

Product name SG5032CCN 4.915200 MHz HJGA

Product Number / Ordering code X1G0044710029xx

Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform CMOS

Pb free / Complies with EU RoHS directive

Reference weight Typ. 52 mg

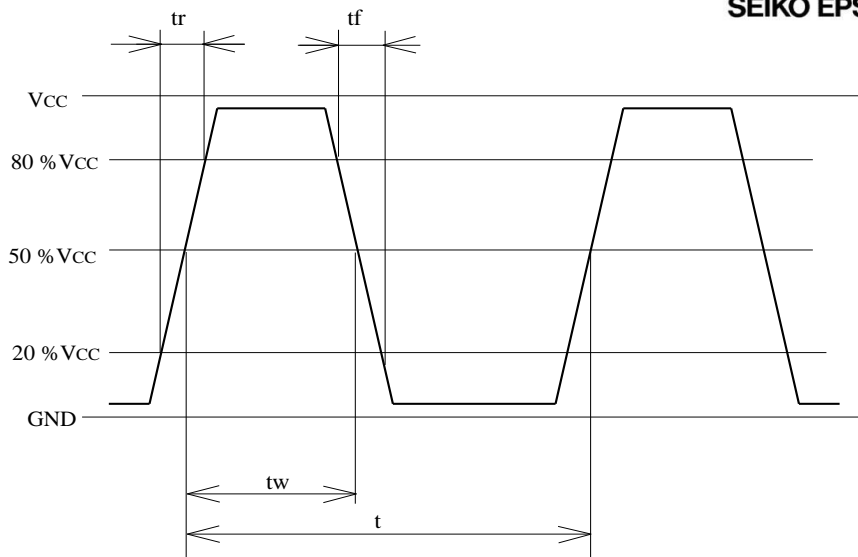
**1.Absolute maximum ratings**

| Parameter              | Symbol               | Min. | Typ. | Max.                 | Unit | Conditions / Remarks      |
|------------------------|----------------------|------|------|----------------------|------|---------------------------|
| Maximum supply voltage | V <sub>cc</sub> -GND | -0.3 | -    | 7                    | V    | -                         |
| Storage temperature    | T <sub>stg</sub>     | -40  | -    | 125                  | °C   | Storage as single product |
| Input voltage          | V <sub>in</sub>      | -0.5 | -    | V <sub>cc</sub> +0.5 | V    | OE terminal               |

**2.Specifications(characteristics)**

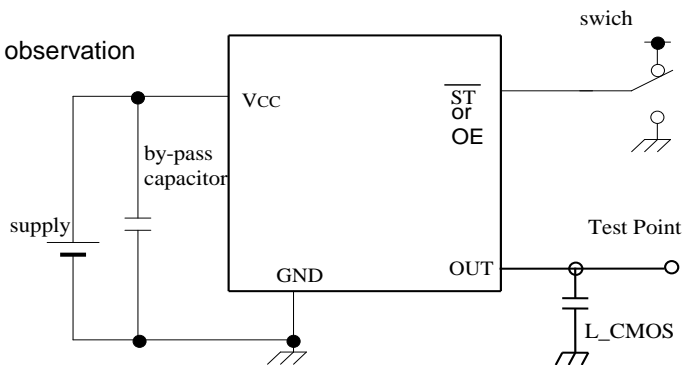
| Parameter             | Symbol            | Min.                 | Typ.   | Max.               | Unit              | Conditions / Remarks  |
|-----------------------|-------------------|----------------------|--------|--------------------|-------------------|---|
| Output frequency      | f <sub>0</sub>    |                      | 4.9152 |                    | MHz               |   |
| Supply voltage        | V <sub>cc</sub>   | 4.5                  | 5      | 5.5                | V                 | -   |
| Operating temperature | T <sub>use</sub>  | -40                  | -      | 85                 | °C                | -   |
| Frequency tolerance   | f <sub>tol</sub>  | -50                  | -      | 50                 | x10 <sup>-6</sup> | T <sub>use</sub>  |
| Current consumption   | I <sub>cc</sub>   | -                    | -      | 20                 | mA                | No load condition   |
| Stand-by current      | I <sub>std</sub>  | -                    | -      | -                  | μA                | -   |
| Disable current       | I <sub>dis</sub>  | -                    | -      | 10.0               | mA                | OE = GND  |
| Symmetry              | SYM               | 40                   | -      | 60                 | %                 | 50% V <sub>cc</sub> Level L <sub>CMOS</sub> < 50pF                      |
| Output voltage        | V <sub>OH</sub>   | V <sub>cc</sub> -0.4 | -      | -                  |                   | -   |
|                       | V <sub>OL</sub>   | -                    | -      | 0.4                |                   | -   |
| Output load condition | L <sub>CMOS</sub> | -                    | -      | 50                 | pF                | CMOS Load   |
| Input voltage         | V <sub>IH</sub>   | 0.8V <sub>cc</sub>   | -      | -                  |                   | OE terminal   |
|                       | V <sub>IL</sub>   | -                    | -      | 0.2V <sub>cc</sub> |                   | OE terminal   |
| Rise time             | t <sub>r</sub>    | -                    | -      | 5                  | ns                | 0.2V <sub>cc</sub> to 0.8V <sub>cc</sub> Level, L <sub>CMOS</sub> =50pF |
| Fall time             | t <sub>f</sub>    | -                    | -      | 5                  | ns                | 0.2V <sub>cc</sub> to 0.8V <sub>cc</sub> Level, L <sub>CMOS</sub> =50pF |
| Start-up time         | t <sub>str</sub>  | -                    | -      | 5                  | ms                | t = 0 at 0.9V <sub>cc</sub>   |
| Jitter                | t <sub>DJ</sub>   | -                    | TBD    | -                  | ps                | Deterministic Jitter  |
|                       | T <sub>RJ</sub>   | -                    | TBD    | -                  | ps                | Random Jitter   |
|                       | t <sub>RMS</sub>  | -                    | TBD    | -                  | ps                | δ(RMS of total distribution)  |
|                       | t <sub>p-p</sub>  | -                    | TBD    | -                  | ps                | Peak to Peak  |
|                       | t <sub>acc</sub>  | -                    | TBD    | -                  | ps                | Accumulated Jitter(δ) n=2 to 50000 cycles                               |
| Phase jitter          | t <sub>PJ</sub>   | -                    | TBD    | -                  | ps                | Off set Frequency: 12kHz to 20MHz                                       |
| Phase noise           | L(f)              | -                    | TBD    | -                  | dBc/Hz            | Off set 1Hz   |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 10Hz  |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 100Hz   |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 1kHz  |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 10kHz   |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 100kHz  |
|                       |                   | -                    | TBD    | -                  | dBc/Hz            | Off set 1MHz  |
| Frequency aging       | f <sub>age</sub>  | -5                   | -      | 5                  | x10 <sup>-6</sup> | @+25°C first year   |
|                       |                   | -                    | -      | -                  |                   | -   |

### 3. Timing chart

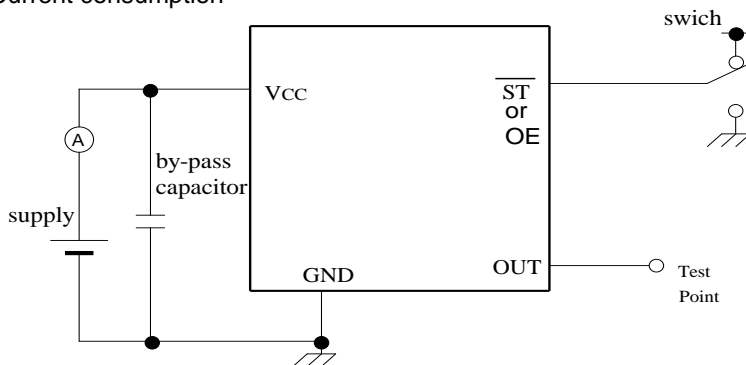


### 4. Test circuit

#### 1) Waveform observation



#### 2) Current consumption



\*Current consumption under the disable function should be = GND.

#### 3) Condition

##### (1) Oscilloscope

- Band width should be minimum 5 times higher (wider) than measurement frequency.
- Probe earth should be placed closely from test point and lead length should be as short as possible

\* Recommendable to use miniature socket. (Don't use earth lead.)

##### (2) L<sub>CMOS</sub> also includes probe capacitance.

(3) By-pass capacitor (0.01 mF to 0.1 mF) is placed closely between V<sub>CC</sub> and GND.

(4) Use the current meter whose internal impedance value is small.

##### (5) Power supply

- Start up time (0 %V<sub>CC</sub> @ 90 %V<sub>CC</sub>) of power source should be more than 150 ms.
- Impedance of power supply should be as lowest as possible.

**5.External dimensions (Unit: mm)**

Pin map

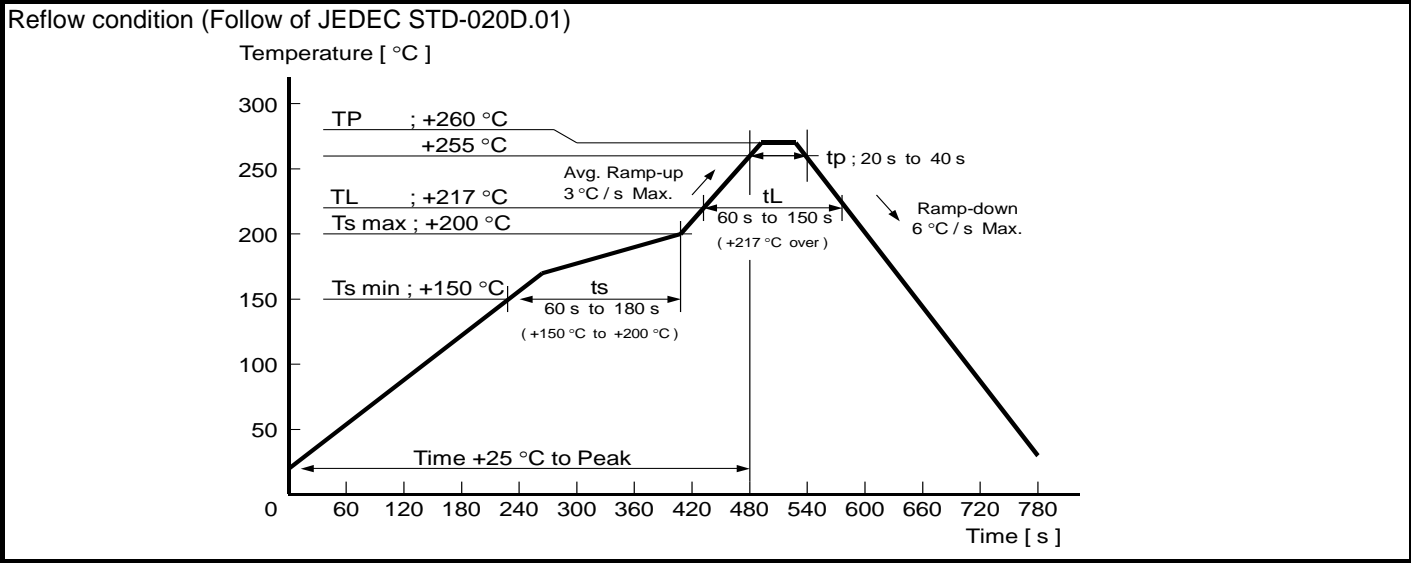
| Pin | Connection |
|-----|------------|
| 1*  | OE or ST   |
| 2   | GND        |
| 3   | OUT        |
| 4   | Vcc        |

Note.  
 OE pin = "H" or "open" : Specified frequency output.  
 OE pin = "L" : Output is high impedance.  
 ST pin = "H" or "open" : Specified frequency output.  
 ST pin = "L" : Output is high impedance, oscillation stops.

**6.Footprint(Recommended) (Unit: mm)**

To maintain stable operation, provide a 0.01µF to 0.1µF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

**7.Reflow profile**



**8.Packing information**

[ 1 ] Product number last 2 digits code(xx) description      The recommended code is "00"

X1G0044710029xx

| Code | Condition                    | Code | Condition      |
|------|------------------------------|------|----------------|
| 01   | Any Q'ty vinyl bag(Tape cut) | 13   | 500pcs / Reel  |
| 11   | Any Q'ty / Reel              | 00   | 1000pcs / Reel |
| 12   | 250pcs / Reel                |      |                |

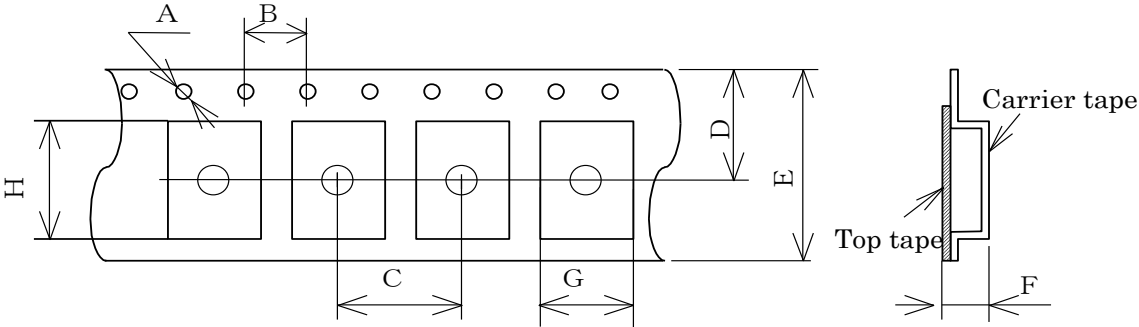
[ 2 ] Taping specification

Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS  
 Material of the Top Tape : PET+PE

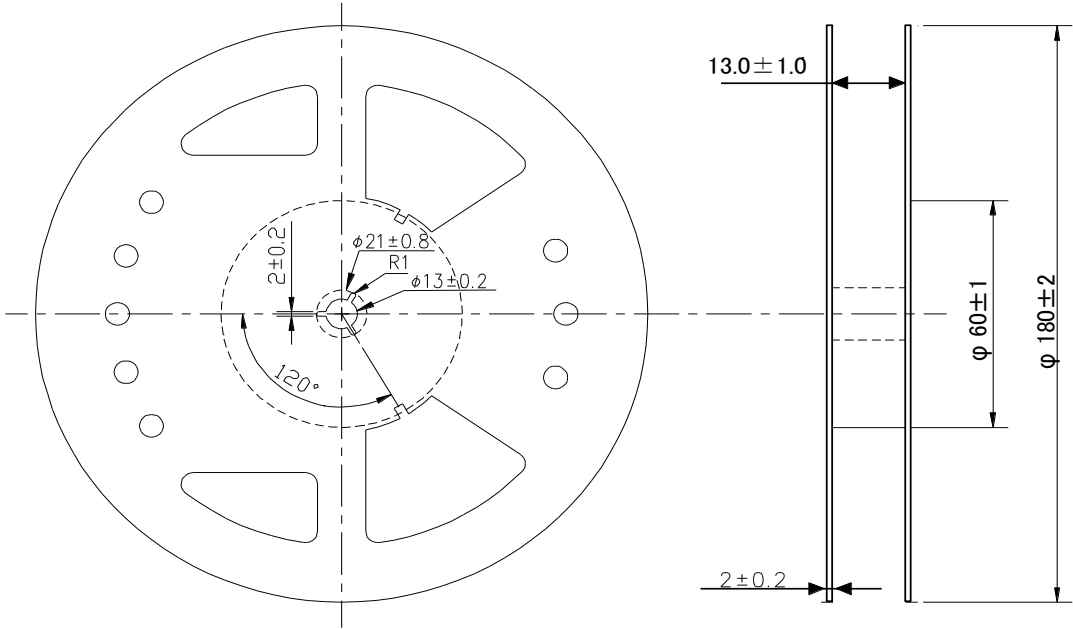
Unit: mm



| Symbol | A                       | B             | C             | D              | E              | F              | G             | H             |
|--------|-------------------------|---------------|---------------|----------------|----------------|----------------|---------------|---------------|
| Value  | $\phi 1.5$<br>$+0.1/-0$ | $4.0 \pm 0.1$ | $8.0 \pm 0.1$ | $7.25 \pm 0.2$ | $12.0 \pm 0.2$ | $1.40 \pm 0.1$ | $3.5 \pm 0.1$ | $5.4 \pm 0.1$ |

(2) Reel dimensions

Center material : PS  
 Material of the Reel : PS



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