

## Reinforced Winding Wirewound Power Resistor



### FEATURES

- Very high dissipation
- High energy absorption and high overloads
- Suitable for the most severe conditions
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### APPLICATIONS

- Filter
- Precharge
- Braking

### ADDITIONAL RESOURCES


[3D Models](#)

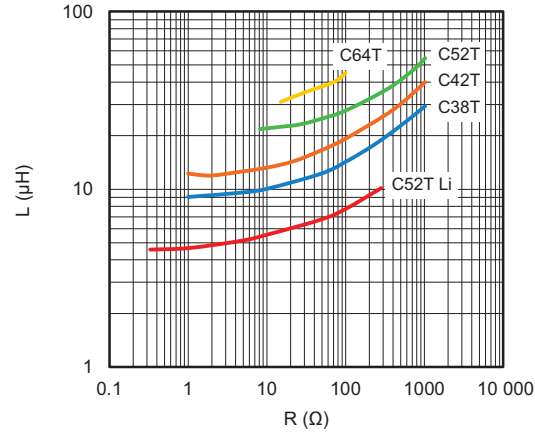
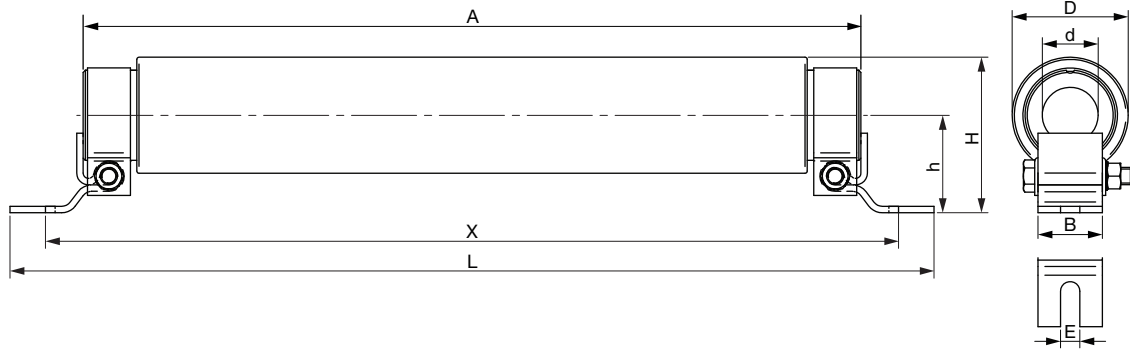
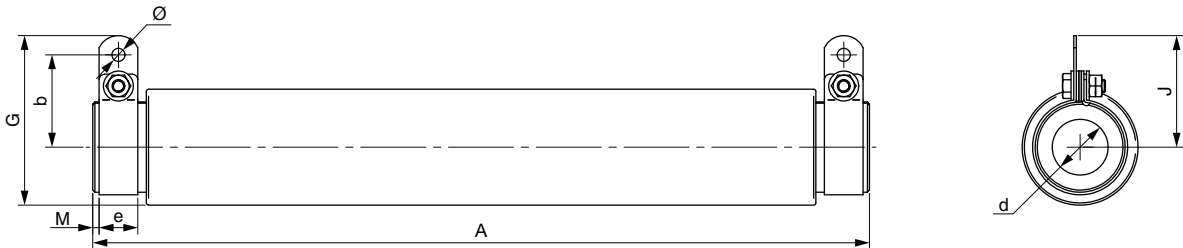
STANDARD ELECTRICAL SPECIFICATIONS				
GLOBAL MODEL	POWER RATING W	RESISTANCE RANGE $\Omega$	TOLERANCE <sup>(1)</sup> $\pm$ %	$U_{LIM.}$ V
C64T	1200	15 to 100R	5	4200
C52T	900	8.2 to 100K	5, 10	4200
C52T Li	900	0.33 to 270	5, 10	4200
C42T	480	1.0 to 56K	5, 10	3000
C38T	270	1.0 to 27K	5, 10	1900

#### Note

<sup>(1)</sup> For  $R_n < 3.3 \Omega$ , tolerance 10 %

TECHNICAL SPECIFICATIONS		
PARAMETER	UNIT	RESISTOR CHARACTERISTICS
Temperature coefficient	ppm/°C	75 ppm/°C (typical)
Operating temperature range	°C	-55 to +450

GENERAL CHARACTERISTICS	
Core	Grooved ceramic
Winding	Double spiral, NiCr alloy
Coating	Special and vitreous
Ohmic values	E12
Traction lug outputs	C..TF version
Collars outputs	C..TN version (except for C52T Li and C64T)
Low inductance	Li version (for C52TF only)

**INDUCTANCE VALUE AS A FUNCTION OF  $R_n$** 

**DIMENSIONS in millimeters AND WEIGHT in g**
**C38TF, C42TF, C52TF, C52TF Li, C64TF**

**C38TN, C42TN, C52TN**


TYPE	C64T	C52T	C42T	C38T
A	367 ± 5.5	362 ± 7	250 ± 4	168 ± 4
B 0 + 1	30 ± 1	30	25	24
b	n/a	43 ± 1.5	33 ± 1	28.5 ± 1
D max.	64	54	44	40
d	36 ± 0.65	26 ± 0.5	20 ± 0.5	17 ± 0.35
E	9 ± 0.5	9 ± 0.5	9 ± 0.5	6.5 ± 0.2
e ± 1	20	18	13	9
G max.	n/a	88	63	55
H max.	85	72	62	53
h ± 2	53	45	30	27
J ± 1	n/a	52	39	33.5
L max.	451	440	320	230
M	n/a	8 + 0 / - 4	5 + 0 / - 2	5 ± 2
Ø	n/a	6.2 ± 0.2	5.7 ± 0.5	5 ± 0.8
X	415 ± 6	400 ± 6	285 ± 2	198 ± 2
Weight	1580	1500	550	350

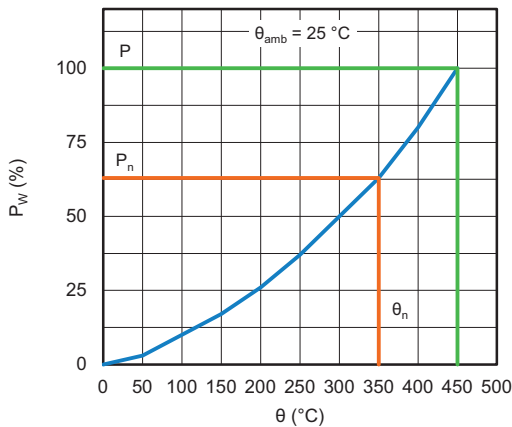


PERFORMANCES			
TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES
Overloads	10 P <sub>n</sub> (temp. nom.), 5 s	± 2 %	10 P <sub>n</sub> , 30 s, 1 %
Climatic	-55 °C, 5 cycles, +200 °C	3 % or 0.05 Ω <sup>(1)</sup>	Collar insulated N 10 <sup>2</sup> MΩ
Damp heat	56 days 95 % HR	2 % or 0.05 Ω <sup>(1)</sup>	
Thermal shocks	P <sub>n</sub> -55 °C	2 % or 0.05 Ω <sup>(1)</sup>	0.1 %
Shocks	Severity 50 A	0.5 % or 0.05 Ω <sup>(1)</sup>	0.2 %
Vibrations	Severity 55/10	0.5 % or 0.05 Ω <sup>(1)</sup>	0.5 %
Endurance	500 cycles P <sub>n</sub> 90 min/30 min	5 %	1.5 %

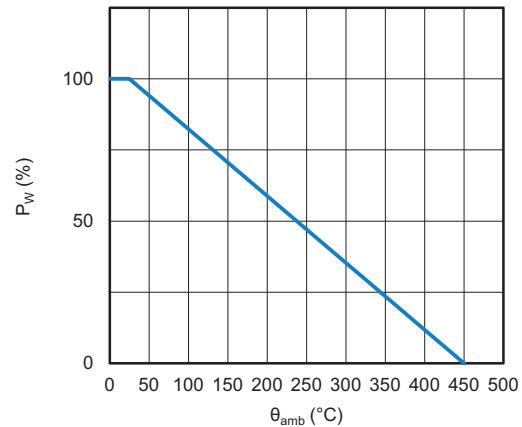
**Note**

<sup>(1)</sup> The higher of either value

**DISSIPATION**

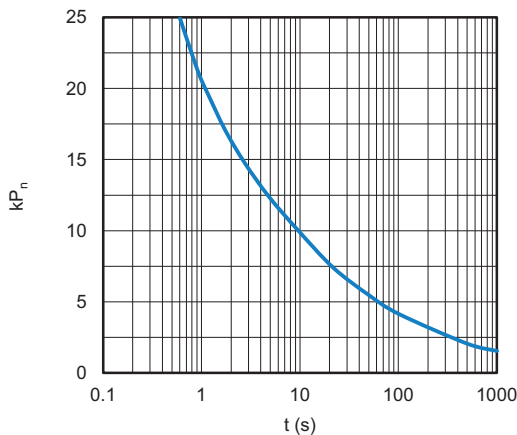


Power P<sub>W</sub> as a Function of Surface Temperature  
P(W) = f (Temperature Surface)



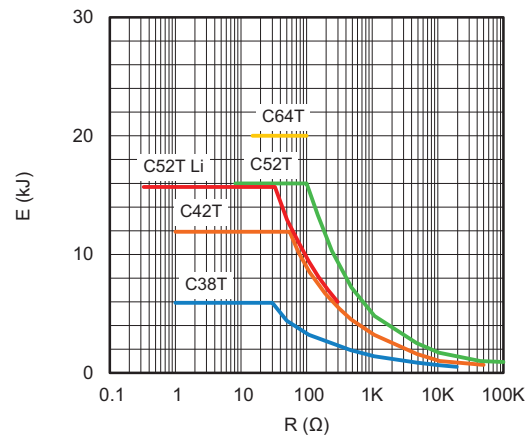
Derating in Power as a Function of Ambient Temperature

**OVERLOADS**



Intermittent Overloads  
Exceptional Operation  
Initial Temperature < 70 °C  
k x P<sub>n</sub> = f(t)

**PERMISSIBLE ENERGY**



Repetitive Operation  
Energy as a Function of R<sub>n</sub>  
Pulse Duration < 100 ms  
E = f(R)



**OPTIONS** (Consult us)

- Other values than E12 series
- Intermediate terminals
- Insulated mounting

<b>ORDERING INFORMATION</b>						
<b>C52T</b>	<b>F</b>	<b>LI</b>	<b>10K</b>	<b>± 5 %</b>	<b>XXX</b>	<b>BO1</b>
MODEL	CONNECTIONS	LOW INDUCTIVE WINDING Optional	RESISTANCE VALUE	TOLERANCE  ± 5 % ± 10 % Other on request	CUSTOM DESIGN  Optional On request: special value, tolerance shape, M5 terminals, etc.	PACKAGING

<b>GLOBAL PART NUMBER INFORMATION</b>															
C	5	2	T	F	L	I	6	R	6	0	J	B	8	3	7
1			2		3		4			5	6	7			
1	2	3	4	5	6	7									
PRODUCT TYPE	LEADS	OPTION (if applicable)	RESISTANCE VALUE	TOLERANCE	PACKAGING	INDUSTRIALIZATION NUMBER									
C38T C42T C52T C64T	F = traction lugs C64TF C52TF C52TFLI C42TF C38TF  N = collars C52TN C42TN C38TN	LI (only for C52TF)	The first three digits are significant figures and the last specifies the number of zeros to follow, R designates decimal point. 4702 = 47 kΩ 4R7 = 4.7 Ω	J = 5 % K = 10 %	B = box Box quantity depends of model and size	3 specific digits (if applicable)									

<b>EXAMPLES</b>		
MODEL	DESCRIPTION	PART NUMBER
C52TF	C 52 TF LI 6U6 5 % 837 BO1	C52TFLI6R60JB837
C42TF	C 42 TF 4U7 5 % BO14	C42TF4R70JB



## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

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

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay 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.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. 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. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.