High Current Thermal Fuse



The HCTF series is especially designed for high current applications with an operation temperature up to 160 °C. In case of excess heat in the range of the functioning temperature of (235 ± 15) °C the thermo fuse opens automatically and disconnects the circuit. Typical applications are automotive power electronics that are connected to steady battery power (B+ or terminal number 30).

FEATURES

- Functioning temperature: ϑ_F = (235 ± 15) °C
- Holding temperature: ϑ_H = 160 °C
- Current: ≤ 55 A
- Suitable for resistive welding systems
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

APPLICATIONS

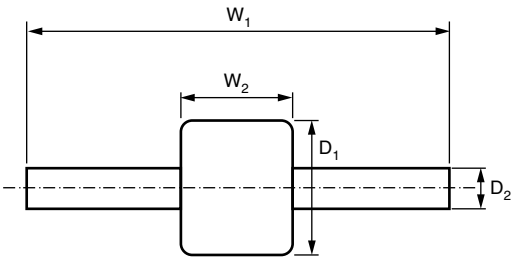
- Automotive
  - Fan control units
  - ABS
  - Diesel glow plug relays
  - Diesel pre-heaters
  - Electric coolant pumps

TECHNICAL SPECIFICATIONS	
DESCRIPTION	**HCTF 235**
Functioning temperature ϑ_F	(235 ± 15) °C
Holding temperature ϑ_H (1000 h)	160 °C
Voltage U_{DC}	24 V
Current I_{DC} (1)	≤ 55 A
Cold resistance R_{cold}	≤ 0.1 mΩ
Residual resistance R_s after breaking	> 1 MΩ

Note

(1) Current rating depends on external thermal management.

DIMENSIONS



DIMENSIONS - Mass and relevant physical dimensions					
TYPE	**W_1 (mm)**	**W_2 (mm)**	**D_1 (mm)**	**D_2 (mm)**	**MASS (g)**
HCTF	19.8 ± 0.5	6.5 ± 0.5	8.0 ± 0.5	1.8 ± 0.2	1.3 ± 0.3

For technical questions, contact: fuse@vishay.com

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PART NUMBER AND PRODUCT DESCRIPTION (1)

PART NUMBER: HCTF235L055000BR00

H	C	T	F	2	3	5	L	0	5	5	0	0	0	B	R	0	0

TYPE/ FUNCTIONING TEMPERATURE	TOLERANCE	SPECIAL	CURRENT	PACKAGING	SPECIAL
HCTF235	**L** = ± 15 °C	**0** = Standard	Current in mA. **55000** = 55 A	**BR**	Up to 2 digits **00** = Standard

PRODUCT DESCRIPTION: HCTF 235 15 °C BR 55A0

HCTF	235	15 °C	BR	55A0
TYPE	FUNCTIONING TEMPERATURE	TOLERANCE	PACKAGING	CURRENT
HCTF	**235**	**± 15 °C**	**BR**	**55A0** = 55 A

Note

(1) Products can be ordered using either the PART NUMBER or the PRODUCT DESCRIPTION

PACKAGING

TYPE	CODE	QUANTITY	CARRIER TAPE	WIDTH	PITCH	REEL DIAMETER
HCTF	BR	750	Blister tape acc. IEC 60286-3 type III	32 mm	12 mm	360 mm/14.2"

ASSEMBLY

The high current thermal fuse HCTF 235 is suitable for processing on e.g. automatic electric resistance welding or crimping assembly systems. Any deformation and overheating of the component body to levels above the holding temperature has to be avoided during the assembly.

The HCTF 235 CP complies with the JIG 101 list of legal restrictions on hazardous substances.

This includes full compliance with the following directives:

- 2000/53/EC End of Life Vehicle Directive (ELV) and Annex II (ELV II)
- 2011/65/EU Restriction of the use of Hazardous Substances Directive (RoHS)
- 2002/96/EC Waste Electrical and Electronic Equipment Directive (WEEE)

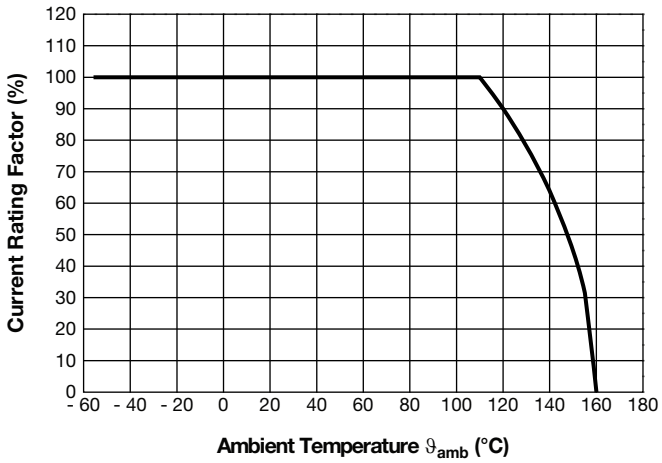
RELATED PRODUCTS

A version for automatic insert systems is available, too.
See datasheet: HCTF 235 CP Series (www.vishay.com/doc?28850)

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FUNCTIONAL PERFORMANCE



Current Rating Factor vs. Ambient Temperature ϑ_{amb}

Note

- The current rating factor depends on the mounting and environmental conditions. The power dissipation on the thermal fuse generates a temperature rise against the local ambient, depending on the heat flow supported by additional conductive materials as electrical wires, lead frames or other electrical connections (thermal resistance). Please contact the factory (please refer to e-mail contact below) for support and further technical details.

TESTS AND REQUIREMENTS

All tests are carried out in accordance with the following test procedures and specifications:

IEC 60115-1

ICE 60068-1

IEC 61340-3-1

MIL-STD-202

The tests are carried out under standard atmospheric conditions in accordance with IEC 60068-1, 5.3.

Unless otherwise specified the following values apply:

Temperature: 15 °C to 35 °C

Relative humidity: 25 % to 75 %

Air pressure: 86 kPa to 106 kPa (860 mbar to 1060 mbar).

TEST PROCEDURES AND REQUIREMENTS

EN 60115-1 CLAUSE	IEC 60068-2 TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
4.25.3	-	Endurance	Unpowered; 160 °C; 1000 h	$R \leq 0.2$ mΩ
-	-	Operational life acc. to MIL-STD-202 METHOD 108A	55 A; 1000 h; case temperature max. 160 °C	$R \leq 0.2$ mΩ
4.19	14 (Na)	Rapid change of temperature	10 min at - 55 °C and 10 min at 155 °C; transition time < 10 s; 1000 cycles	$R \leq 0.2$ mΩ
4.23.6	30 (Db)	Damp heat, cyclic	55 °C; 5 days > 90 % RH; 5 cycles	$R \leq 0.2$ mΩ
-	27 (Ea)	Mechanical shock	Half sine pulse shape; 6 ms; peak acceleration 100 g; 3 shocks in both directions of each axis	$R \leq 0.2$ mΩ

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TEST PROCEDURES AND REQUIREMENTS				
EN 60115-1 CLAUSE	**IEC 60068-2 TEST METHOD**	**TEST**	**PROCEDURE**	**REQUIREMENTS**
4.22	6 (Fc)	Vibration	f_1: 10 Hz; f_2: 2000 Hz amplitude ± 1.5 mm or acceleration 50 m/s² (5 g), whatever is less severe. 20 min/cycle (f_1-f_2-f_1); 10 cycles each for 3 axes	$R \leq 0.2$ mΩ
4.40	-	ESD; Human body model acc. to IEC 61340-3-1	U = 4 kV; C = 100 pF; R = 1.5 kΩ; 3 pos. + 3 neg.	$R \leq 0.2$ mΩ
-	-	Time until opening	Unpowered; pre-heated at 200 °C oil bath at 275 °C ± 5 K	≤ 2.0 min
4.16	21 (Ua1)	Robustness of terminations	Tensile force (40 ±4) N; 10 s	$R \leq 0.2$ mΩ
4.35	-	Flammability	Needle flame test; 10 s	No burning after 30 s

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