

# Bourns® Multifuse® Device Application Table

Industry	Application	Surface Mount Product Families																				Radial Leaded Product Families								
		MF-ASML/X	MF-FSML/X	MF-PSML/X	MF-NSML/X	MF-USML/X	MF-FSMF	MF-PSMF	MF-NSMF	MF-USMF	MF-MSMF	MF-SMDF	MF-LSMF	MF-GSMF	MF-SM	MF-FSHT	MF-PSHT	MF-NSHT	MF-USHT	MF-MSHT	MF-SMHT	MF-SM/250	MF-SM/250V	MF-SD/250	MF-R	MF-RG	MF-RHT	MF-RM	MF-RX/72	MF-RX/250
Telecom	Central office equipment														X							X	X	X				X		X
	MDF modules														X								X	X	X					X
	CPE (Customer Premise Equipment)															X	X	X	X	X	X						X	X		X
	Analog and digital line cards														X								X	X	X			X		X
	WAN & LAN equipment													X									X	X	X					X
	Set top boxes														X								X	X	X				X	X
	xDSL modems and splitters														X								X	X	X				X	X
	VoIP equipment														X								X	X	X					X
	PBX/KTS and key telephone systems														X								X	X	X					X
Computer	CPU & hard disk drives			X	X	X			X	X	X			X												X	X			
	USB	X	X	X	X	X	X	X	X	X	X															X	X			
	IEEE1284 parallel data buses								X	X	X															X	X			
	IEEE 802.3											X	X	X	X															X
	IEEE 1394										X				X															X
	I/O ports (HDMI, Dvi VGA)	X	X	X	X	X	X	X	X	X	X				X											X	X		X	
	PC cards				X	X	X	X	X	X	X				X											X	X			
	SCSI								X	X	X				X											X	X			
	USB flash memory modules	X	X	X	X	X	X	X	X	X	X				X											X	X			
LCD monitors				X	X		X	X	X	X															X	X		X		
Consumer Electronics	Loudspeakers	X	X	X	X	X																			X	X		X	X	
	Smart card readers	X	X	X	X	X	X	X	X		X																			
	Mobile phones	X	X	X	X	X	X	X	X	X																				
	Battery	X	X	X	X	X	X																							
	Portable electronic input ports	X	X	X	X	X	X	X	X	X	X				X													X	X	
Industrial Electronics	Linear AC/DC adapters							X	X	X	X	X	X	X														X		
	Electromagnetic loads, motor											X	X	X	X	X	X	X	X	X	X					X	X	X	X	X
	Solenoid protection										X				X											X	X	X		X
	Displays										X	X	X	X	X											X	X	X		
	Security systems										X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	
	Industrial controls										X	X	X	X	X											X	X	X	X	
Medical Electronics*	Medical equipment							X	X	X	X	X	X	X												X	X			X
	Voltage / current input terminals								X		X																			

Note: The application summary is for reference only. Determination of suitability for a specific application is the responsibility of the customer.

\* Excluding critical life support

# 3 Steps to Selecting the Bourns® PTC for your Application

## 1 What is the operating voltage of your circuit?

Model	V Max. Volts	I Max. Amps	I <sub>hold</sub>	I <sub>trip</sub>	Resistance		Max. Time to Trip		Tripped Power Dissipation
			Amperes @ 23 °C	Ohms @ 23 °C	Amperes @ 23 °C	Seconds @ 23 °C	Watts @ 23 °C		
			Hold	Trip	R <sub>Min.</sub>	R <sub>1 Max.</sub>	Typ.		
MF-MSMF010	60.0	40	0.10	0.30	0.70	15.00	0.5	1.50	0.8
MF-MSMF014	60.0	40	0.14	0.34	0.40	6.50	1.5	0.15	0.8
MF-MSMF020	30.0	80	0.20	0.40	0.40	6.00	6.0	0.06	0.8
MF-MSMF020/60	60.0	40	0.20	0.40	0.40	6.00	1.5	0.15	0.8
MF-MSMF030	30.0	10	0.30	0.60	0.30	3.00	8.0	0.10	0.8
MF-MSMF050	15.0	100	0.50	1.00	0.15	1.00	8.0	0.15	0.8

From the Bourns Data Sheets, select a PTC with a **V Max.** higher than your operating voltage

## 2 What is the operating current of your circuit?

Model	V Max. Volts	I Max. Amps	I <sub>hold</sub>	I <sub>trip</sub>	Resistance		Max. Time to Trip		Tripped Power Dissipation
			Amperes @ 23 °C	Ohms @ 23 °C	Amperes @ 23 °C	Seconds @ 23 °C	Watts @ 23 °C		
			Hold	Trip	R <sub>Min.</sub>	R <sub>1 Max.</sub>	Typ.		
MF-MSMF010	60.0	40	0.10	0.30	0.70	15.00	0.5	1.50	0.8
MF-MSMF014	60.0	40	0.14	0.34	0.40	6.50	1.5	0.15	0.8
MF-MSMF020	30.0	80	0.20	0.40	0.40	6.00	6.0	0.06	0.8
MF-MSMF020/60	60.0	40	0.20	0.40	0.40	6.00	1.5	0.15	0.8
MF-MSMF030	30.0	10	0.30	0.60	0.30	3.00	8.0	0.10	0.8
MF-MSMF050	15.0	100	0.50	1.00	0.15	1.00	8.0	0.15	0.8

From the Bourns Data Sheets, select a PTC with an **I<sub>hold</sub>** higher than your operating current

## 3 What is the ambient temperature of your circuit?

Model	Ambient Operating Temperature								
	-40 °C	-20 °C	0 °C	23 °C	40 °C	50 °C	60 °C	70 °C	80 °C
MF-MSMF010	0.16	0.14	0.12	0.10	0.08	0.07	0.06	0.05	0.03
MF-MSMF014	0.23	0.19	0.17	0.14	0.12	0.10	0.09	0.08	0.06
MF-MSMF020	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
MF-MSMF020/60	0.29	0.26	0.23	0.20	0.17	0.15	0.14	0.12	0.10
MF-MSMF030	0.44	0.39	0.35	0.30	0.26	0.23	0.21	0.18	0.15
MF-MSMF050	0.77	0.68	0.59	0.50	0.44	0.40	0.37	0.33	0.29

From the Bourns Data Sheets, ensure the PTC you selected has an **I<sub>hold</sub>** higher than your operating current at your ambient temperature