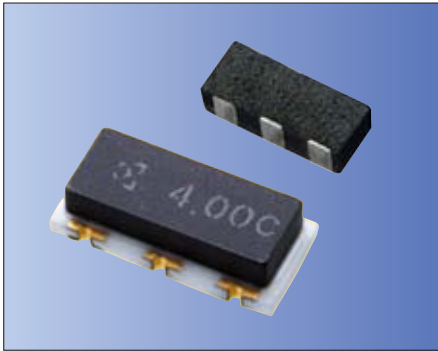


MHz Band Ceramic Chip Resonators (SMD) PBRV-H/ PBRV-M/ PRQV Series



for Automotive Applications



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 operation
- AEC-Q200

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 R: Reel
(Null): Bulk
- 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 C R 50 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

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

| | | | |
|-----------|-------|-----------|-------|
| 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

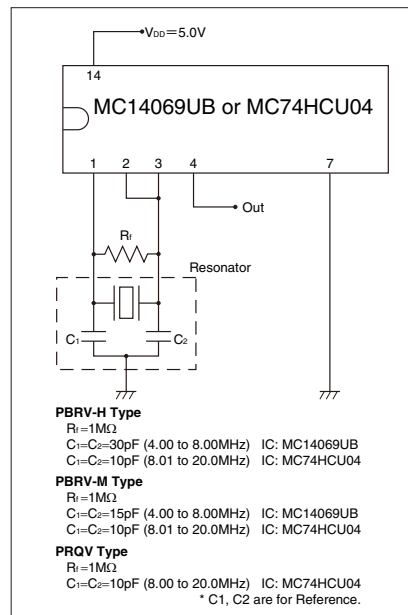
| Series | Frequency Range (MHz) | Frequency Tolerance (25°C) | Temperature Stability |
|------------------|-----------------------|----------------------------|--|
| PBRV-H PBRV-M | 4.00 to 8.00 | ±0.5% (op. ±0.3%) | Y: ±0.5% (-40 to +125°C) Z: ±0.5% (-40 to +150°C) |
| | 8.01 to 20.00 | ±0.7% (op.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

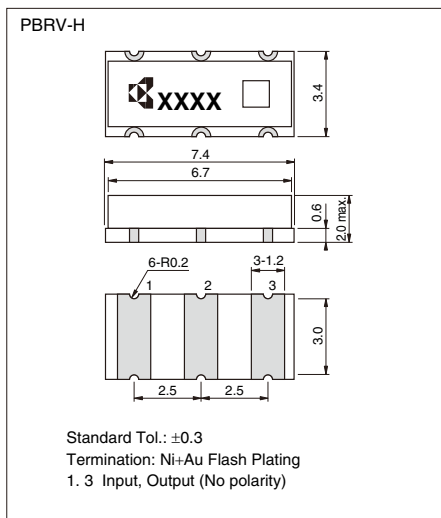
- This product includes built-in capacitors, but values may not be the most appropriate depending on IC's.
- Evaluation of circuit with IC is necessary. IC circuit matching may be referenced with
 - 1) IC data books
 - 2) List of Recommended circuits in Kyocera website.
- Please contact IC manufacturer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

Test Circuit

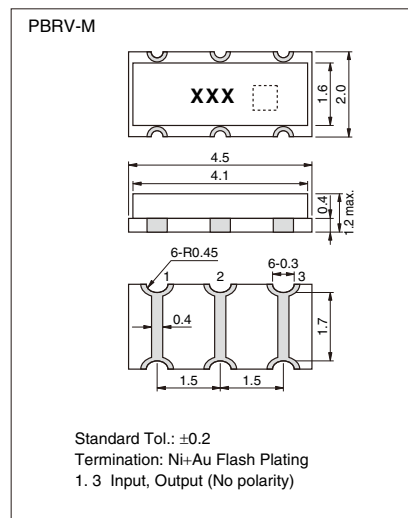


Dimensions

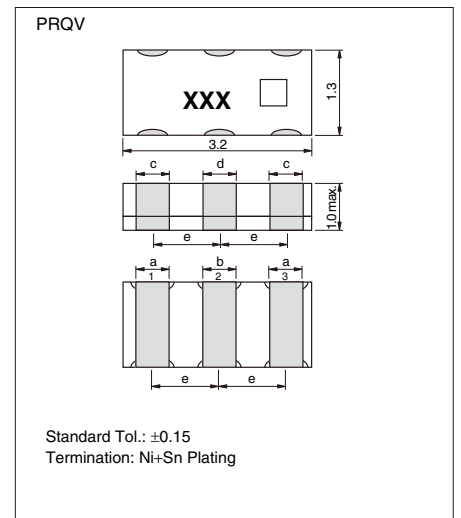
(Unit: mm)



(Unit: mm)



(Unit: mm)



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

(Unit: mm)

| Type | Frequency (MHz) | a | b | c | d | e |
|----------|-----------------|-----|-----|-----|-----|-----|
| C | 8.00 to 20.00 | 0.4 | 0.4 | 0.6 | 0.4 | 1.2 |

MHz Band Ceramic Chip Resonators (SMD) PBRV/ PRQV Frequency Tight Tolerance Series



for Automotive Applications



RoHS Compliant

Features

- Improved frequency tolerance for CAN-BUS application of automotive
- AEC-Q200

How to Order (PBRV)

PBRV 15.00 H R 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦

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

10 ±0.1%

- 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 C R 15 10 Y 000
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

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

15 ±0.15%

- 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

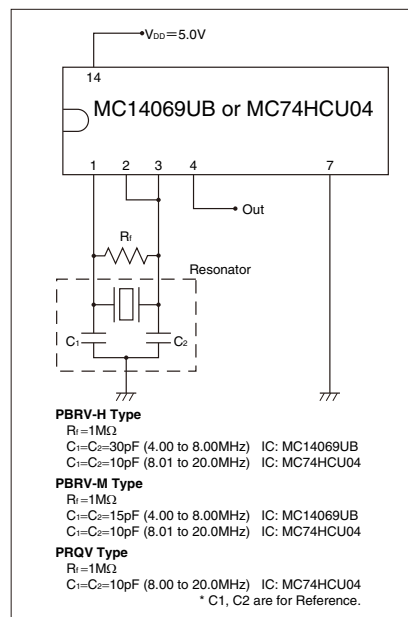
Specifications

| Series | PBRV-H/ M | PRQV-C |
|-----------------------------|------------------------|------------------------|
| Part Number | PBRV-HR/ MR 10Y □□□ | PRQV- CR15 □□ Y □□□ |
| Operating Temperature Range | -40 to +125°C | -40 to +125°C |
| Frequency Range | 4.0 to 7.9MHz | 8.0 to 20.0MHz |
| Frequency Tolerance | Initial: ±0.3% | ±0.25% |
| Temperature Aging | ±0.1% | ±0.05% |
| Total Frequency Tolerance | ±0.4% | ±0.3% |

* Please refer to the specification sheet of each product for information including detail dimensions.

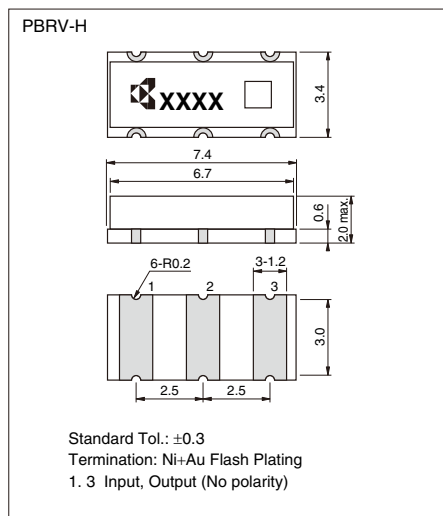
* Aging characteristics is specified at 25°C for the period of 10 years.

Test Circuit



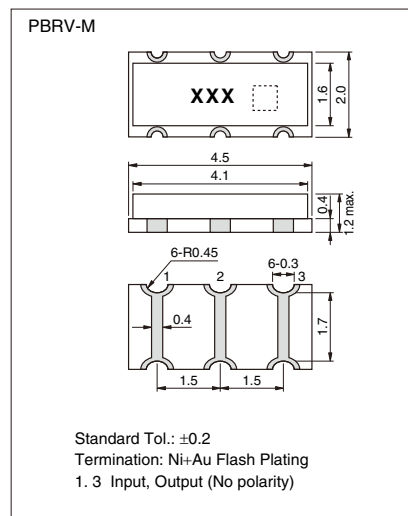
Dimensions

(Unit: mm)

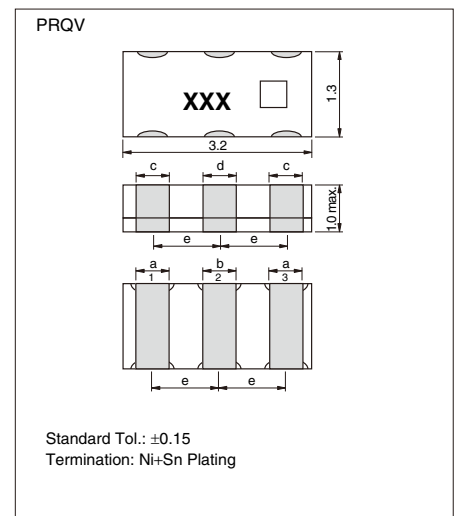


| # | Pin # |
|---|--------|
| 1 | Input |
| 2 | Ground |
| 3 | Output |

(Unit: mm)



(Unit: mm)



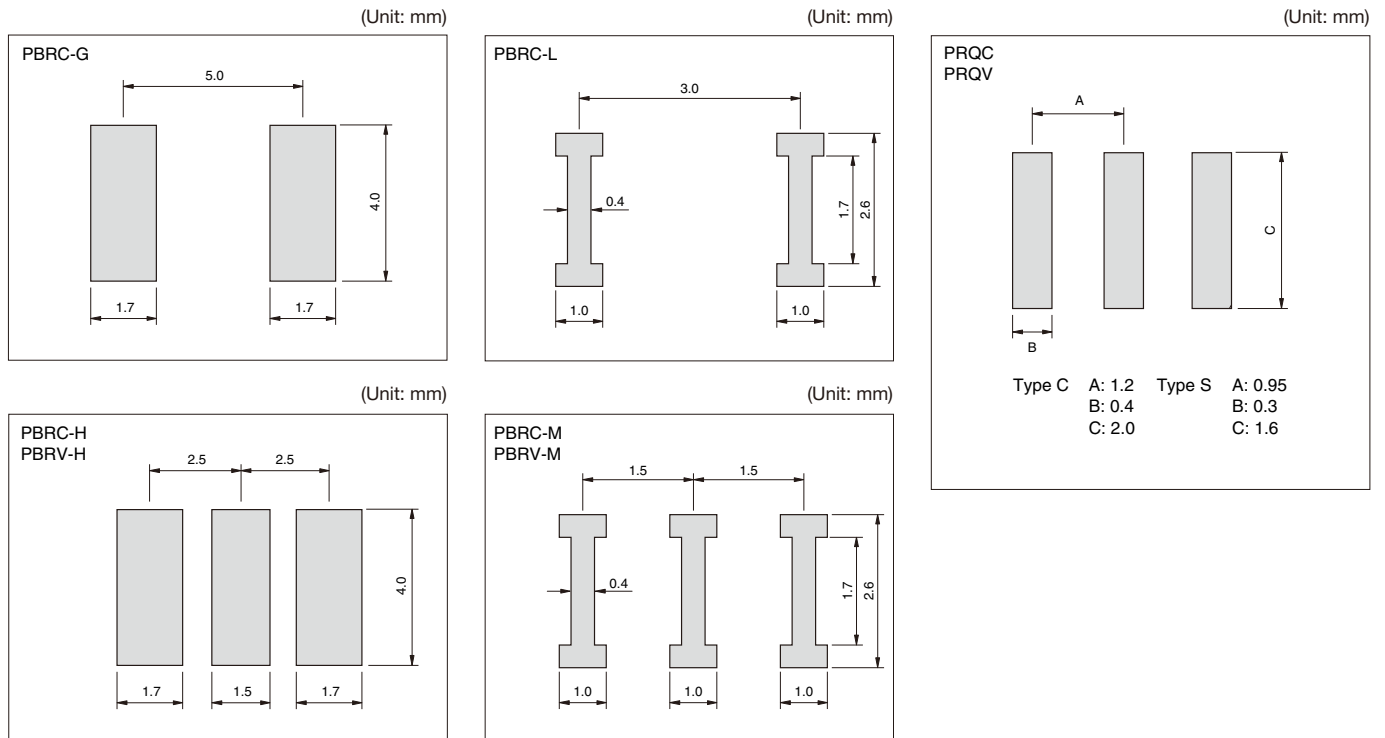
(Unit: mm)

| Type | Frequency (MHz) | a | b | c | d | e |
|------|-----------------|-----|-----|-----|-----|-----|
| C | 8.00 to 20.00 | 0.4 | 0.4 | 0.6 | 0.4 | 1.2 |

MHz Band Ceramic Chip Resonators (SMD) Recommended Land Pattern/ Packaging

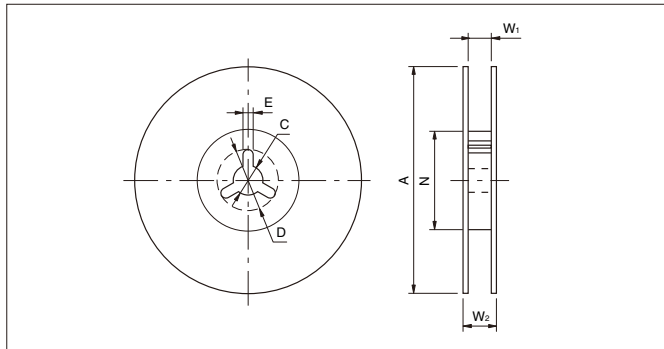


Recommended Land Pattern

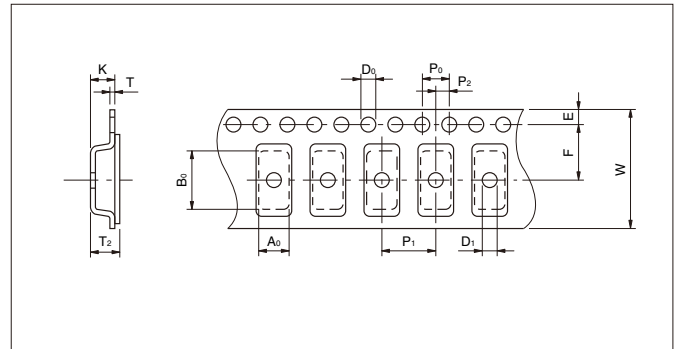


Packaging

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 ^{+1.1} _{-0.0} | 23.6 max. | 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 ^{+1.0} _{-1.5} | 140 min. | 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 | 1.85 max. | 1.80 max. |
| 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±0.1 | 0.25±0.05 | 1.40 max. | 1.10±0.05 |

* 7.4×3.4×2.0mm=PBRC-G, PBRC-H, PBRV-G, PBRV-H 2000 pcs./ Reel
 4.5×2.0×1.2mm=PBRC-L, PBRC-M, PBRV-L, PBRV-M 3000 pcs./ Reel
 3.2×1.3×1.0mm=PRQC, PRQV 3000 pcs./ Reel