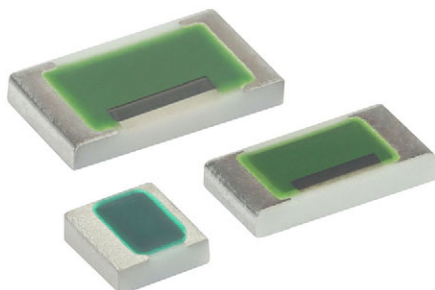


High Frequency ¼ Wrap Flip-Chip Thick Film Resistors



FEATURES

- DC to high frequency RF applications
- 0302 to 1206 case sizes
- ¼ wraparound for enhanced solderability
- Available substrate materials: Al₂O₃, AlN, and BeO
- Many terminal options available
- Solder or epoxy attachment
- Customization options available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available
**HALOGEN
FREE**

LINKS TO ADDITIONAL RESOURCES



Note

* This datasheet provides information about parts that are RoHS-compliant and / or parts that are non RoHS-compliant. For example, parts with lead (Pb) terminations are not RoHS-compliant. Please see the information / tables in this datasheet for details

The RK series ¼ wrap flip-chip resistors deliver enhanced solderability and RF-optimized performance, enabling superior solder joints and consistent assembly yields in demanding applications. This unique design increases solderable termination area on the bottom and sidewalls, improving solder wetting, joint fillet formation, and placement robustness. With reduced parasitics, efficient thermal performance, and a compact footprint, the RK series is an ideal solution for designers pushing performance in high-frequency circuits.

POWER RATING BY SUBSTRATE PROPERTIES (W)					
CASE SIZE ⁽¹⁾	SUBSTRATE THICKNESS AND MATERIAL: GLOBAL P/N MATERIAL CODE (LEGACY P/N CODE) / THICKNESS / MATERIAL				
	A (90) 0.010" Al ₂ O ₃	B (91) 0.015" Al ₂ O ₃	L (2Q) 0.015" AlN	E (95) 0.010" BeO	F (96) 0.015" BeO
0302	0.06			0.15	
0402	0.15	0.2	1.5	1.5	1.5
0502	0.15				
0503	0.15				
0505		0.25			1
0603		0.5			2
0805	0.25				3
1005		0.25			3
1206		0.35	2		3

Notes

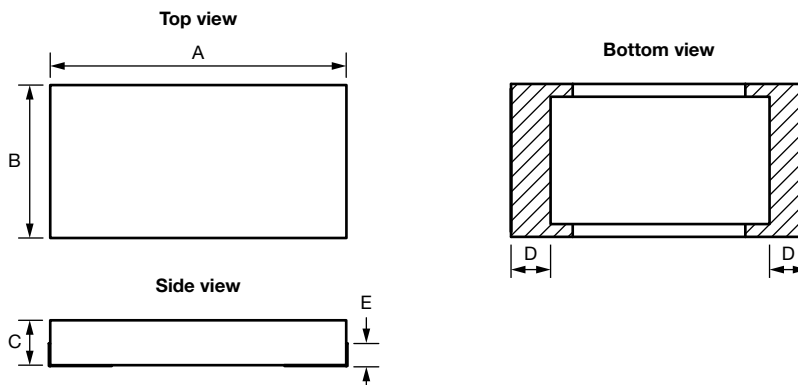
- Legacy notations in brackets
- For a complete list of all available options, please refer to document www.vishay.com/doc?50502
- (1) Imperial - refer to Dimensions table for metric



TECHNICAL SPECIFICATIONS

MODEL	SIZE	RESISTANCE RANGE Ω	SUBSTRATE				RATED POWER P_n	OPERATING TEMPERATURE $^{\circ}\text{C}$	TOLERANCE $\pm \%$
			CODE	CODE (LEGACY PN)	MATERIAL Al_2O_3 / AlN / BeO	THICKNESS MIL			
B-RK0302	0302	0.1 to 10M	A	90	Al_2O_3	10	0.06	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	0.15	-55 to +150	1, 2, 5
B-RK0402	0402	0.1 to 10M	A	90	Al_2O_3	10	0.15	-55 to +150	1, 2, 5
		0.1 to 10M	B	91	Al_2O_3	15	0.2	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	1.5	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	1.5	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	1.5	-55 to +150	1, 2, 5
B-RK0502	0502	0.1 to 10M	A	90	Al_2O_3	10	0.15	-55 to +150	1, 2, 5
B-RK0503	0503	0.1 to 10M	A	90	Al_2O_3	10	0.15	-55 to +150	1, 2, 5
B-RK0505	0505	0.1 to 10M	B	91	Al_2O_3	15	0.25	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	1	-55 to +150	1, 2, 5
B-RK0603	0603	0.1 to 10M	B	91	Al_2O_3	15	0.5	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	2	-55 to +150	1, 2, 5
B-RK0805	0805	0.1 to 10M	A	90	Al_2O_3	10	0.25	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5
B-RK1005	1005	0.1 to 10M	B	91	Al_2O_3	10	0.25	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5
B-RK1206	1206	0.1 to 10M	B	91	Al_2O_3	15	0.35	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	2	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5

DIMENSIONS



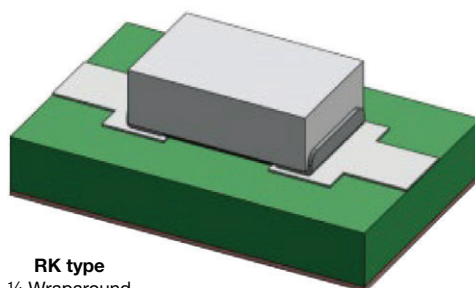
MODEL	SIZE	SUBSTRATE		A INCH (mm)	B INCH (mm)	C INCH (mm)	D INCH (mm)	E ⁽¹⁾ INCH (mm)
		CODE	CODE (LEGACY PN)					
B-RK0302	0302	A	90	0.030 (0.76)	0.020 (0.51)	0.010 (0.25)	0.005 (0.13)	0.005 (0.13)
		E	95	0.030 (0.76)	0.020 (0.51)	0.010 (0.25)	0.005 (0.13)	0.005 (0.13)
B-RK0402	0402	A	90	0.040 (1.02)	0.020 (0.51)	0.010 (0.25)	0.010 (0.25)	0.005 (0.13)
		B	91	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.010 (0.25)	0.008 (0.19)
		L	2Q	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.007 (0.18)	0.008 (0.19)
		E	95	0.040 (1.02)	0.020 (0.51)	0.010 (0.25)	0.010 (0.25)	0.005 (0.13)
		F	96	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.010 (0.25)	0.008 (0.19)
B-RK0502	0502	A	90	0.050 (1.27)	0.025 (0.64)	0.010 (0.25)	0.010 (0.25)	0.005 (0.13)
B-RK0503	0503	A	90	0.050 (1.27)	0.030 (0.76)	0.010 (0.25)	0.010 (0.25)	0.005 (0.13)
B-RK0505	0505	B	91	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.011 (0.28)	0.008 (0.19)
		F	96	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.011 (0.28)	0.008 (0.19)
B-RK0603	0603	B	91	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.008 (0.19)
		F	96	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.008 (0.19)
B-RK0805	0805	A	90	0.075 (1.91)	0.050 (1.27)	0.010 (0.25)	0.015 (0.38)	0.005 (0.13)
		F	96	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)
B-RK1005	1005	B	91	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)
		F	96	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)
B-RK1206	1206	B	91	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)
		L	2Q	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)
		F	96	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.008 (0.19)

Notes

- Tolerance is $\pm 0.005"$ (0.127 mm) unless otherwise stated
- ⁽¹⁾ E dimension tolerance: half the thickness of the substrate minimum

PERFORMANCE		
TESTS	CONDITIONS	RESULTS
Short time overload	Apply 1.1 x rated power for 5 s	≤ 5.0 % resistance shift
Rated load life	Apply $\frac{1}{2}$ power under $40\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, 90 min on / 30 min off, repeat for 100 h	≤ 5.0 % resistance shift
Moisture resistance	MIL-PRF-55342 paragraph 4.8.9, 95 % RH, $25\text{ }^{\circ}\text{C}$ to $65\text{ }^{\circ}\text{C}$	≤ 5.0 % resistance shift
Resistance to soldering heat	MIL-STD-202 method 210 and MIL-PRF-55342 paragraph 4.8.8.1	≤ 5.0 % resistance shift
Resistance to bonding exposure	MIL-PRF-55342 paragraph 4.8.8.2	≤ 5.0 % resistance shift
Solderability	MIL-PRF-55342 paragraph 4.8.12	> 95 % covered
High temperature storage	$125\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 500 h	1) ≤ 5.0 % resistance shift 2) No significant abnormality (visual)
Thermal shock	$-65\text{ }^{\circ}\text{C}$ to $+150\text{ }^{\circ}\text{C}$, 30 minutes dwell, 5 cycles	1) ≤ 5.0 % resistance shift 2) No significant abnormality (visual)

RECOMMENDED MOUNTING CONFIGURATION (Flip-Chip)



RK type
 $\frac{1}{4}$ Wraparound



GLOBAL PART NUMBER INFORMATION

Part Number Example: B-RK1206T50R0JFD

B-	RK	1206	T	50R0	J	F	00	D
0	1	2	3	4	5	6	7	8
0	VISHAY BARRY PREFIX							
1	PRODUCT FAMILY			RK = ¼ wrap resistor - flip-chip				
2	SIZE, mil							
3	TERMINAL METALLIZATION FINISH			B (CB) = tin / lead over nickel over silver G (GA) = gold (alumina and AlN only) T (CT) = tin over nickel over silver				
4	RESISTANCE, Ω			Resistance				
				Examples: 1R10 = 1.1 Ω 1R00 = 1 Ω 10R0 = 10 Ω 1000 = 100 Ω 1001 = 1 kΩ 1002 = 10 kΩ 1004 = 1 MΩ				
5	TOLERANCE, %			F = 1 % G = 2 % J = 5 %				
6	MATERIAL AND THICKNESS			A (90) = 0.010" Al ₂ O ₃ B (91) = 0.015" Al ₂ O ₃ E (95) = 0.010" BeO F (96) = 0.015" BeO L (2Q) = 0.015" AlN				
7	OPTION CODE			00 (blank) = standard option				
8	PACKAGING			Tape and reel active face down				
				D (TRD) = tape and reel, 100 min. / 1 mult. / 1000 max. per reel E (TRE) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape F (TRF) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per reel				

Notes

- For a complete list of all available options, please refer to document www.vishay.com/doc?50502
- Legacy notations in brackets

**LEGACY BARRY PART NUMBER INFORMATION**

Part Number Example: RK1206CT-50R0JN-96TRD

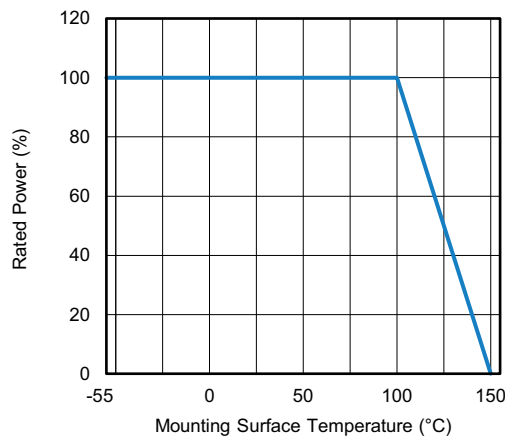
RK	1206	CT	-	50R0	J	N	-	96	TRD
1	2	3		4	5	6		7	8
1	PRODUCT FAMILY			RK = ¼ wrap resistor - flip-chip					
2	SIZE, mil								
3	TERMINAL METALLIZATION FINISH			CB (B) = tin / lead over nickel over silver GA (G) = gold (alumina and AlN only) CT (T) = tin over nickel over silver					
4	RESISTANCE, Ω			Resistance					
				Examples: 1R10 = 1.1 Ω 1R00 = 1 Ω 10R0 = 10 Ω 1000 = 100 Ω 1001 = 1 kΩ 1002 = 10 kΩ 1004 = 1 MΩ					
5	TOLERANCE, %			F = 1 % G = 2 % J = 5 %					
6	INSPECTION ⁽¹⁾			N = normal					
7	MATERIAL AND THICKNESS			90 (A) = 0.010" Al ₂ O ₃ 91 (B) = 0.015" Al ₂ O ₃ 95 (E) = 0.010" BeO 96 (F) = 0.015" BeO 2Q (L) = 0.015" AlN					
8	PACKAGING			Tape and reel active face down					
				TRD (D) = tape and reel, 100 min. / 1 mult. / 1000 max. per reel TRE (E) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape TRF (F) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per reel					

Notes

- For a complete list of all available options, please refer to document www.vishay.com/doc?50502
- Vishay notations in brackets
- ⁽¹⁾ Removed from Vishay P/N

**TERMINAL METALLIZATION**

CODE	LEGACY CODE	METALLIZATION	RoHS-COMPLIANT	BeO	ALUMINA	AlN	NON-MAGNETIC	SOLDER	EPOXY	WIREBOND
B	CB	Sn62 over nickel over silver	No	Yes	Yes	Yes	No	Yes	No	No
G	GA	Gold	Yes	No	Yes	Yes	Yes	No	Yes	Yes
T	CT	100 % matte tin over nickel over silver	Yes	Yes	Yes	Yes	No	Yes	No	No

POWER DERATING CURVE**PACKAGING OPTIONS**

MODEL	SIZE	PACKAGING OPTIONS	BULK PACK QUANTITY			WAFFLE PACK QUANTITY			TAPE AND REEL QUANTITY ⁽¹⁾			TAPE WIDTH
			MIN.	MAX.	MULT.	MIN.	MAX.	MULT.	MIN.	MAX.	MULT.	
B-RK0302	0302	Bulk / waffle pack	100	1000	1	100	100	1	-	-	-	-
B-RK0402	0402	Bulk / waffle pack / tape and reel	100	1000	1	100	400	1	100	1000	1	8
B-RK0502	0502	Bulk / waffle pack / tape and reel	100	1000	1	100	100	1	100	1000	1	8
B-RK0503	0503	Bulk / waffle pack / tape and reel	100	1000	1	100	100	1	100	1000	1	8
B-RK0505	0505	Bulk / waffle pack / tape and reel	100	1000	1	100	100	1	100	1000	1	8
B-RK0603	0603	Bulk / waffle pack / tape and reel	100	1000	1	100	100	1	100	1000	1	8
B-RK0805	0805	Bulk / waffle pack / tape and reel	100	500	1	100	170	1	100	1000	1	8
B-RK1005	1005	Bulk / waffle pack / tape and reel	100	500	1	100	170	1	100	1000	1	8
B-RK1206	1206	Bulk / waffle pack / tape and reel	100	250	1	100	170	1	100	1000	1	8

Note

⁽¹⁾ See Global Part Number Information table for tape and reel options



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