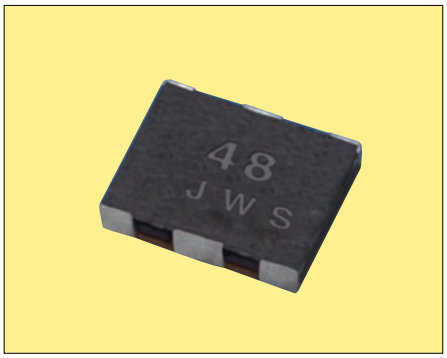
MHz Band Ceramic Resonators (SMD)
PRTC Series
2.5×2.0×0.8mm



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

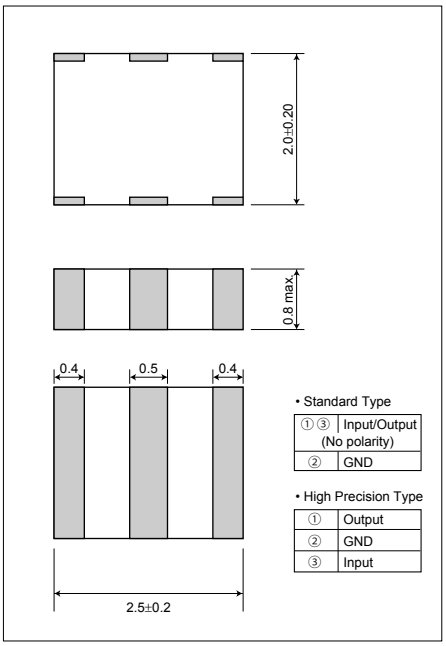
PRTC 25.00 T R 50 10 W 000
① ② ③④ ⑤ ⑥ ⑦ ⑧

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

Notice

- Non Washable

Dimensions (Unit : mm)



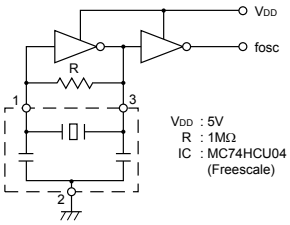
• Standard Type

①③	Input/Output (No polarity)
②	GND

• High Precision Type

①	Output
②	GND
③	Input

Test Circuit



Specifications

• Standard Type

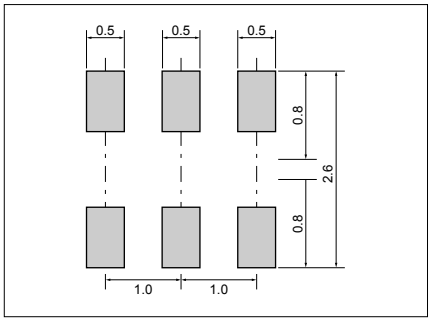
Frequency Range	Frequency Tolerance (25°C)	Temperature Stability (–20 to 80°C)	IC	Standard Frequency (MHz)
25.0 to 60.0MHz	±0.5%	±0.2%	MC74HCU04 (Freescale)	25.0, 30.0, 33.86, 40.0

Please contact your local sales office for IC matching.

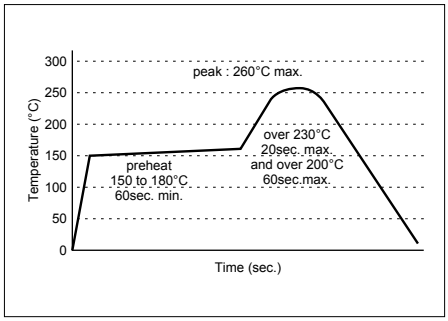
• High Precision Type

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

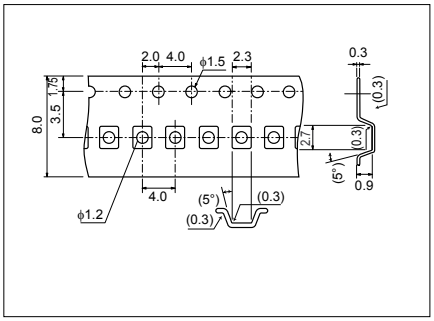
Recommended Land Pattern (Unit : mm)



Recommended Reflow Profile

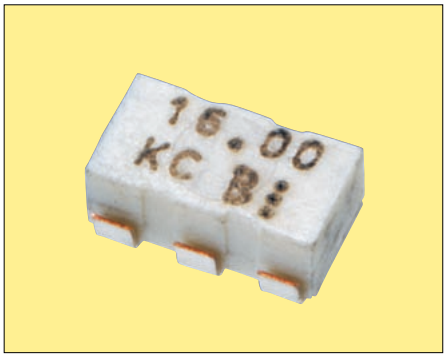


Packaging : Taping (Unit : mm)



MHz Band Ceramic Resonators (SMD)
SSR-B / SSR-F Series

3.2×2.1×1.5mm



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

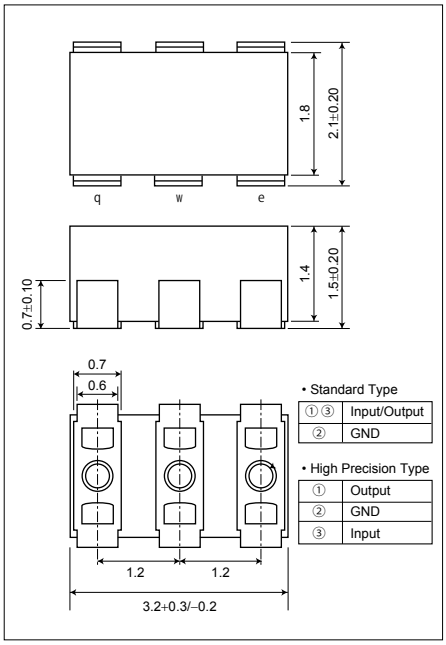
SSR 33.86 B R
① ② ③ ④

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

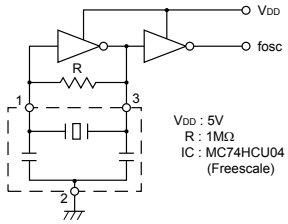
Notice

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

Dimensions (Unit : mm)



Test Circuit



Specifications

• Standard Type

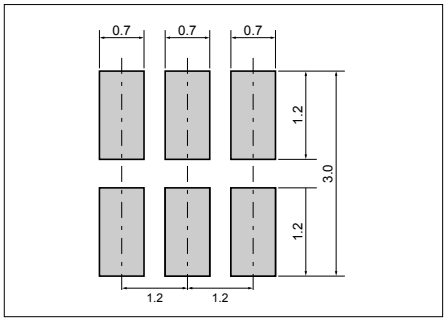
	Frequency Range	Frequency Tolerance (25°C)	Temperature Stability (–20 to 80°C)	IC	Main Frequency (MHz)
B	16.0 to 60.0MHz (3rd-overtone)	±0.5%	±0.3%	MC74HCU04 (Freescale)	16.93, 20.0, 27.0, 33.86, 50.8
F	16.0 to 20.0MHz (Fundamental)				16.93

Please contact your local AVX office for IC matching.

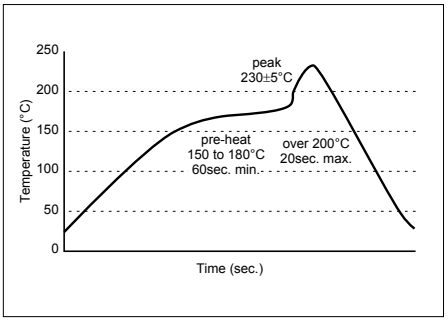
• High Precision Type

	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

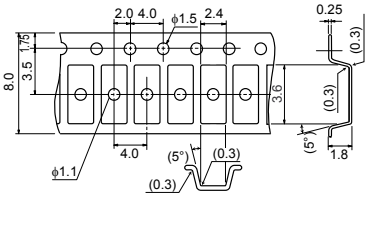
Recommended Land Pattern (Unit : mm)



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 ① 15.00 ② G ③ R ④ 50 ⑤ Y ⑥ 000 ⑦

①Series
②Frequency (MHz)
③Type (G,L)
④Packing _ Bulk (Null)
R Reel (G: 2k/reel, L: 3k/reel)

⑤Frequency Tolerance at 25°C

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

⑥Operating Temperature

X	–40°C to 85°C	**Y**	–40°C to 125°C
Z	–40°C to 150°C		

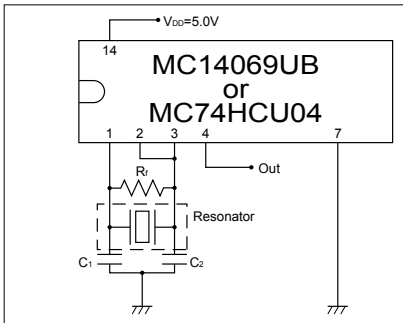
⑦Unique Code

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



PBRC-G Type
Rf=1MΩ
C1=C2=30pF (2.00 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

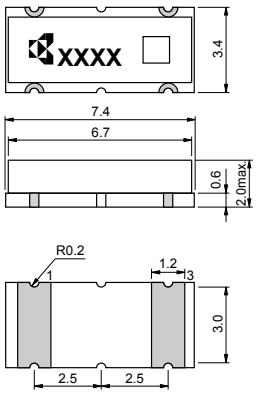
PBRC-G Type
Rf=1MΩ
C1=C2=15pF (3.68 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

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)

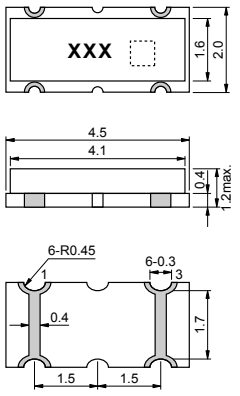
PBRC-G Type



Standard Tol. : ±0.3
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

(Unit : mm)

PBRC-L Type



Standard Tol. : ±0.2

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

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

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

⑥Operating Temperature

X	–40°C to 85°C	**Y**	–40°C to 125°C
Z	–40°C to 150°C		

⑦Unique Code

How to Order (PRQC)

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

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

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

⑥Built-in Capacitance 10pF : 10
⑦Operating 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

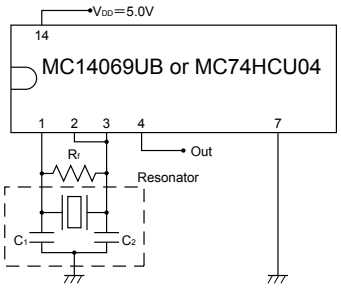
⑧Unique Code

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



PBRC-H Type
Rf=1MΩ
C1=C2=30pF (2.00 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

PBRC-M Type
Rf=1MΩ
C1=C2=15pF (3.68 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

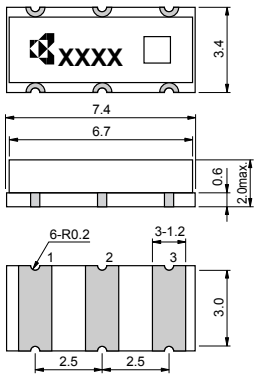
PRQC Type
Rf=1MΩ
C1=C2=10pF (8.00 to 20.0MHz) IC: MC74HCU04
* C1, C2 are for Reference.

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)

PBRC-H Type

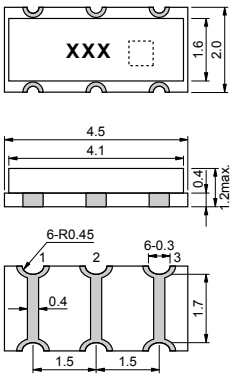


Standard Tol. : ±0.3
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

#	Pin #
1	Input
2	Ground
3	Output

(Unit : mm)

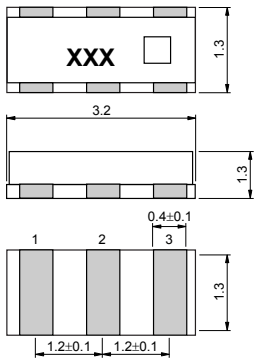
PBRC-M Type



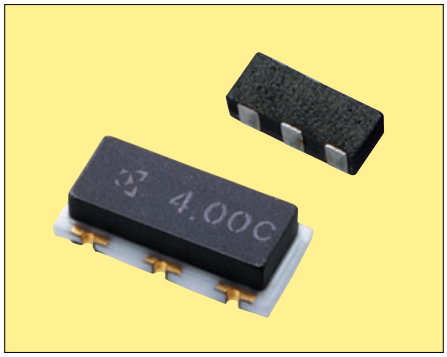
Standard Tol. : ±0.2
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

(Unit : mm)

PRQC Type



Standard Tol. : ±0.15
Termination : Sn Plating



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

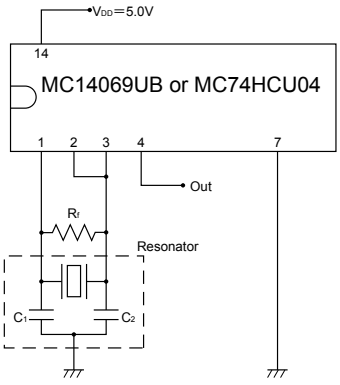
Specifications

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



PBRV-H Type
Rf=1MΩ
C1=C2=30pF (4.00 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

PBRV-M Type
Rf=1MΩ
C1=C2=15pF (4.00 to 8.00MHz) IC: MC14069UB
C1=C2=10pF (8.01 to 20.0MHz) IC: MC74HCU04

PRQV Type
Rf=1MΩ
C1=C2=10pF (8.00 to 20.0MHz) IC: MC74HCU04
* C1, C2 are for Reference.

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

PBRV ① 15.00 ② H ③ R ④ 50 ⑤ Y ⑥ 000 ⑦

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

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

⑥Operating Temperature

X	–40°C to 85°C	Y	–40°C to 125°C
Z	–40°C to 150°C		

⑦Unique Code

How to Order (PRQV)

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

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

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

⑥Built-in Capacitance 10pF : 10
⑦Operating Temperature

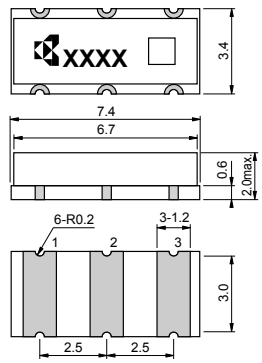
X	–40°C to 85°C	Y	–40°C to 125°C
Z	–40°C to 150°C		

⑧Unique Code

Dimensions

(Unit : mm)

PBRV-H Type

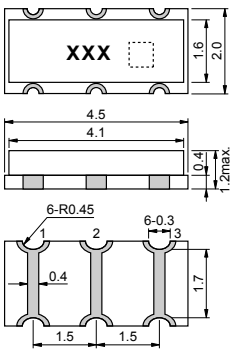


Standard Tol. : ±0.3
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

#	Pin #
1	Input
2	Ground
3	Output

(Unit : mm)

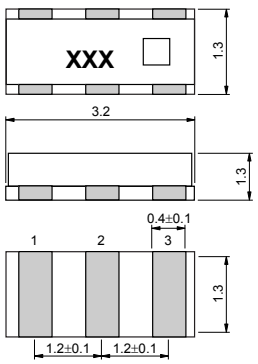
PBRV-M Type



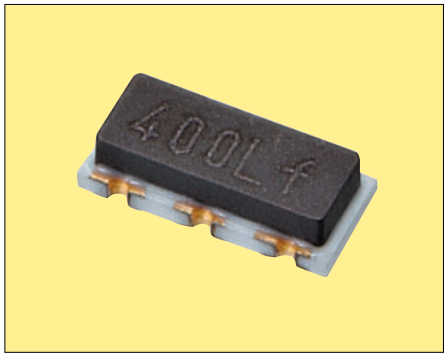
Standard Tol. : ±0.2
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

(Unit : mm)

PRQV Type



Standard Tol. : ±0.15
Termination : Sn Plating



RoHS Compliant

Features

- Improved frequency tolerance for CANBUS application of automotive

How to Order (PBRV)

PBRV ① 15.00 ② H ③ R ④ 10 ⑤ Y ⑥ 000 ⑦

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

10	±0.1%

⑥Operating Temperature

X	–40°C to 85°C	Y	–40°C to 125°C
Z	–40°C to 150°C		

⑦Unique Code

How to Order (PRQV)

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

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

10	±0.1%

⑥Built-in Capacitance 10pF : 10
⑦Operating Temperature

X	–40°C to 85°C	Y	–40°C to 125°C
Z	–40°C to 150°C		

⑧Unique Code

Specifications

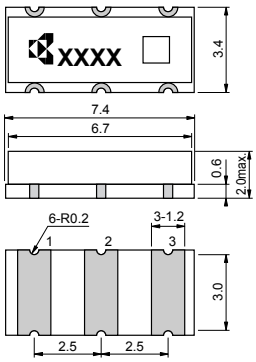
Series		PBRV-HR/MR	PBRV-HR/MR	PRQV-S
Part Number		PBRV-HR/MR 10Y□□□	PBRV-HR/MR 10Y□□□	PRQV-SR□10Y□□□
Operating Temperature Range		–40 to +125°C	–40 to +125°C	–40 to +125°C
Frequency Range		4.0 to 7.9MHz	8.0 to 20.0MHz	8.0 to 20.0MHz
Frequency Tolerance	Initial+Temperature	±0.3%	±0.2%	±0.25%
	Aging	±0.1%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

PBRV-H Type

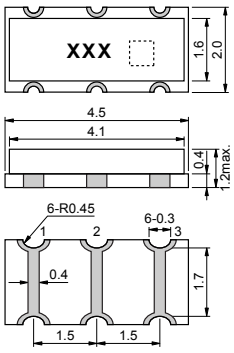


Standard Tol. : ±0.3
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

#	Pin #
1	Input
2	Ground
3	Output

(Unit : mm)

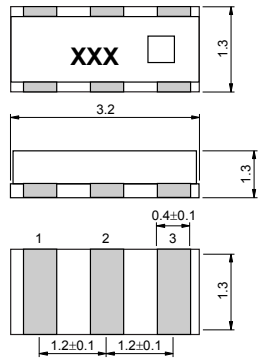
PBRV-M Type



Standard Tol. : ±0.2
Termination : Ni+Au Flash Plating
1. 3 Input, Output (No polarity)

(Unit : mm)

PRQV Type

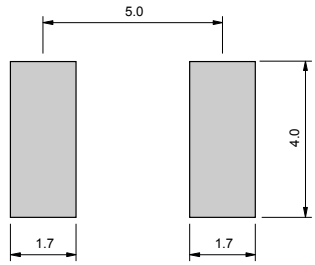


Standard Tol. : ±0.15
Termination : Sn Plating

Recommended Land Pattern

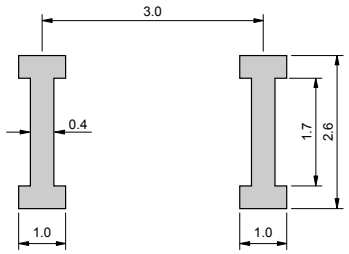
(Unit : mm)

PBRC-G Type



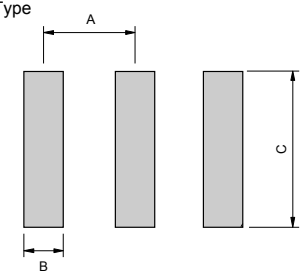
(Unit : mm)

PBRC-L Type



(Unit : mm)

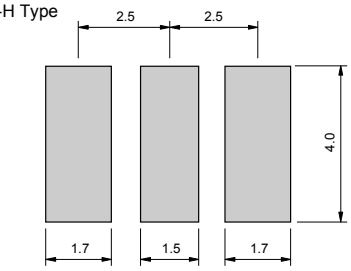
PRQC Type
PRQV Type



A: 8.0 to 12.5MHz 1.2±0.1
12.51 to 20.0MHz 0.95±0.1
B: 8.0 to 12.5MHz 0.4±0.1
12.51 to 20.0MHz 0.3±0.1
C: 8.0 to 12.5MHz 2.0
12.51 to 20.0MHz 1.6

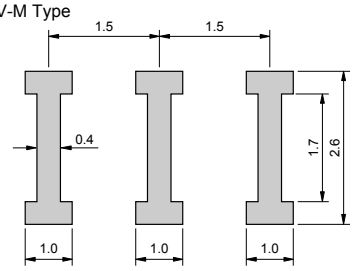
(Unit : mm)

PBRC-H Type
PBRV-H Type



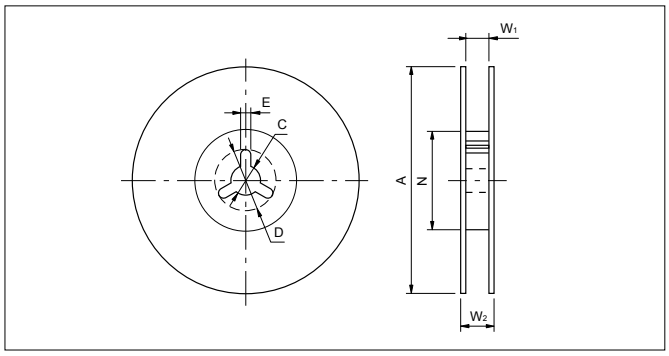
(Unit : mm)

PBRC-M Type
PBRV-M Type

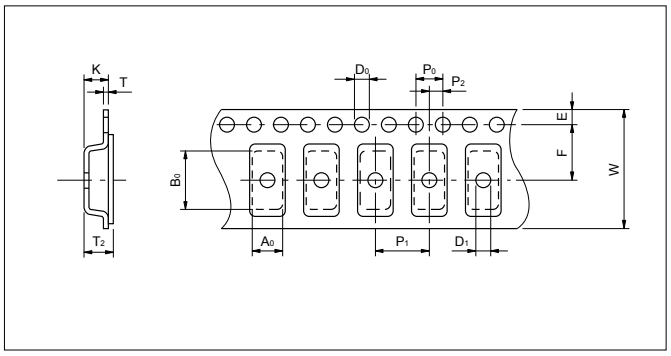


Packaging

Reel



Taping



Code	A	N	W_1	W_2	C	D	E
7.4×3.4×2.0mm	250±2.0	80±2.0	$16.5^{+1.1}_{-0.0}$	23.6max.	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}	$9.0^{+1.0}_{-1.5}$	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