

SPECIFICATION APPROVAL

CUSTOMER	LITEON
PRODUCT TYPE	HC-49/SAB
NOMINAL FREQ.	4.000000MHZ
ZGC P/N	GH4.000FET9
CUSTOMER P/N	
ISSUE DATE	2008.3.12

CUSTOMER'S APPROVAL

APPROVED	QA
LIYUZHONG	SHIHANBO



ZHENG GONG ELECTRONIC

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ZGC	ZHENGONG ELECTRONIC	TEL: (020)32068136	ZGC PN: GH4.000FET9	VER.: A
		FAX: (020)32068201	FMT NO:	PAGE: 2/9
SMD QUARTZ CRYSTAL UNIT HC-49/SAB TYPE			APPROVED	QA
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ELECTRICAL SPECIFICATIONS

1.	Nominal Frequency	4.000000 MHz
2.	Oscillation Mode	Fundamental
3.	Load Capacitance	12 pF
4.	Frequency Tolerance (25 °C)	+/-100 ppm
5.	Effective Series Resistance	150Ohms Max.
6.	Shunt Capacitance (C0)	5.0 pF Max.
7.	Motional Capacitance (C1)	N/A fF
8.	Drive Level	100 uW
9.	Operation Temperature Range	-40 °C ~ +125 °C
10.	Stability Over Temperature Range	+/- 200 ppm
11.	Insulation Resistance	500 Mohms Min. at DC 100V
12.	Attenuation of Spurious Frequency Amplitude	N/A
13.	Ratio of Holder to Motional (C0/1)	N/A
14.	Storage Temperature	-40 °C ~ +125 °C
15.	Aging	+/- 5 ppm / year.

* Measured by SAUNDERS 250B CRYSTAL IMPEDANCE METER.

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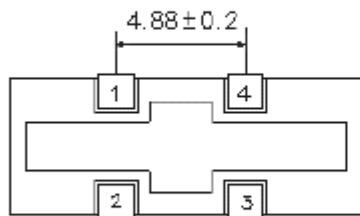
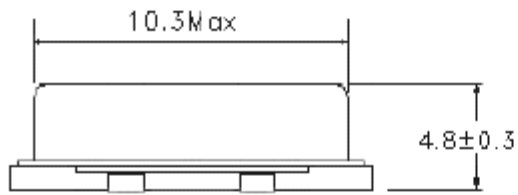
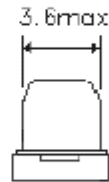
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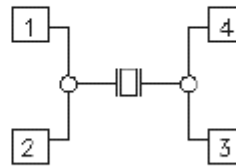
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DINMENSIONS



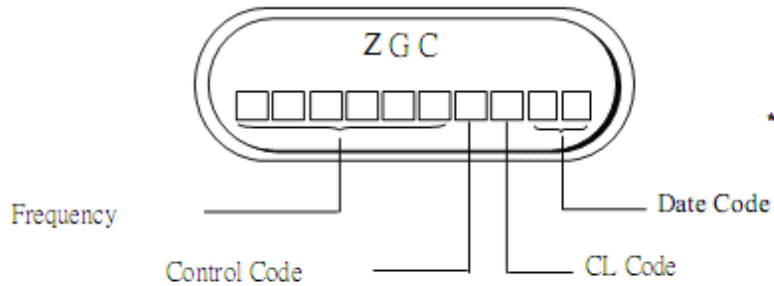
Internal Connection



Suggested Layout

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MARKING



*The detail date code please refer date code page.

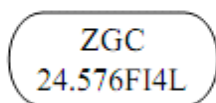
Control Code

code	Oscillation Mode
F	AT-Fundamental
T	AT-Third Overtone
B	BT-Cut
S	Speical

CL Code :

CODE	CL	CODE	CL
A	5PF	J	18PF
B	7PF	K	20PF
C	8PF	L	22PF
D	10PF	M	27PF
E	12PF	N	30PF
F	13PF	O	32PF
G	14PF	P	35PF
H	15PF	S	Series
I	16PF	T	Speical

Example : Marking



Introduction : 49S 24.576000 MHz
16 pF Fundamental
Made in 2004/12th week

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MARKING

Date Code

YEAR WEEK	2001	2002	2003	2004	2005	2006	2007	2008	2009
1	1A	2A	3A	4A	5A	6A	7A	8A	9A
2	1B	2B	3B	4B	5B	6B	7B	8B	9B
3	1C	2C	3C	4C	5C	6C	7C	8C	9C
4	1D	2D	3D	4D	5D	6D	7D	8D	9D
5	1E	2E	3E	4E	5E	6E	7E	8E	9E
6	1F	2F	3F	4F	5F	6F	7F	8F	9F
7	1G	2G	3G	4G	5G	6G	7G	8G	9G
8	1H	2H	3H	4H	5H	6H	7H	8H	9H
9	1I	2I	3I	4I	5I	6I	7I	8I	9I
10	1J	2J	3J	4J	5J	6J	7J	8J	9J
11	1K	2K	3K	4K	5K	6K	7K	8K	9K
12	1L	2L	3L	4L	5L	6L	7L	8L	9L
13	1M	2M	3M	4M	5M	6M	7M	8M	9M
14	1N	2N	3N	4N	5N	6N	7N	8N	9N
15	1O	2O	3O	4O	5O	6O	7O	8O	9O
16	1P	2P	3P	4P	5P	6P	7P	8P	9P
17	1Q	2Q	3Q	4Q	5Q	6Q	7Q	8Q	9Q
18	1Y	2Y	3Y	4Y	5Y	6Y	7Y	8Y	9Y
19	1S	2S	3S	4S	5S	6S	7S	8S	9S
20	1T	2T	3T	4T	5T	6T	7T	8T	9T
21	1U	2U	3U	4U	5U	6U	7U	8U	9U
22	1V	2V	3V	4V	5V	6V	7V	8V	9V
23	1W	2W	3W	4W	5W	6W	7W	8W	9W
24	1X	2X	3X	4X	5X	6X	7X	8X	9X
25	1Y	2Y	3Y	4Y	5Y	6Y	7Y	8Y	9Y
26	1Z	2Z	3Z	4Z	5Z	6Z	7Z	8Z	9Z
27	1a	2a	3a	4a	5a	6a	7a	8a	9a
28	1b	2b	3b	4b	5b	6b	7b	8b	9b
29	1c	2c	3c	4c	5c	6c	7c	8c	9c
30	1d	2d	3d	4d	5d	6d	7d	8d	9d
31	1e	2e	3e	4e	5e	6e	7e	8e	9e
32	1f	2f	3f	4f	5f	6f	7f	8f	9f
33	1g	2g	3g	4g	5g	6g	7g	8g	9g
34	1h	2h	3h	4h	5h	6h	7h	8h	9h
35	1i	2i	3i	4i	5i	6i	7i	8i	9i
36	1j	2j	3j	4j	5j	6j	7j	8j	9j
37	1k	2k	3k	4k	5k	6k	7k	8k	9k
38	1l	2l	3l	4l	5l	6l	7l	8l	9l
39	1m	2m	3m	4m	5m	6m	7m	8m	9m
40	1n	2n	3n	4n	5n	6n	7n	8n	9n
41	1o	2o	3o	4o	5o	6o	7o	8o	9o
42	1p	2p	3p	4p	5p	6p	7p	8p	9p
43	1q	2q	3q	4q	5q	6q	7q	8q	9q
44	1r	2r	3r	4r	5r	6r	7r	8r	9r
45	1s	2s	3s	4s	5s	6s	7s	8s	9s
46	1t	2t	3t	4t	5t	6t	7t	8t	9t
47	1u	2u	3u	4u	5u	6u	7u	8u	9u
48	1v	2v	3v	4v	5v	6v	7v	8v	9v
49	1w	2w	3w	4w	5w	6w	7w	8w	9w
50	1x	2x	3x	4x	5x	6x	7x	8x	9x
51	1y	2y	3y	4y	5y	6y	7y	8y	9y
52	1z	2z	3z	4z	5z	6z	7z	8z	9z

This date code will be cycled every nine years.

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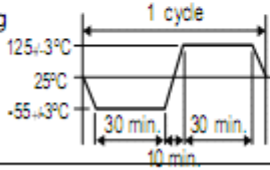
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RELIABILITY SPECIFICATIONS

No.	TEST ITEM	TEST METHODS	TEST CRITERIA	REF. DOC
1	Drop Test	50 cm Height, Fall freely onto firm wood for 3 Times.	dF/F<+/-5ppm dRs<+/-10%	JIS C6701
2	Fine Leak	Helium Bombing 5Kgf / cm ² for 2 Hours .	Leak Rate Less Than 2x10 ⁻⁸ atm.cc/sec	MIL-STD-883E Method 1014.10
3	Gross Leak	125°C FC# 40 ,120 Seconds.	No Continuous Bubble .	MIL-STD-883E Method 1014.10
4	Mechanical Shock	Device are shocked to half sine wave (1000 G) three mutually perpendicular axes each 3 times.	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 2002.4
5	Vibration	Frequency range 10 ~ 55 Hz Amplitude 10G Sweep Time 1 minute Test Time X,Y,Z Plan,each 2 hrs.	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 2007.3
6	Solderability	Temperature 245 °C +/- 5 °C Material H63A (Silver 2~3 %) Immersing depth 0.5 mm minimum Immersion time 5 +/- 0.5 seconds Flux Rosin resin methyl alcohol solvent (1 : 4)	Check by Microscope At Least 95% Coated	MIL-STD-883E Method 2003.7
7	Resistance To Soldering Heat	Test Temperature 260 +/- 5 °C Test Time 10 +/- 1 sec.	dF/F<+/-5ppm dRs<+/-10%	ML-STD-202F Method 210D
8	Terminal Strength	2.5mm From terminal , bend 90°,3 times.	Lead without crack or broken.	ML-STD-202F Method 208F
9	Thermal Shock	Total 5 cycles of the following temperature cycle 	dF/F<+/-5ppm dRs<+/-10%	MIL-STD-883E Method 1011.8

Measure in room temperature after each tests.

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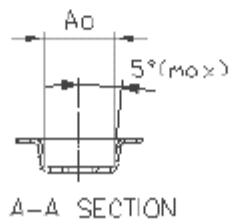
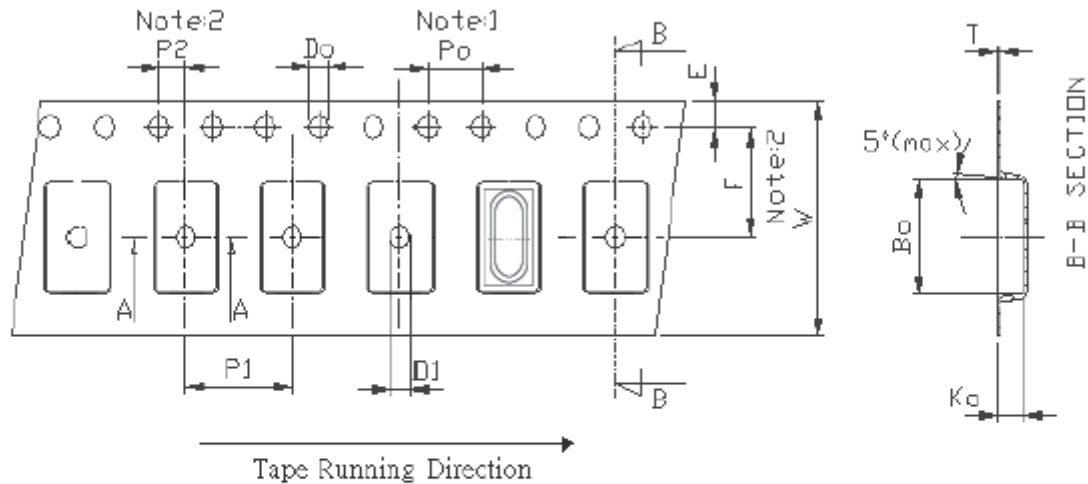
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Taping



$$A_0 = \underline{5.50 \pm 0.10} \text{ mm}$$

$$B_0 = \underline{13.5 \pm 0.10} \text{ mm}$$

$$K_0 = \underline{5.20 \pm 0.10} \text{ mm}$$

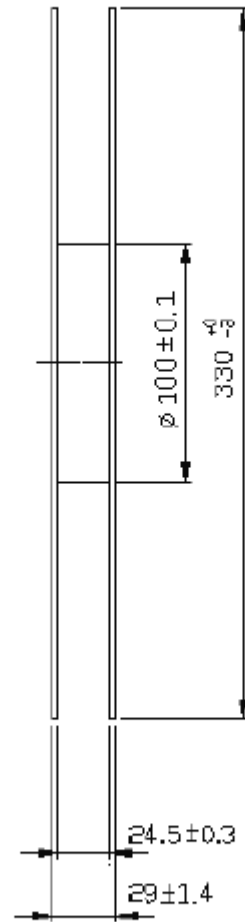
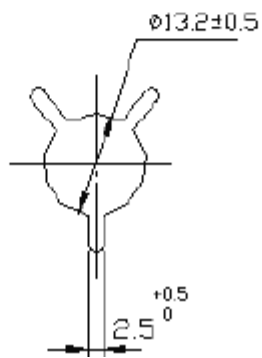
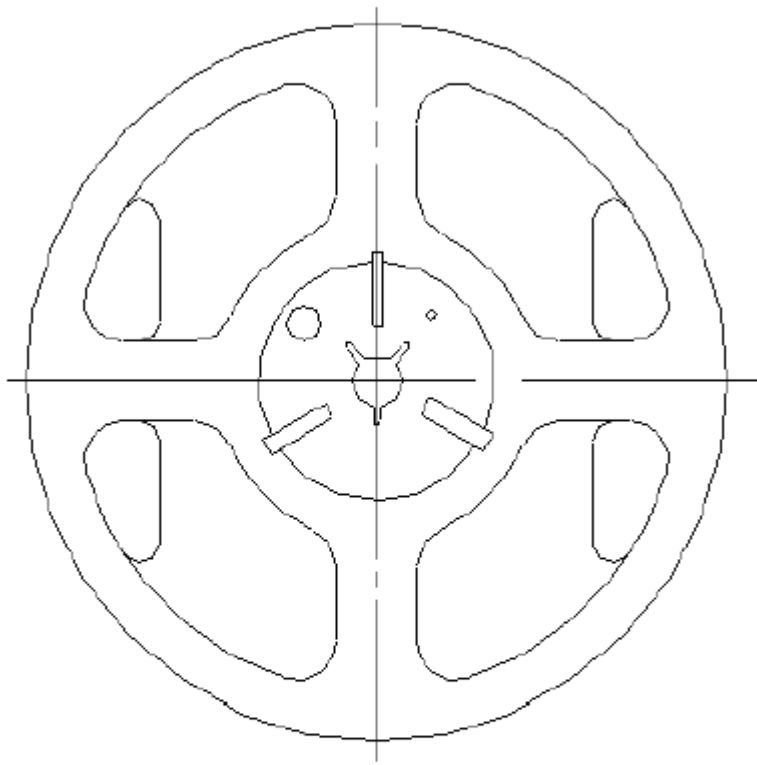
Unit: mm

Symbol	Spec.
K1	-
Po	4.00±0.10
P1	12.00±0.10
P2	2.00±0.10
Do	1.50 ^{+0.1} ₀
D1	1.50(min)
E	1.75±0.10
F	11.50±0.10
10Po	40.0±0.10
W	24.0±0.30
T	0.40±0.10

Notice:

1. 10 Sprocket hole pitch cumulative tolerance is ±0.10 mm
2. Pocket position relative to sprocket hole measured as true position of pocket not pocket hole.
3. Ao & Bo measured on a plane 0.3mm above the bottom of the pocket to top surface of the carrier.
4. Ko measured from a plane on the inside bottom of the pocket to the top surface of the carrier.
5. Carrier camber shall be not than 1mm per 100mm through a length of 250mm.

Reel



Unit : mm

Q'ty : 1000pcs/reel

编号: ZG4-4.4.6-07



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