

RoHS Compliant

Ultra-miniature chip resonator with 0.8mm maximum height
 Best suited for compact and low profile electronic devices

Features

- Ultra-miniature (2.5×2.0×0.8mm) SMD type
- High precision type is available for full speed USB

Applications

- CD-R/W
- HDD
- DVD-ROM
- MD
- Printer
- Cellular (CDMA/PCS)
- Portable Electronic Equipment
- Memory Card
- USB

How to Order

PRTC 25.00 T R 50 10 W 000
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

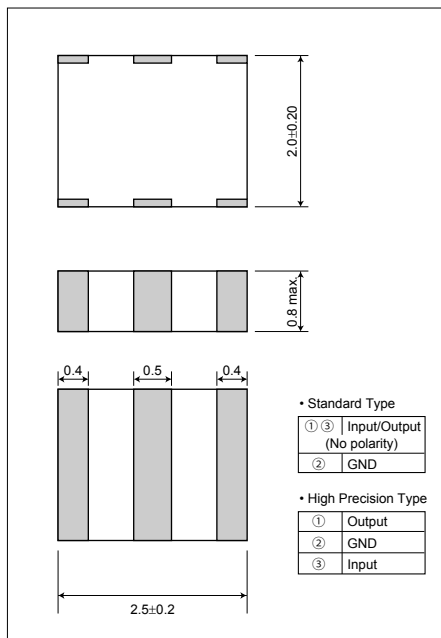
- ① Series
- ② Oscillating Frequency (MHz)
- ③ Oscillating Mode
- ④ Packaging : Tape & Reel
4000pcs./Reel
- ⑤ Initial Frequency Tolerance (0.5%)
- ⑥ Load Capacitance
- ⑦ Operating Temperature (-20°C to 80°C)
- ⑧ Unique Code

Notice

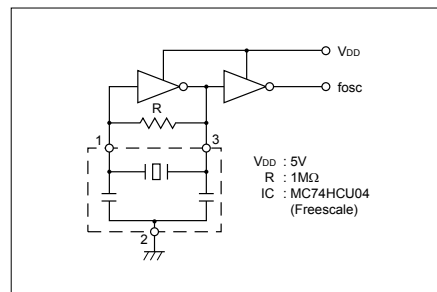
- Non Washable

Dimensions

(Unit : mm)



Test Circuit



Specifications

• Standard Type

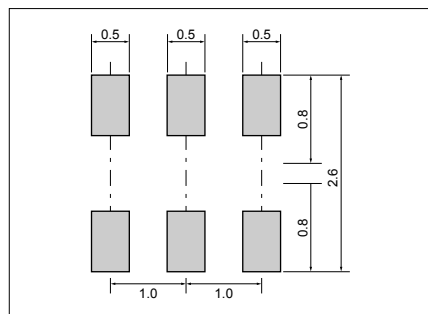
| Frequency Range | Frequency Tolerance (25°C) | Temperature Stability (-20 to 80°C) | IC | Standard Frequency (MHz) |
|-----------------|----------------------------|-------------------------------------|-----------------------|--------------------------|
| 25.0 to 60.0MHz | ±0.5% | ±0.2% | MC74HCU04 (Freescale) | 25.0, 30.0, 33.86, 40.0 |

Please contact your local sales office for IC matching.

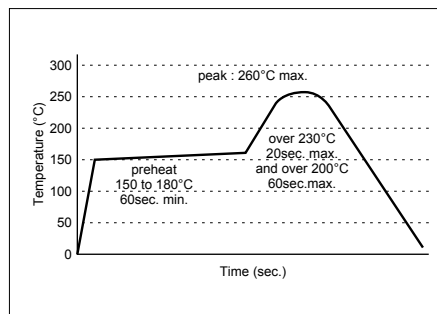
• High Precision Type

| Frequency Range | Frequency Tolerance (25°C) | Temperature Stability (-20 to 70°C) | Aging (10 years) | IC | Standard Frequency (MHz) |
|-----------------|----------------------------|-------------------------------------|------------------|-----------------------|--------------------------|
| 25.0 to 60.0MHz | ±0.16% | ±0.08% | ±0.01% | MC74HCU04 (Freescale) | 48.0 |

Recommended Land Pattern (Unit : mm)

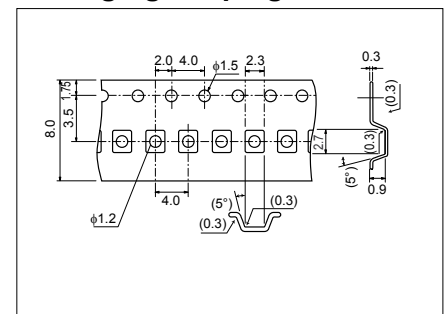


Recommended Reflow Profile



Packaging : Taping

(Unit : mm)





RoHS Compliant

Features

- Miniature size (3.2×2.1×1.5 mm)
- Wide frequency range
- High precision type is available for full speed USB

Applications

- CD-ROM
- HDD
- DVD-ROM
- MD
- Printer
- Cellular (CDMA/PCS)
- Portable Electronic Equipment
- USB

How to Order

SSR 33.86 B R
① ② ③ ④

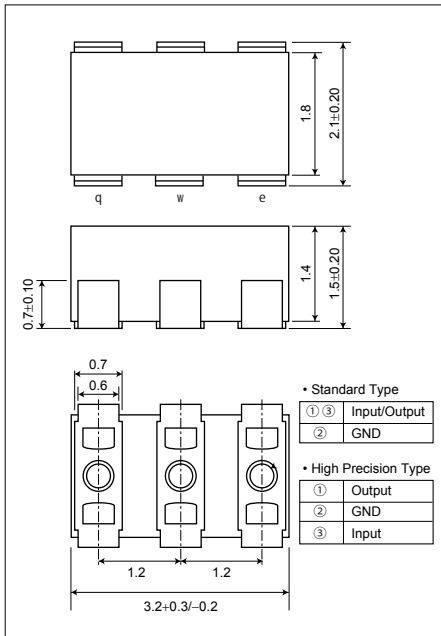
- ① Series
- ② Oscillating Frequency (MHz)
- ③ Type B: 3rd-Overtone Mode Built-in Capacitor
F: Fundamental Mode Built-in Capacitor
- ④ Packaging : Tape & Reel
2000pcs./Reel

Notice

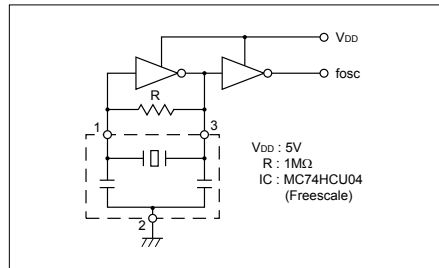
- Non Washable
- Operating Temperature -20°C to +80°C

Dimensions

(Unit : mm)



Test Circuit



Specifications

• Standard Type

| | Frequency Range | Frequency Tolerance (25°C) | Temperature Stability (-20 to 80°C) | IC | Main Frequency (MHz) |
|----------|---------------------------------------|----------------------------|-------------------------------------|-----------------------|--------------------------------|
| B | 16.0 to 60.0MHz (3rd-overtone) | ±0.5% | ±0.3% | MC74HCU04 (Freescale) | 16.93, 20.0, 27.0, 33.86, 50.8 |
| F | 16.0 to 20.0MHz (Fundamental) | | | | 16.93 |

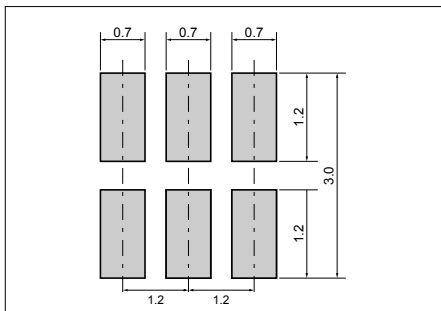
Please contact your local AVX office for IC matching.

• High Precision Type

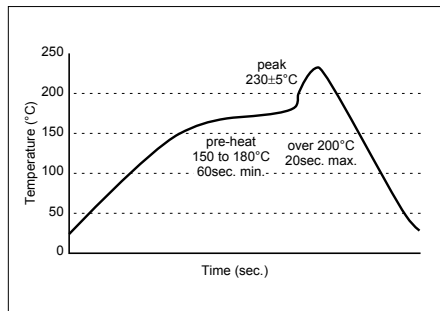
| | Frequency Range | Frequency Tolerance (25°C) | Temperature Stability (-20 to 70°C) | Aging (10 years) | IC | Main Frequency (MHz) |
|----------|---------------------------------------|----------------------------|-------------------------------------|------------------|-----------------------|----------------------|
| B | 16.0 to 60.0MHz (3rd-overtone) | ±0.18% (Option ±0.08%) | ±0.06% | ±0.01% | MC74HCU04 (Freescale) | 48.0 |

Recommended Land Pattern

(Unit : mm)

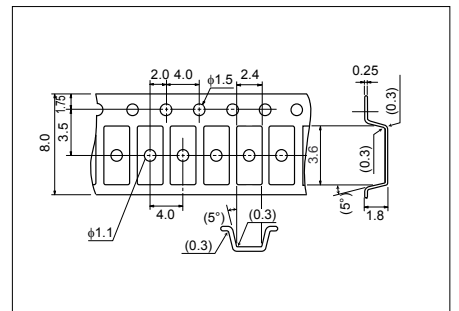


Recommended Reflow Profile



Packaging : Taping

(Unit : mm)





RoHS Compliant

Features

- High reliability, high temperature withstanding ceramic case
- Rectangular shape allows easy pick and placement
- Small & low profile
- Reflow solderable
- Excellent solderability (Nickel barrier+Au flash terminations)

How to Order

PBRC 15.00 G R 50 Y 000
 ① ② ③ ④ ⑤ ⑥ ⑦

- ① Series
- ② Frequency (MHz)
- ③ Type (G,L)
- ④ Packing _ Bulk (Null)
 R Reel (G: 2k/reel, L: 3k/reel)
- ⑤ Frequency Tolerance at 25°C

| | | | |
|----|-------|----|-------|
| 10 | ±0.1% | 20 | ±0.2% |
| 30 | ±0.3% | 40 | ±0.4% |
| 50 | ±0.5% | 70 | ±0.7% |

- ⑥ Operating Temperature

| | | | |
|---|----------------|---|----------------|
| X | -40°C to 85°C | Y | -40°C to 125°C |
| Z | -40°C to 150°C | | |

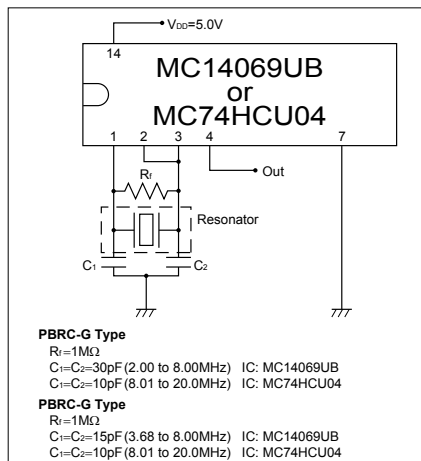
- ⑦ Unique Code

Specifications

| Series | Frequency Range(MHz) | Frequency Tolerance(25°C) | Temperature Stability |
|--------|----------------------|---------------------------|-----------------------|
| PBRC-G | 2.00 to 8.00 | ±0.5% (op. ±0.3%) | ±0.5% (-40 to 85°C) |
| | 8.01 to 20.0 | ±0.7% (op. ±0.5%) | ±0.1% (-40 to 85°C) |
| PBRC-L | 4.00 to 8.00 | ±0.5% (op. ±0.3%) | ±0.5% (-40 to 85°C) |
| | 8.01 to 20.0 | ±0.7% (op. ±0.5%) | ±0.1% (-40 to 85°C) |

* Aging for 10 years is within ±0.3% from the initial frequency at 25°C.

Test Circuit

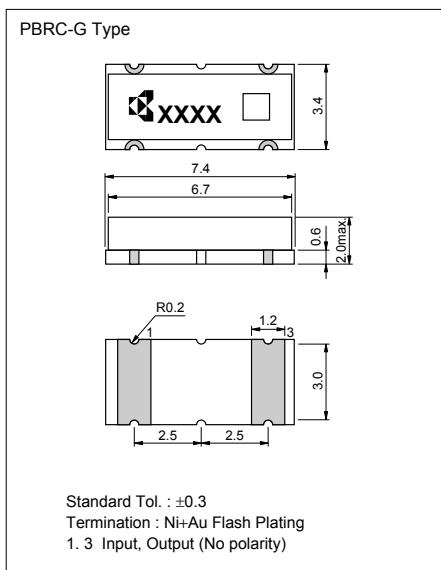


Note)

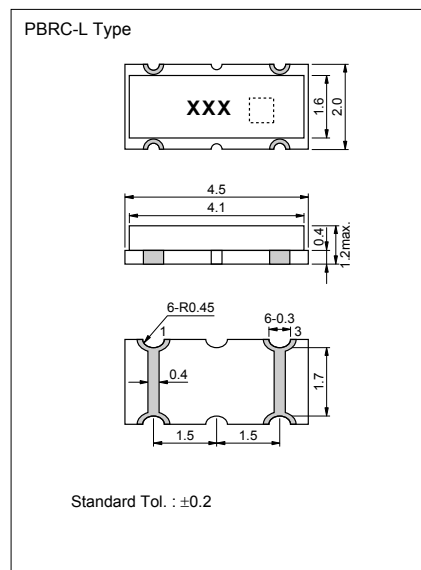
- Values of C1, C2 and Rf are evaluated with IC, MC14069UB, and evaluation of circuit is necessary when using other IC's.
- IC circuit matching may be referenced with 1) IC data books 2) List of Recommended circuits in Kyocera website.
- Please contact IC manufacturer or Kyocera when there are difficulties in finding recommended circuits.

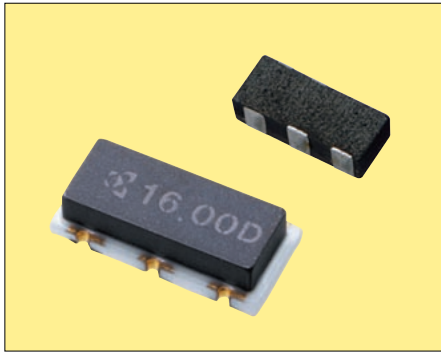
Dimensions

(Unit : mm)



(Unit : mm)





RoHS Compliant

Features

- High reliability, high temperature withstanding ceramic case
- Rectangular shape allows easy pick and placement
- Small & low profile
- Reflow solderable
- Excellent solderability (Nickel barrier+Au flash terminations)

How to Order (PBRC-H,PBRC-M)

PBRC 15.00 H R 50 Y 000
① ② ③ ④ ⑤ ⑥ ⑦

- ① Series
- ② Frequency (MHz)
- ③ Type (H,M)
- ④ Packing _ Bulk (Null) R Reel (H: 2k/reel, M: 3k/reel)
- ⑤ Frequency Tolerance at 25°C

| | | | |
|----|-------|----|-------|
| 10 | ±0.1% | 20 | ±0.2% |
| 30 | ±0.3% | 40 | ±0.4% |
| 50 | ±0.5% | 70 | ±0.7% |

⑥ Operating Temperature

| | | | |
|---|----------------|---|----------------|
| X | -40°C to 85°C | Y | -40°C to 125°C |
| Z | -40°C to 150°C | | |

⑦ Unique Code

How to Order (PRQC)

PRQC 8.00 S R 50 10 X 000
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Series
- ② Frequency (MHz)
- ③ Type (S)
- ④ Packing _ Bulk (Null) R Reel (3k/reel)
- ⑤ Frequency Tolerance at 25°C

| | | | |
|----|-------|----|-------|
| 10 | ±0.1% | 20 | ±0.2% |
| 30 | ±0.3% | 40 | ±0.4% |
| 50 | ±0.5% | 70 | ±0.7% |

⑥ Built-in Capacitance 10pF : 10

⑦ Operating Temperature

| | | | |
|---|---------------|---|----------------|
| W | -20°C to 80°C | Y | -40°C to 125°C |
| X | -40°C to 85°C | Z | -40°C to 150°C |

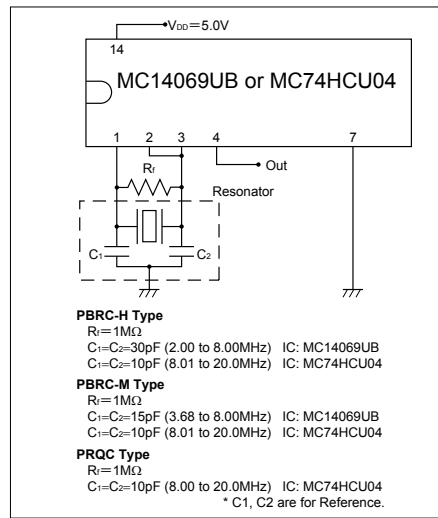
⑧ Unique Code

Specifications

| Series | Frequency Range(MHz) | Frequency Tolerance(25°C) | Temperature Stability |
|--------|----------------------|---------------------------|-----------------------|
| PBRC-H | 2.00 to 8.00 | ±0.5% (op. ±0.3%) | ±0.5% (-40 to 85°C) |
| | 8.01 to 20.0 | ±0.7% (op. ±0.5%) | ±0.1% (-40 to 85°C) |
| PBRC-M | 4.00 to 8.00 | ±0.5% (op. ±0.3%) | ±0.5% (-40 to 85°C) |
| | 8.01 to 20.0 | ±0.7% (op. ±0.5%) | ±0.1% (-40 to 85°C) |
| PRQC | 8.00 to 20.0 | ±0.5% (op. ±0.3%) | ±0.5% (-40 to 85°C) |

* Aging for 10 years is within ±0.3% from the initial frequency at 25°C.

Test Circuit



Note)

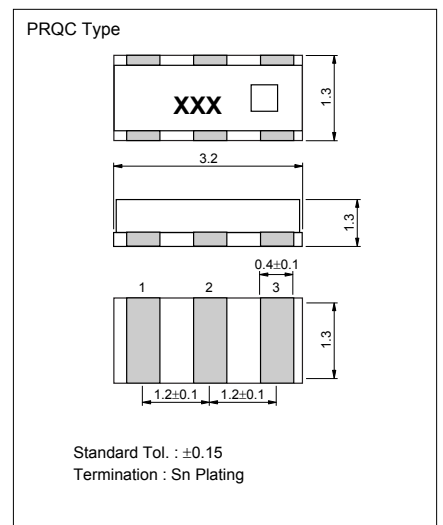
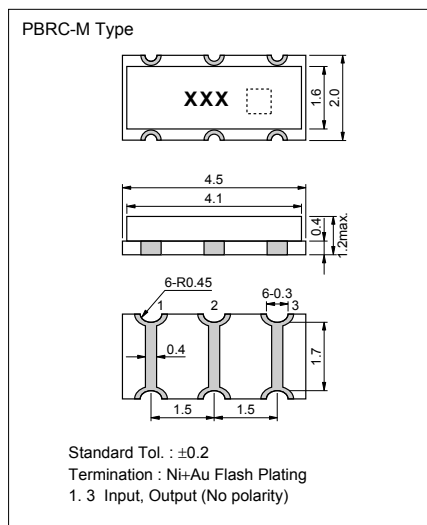
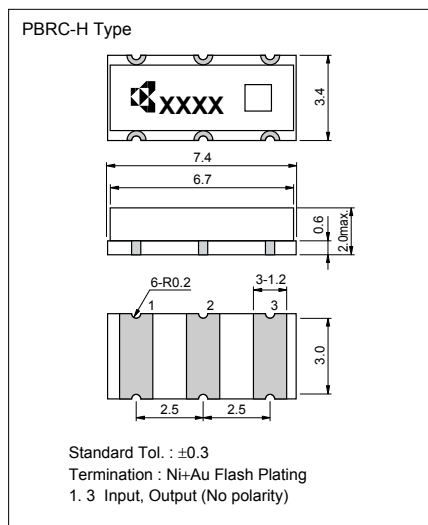
- This product includes built-in capacitors, but values may not be the most appropriate depending on IC's.
- Evaluation of circuit with IC is necessary. IC circuit matching may be referenced with
 - 1) IC data books
 - 2) List of Recommended circuits in Kyocera website.
- Please contact IC manufacturer or Kyocera when there are difficulties in finding recommended circuits.

Dimensions

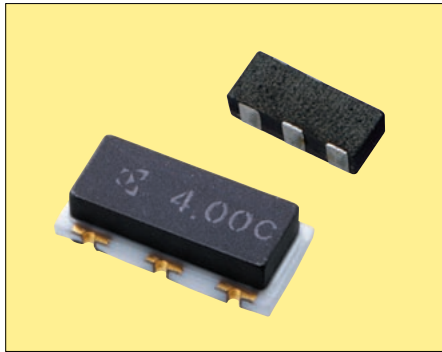
(Unit : mm)

(Unit : mm)

(Unit : mm)



| # | Pin # |
|---|--------|
| 1 | Input |
| 2 | Ground |
| 3 | Output |



RoHS Compliant

Features

- Miniature & low profile
- Rectangular shape allows easy pick and placement
- Component cost and space saving
- High density mounting possible
- Reflow solderable & washable
- High reliability, high temperature operating with ceramic case

Applications

- Automotive
- ABS
- ECU
- Air-Bag System

How to Order (PBRV-H,PBRV-M)

PBRV 15.00 H R 50 Y 000
① ② ③ ④ ⑤ ⑥ ⑦

- ① Series (PBRV: Automotive)
- ② Frequency (MHz)
- ③ Type (H,M)
- ④ Packing _ Bulk (Null) R Reel (H: 2k/reel, M: 3k/reel)
- ⑤ Frequency Tolerance at 25°C

| | | | |
|----|-------|----|-------|
| 10 | ±0.1% | 20 | ±0.2% |
| 30 | ±0.3% | 40 | ±0.4% |
| 50 | ±0.5% | 70 | ±0.7% |

- ⑥ Operating Temperature

| | | | |
|---|----------------|---|----------------|
| X | -40°C to 85°C | Y | -40°C to 125°C |
| Z | -40°C to 150°C | | |

- ⑦ Unique Code

How to Order (PRQV)

PRQV 8.00 S R 50 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Series (PRQV: Automotive)
- ② Frequency (MHz)
- ③ Type (S)
- ④ Packing _ Bulk (Null) R Reel (3k/reel)
- ⑤ Frequency Tolerance at 25°C

| | | | |
|----|-------|----|-------|
| 10 | ±0.1% | 20 | ±0.2% |
| 30 | ±0.3% | 40 | ±0.4% |
| 50 | ±0.5% | 70 | ±0.7% |

- ⑥ Built-in Capacitance 10pF : 10

- ⑦ Operating Temperature

| | | | |
|---|----------------|---|----------------|
| X | -40°C to 85°C | Y | -40°C to 125°C |
| Z | -40°C to 150°C | | |

- ⑧ Unique Code

Specifications

| Series | Frequency Range(MHz) | Frequency Tolerance(25°C) | Temperature Stability |
|--------|----------------------|---------------------------|--|
| PBRV-H | 4.00 to 8.00 | ±0.5% (op. ±0.3%) | Y: ±0.5%(-40 to +125°C) Z: ±0.5%(-40 to +150°C) |
| PBRV-M | 8.01 to 20.00 | ±0.7% (op. ±0.5%) | Y: ±0.1%(-40 to +125°C) Z: ±0.2%(-40 to +150°C) |
| PRQV | 8.00 to 20.00 | ±0.5% (op. ±0.3%) | Y: ±0.5%(-40 to +125°C) Z: ±0.5%(-40 to +150°C) |

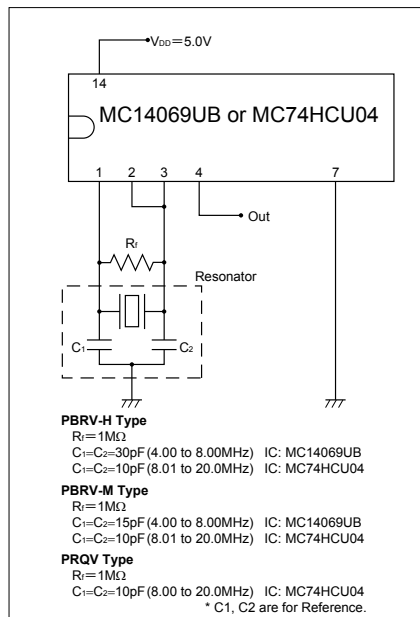
* Aging for 10 years is within ±0.3% from the initial frequency at 25°C.

* Please contact us for products without built-in capacitors.

Note)

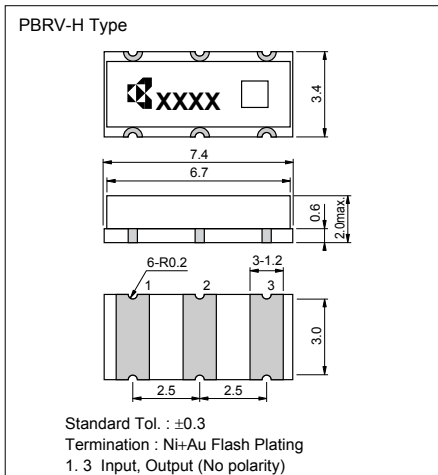
- This product includes built-in capacitors, but values may not be the most appropriate depending on IC's.
- Evaluation of circuit with IC is necessary. IC circuit matching may be referenced with
 - 1) IC data books
 - 2) List of Recommended circuits in Kyocera website.
- Please contact IC manufacturer or Kyocera when there are difficulties in finding recommended circuits.

Test Circuit



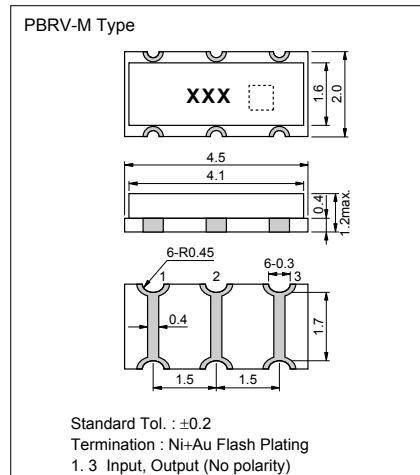
Dimensions

(Unit : mm)

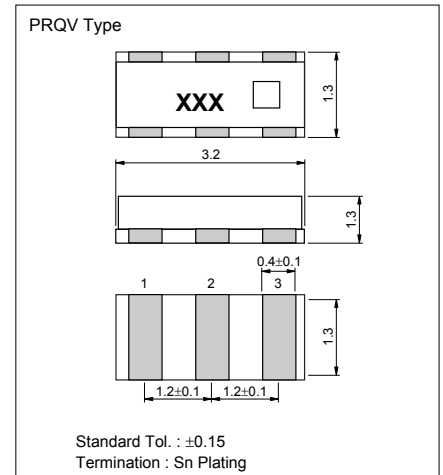


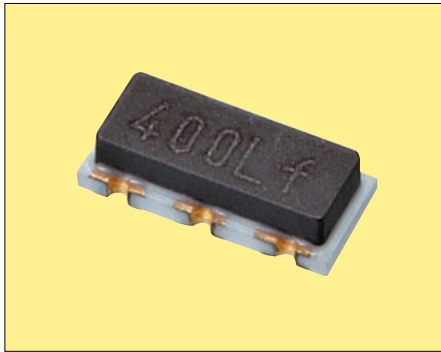
| # | Pin # |
|---|--------|
| 1 | Input |
| 2 | Ground |
| 3 | Output |

(Unit : mm)



(Unit : mm)





RoHS Compliant

Features

- Improved frequency tolerance for CANBUS application of automotive

How to Order (PBRV)

PBRV 15.00 H R 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦

- Series (PBRV: Automotive)
- Frequency (MHz)
- Type (H,M)
- Packing _ Bulk (Null)
R Reel (H: 2k/reel, M: 3k/reel)
- Frequency Tolerance at 25°C
10 ±0.1%
- Operating Temperature
X -40°C to 85°C **Y** -40°C to 125°C
Z -40°C to 150°C
- Unique Code

How to Order (PRQV)

PRQV 8.00 S R 10 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- Series (PRQV: Automotive)
- Frequency (MHz)
- Type (S)
- Packing _ Bulk (Null)
R Reel (3k/reel)
- Frequency Tolerance at 25°C
10 ±0.1%
- Built-in Capacitance 10pF : 10
- Operating Temperature
X -40°C to 85°C **Y** -40°C to 125°C
Z -40°C to 150°C
- Unique Code

Specifications

| Series | PBRV-HR/MR | PBRV-HR/MR | PRQV-S |
|-----------------------------|---------------------|-------------------|----------------|
| Part Number | PBRV-HR/MR 10Y□□□ | PBRV-HR/MR 10Y□□□ | PRQV-SR□10Y□□□ |
| Operating Temperature Range | -40 to +125°C | -40 to +125°C | -40 to +125°C |
| Frequency Range | 4.0 to 7.9MHz | 8.0 to 20.0MHz | 8.0 to 20.0MHz |
| Frequency Tolerance | Initial+Temperature | ±0.2% | ±0.25% |
| | Aging | ±0.1% | ±0.05% |
| Total Frequency Tolerance | ±0.4% | ±0.3% | ±0.3% |

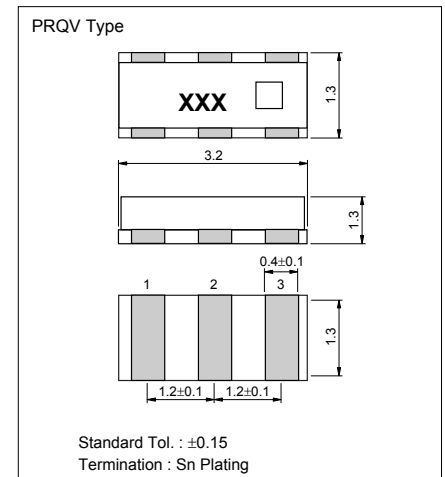
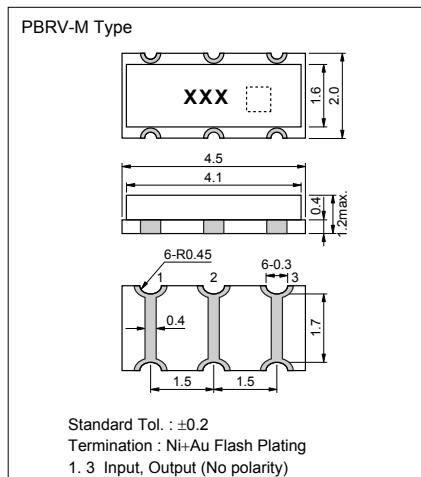
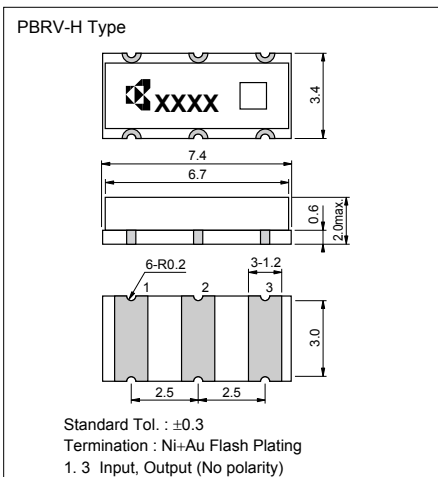
* Please refer to the specification sheet of each product for information including detail dimensions.
* Aging characteristics is specified at 25°C, and for the period of 10 years.

Dimensions

(Unit : mm)

(Unit : mm)

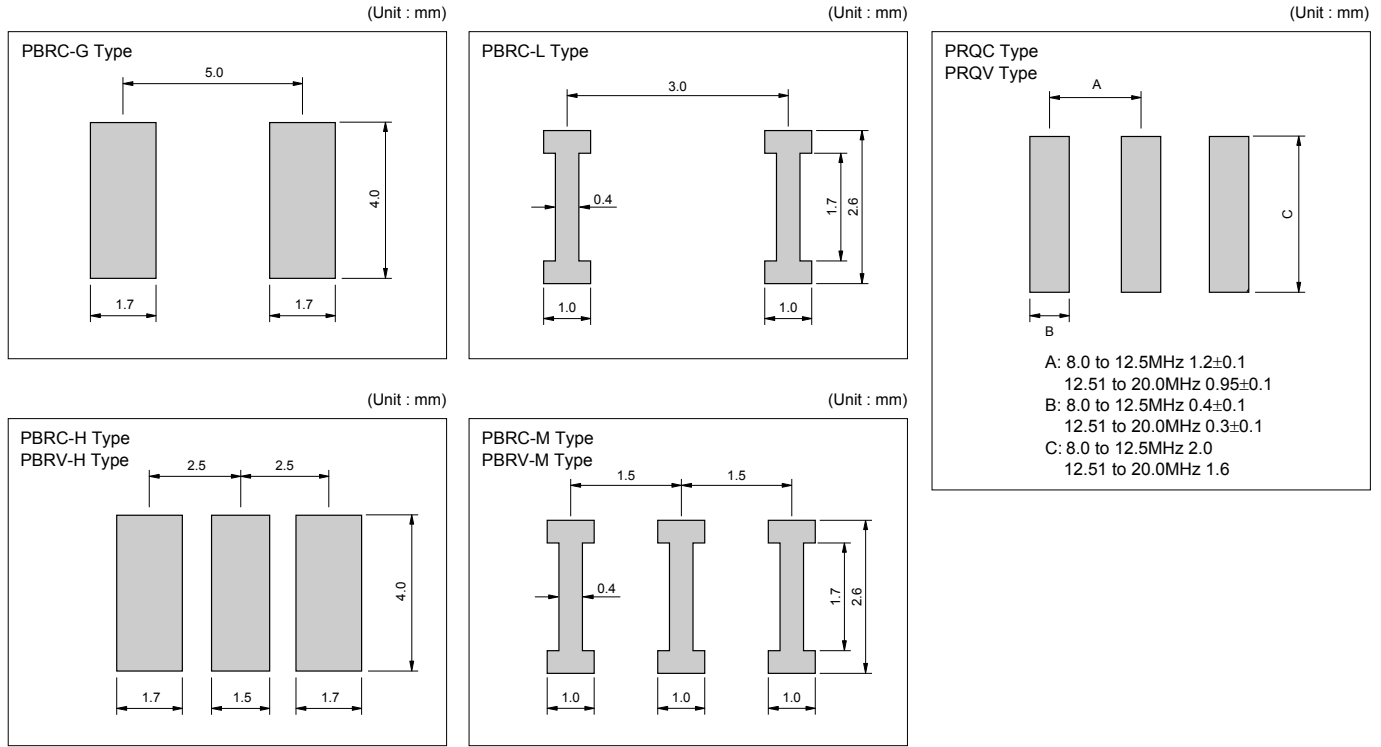
(Unit : mm)



| # | Pin # |
|---|--------|
| 1 | Input |
| 2 | Ground |
| 3 | Output |

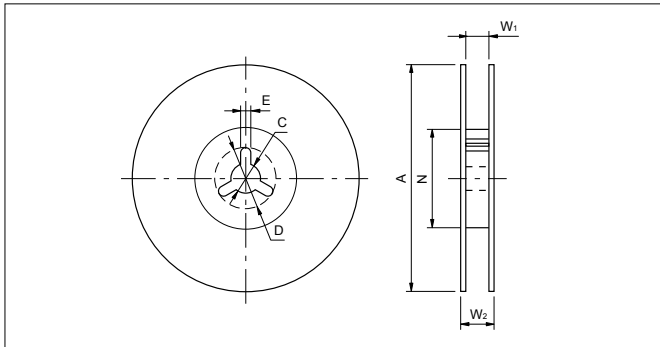


Recommended Land Pattern

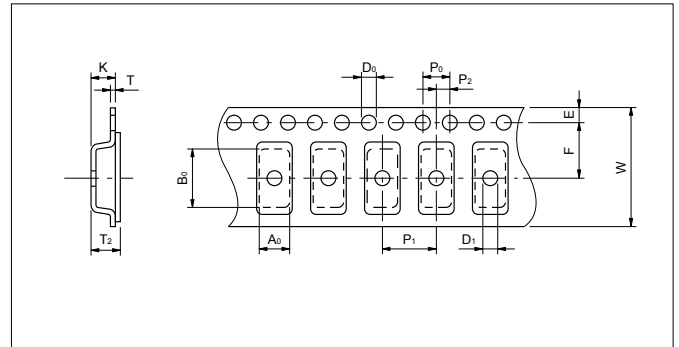


Packaging

Reel



Taping



| Code | A | N | W ₁ | W ₂ | C | D | E |
|---------------|---------------------------------|--------------------------------|--------------------------------------|----------------|----------|----------|---------|
| 7.4×3.4×2.0mm | 250±2.0 | 80±2.0 | 16.5 ^{+0.1} _{-0.0} | 23.6max. | 13.0±0.5 | 21.0±0.8 | 2.0±0.5 |
| 4.5×2.0×1.2mm | 180 ⁺⁰ ₋₃ | 60 ⁺¹ ₋₀ | 13.0±0.3 | 15.4±1 | 13.0±0.2 | 21.0±0.8 | 2.0±0.5 |
| 3.2×1.3×1.3mm | 180±2 | 60 ⁺¹ ₋₀ | 9.0 ^{+0.0} _{-0.0} | 140min. | 13.0±0.2 | 21.0±0.8 | 2.0±0.5 |

| Code | A ₀ | B ₀ | W | F | E | P ₁ | P ₂ | P ₀ | D ₀ | D ₁ | T | T ₂ | K |
|---------------|----------------|----------------|-----------|-----------|----------|----------------|----------------|----------------|--------------------------------------|--------------------------------------|-----------|----------------|----------|
| 7.4×3.4×2.0mm | 3.80±0.1 | 7.80±0.1 | 16.00±0.3 | 7.50±0.1 | 1.75±0.1 | 8.00±0.1 | 2.0±0.1 | 4.00±0.1 | 1.50 ^{-0.1} _{-0.0} | 1.50 ^{-0.1} _{-0.0} | 0.30±0.05 | 2.45±0.2 | 2.40±0.2 |
| 4.5×2.0×1.2mm | 2.20±0.1 | 4.70±0.1 | 12.00±0.2 | 5.5±0.05 | 1.75±0.1 | 4.00±0.1 | 2.0±0.05 | 4.00±0.1 | 1.50 ^{-0.1} _{-0.0} | 1.0±0.1 | 0.30±0.05 | 1.85max. | 1.80max. |
| 3.2×1.3×1.3mm | 1.50±0.1 | 3.40±0.1 | 8.00±0.2 | 3.50±0.05 | 1.75±0.1 | 4.00±0.1 | 2.0±0.05 | 4.00±0.1 | 1.50 ^{-0.1} _{-0.0} | 1.0 ^{+0.2} _{-0.0} | 0.25±0.05 | 1.30max. | 0.90±0.1 |

* 7.4×3.4×2.0mm=PBRC-G, PBRC-H, PBRV-G, PBRV-H 2000pcs./Reel
 4.5×2.0×1.2mm=PBRC-L, PBRC-M, PBRV-L, PBRV-M 3000pcs./Reel
 3.2×1.3×1.3mm=PRQC-S, PRQV-S 3000pcs./Reel