Bourns® Multifuse® Device Application Table

		Surface Mount Product Families																					Radial Leaded Product Families					
Industry	**Application**	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			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			x	
	Voltage / current input terminals								x		x																			

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

* Excluding critical life support

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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_{hold} Amperes @ 23 °C Hold	I_{trip} Amperes @ 23 °C Trip	Resistance Ohms @ 23 °C $R_{Min.}$	Resistance Ohms @ 23 °C $R_{1\ Max.}$	Max. Time to Trip Amperes @ 23 °C	Max. Time to Trip Seconds @ 23 °C	Tripped Power Dissipation Watts @ 23 °C 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_{hold} Amperes @ 23 °C Hold	I_{trip} Amperes @ 23 °C Trip	Resistance Ohms @ 23 °C $R_{Min.}$	Resistance Ohms @ 23 °C $R_{1\ Max.}$	Max. Time to Trip Amperes @ 23 °C	Max. Time to Trip Seconds @ 23 °C	Tripped Power Dissipation Watts @ 23 °C 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_{hold}** 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_{hold}** higher than your operating current at your ambient temperature

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