Power Resistors Cooled by Auxiliary Heatsink (Not Supplied) Thick Film Metal Technology

FEATURES

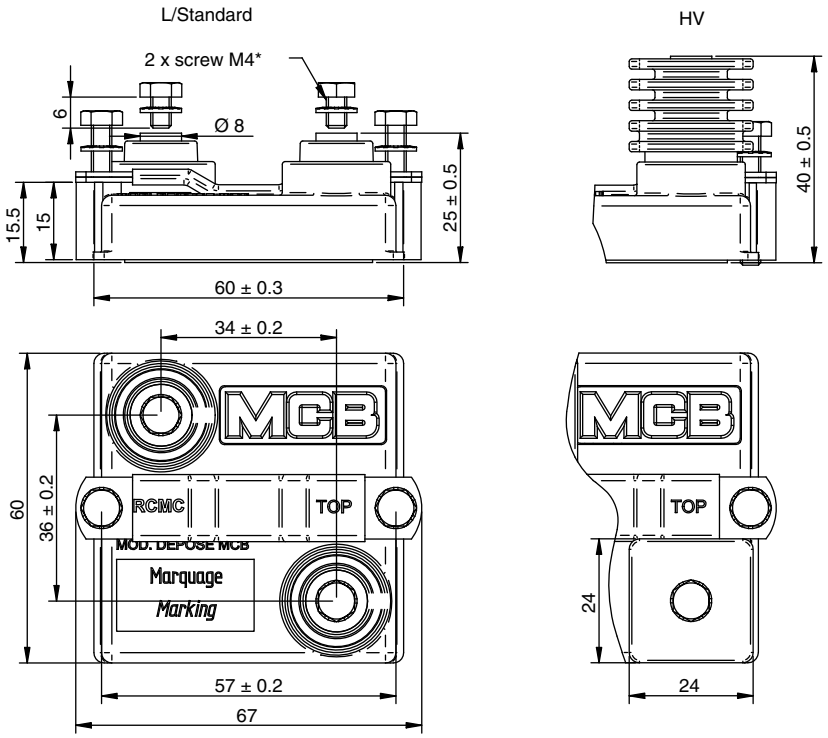
- Technology: thick film metal on ceramic
- Cold system without external radiation
- High power / volume ratio
- Non-inductive
- Easy assembly, self-calibrated pressure (400 N)

STANDARD ELECTRICAL SPECIFICATIONS					
MODEL	RESISTANCE RANGE Ω	MAX. RATED POWER $P_{25\ °C}$ W	TOLERANCE ± %	TEMPERATURE COEFFICIENT ± ppm/°C	E-SERIES OHMIC VALUES
RCMC	0.27 to 18	750	10	150	E 12

MECHANICAL SPECIFICATIONS	
UL 94 flame classifications	Material comply with the standard UL 94 V-0
Resistive element	NiCr alloy
Substrate	Alumina
Encapsulation	Resin filled case

TECHNICAL SPECIFICATIONS			
PARAMETER	500L	500	500HV
Nominal power rating at 70 °C	500 W		
Operating temperature range	-55 °C to +125 °C		
Maximum operating voltage	5000 V		
Dielectric strength V_{RMS} (50 Hz / 1 min)	5000 V	7000 V	12 000 V
Creepage distance	42 mm	42 mm	75 mm
Clearance distance	12 mm	12 mm	30 mm
Capacitance: ground	120 pF		
Capacitance: parallel	40 pF		
Partial discharge	On request		
Inductance	≤ 40 nH		
Insulation resistance	10^5 MΩ at 500 V_{CC}		
Weight (max.)	120 g		

DIMENSIONS in millimeters



PERFORMANCE

TESTS	CONDITIONS	REQUIREMENTS	TYPICAL VALUES
Momentary overload	1000 W / 10 s	2 %	0.2 %
Humidity (steady state)	56 days, 40 °C, 95 % HR	2 % or 0.05 Ω (1)	0.2 %
Mechanical shock	CEI 61373 cat 1 class B half sinus 50 m/s² / 30 ms 6 per axis (3 negative and 3 positive)	insul. > 10^3 MΩ	0.25 %
Vibration	CEI 61373 cat 1 class B random 5 Hz to 150 Hz 7.9 m/s² 5 h per axis	0.5 % or 0.05 Ω (1)	0.25 %
Terminals strength	200 Ncm / 200 N	0.5 % or 0.05 Ω (1)	0.1 %
Endurance	2000 cycles P_n 30 min / 30 min	1 % or 0.05 Ω (1)	0.2 %

Note

(1) The higher of either value

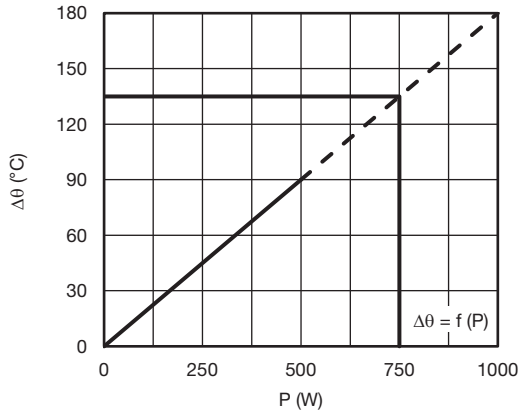
ENERGY ABSORPTION

Repetitive operation: 25 J/t = 50 µs

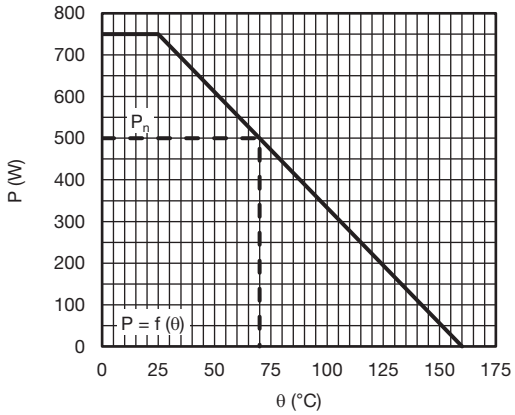
Accidental operation: 100 J/t = 50 µs / 100 impulsions max.

Other t values: contact us

DISSIPATION

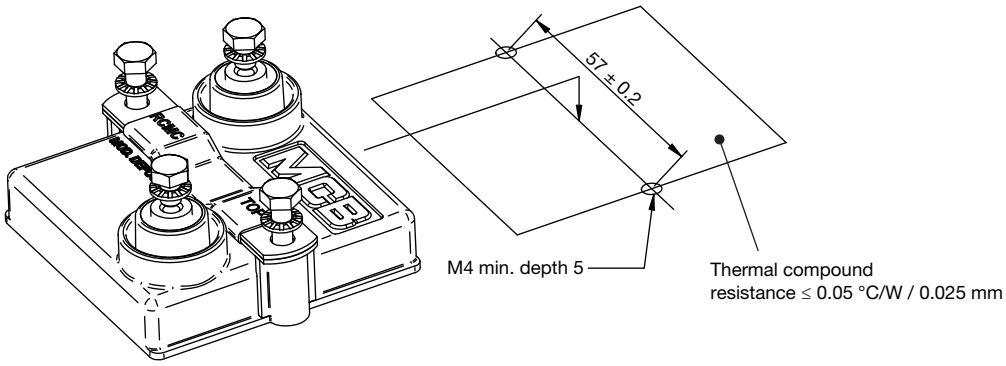


Temperature Rise as a Function of the Power Applied
Overall Thermal Resistance 0.18 °C/W (See Assembly)



Permanent Applicate Power as a Function
of Heatsink Temperature

ASSEMBLY



Screws and bolts are supplied with each product.

Max. tightening torque:
200 Ncm, mechanical mounting
200 Ncm, electrical connection

2 screws TH M4 x 6/6 and 2 M4 contact lock washers for connections. 2 off CHC M4 x 16/16 class 8.

COOLING

The temperature of the heatsink may be maintained at the specified values with

- Forced air ventilation
- Internal circulation of a liquid cooling
- Heatsink contact surface: Ra 6.3 µm
- Evenness defect: 0.05 mm max.
- Surface temperature gradient (isotherm): 20 °C max.
- Thermal compound not supplied (resistance ≤ 0.05 °C/W / 0.025 mm)

The user must select the thermal resistance of the heatsink according to the power applied

OPTIONS

- Electrical terminals: M5
- Other terminal size
- Output cable

ORDERING INFORMATION

RCMC	500HV	10 Ω	10 %
MODEL	TYPE (SEE TECHNICAL SPECIFICATIONS)	RESISTANCE VALUE (SEE STANDARD ELECTRICAL SPECIFICATIONS)	TOLERANCE

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.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. 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.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.