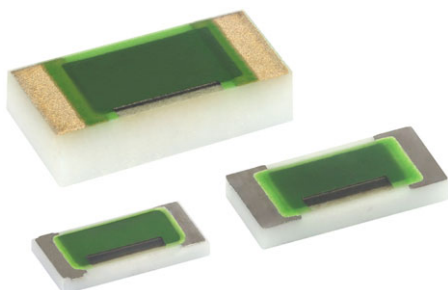


High Frequency Thick Film Flip-Chip Resistors



LINKS TO ADDITIONAL RESOURCES



Vishay Barry RS flip-chip thick film resistors offer outstanding performance by minimizing parasitics while maximizing power dissipation through use of three different types of substrate materials. These options allow the customer to select the device most suited for their needs and offers excellent frequency performance across a wide band.

FEATURES

- DC to high frequency RF applications
- 0201 to 1206 case sizes
- Available substrate materials: Al_2O_3 , AlN, and BeO
- Many terminal options available
- Solder or wirebond attachment
- Customization options available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS*
Available
**HALOGEN
FREE**

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

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_2O_3	B (91) 0.015" Al_2O_3	C (93) 0.025" Al_2O_3	L (2Q) 0.015" AlN	E (95) 0.010" BeO	F (96) 0.015" BeO	G (98) 0.025" BeO
0201	0.05						
0202	0.065	0.065		0.1	0.2		
0302	0.06						
0402	0.15	0.2		0.75	1		
0503		0.15			0.75		
0505		0.25		0.75	1	1	
0603		0.5		2	2	2	
0805		0.25	0.25	2	3	3	3
1005		0.25	0.25	2	3	3	3
1206		0.35	0.35	2	3	3	3

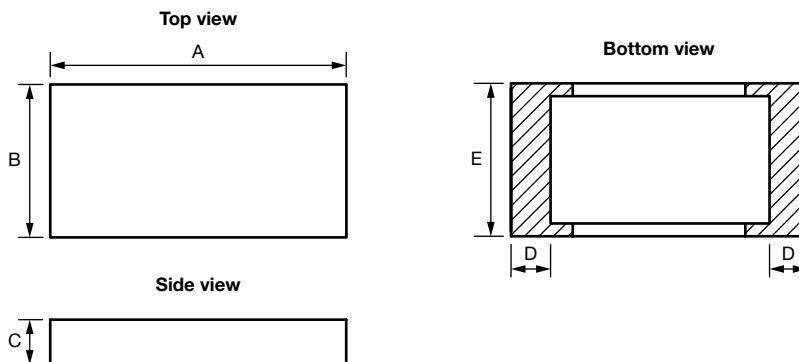
Notes

- 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-RS0201	0201	0.1 to 10M	A	90	Al_2O_3	10	0.05	-55 to +150	1, 2, 5
B-RS0202	0202	0.1 to 10M	A	90	Al_2O_3	10	0.065	-55 to +150	1, 2, 5
		0.1 to 10M	B	91	Al_2O_3	15	0.065	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	0.1	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	0.2	-55 to +150	1, 2, 5
B-RS0302	0302	0.1 to 10M	A	90	Al_2O_3	10	0.06	-55 to +150	1, 2, 5
B-RS0402	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	0.75	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	1	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	1	-55 to +150	1, 2, 5
B-RS0503	0503	0.1 to 10M	B	91	Al_2O_3	15	0.15	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	0.75	-55 to +150	1, 2, 5
B-RS0505	0505	0.1 to 10M	B	91	Al_2O_3	15	0.25	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	0.75	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	1	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	1	-55 to +150	1, 2, 5
B-RS0603	0603	0.1 to 10M	B	91	Al_2O_3	15	0.5	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	2	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	2	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	2	-55 to +150	1, 2, 5
B-RS0805	0805	0.1 to 10M	B	91	Al_2O_3	15	0.25	-55 to +150	1, 2, 5
		0.1 to 10M	C	93	Al_2O_3	25	0.25	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	2	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	3	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5
		0.1 to 10M	G	98	BeO	25	3	-55 to +150	1, 2, 5
B-RS1005	1005	0.1 to 10M	B	91	Al_2O_3	15	0.25	-55 to +150	1, 2, 5
		0.1 to 10M	C	93	Al_2O_3	25	0.25	-55 to +150	1, 2, 5
		10 to 6K	L	2Q	AlN	15	2	-55 to +150	1, 2, 5
		0.1 to 10M	E	95	BeO	10	3	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5
		0.1 to 10M	G	98	BeO	25	3	-55 to +150	1, 2, 5
B-RS1206	1206	0.1 to 10M	B	91	Al_2O_3	15	0.35	-55 to +150	1, 2, 5
		0.1 to 10M	C	93	Al_2O_3	25	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	E	95	BeO	10	3	-55 to +150	1, 2, 5
		0.1 to 10M	F	96	BeO	15	3	-55 to +150	1, 2, 5
		0.1 to 10M	G	98	BeO	25	3	-55 to +150	1, 2, 5

DIMENSIONS



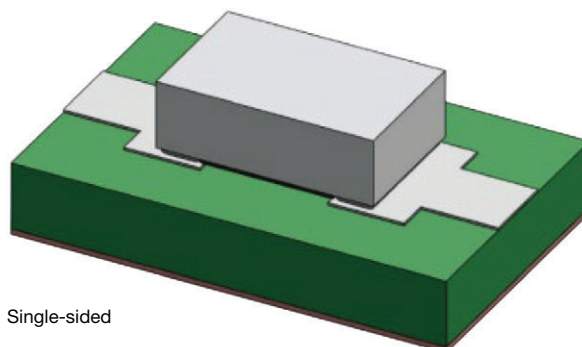
MODEL	SIZE	RESISTANCE RANGE Ω	SUBSTRATE		A INCH (mm)	B INCH (mm)	C INCH (mm)	D INCH (mm)	E INCH (mm)
			CODE	CODE (LEGACY PN)					
B-RS0201	0201	0.1 to 10M	A	90	0.020 (0.51)	0.010 (0.25)	0.010 (0.25)	0.003 (0.08)	0.008 (0.20)
B-RS0202	0202	0.1 to 10M	A	90	0.025 (0.64)	0.025 (0.64)	0.010 (0.25)	0.007 (0.18)	0.021 (0.53)
		0.1 to 10M	B	91	0.025 (0.64)	0.025 (0.64)	0.015 (0.38)	0.007 (0.18)	0.021 (0.53)
		10 to 6K	L	2Q	0.025 (0.64)	0.025 (0.64)	0.015 (0.38)	0.007 (0.18)	0.021 (0.53)
		0.1 to 10M	E	95	0.025 (0.64)	0.025 (0.64)	0.010 (0.25)	0.007 (0.18)	0.021 (0.53)
		0.1 to 10M	E	95	0.025 (0.64)	0.025 (0.64)	0.010 (0.25)	0.007 (0.18)	0.021 (0.53)
B-RS0302	0302	0.1 to 10M	A	90	0.030 (0.76)	0.020 (0.51)	0.010 (0.25)	0.005 (0.13)	0.020 (0.51)
B-RS0402	0402	0.1 to 10M	A	90	0.040 (1.02)	0.020 (0.51)	0.010 (0.25)	0.010 (0.25)	0.020 (0.51)
		0.1 to 10M	B	91	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.010 (0.25)	0.020 (0.51)
		10 to 6K	L	2Q	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.010 (0.25)	0.020 (0.51)
		0.1 to 10M	E	95	0.040 (1.02)	0.020 (0.51)	0.010 (0.25)	0.010 (0.25)	0.020 (0.51)
		0.1 to 10M	F	96	0.040 (1.02)	0.020 (0.51)	0.015 (0.38)	0.010 (0.25)	0.020 (0.51)
B-RS0503	0503	0.1 to 10M	B	91	0.050 (1.27)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.030 (0.76)
		0.1 to 10M	E	95	0.050 (1.27)	0.030 (0.76)	0.010 (0.25)	0.010 (0.25)	0.030 (0.76)
B-RS0505	0505	0.1 to 10M	B	91	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.010 (0.25)	0.046 (1.17)
		10 to 6K	L	2Q	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.010 (0.25)	0.046 (1.17)
		0.1 to 10M	E	95	0.050 (1.27)	0.050 (1.27)	0.010 (0.25)	0.010 (0.25)	0.046 (1.17)
		0.1 to 10M	F	96	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.010 (0.25)	0.046 (1.17)
		0.1 to 10M	F	96	0.050 (1.27)	0.050 (1.27)	0.015 (0.38)	0.010 (0.25)	0.046 (1.17)
B-RS0603	0603	0.1 to 10M	B	91	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.025 (0.64)
		10 to 6K	L	2Q	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.025 (0.64)
		0.1 to 10M	E	95	0.060 (1.52)	0.030 (0.76)	0.010 (0.25)	0.010 (0.25)	0.025 (0.64)
		0.1 to 10M	F	96	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.025 (0.64)
		0.1 to 10M	F	96	0.060 (1.52)	0.030 (0.76)	0.015 (0.38)	0.010 (0.25)	0.025 (0.64)
B-RS0805	0805	0.1 to 10M	B	91	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.048 (1.22)
		0.1 to 10M	C	93	0.075 (1.91)	0.050 (1.27)	0.025 (0.64)	0.015 (0.38)	0.048 (1.22)
		10 to 6K	L	2Q	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.048 (1.22)
		0.1 to 10M	E	95	0.075 (1.91)	0.050 (1.27)	0.010 (0.25)	0.015 (0.38)	0.048 (1.22)
		0.1 to 10M	F	96	0.075 (1.91)	0.050 (1.27)	0.015 (0.38)	0.015 (0.38)	0.048 (1.22)
		0.1 to 10M	G	98	0.075 (1.91)	0.050 (1.27)	0.025 (0.64)	0.015 (0.38)	0.048 (1.22)
B-RS1005	1005	0.1 to 10M	B	91	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.012 (0.30)	0.046 (1.17)
		0.1 to 10M	C	93	0.100 (2.54)	0.050 (1.27)	0.025 (0.64)	0.012 (0.30)	0.046 (1.17)
		10 to 6K	L	2Q	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.012 (0.30)	0.046 (1.17)
		0.1 to 10M	E	95	0.100 (2.54)	0.050 (1.27)	0.010 (0.25)	0.012 (0.30)	0.046 (1.17)
		0.1 to 10M	F	96	0.100 (2.54)	0.050 (1.27)	0.015 (0.38)	0.012 (0.30)	0.046 (1.17)
		0.1 to 10M	G	98	0.100 (2.54)	0.050 (1.27)	0.025 (0.64)	0.012 (0.30)	0.046 (1.17)
B-RS1206	1206	0.1 to 10M	B	91	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.060 (1.52)
		0.1 to 10M	C	93	0.120 (3.05)	0.060 (1.52)	0.025 (0.64)	0.015 (0.38)	0.060 (1.52)
		10 to 6K	L	2Q	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.060 (1.52)
		0.1 to 10M	E	95	0.120 (3.05)	0.060 (1.52)	0.010 (0.25)	0.015 (0.38)	0.060 (1.52)
		0.1 to 10M	F	96	0.120 (3.05)	0.060 (1.52)	0.015 (0.38)	0.015 (0.38)	0.060 (1.52)
		0.1 to 10M	G	98	0.120 (3.05)	0.060 (1.52)	0.025 (0.64)	0.015 (0.38)	0.060 (1.52)

Note

- Tolerance is $\pm 0.005"$ (0.127 mm) unless otherwise stated

PERFORMANCE		
TESTS	CONDITIONS	RESULTS
Short time overload	Apply 1.1 x rated power for 5 s	≤ 5.0 % resistance shift
Rated load life	Apply 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)



Single-sided



GLOBAL PART NUMBER INFORMATION

Part Number Example: B-RS1206T50R0JFD

B-	RS	1206	T	50R0	J	F	00	D
0	1	2	3	4	5	6	7	8
0	VISHAY BARRY PREFIX							
1	PRODUCT FAMILY			RS = 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, %Ω			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 C (93) = 0.025" Al ₂ O ₃ E (95) = 0.010" BeO F (96) = 0.015" BeO G (98) = 0.025" BeO L (2Q) = 0.015" AlN				
7	OPTION CODE			00 (blank) = standard option 1 to 99 / A1 to ZZ = assigned by Vishay				
8	PACKAGING			Z (blank) = bulk W (WP) = waffle pack				
				Tape and reel active face up				
				T (TR) = tape and reel, 100 min. / 1 mult. / 1000 max. per tape A (TRA) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape B (TRB) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per tape				
				Tape and reel active face down				
				D (TRD) = tape and reel, 100 min. / 1 mult. / 1000 max. per tape down E (TRE) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape down F (TRF) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per cut tape down				

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: RS1206CT-50R0JN-96TRD

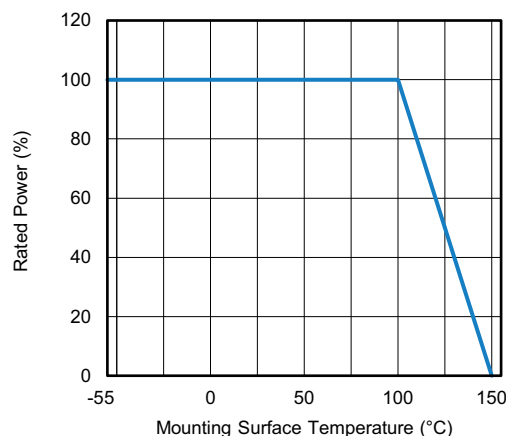
	RP	1206	CT	-	50R0	J	N	-	96	TRD
	1	2	3		4	5	6		7	8
1	PRODUCT FAMILY				RS = resistor - flip-chip					
2	SIZE, mil									
3	TERMINAL METALLIZATION FINISH				CB (B) = tin / lead over nickel over silver GA (G) = gold (alumina and AlN only) CT (T) = tin over nickel over silver					
4	RESISTANCE, Ω				Resistance					
					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, %Ω				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 93 (C) = 0.025" Al ₂ O ₃ 95 (E) = 0.010" BeO 96 (F) = 0.015" BeO 98 (G) = 0.025" BeO 2Q (L) = 0.015" AlN					
8	PACKAGING				Blank (Z) = bulk WP (W) = waffle pack					
					Tape and reel active face up					
					TR (T) = tape and reel, 100 min. / 1 mult. / 1000 max. per tape TRA (A) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape TRB (B) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per tape					
					Tape and reel active face down					
					TRD (D) = tape and reel, 100 min. / 1 mult. / 1000 max. per tape down TRE (E) = tape and reel, 100 min. / 100 mult. / 100 max. per cut tape down TRF (F) = tape and reel, 1000 min. / 1000 mult. / 1000 max. per cut tape down					

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	AIN	NON-MAGNETIC	SOLDER	EPOXY	WIREBOND
B	CB	Sn62 over nickel over silver	No	Yes	Yes	Yes	No	Yes	No	No
T	CT	100 % matte tin over nickel over silver	Yes	Yes	Yes	Yes	No	Yes	No	No
G	GA	Gold	Yes	No	Yes	Yes	Yes	No	Yes	Yes

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-RS0201	0201	Bulk / waffle pack	100	1000	1	1	400	1	-	-	-	-
B-RS0202	0202	Bulk / waffle pack	100	1000	1	1	400	1	-	-	-	-
B-RS0302	0302	Bulk / waffle pack	100	1000	1	1	100	1	-	-	-	-
B-RS0402	0402	Bulk / tape and reel / waffle pack	100	1000	1	1	400	1	100	1000	1	8 mm
B-RS0503	0503	Bulk / tape and reel / waffle pack	100	1000	1	1	100	1	100	1000	1	8 mm
B-RS0505	0505	Bulk / tape and reel / waffle pack	100	1000	1	1	100	1	100	1000	1	8 mm
B-RS0603	0603	Bulk / tape and reel / waffle pack	100	1000	1	1	100	1	100	1000	1	8 mm
B-RS0805	0805	Bulk / tape and reel / waffle pack	100	500	1	1	170	1	100	1000	1	8 mm
B-RS1005	1005	Bulk / tape and reel / waffle pack	100	500	1	1	170	1	100	1000	1	8 mm
B-RS1206	1206	Bulk / tape and reel / waffle pack	100	250	1	1	170	1	100	1000	1	8 mm

Note

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

TAPE AND REEL OPTIONS

GLOBAL	LEGACY	TAPE AND REEL
D	TRD	Tape and reel down 100 min. / 1 mult. / 1000 max. per tape
E	TRE	Tape and reel down 100 min. / 100 mult. / 100 max. per cut tape
F	TRF	Tape and reel down 1000 min. / 1000 mult. / 1000 max. per tape



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