by way of precaution.

(4) Reprinting and copying of this specifications without prior written permission from MOBICON HOLDINGS LTD are not permitted.

(5) Indust rial Property Problems

In the event any problems associated with industrial property of a third party arising as a result of the use of our products. MOBICON HOLDINGS LTD assumes no responsibility for problems other than problems directly associated with the constitution and manufacturing method of the products.

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