



for Automotive Applications



Features

- Stable oscillation by using fundamental vibration in all frequencies
- Small & low profile
- Built-in capacitor structure
- Reflow solderable

Applications

- Automotive
- ABS
- ECU
- Air-Bag System

Test Circuit

14

R

, |, (2)

 PBRV-H Type

 Rt=1MΩ, C1=C2=10pF, 30pF

 (2.00 to 8.00MHz)

 IC: MC14069UB

 (8.01 to 20.0MHz)

 IC: MC74HCU04

 PBRV-M Type

 Rr=1MΩ, Cr=C₂=10pF, 15pF, 33pF

 (4.00 to 8.00MHz)

 IC: MC14069UB

 (8.01 to 20.0MHz)

 IC: MC74HCU04

 PRQV Type

 R=1MΩ, C1=C2=5pF, 10pF

 (8.00 to 20.0MHz)

 IC: MC74HCU04

 * C1, C2 are for Reference.

•V₀₀=5.0\

MC14069UB or MC74HCU04

Out

Specifications

Series		Frequency Range (MHz)	Frequency Tolerance (25°C)	Temperature Stability	Operating Temperature Range (°C)
PBRV-HR		2.0 to 8.0	±0.50%	±0.30%	-40 to 125
PDNV-NN	8.1 to 20.0	±0.50%	±0.10%	-40 to 125	
		8.0 to 20.0	±0.50%	±0.10%	-40 to 125
PBRV-	MR	4.0 to 10.0	±0.50%	±0.30%	-40 to 125
		10.1 to 20.0	±0.50%	±0.50%	-40 to 125
PRC	۷۷	8.0 to 20.0	±0.50%	±0.50%	-40 to 125

* Please contact us for products without built-in capacitors. * Please contact us for the operating temperature range of -40 to 150°C

Note)

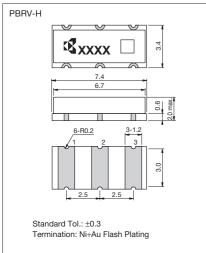
- This product includes built-in capacitors, but values may not be the most appropriate depending on IC's.
- Evaluation of circuit with IC is necessary. IC circuit matching may be referenced with

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.

(Unit: mm)

Dimensions



PBRV-M XXX 6-R0.45 0.4 Standard Tol.: ±0.2 Termination: Ni+Au Flash Plating

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

PBRV 15.00 H R 50 Y 000 $\overline{(2)} \ \overline{(3)} \ \overline{(4)} \ \overline{(5)} \ \overline{(6)} \ \overline{(7)}$ (1)

- 1) Series (PBRV: Automotive)
- 2 Frequency (MHz)
- (3) Type (H, M)
- ④ Packing R: Tape & Reel
 - PBRV-H (2000 pcs./ Reel) PBRV-M (3000 pcs./ 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

Х	-40°C to 85°C	Y	$-40^{\circ}C$ to $125^{\circ}C$
Ζ	-40°C to 150°C		
2	-40°C to 150°C		

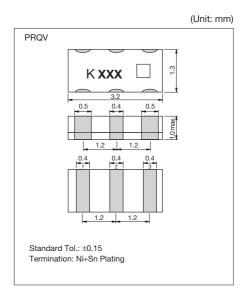
⑦ Unique Code

How to Order (PRQV)

<u>PR(</u> ①				$\frac{10}{6} \frac{10}{7} \frac{10}{8}$				
(1) Se	1) Series (PRQV: Automotive)							
2 Fre	equency (MHz)			,				
③ Typ	be (C)							
④ Pa	cking R: Tape	& Re	el (3	3000 pcs./ Reel)				
	(Null): Bı							
(5) Fre	equency Tolerar	nce a	at 28	5°C				
30	±0.3%	4	10	±0.4%				
50	±0.5%	7	70	±0.7%				
6 Bu	ilt-in Capacitan	се	10p	F: 10 5pF: 05				
 Operating Temperature 								
Х	–40°C to 85°C)	Y	-40°C to 125°C				
Ζ	-40° C to 150°	С						
⑧ Un	Unique Code							

(8) Unique Code

(Unit: mm)







for Automotive Applications

PBRV 15.00 H R 10 Y 000

How to Order (PBRV)



Frequency

Tolerance

Initial + Temperature

±0.25%

±0.25%

±0.25%

* Please refer to the specification sheet of each product for

* Please contact us for the operating temperature range of

Operating

Temperature Range

(°C)

-40 to 125

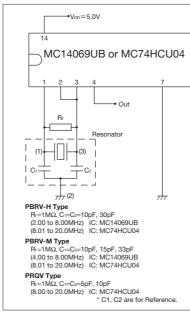
-40 to 125

-40 to 125

Features

- Improved frequency tolerance suitable for CAN-BUS application
- The series are high accuracy resonators whose total tolerance is available for less than ±3000ppm

Test Circuit



2 3 4 5 6 7 (1) (1) Series (PBRV: Automotive) 2 Frequency (MHz) ③ Type (H, M) 4 Packing R: Tape & Reel PBRV-H (2000 pcs./ Reel) PBRV-M (3000 pcs./ Reel) (Null): Bulk (5) Frequency Tolerance at 25°C 10 ±0.1% (6) Operating Temperature X -40°C to 85°C Υ -40°C to 125°C -40°C to 150°C Ζ ⑦ Unique Code

How to Order (PRQV)

(1)

① Series (PRQV: Automotive)
 Frequency (MHz)
③ Type (C)
④ Packing R: Tape & Reel (3000 pcs./ Reel)
(Null): Bulk
(5) Frequency Tolerance at 25°C
15 ±0.15%
6 Built-in Capacitance 10pF: 10 5pF: 05
Operating Temperature
X -40°C to 85°C Y -40°C to 125°C
Z -40°C to 150°C
8 Unique Code

PRQV 8.00 C R 15 10 Y 000

 $\boxed{2} \overline{3} \overline{4} \overline{5} \overline{6} \overline{7} \overline{8}$

Dimensions

Specifications

Series

PBRV-HR

PBRV-MR

PRQV

-40 to 150°C.

Frequency

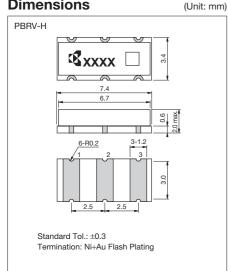
Range (MHz)

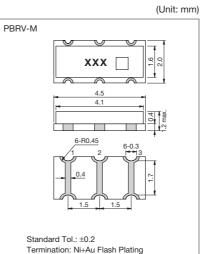
2.0 to 20.0

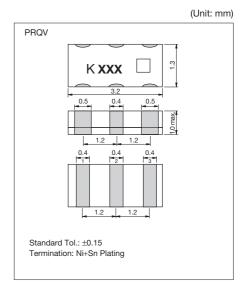
4.0 to 20.0

8.0 to 20.0

information including detail dimensions.









MHz Band Ceramic Resonators (SMD) PBRC-H/ PBRC-M/ PRQC Series



for Consumer Applications



RoHS Compliant

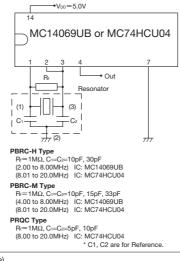
Specifications

Series	Frequency Range (MHz) Frequency Tolerance (25°C) Temperature Stability		Operating Temperature Range (°C)	
PBRC-HR	2.0 to 8.0	±0.50%	±0.30%	-40 to 85
PDRC-RR	8.1 to 20.0	±0.50%	±0.10%	-40 to 85
	8.0 to 20.0	±0.50%	±0.10%	-40 to 85
PBRC-MR	4.0 to 10.0	±0.50%	±0.30%	-40 to 85
	10.1 to 20.0	±0.50%	±0.50%	-40 to 85
PRQC	8.0 to 20.0	±0.50%	±0.50%	-40 to 85

Features

- Stable oscillation by using fundamental vibration in all frequencies
- Small & low profile
- Built-in capacitor structure
- Reflow solderable

Test Circuit

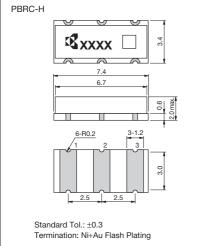


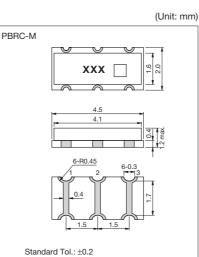
Note)

(Unit: mm)

- 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





Standard Tol.: ±0.2 Termination: Ni+Au Flash Plating

(Unit: mm)

Termination: Ni+Sn Plating

Unit:	mm)
Unit.	111111

Туре	Frequency (MHz)	а	b	С	d	е
С	8.00 to 20.00	0.4	0.4	0.5	0.4	1.2
S	14.00 to 20.00	0.6	0.4	0.5	0.4	0.95

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

PBRC	15.00	Η	R	50	Х	000
(1)	(2)	3	<u>(4)</u>	(5)	6	(7)

- 1) Series
- 2 Frequency (MHz)
- 3 Type (H, M)
- 4 Packing R: Tape & Reel

PBRC-H (2000 pcs./ Reel) PBRC-M (3000 pcs./ 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

⑦ Unique Code

How to Order (PRQC)

<u>PR(</u>	<u>)</u>	<u>8.00</u> ②				$\frac{10}{6} \frac{10}{7} \frac{10}{8}$		
1) Se	(1) Series							
② Fre	 Frequency (MHz) 							
③ Typ	``	<i>, ,</i>						
(4) Pa	cking	· ·			l (3	000 pcs./ Reel)		
<u> </u>		(Null):				_		
(5) Fre	eque	ncy Tole	ranc	e at	25	°C		
30		±0.3%		40)	±0.4%		
50		±0.5%		70)	±0.7%		
6 Built-in Capacitance 10pF: 10 5pF: 05								
⑦ Op	⑦ Operating Temperature							
W	-20)°C to 8	0°C	X		$-40^{\circ}C$ to $85^{\circ}C$		

⑧ Unique Code



for Consumer Applications



RoHS Complia

Features

- Stable oscillation by using fundamental vibration in all frequencies
- Small & low profileReflow solderable

How to Order

 $\begin{array}{c|c} \underline{\mathsf{PBRC}} \\ \hline 1 \end{array} \begin{array}{c} \underline{8.00} \\ \hline 2 \end{array} \begin{array}{c} \underline{G} \\ \overline{3} \end{array} \begin{array}{c} \underline{R} \\ \overline{4} \end{array} \begin{array}{c} \underline{50} \\ \overline{5} \end{array} \begin{array}{c} \underline{X} \\ \overline{0} \end{array} \begin{array}{c} \underline{000} \\ \overline{7} \end{array}$

(1) Series

2 Frequency (MHz)

3 Type (G)

④ Packing R: Tape & Reel (2000 pcs./ Reel) (Null): Bulk

(5) Frequency Tolerance at 25°C

10	±0.1%	20	±0.2%
30	±0.3%	40	±0.4%
50	±0.5%		

(6) Operating Temperature

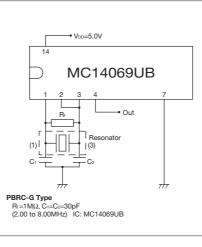
X –40°C to 85°C

⑦ Unique Code

Specifications

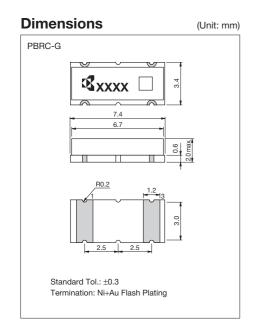
Series	Frequency Range (MHz)	Frequency Tolerance (25°C)	Temperature Stability	Operating Temperature Range (°C)
PBRC-GR	2.0 to 8.0	±0.50%	±0.50%	–40 to 85

Test Circuit



Note)

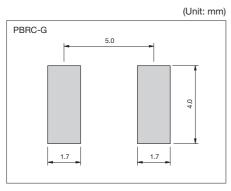
- Values of C₁, C₂ and R_f are evaluated with IC, MC14069UB,
- and evaluation of circuit is necessary when using other IC's. • IC circuit matching may be referenced with 1) IC data books
- 2) List of Recommended circuits in Kyocera website.
- Please contact IC manufacturer or Kyocera when there are difficulties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

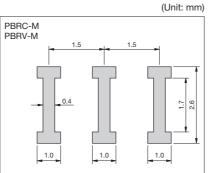


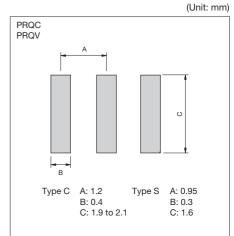




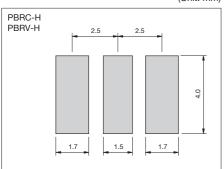
Recommended Land Pattern



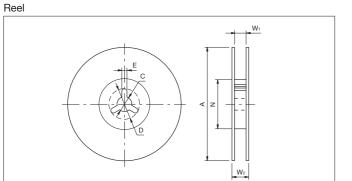


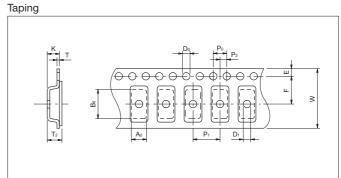






Packaging





Code	А	N	W 1	W 2	С	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 ⁺⁰ -9	50 min	9.0±0.3	12.4 max.	13.0±0.5	21.0±0.8	2.0±0.5	

Code	Ao	Bo	w	F	E	P 1	P ₂	Po	Do	D 1	т	T2	к
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	1.50 +0.1	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±0.2	3.45±0.2	8.00±0.3	3.50±0.05	1.75±0.1	4.00±0.1	2.0±0.05	4.00±0.1	$1.50^{+0.1}_{-0.0}$	$1.0^{+0.1}_{-0.0}$	0.25±0.05	1.40 max.	1.10±0.2

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