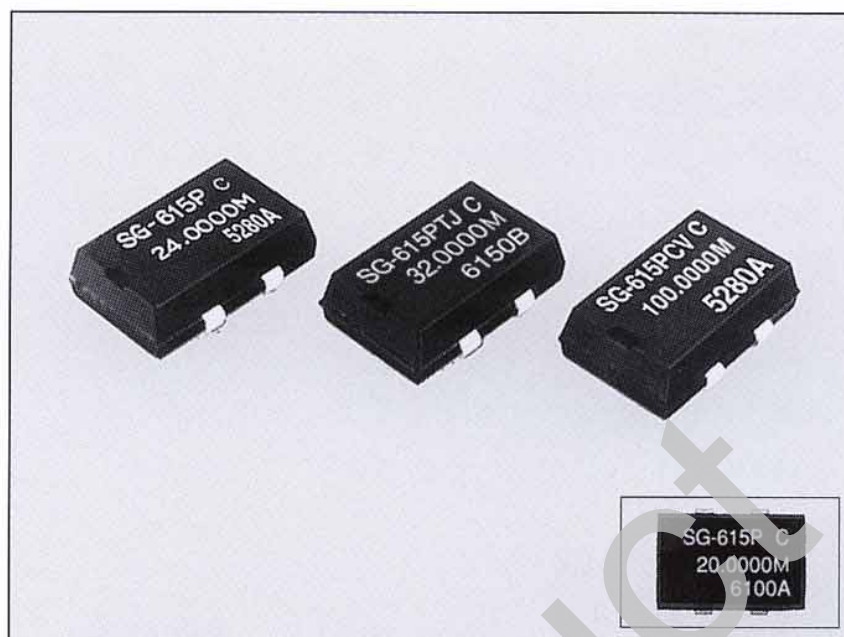


SMD TYPE HIGH FREQUENCY CRYSTAL OSCILLATOR

SG-615 series



Actual size

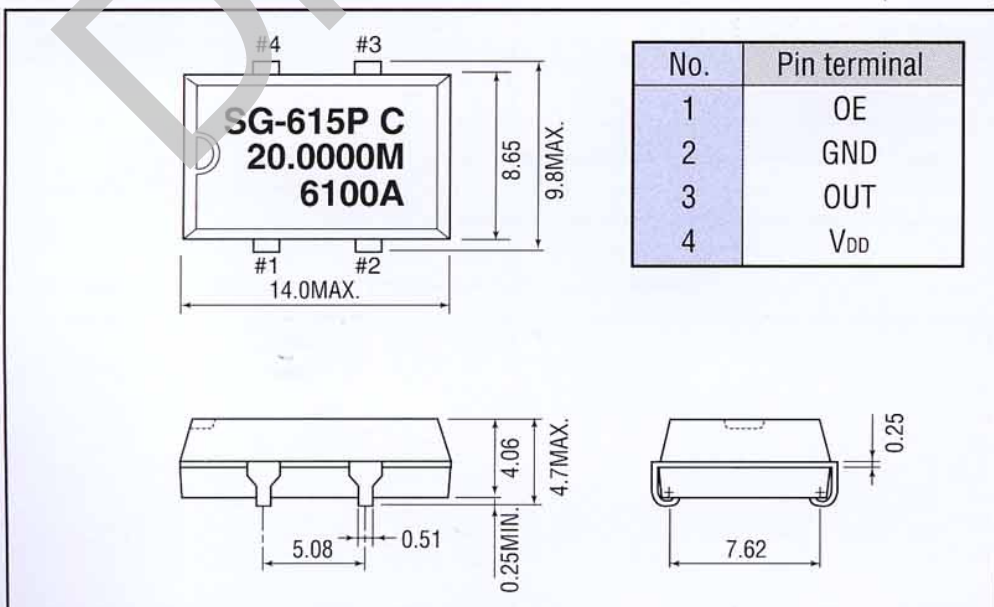
Specifications (Characteristics)

| Item | Symbol | SG-615P | SG-615PTJ | SG-615PH | Remarks |
|-------------------------------------|-----------------------|---|--------------------------|----------------------|--|
| | | Specifications | | | |
| Output frequency range | f_0 | 1.0250MHz to 26.0000MHz | 26.0001MHz to 66.6667MHz | | |
| Power source voltage | MAX. supply voltage | V_{DD-GND} | | | |
| | Operating voltage | V_{DD} | | | |
| Temperature range | Storage temperature | T_{STG} | | | Stored as bare product after unpacking |
| | Operating temperature | T_{OPR} | | | |
| Soldering condition | T_{SOL} | Twice at under 260°C within 10sec. or under 230°C within 3min. | | | |
| Frequency stability | $\Delta f/f_0$ | B : ± 50 ppm C : ± 100 ppm | | | B type is possible up to 55MHz |
| Current consumption | I_{OP} | 23mA MAX. | 35mA MAX. | | No load condition |
| Duty | C-MOS level | 40% to 60% | — | 40% to 60% | C-MOS load : $1/2V_{DD}$ TTL load : 1.4V |
| | TTL level | 45% to 55% | | | |
| Output voltage | V_{OH} | $V_{DD} - 0.4V$ MIN. | 2.4V MIN. | $V_{DD} - 0.4V$ MIN. | |
| | (I_{OH}) | -400 μ A | | -4mA | |
| | V_{OL} | 0.4V MAX. | | | |
| | (I_{OL}) | 16mA | 8mA | 4mA | |
| Output load condition (fan out) | C-MOS | CL | 50pF MAX. | 50pF MAX. | |
| | TTL | N | 10TTL MAX. | 5TTL MAX. | |
| Output enable/disable input voltage | V_{IH} | 2.0V MIN. | 3.5V MIN. | 2.0V MIN. | $I_{IH} = 1\mu A$ MAX.(OE= V_{DD}) $I_{IL} = -100\mu A$ MIN.(OE=GND) $I_{IL} = -500\mu A$ MIN.(OE=GND) PTJ |
| | V_{IL} | 0.8V MAX. | 1.5V MAX. | 0.8V MAX. | |
| Output disable current | I_{OE} | 12mA MAX. | 28mA MAX. | 20mA MAX. | OE=GND |
| Output rise time | C-MOS level | T_{TLH} | — | 7nsec. MAX. | C-MOS load : 20% \rightarrow 80% V_{DD} TTL load : 0.4V \rightarrow 2.4V |
| | TTL level | | 8nsec. MAX. | 5nsec. MAX. | |
| Output fall time | C-MOS level | T_{THL} | — | 7nsec. MAX. | C-MOS load : 80% \rightarrow 20% V_{DD} TTL load : 2.4V \rightarrow 0.4V |
| | TTL level | | 5nsec. MAX. | — | |
| Oscillation start up time | t_{OSC} | 4msec. MAX. | 10msec. MAX. | | Time at 4.5V to be 0sec. |
| Aging | f_a | ± 5 ppm/year MAX. | | | $T_a = 25^\circ C$, $V_{DD} = 5V$, first year |
| Shock resistance | S.R. | ± 20 ppm MAX. | | | Drop test of 3 times on a hard board from 75cm height or excitation test with 3000G \times 0.3ms \times 1/2sine wave in 3 directions |

Note: • Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.
• External by-pass capacitor is recommended.

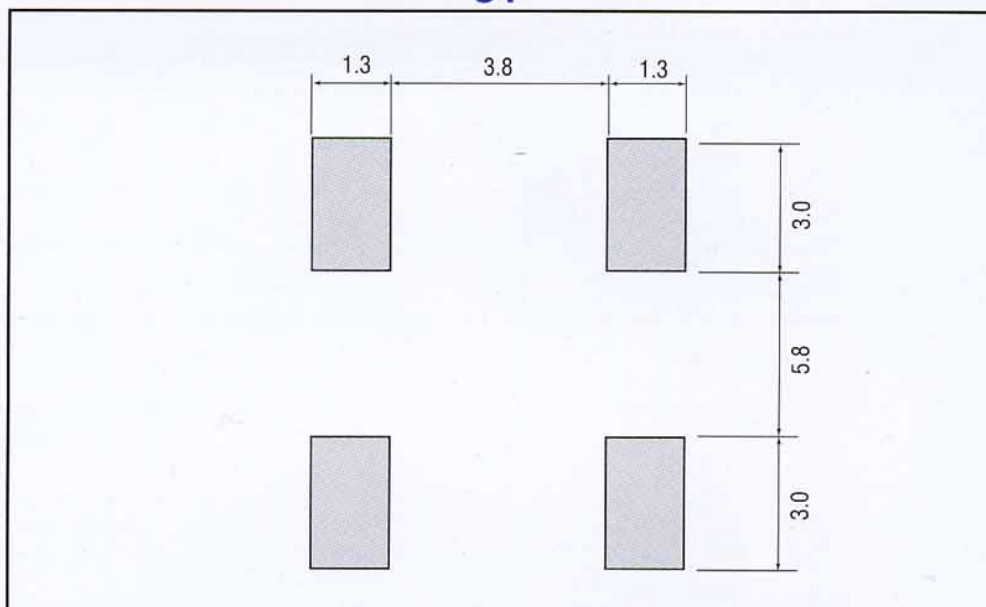
External Dimensions

(Unit : mm)



Recommended soldering pattern

(Unit : mm)



■ Features

- High density mounting type SMD.
- Designed for universal purpose with heat-resisting cylindrical type AT cut quartz crystal and allowing almost the same soldering temperature as SMD IC.
- Cylindrical type AT quartz crystal built-in, thus assuring high reliability.
- Provided with output enable function.
- Low current consumption.

■ Specifications (Characteristics)

| Item | Symbol | SG-615 PCV | | Remarks |
|-------------------------------------|-----------------------|--|-----------------|--|
| | | Specifications | | |
| Output frequency range | f ₀ | 40.0000MHz to 80.0000MHz | | V _{DD} =2.7V to 5.5V |
| | | 40.0000MHz to 125.0000MHz | | V _{DD} =4.5V to 5.5V |
| Power source voltage | MAX. supply voltage | V _{DD} -GND | -0.5V to +7.0V | |
| | Operating voltage | V _{DD} | 2.7V to 5.5V | |
| Temperature range | Storage temperature | T _{STG} | -55°C to +125°C | Stored as bare product after unpacking |
| | Operating temperature | T _{OPR} | -10°C to +70°C | |
| Soldering condition | T _{SOL} | Twice at under 260°C within 10sec. or under 230°C within 3min. | | |
| Frequency stability | Δf/f ₀ | C : ±100ppm | | -10°C to +70°C, V _{DD} :2.7V to 5.5V |
| Current consumption | I _{OP} | 50mA MAX. | | No load condition |
| Duty | T _W /T | 35% to 60% | | 1/2 V _{DD} |
| Output voltage | V _{OH} | V _{DD} -0.5V | | |
| | (I _{OH}) | -16mA | | |
| | V _{OL} | 0.4V MAX. | | |
| | (I _{OL}) | 16mA | | |
| Output load condition (fan out) | CL | 25pF MAX. | | V _{DD} =4.5V to 5.5V |
| | | 15pF MAX. | | V _{DD} =2.7V to 4.5V |
| Output enable/disable input voltage | V _{IH} | 0.7V _{DD} MIN. | | |
| | V _{IL} | 0.2V _{DD} MAX. | | |
| Output disable current | I _{OE} | 27mA MAX. | | OE=GND |
| Output rise time | T _{TLH} | 4nsec. | | 20% → 80% V _{DD} |
| Output fall time | T _{THL} | 4nsec. | | 80% → 20% V _{DD} |
| Oscillation start up time | t _{OSC} | 10msec. MAX. | | Time at 2.7V to be 0sec. |
| Aging | f _a | ±5ppm/year MAX. | | T _a =25°C, first year |
| Shock resistance | S.R. | ±20ppm MAX. | | Drop test of 3 times on a hard board from 75cm height or excitation test with 3000G × 0.3ms × 1/2sine wave in 3 directions |

Note: • Unless otherwise stated, characteristics (specifications) shown in the above table are based on the rated operating temperature and voltage condition.
 • External by-pass capacitor is recommended.

■ Frequency table

| Model | Frequency | 1MHz | 26MHz | 40MHz | 67MHz | 125MHz |
|-----------|-----------|-------|-------|-------|-------|--------|
| SG-615P | | ————— | | | | |
| SG-615PTJ | | | ————— | | | |
| SG-615PH | | | ————— | | | |
| SG-615PCV | | | | ————— | | |