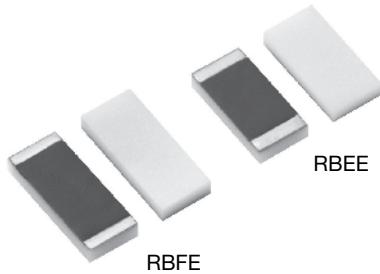


## High-Precision Bulk Metal® Foil Chip Resistor (Flip-Chip) with Extended Range over 0.5Ω



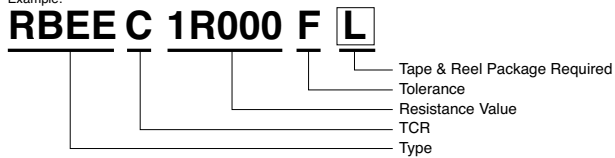
RoHS  
COMPLIANT

TCR, RESISTANCE RANGE, TOLERANCE, RATED POWER				
Type	TCR (ppm/°C) -25°C to 125°C*	Resistance Range (Ω)	Resistance Tolerance (%)*	Rated Power (W) at 70°C
RBEE	0±10 (C) 0±25 (J)	0.5 to 10k	±0.5 (D) ±1.0 (F)	0.5
RBFE	0±10 (C) 0±25 (J)	0.5 to 10k	±0.5 (D) ±1.0 (F)	1

\*Symbols parenthesized are for type number composition.

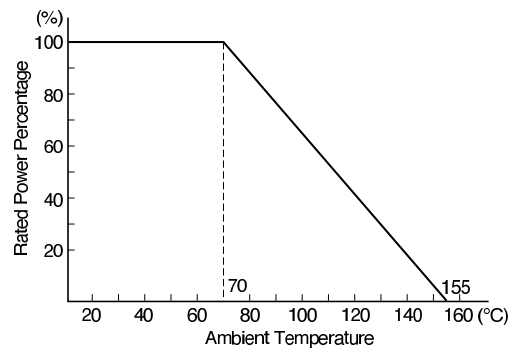
### COMPOSITION OF TYPE NUMBER

Example:

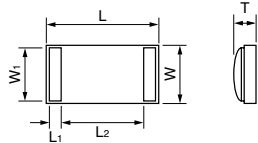


Resistance value in ohm is expressed by a series of four significant digits and an R designates the decimal point.

### POWER DERATING CURVE



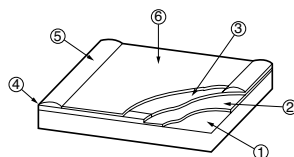
### CONFIGURATION (DIMENSIONS IN mm)



Type	RBEE	RBFE
L	5.0±0.1	6.3±0.1
W	2.5±0.1	3.2±0.1
L <sub>1</sub>	0.4±0.2	0.7±0.2
L <sub>2</sub>	4.0±0.2	4.7±0.2
W <sub>1</sub>	2.3±0.2	3.0±0.2
T	1.05 max.	

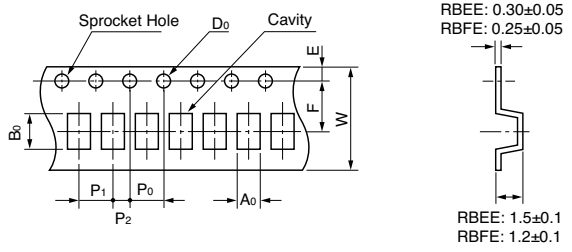
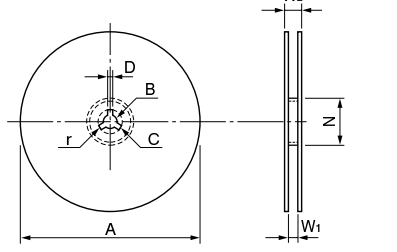
Dimensions in mm

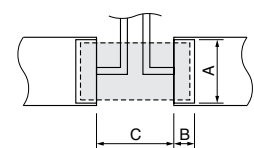
### CONSTRUCTION



- ① Ceramic Substrate (High-Purity Alumina)
- ② Heat-Resistant Bonding Layer
- ③ Bulk Metal® Foil
- ④ Metal Plating
- ⑤ Solder Bump (Sn-Ag-Cu)
- ⑥ Solder-Resist

PERFORMANCE			
Parameters	Test Condition	ALPHA Specification	ALPHA Typical Test Data
Maximum Rated Operating Temperature Working Temperature Range		70°C -65°C to +155°C	
Thermal Shock	-65°C/30 min. ↔ +155°C/30 min., 100 cycles	±0.1%	±0.03%
Overload	Rated Voltage x 2.5, 5 sec.	±0.1%	±0.03%
Low Temperature Storage and Operation	-65°C, No Load, 24 hrs.→ Rated Voltage, 45 min.	±0.1%	±0.05%
Dielectric Withstanding Voltage Insulation Resistance Resistance to Soldering Heat	Atmo. Pres.: AC 200V, 1 min. DC 100V, 1 min. 260°C, 10 sec.	±0.05% over 10,000 MΩ ±0.5%	±0.01% over 10,000 MΩ ±0.03%
Shock Vibration, High Frequency	100G, 6 ms, Sawtooth Wave, X, Y, Z, each 10 shocks 20G, 10 Hz to 2,000 Hz to 10 Hz, 20 min., X, Y, Z, each 2.5 hrs.	±0.1% ±0.1%	±0.01% ±0.01%
Moisture Resistance	+65°C to -10°C, 90% RH to 98% RH, Rated Voltage, 10 cycles (240 hrs.)	±0.1%	±0.03%
Load Life	+70°C, Rated Power, ON-OFF (75% duty), 1,000 hrs.	±0.1%	±0.05%
High Temperature Exposure	155°C, No Load, 1,000 hrs.	±0.1%	±0.05%

TAPE AND REEL PACKAGE (BASED ON EIA-481-1) (DIMENSIONS IN mm)																		
Tape Dimensions										Reel Dimensions Reel Capacity   RBEE 2,000 pieces/reel   RBFE: 4,000pcs/reel								
 <p>RBEE: 0.30±0.05 RBFE: 0.25±0.05</p> <p>RBEE: 1.5±0.1 RBFE: 1.2±0.1</p>																		
Type	A <sub>0</sub>	B <sub>0</sub>	W	F	E	P <sub>1</sub>	P <sub>2</sub>	P <sub>0</sub>	D <sub>0</sub>	Type	A	N	B	C	D	W <sub>1</sub>	W <sub>2</sub>	r
RBEE	2.7 ±0.1	5.2 ±0.1	12.0 ±0.2	5.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	Dia.1.5 +0.1-0	RBEE	Dia.178 ±2	Dia.60 min.	Dia.13 ±0.5	Dia.21 ±0.8	2.0 ±0.5	12.4 ±0.3	18.4 max.	1.0 ±0.5
RBFE	3.4 ±0.1	6.7 ±0.1	12.0 ±0.2	5.5 ±0.05	1.75 ±0.1	4.0 ±0.1	2.0 ±0.05	4.0 ±0.1	Dia.1.5 +0.1-0	RBFE								

PRECAUTION IN USING SMD CURRENT SENSE RESISTORS																
<p><b>1. Storage</b> Storage condition or environment may adversely affect solderability of the exterior terminals. Do not store in high temperature and humidity. The recommended storage environment is lower than 40°C, has less than 70% RH humidity and is free from harmful gases such as sulphur and chlorine.</p> <p><b>2. Caution in Soldering</b></p> <p>① Solder Reflow in Furnace Recommended</p> <ul style="list-style-type: none"> <li>• Peak Temperature: 250+0/-5°C</li> <li>• Holding time: 10 sec. max.</li> <li>• To cool gradually at room temperature.</li> </ul> <p>② Dipping in Solder (Wave or Still) Recommended</p> <ul style="list-style-type: none"> <li>• Temp. of Solder: 260°C max.</li> <li>• Length of Dipping: 10 sec.</li> </ul> <p>③ Other Soldering iron is never recommended. Corrosion-free flux such as rosin is recommended.</p> <p><b>3. Cleaning</b> Use volatile cleaner such as methylalcohol or propylalcohol.</p> <p><b>4. Circuit Board Design</b></p> <p>① Solder Land Dimensions The dimensions of solder land must be determined in conformity with the size of resistors and with the soldering method. They are also subject to the mounting machine and the material of the substrate. See example at right.</p>	<p><b>RBEE, RBFE</b></p>  <table border="1" style="margin-top: 20px;"> <thead> <tr> <th rowspan="2">Type</th> <th colspan="3">Dimensions in mm</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>RBEE</td> <td>2.5 to 2.6</td> <td>0.6</td> <td>3.9</td> </tr> <tr> <td>RBFE</td> <td>3.4 to 3.6</td> <td>1.2</td> <td>4.5</td> </tr> </tbody> </table>	Type	Dimensions in mm			A	B	C	RBEE	2.5 to 2.6	0.6	3.9	RBFE	3.4 to 3.6	1.2	4.5
Type	Dimensions in mm															
	A	B	C													
RBEE	2.5 to 2.6	0.6	3.9													
RBFE	3.4 to 3.6	1.2	4.5													

## Disclaimer

ALL PRODUCTS, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE.

Vishay Precision Group, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "VPG"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

The product specifications do not expand or otherwise modify VPG's terms and conditions of purchase, including but not limited to, the warranty expressed therein.

VPG makes no warranty, representation or guarantee other than as set forth in the terms and conditions of purchase. **To the maximum extent permitted by applicable law, VPG disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.**

Information provided in datasheets and/or specifications may vary from actual results in different applications and performance may vary over time. Statements regarding the suitability of products for certain types of applications are based on VPG's knowledge of typical requirements that are often placed on VPG products. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. You should ensure you have the current version of the relevant information by contacting VPG prior to performing installation or use of the product, such as on our website at [vpgsensors.com](http://vpgsensors.com).

No license, express, implied, or otherwise, to any intellectual property rights is granted by this document, or by any conduct of VPG.

The products shown herein are not designed for use in life-saving or life-sustaining applications unless otherwise expressly indicated. Customers using or selling VPG products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify VPG for any damages arising or resulting from such use or sale. Please contact authorized VPG personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Copyright Vishay Precision Group, Inc., 2014. All rights reserved.