

Features

- Custom designs to meet appropriate applications
- Compatible with current industry standards
- Overcurrent and overtemperature protection
- Standard and low-temperature material

■ Agency recognition: **UL**[®]

Applications

- Lithium cells
- Battery cells
- Powered toys
- Motors

MF-D Series - PTC Resettable Fuses

Bourns Multifuse Product Line offers a PTC resettable fuse in a disk, square or rectangular configuration for overcurrent protection in various custom applications. These products are specific to customer's design requirements and are designed by Bourns to meet customer requirements. Some typical specification

information is listed below. However, all disk products are subject to the end customer verification of the product in the application. For ordering information, contact your nearest Bourns representative.

Electrical Characteristics

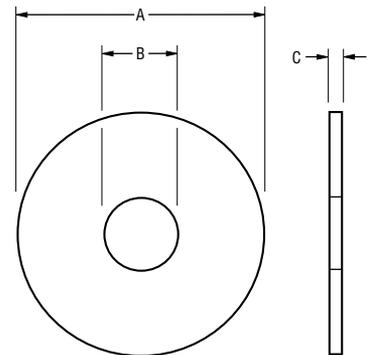
Model	V max. Volts	I max. Amps	I _{hold}	Initial Resistance		Max. Time to Trip	
			Amperes at 23 °C	Ohms at 23 °C		Amperes at 23 °C	Seconds at 23 °C
			Hold	Min.	Max.		
MF-D*	15	10	2.5	0.015	0.032	5	80
MF-D*	15	20	3.5	0.015	0.032	10	10
MF-D*	15	40	5.5	0.014	0.30	10	5
MF-D*	15	50	12.2	0.007	0.017	15	15

*For ordering information, contact your nearest Bourns representative.

UL File Number E174545 <http://www.ul.com/> Follow link to Certifications, then UL File No., enter E174545

Product Dimensions

Model	A	B	C MAX.
MF-D	$\frac{14.4}{(0.567)}$	$\frac{6.3}{(0.248)}$	$\frac{0.36}{(0.014)}$
MF-D	$\frac{16.4}{0.646}$	$\frac{10}{(0.394)}$	$\frac{0.36}{(0.014)}$
MF-D	$\frac{16.08}{(0.633)}$	$\frac{9}{(0.354)}$	$\frac{0.36}{(0.014)}$
MF-D	$\frac{24}{(0.945)}$	—	$\frac{0.36}{(0.014)}$



NOTES:

1. Devices are 100 % resistance tested.
2. Foil materials are Nickel-coated Copper.
3. Alternative electrical and mechanical parameters are possible. Please contact your local Bourns sales office or representative for details.
4. Operating and storage temperatures: -40 to +85 °C.
5. All specifications are at 23 °C unless otherwise stated.

DIMENSIONS: $\frac{\text{MM}}{\text{(INCHES)}}$

TOLERANCE: $\pm \frac{0.05}{(.002)}$ TYPICAL

MF-D, REV. G, 03/13

Specifications are subject to change without notice.
Users should verify actual device performance in their specific applications.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Application Notice

- Users are responsible for independent and adequate evaluation of Bourns® Multifuse® Polymer PTC devices in the user's application, including the PPTC device characteristics stated in the applicable data sheet.
- Polymer PTC devices must not be allowed to operate beyond their stated maximum ratings. Operation in excess of such maximum ratings could result in damage to the PTC device and possibly lead to electrical arcing and/or fire. Circuits with inductance may generate a voltage above the rated voltage of the polymer PTC device and should be thoroughly evaluated within the user's application during the PTC selection and qualification process.
- Polymer PTC devices are intended to protect against adverse effects of temporary overcurrent or overtemperature conditions up to rated limits and are not intended to serve as protective devices where overcurrent or overvoltage conditions are expected to be repetitive or prolonged.
- In normal operation, polymer PTC devices experience thermal expansion under fault conditions. Thus, a polymer PTC device must be protected against mechanical stress, and must be given adequate clearance within the user's application to accommodate such thermal expansion. Rigid potting materials or fixed housings or coverings that do not provide adequate clearance should be thoroughly examined and tested by the user, as they may result in the malfunction of polymer PTC devices if the thermal expansion is inhibited.
- Exposure to lubricants, silicon-based oils, solvents, gels, electrolytes, acids, and other related or similar materials may adversely affect the performance of polymer PTC devices.
- Aggressive solvents may adversely affect the performance of polymer PTC devices. Conformal coating, encapsulating, potting, molding, and sealing materials may contain aggressive solvents including but not limited to xylene and toluene, which are known to cause adverse effects on the performance of polymer PTCs. Such aggressive solvents must be thoroughly cured or baked to ensure their complete removal from polymer PTCs to minimize the possible adverse effect on the device.
- Recommended storage conditions should be followed at all times. Such conditions can be found on the applicable data sheet and on the Multifuse® Polymer PTC Moisture/Reflow Sensitivity Classification (MSL) note:
https://www.bourns.com/docs/RoHS-MSL/msl_mf.pdf

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The characteristics and parameters of a Bourns® product set forth in its data sheet are based on laboratory conditions, and statements regarding the suitability of products for certain types of applications are based on Bourns' knowledge of typical requirements in generic applications. The characteristics and parameters of a Bourns® product in a user application may vary from the data sheet characteristics and parameters due to (i) the combination of the Bourns® product with other components in the user's application, or (ii) the environment of the user application itself. The characteristics and parameters of a Bourns® product also can and do vary in different applications and actual performance may vary over time. Users should always verify the actual performance of the Bourns® product in their specific devices and applications, and make their own independent judgments regarding the amount of additional test margin to design into their device or application to compensate for differences between laboratory and real world conditions.

Unless Bourns has explicitly designated an individual Bourns® product as meeting the requirements of a particular industry standard (e.g., ISO/TS 16949) or a particular qualification (e.g., UL listed or recognized), Bourns is not responsible for any failure of an individual Bourns® product to meet the requirements of such industry standard or particular qualification. Users of Bourns® products are responsible for ensuring compliance with safety-related requirements and standards applicable to their devices or applications.

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The use and level of testing applicable to Bourns® custom products shall be negotiated on a case-by-case basis by Bourns and the user for which such Bourns® custom products are specially designed. Absent a written agreement between Bourns and the user regarding the use and level of such testing, the above provisions applicable to Bourns® standard products shall also apply to such Bourns® custom products.

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