



CHEQUERS ELECTRONIC (CHINA) LIMITED
捷嘉電子(中國)有限公司

CERAMIC RESONATOR SPECIFICATION

PART NO.: ZTTWS1.80MG

<This Product is RoHS and REACH Compliant>

Part no.	: ZTTWS1.80MG
Printed on	: 26-Feb-13
Prepared	: FRANKIE
Ver. Ctrl.	: JX260313/F
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Address : Room 1101-2, Mongkok Commercial Centre, 16 Argyle St.,
Mongkok, Kowloon, Hong Kong SAR, China.
Phone : (852) 2391-6725, (852) 2391-7306, (852) 2391-6158
Fax : (852) 2789-3205, (852) 2789-3349
Homepage : <http://www.chequers-electronic.com>
E-mail : info@chequers-electronic.com

1. Scope

This specification shall cover the characteristics of the ceramic resonator with ZTTWS1.80MG for clock oscillation circuit such as microprocessors.

2. Part no.: ZTTWS1.80MG

3. Electrical specification

3-1	Nominal oscillating frequency	1.80MHz
3-2	Initial tolerance	±0.50% max.
3-3	Resonant resistance	80Ω max.
3-4	Insulation resistance	5x10 ⁸ Ω min. (at 10V DC)
3-5	Withstanding voltage	DC 100V (5 seconds) max.
3-6	Rating voltage - DC voltage - AC voltage	6V DC 15V p-p
3-7	Temperature stability (-20°C to +80°C) Operating temperature Storage temperature	±0.3% max. (from initial value) -25°C to +85°C -55°C to +85°C
3-8	Aging (for 10 years)	±0.3% max. (from initial value)

4. Physical characteristics

	Test item	Condition of test	Performance requirement
4-1	Random drop	Resonator shall be measured after 3 times of random drops from the height of 1 meter on concrete floor.	No visible damage and the measured values shall meet Table 1.
4-2	Vibration	Resonator shall be measured after being applied with vibration (amplitude: 1.5mm, frequency: 10Hz to 55Hz) to each of the 3 perpendicular directions (X, Y, and Z) for 2 hours.	The measured values shall meet Table 1.
4-3	Resistance to soldering heat	Lead terminals are immersed up to 2mm from the resonator's body in solder bath (260°C±5°C for 10 seconds±1 second). Then the resonator shall be measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
4-4	Solderability	Lead terminals are immersed in solder bath (250°C±5°C) for 2 seconds ± 0.5 second.	Min. 95% of lead terminals' surface shall be covered with solder.
4-5	Terminal strength	After a weight of 0.5kg is applied to each terminal in axial direction for 10 seconds±1 second, the resonator shall be measured. After lead terminals are fixed at 2mm from the resonator's body. They shall be folded up to 90° from their axial direction and folded back to -90°, then folded back to their axial direction. The speed of folding shall be 3 seconds.	No visible damage and the measured values shall meet Table 1. No cutting off shall be visible.

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5. Environmental characteristics

	Test item	Condition of test	Performance requirement
5-1	High temperature	After being placed in a chamber (+85°C±2°C) for 500 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
5-2	Low temperature	After being placed in a chamber (-55°C±2°C) for 500 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
5-3	Humidity	After being placed in a chamber with a humidity of 90% to 95% RH and a temperature of +40°C±2°C for 500 hours, the resonator is measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.
5-4	Heat shock	After being kept at room temperature, resonator shall be placed at a temperature of -25°C±3°C. After 30 minutes at this temperature, the resonator is immediately placed at a temperature of 85°C±3°C. After another 30 minutes at this temperature, the resonator is placed under -25°C±3°C again. The above processes are counted as 1 cycle. After 5 cycles (with a transfer time of 15 seconds between each cycle), the resonator shall be measured after being placed in room temperature for 1 hour.	The measured values shall meet Table 1.

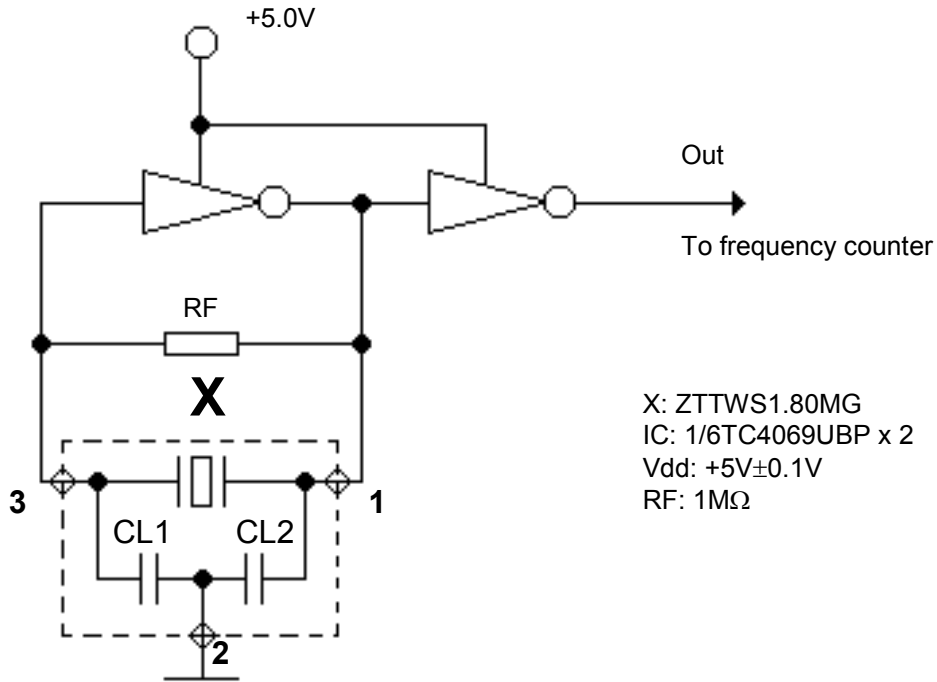
Table 1

Measurements	Requirements
Oscillating frequency change	0.3% max. (from initial value)
Resonant impedance	30Ω max.

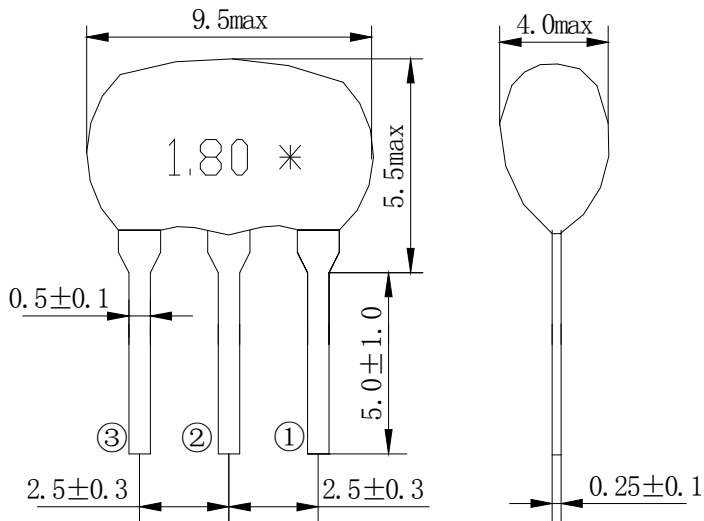
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6. Test circuit

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|-----|------------------------------|---|---|
| 6-1 | Oscillating frequency | : | See Figure 2. |
| 6-2 | Equivalent circuit constants | : | Network Analyzer HP87510A or equivalent |
| 6-3 | Measuring condition | : | Temperature: +5°C to +35°C
Humidity: 45% to 85% RH |
| | If require | : | Temperature: +25°C ± 3°C
Humidity: 60% ± 10% RH |



7. Dimension of ZTTWS1.80MG



①INPUT ②GROUND ③OUTPUT
*:EIAJ MONTHLY CODE

Unit: mm

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8. Note

8-1 Please contact our sales representatives or engineers before using the products specified in this specification sheet for the following equipment, which require high reliability, and if such equipment fails, which might damage to a third party's life, body or property.

- | | |
|--|--|
| (i) Aerospace equipment | (ii) Medical equipment |
| (iii) Power plant equipment | (iv) Transportation equipment |
| (v) Traffic control equipment | (vi) Disaster control / prevention equipment |
| (vii) Undersea navigational equipment | (viii) Data-processing equipment |
| (ix) or equipment that requires similar complexity and / or reliability of above equipment | |

8-2 Product specifications in this specification sheet are as of the date that is printed on. They are subject to change or discontinue without prior notice. Please check with our sales representative or engineers for details.

8-3 When using our products, please do not exceed the requirements and conditions specified in this specification sheet.

8-4 Should there be any doubt when using our products, please consult our sales representative or engineers before using our products.

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