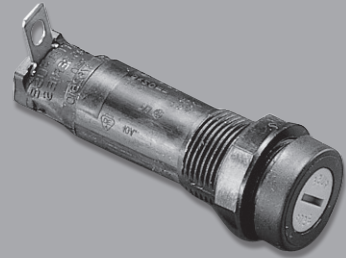




Expertise Applied | Answers Delivered



## FUSEHOLDER SELECTION






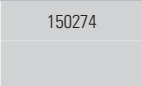
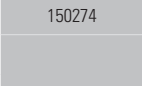
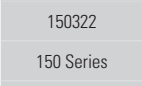




## Fuseholder Selection Guide


A guide to selecting Littelfuse Fuseholder components for electronic applications.

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# FUSEHOLDER SELECTION GUIDE [www.littelfuse.com/fuseholders](http://www.littelfuse.com/fuseholders)

Circuit Connection Method		Wire	Wire Connector Terminals	TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole							
Fuse Holder Type		In-Line Fuse Holders	Panel Mount Fuse Enclosure	Circuit Board Mount Fuse Enclosure		Fuse Blocks		Fuse Clips			
Fuse Type	Fuse Series										
<b>4.5x14.5 mm (2AG)</b>	225 229		150274	245001 Solder QC		TH	254101	TH	111501		
				245002 NEMA QC		TH	254121	SM	111505		
				286377 Flip Top		CT	Other 254 Series	TH	111506		
				345 Series Int. Shock-Safe (old)							
				3452 Series Int. Shock-Safe							
<b>5x20 mm</b>	213 215 216 217 218 219XA 232 233 234 235 239		150274	3455 Int. Shock-Safe	TH	345121 Shocksafe	TH	520 101	TH	04450001 / 00300210	
				345121 Int. Shock-Safe	TH	646 / 649 / 656 Series	CT	520 003 - 005	TH	05200001	
				286677 Flip Top	TH	810 / 811 / 814 Series	CT	647 Series	TH	51800001009	
				800 / 801 / 802 / 821 Series	TH	830 / 831 / 834 Series	SM	658 Series	TH	51900001009	
				820/820 - 20 Series Mini Shocksafe	TH	852 / 853 / 862 Series			TH	52000001009	
				823 Series Snap-in	TH	OPTF Series			TH	52100001009	
				824/824-20 / 850 / 851 / 860 series					TH	100 / 111 Series	
				870 Series Medical Grade					TH	523 / 445 Series	
<b>6.3x32 mm (3AB/3AG)</b>	312 313 314 322 326		150322	342006 Watertight	TH	345101 Shocksafe	CT	354 Series	RS	101001 / 101002	
				150 Series	342021 (FHN26W) Water Tight	TH	354101-GY	ST	356 Series	RS	101003 / 102064
				155 Series	342024 (FHN26G2) Drip Proof	TH	810 Series	ST	359 Series	TH	102071 / 102074
				LHFB Series	342025 (FHN20G) Drip Proof	TH	811 Series			TH	102076 / 102078
					346877 Flip Top	TH	814 Series			TH	102079 / 102080
					340 Series RF Shielded / Watertight	TH	862 Series			RS	121001 / 121002
					342 Series Traditional					RS	121004
					344 Series Snap / Panel Mount					TH	100058 / 122083
					345 Series Int. Shocksafe (old)					TH	122087 / 122088
					3453 Series Int. Shocksafe					TH	122090 / 122093
					348 Series Snap Mount					TH	10207101009
					800 Series Shocksafe					TH	51800001009
					801 / 802 / 803-01 Series						
					860 Series						
<b>TE5®/ TR5®</b>	369 / 370 372 / 373 374 / 382 383 / 385 391 / 392 395 / 396 397 / 398 399 / 400 808		570 Series		TH	571 0000 000					
					TH	559 / 560 / 562 Series					
					SM	564 Series					
					TH	576 Series					
<b>Micro™/ TR3®</b>	262 / 268 269 / 272 273 / 274 278 / 279		282001 Front mt. Neoprene	TH	281005 Vertical Silver						
			282007 Front mt. Conductive	TH	281007 Horizontal Silver						
			282002 Rear mt. Neoprene	TH	281008 Vertical Tin						
			282008 Rear mt. Conductive	TH	281010 Horizontal Tin						
			280004 32V indicating								

## 4.5mm x 14.5mm (2AG) Size Fuse Series and Holder Options




Fuse Options																				
Fuse Series Name	Time Lag (Slo-Blo®)				Device Range * (Operating Current Options in Amps)	Max. Voltage Rating * (Volts)	Interrupting Rating at Max Voltage Rating * (Amps)	Operating Temperature Range	Agency Approvals *										RohS Compliant	Lead Free
	Medium Acting	Fast Acting	Very Fast Acting	Americas					Europe				Asia							
				UL					UR	CSA	OPL	CE	VDE	TUV	BSI	Semko	PSE	K		
225					0.1 - 10	250 / 125	35 - 500		•	•	•	•		•				•	•	
230	•				0.25 - 7	250 / 125	35 - 400		•	•	•			•				•	•	

Holder Options													
Circuit Connection Method	Wire	Wire Connector Terminals	TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole										
Fuse Holder Type	In- Line Fuse Holders	Panel Mount Fuse Enclosure	Circuit Board Mount Fuse Enclosure	Fuse Blocks				Fuse Clips					
	150274	245001 Solder QC		TH	254101				TH	111501			
		245002 NEMA QC		TH	254121				SM	111505			
		286377 Flip Top		CT	Other 254 Series				TH	111506			
		345 Series Int. Shock-Safe (old)											
		3452 Series Int. Shock-Safe											

## 5mm x 20mm Size Fuse Series and Holder Options




Fuse Options																				
Fuse Series Name	Time Lag (Slo-Blo®)				Device Range * (Operating Current Options in Amps)	Max. Voltage Rating * (Volts)	Interrupting Rating at Max Voltage Rating * (Amps)	Operating Temperature Range	Agency Approvals *										RohS Compliant	Lead Free
	Medium Acting	Fast Acting	Very Fast Acting	Americas					Europe				Asia							
				UL					UR	CSA	OPL	CE	VDE	TUV	BSI	Semko	PSE	K		
213	•				0.2 - 6.3	250	35 - 63	-55°C to +125°C	•	•	•		•	•	•	•	•	•	•	
215	•				0.125 - 25	250	300 - 1500		•	•			•	•	•	•	•	•	•	
216		•			0.05 - 16	250	750 - 1500		•	•			•	•	•	•	•	•	•	
217			•		0.032 - 15	250	35 - 150		•	•			•	•	•	•	•	•	•	
218	•				0.032 - 16	250	35 - 100		•	•			•	•	•	•	•	•	•	
219XA	•				0.4 - 6.3	250	150		•	•			•	•	•	•	•	•	•	
232		•			1 - 10	250 / 125	300 / 10,000								•	•			•	
233		•			1 - 10	125	10,000		•	•					•	•			•	
234		•			1 - 10	250	100 - 200		•	•					•	•			•	
235			•		0.1 - 7	250 / 125	35 - 10,000		•	•					•	•			•	
239	•				0.08 - 7	250 / 125	35 - 10,000		•	•					•	•			•	

Holder Options													
Circuit Connection Method	Wire	Wire Connector Terminals	TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole										
Fuse Holder Type	In- Line Fuse Holders	Panel Mount Fuse Enclosure	Circuit Board Mount Fuse Enclosure	Fuse Blocks				Fuse Clips					
	150274	3455 Int. Shock-Safe	TH 345121 Shocksafe	TH	520 101				TH	04450001 / 00300210			
		345121 Int. Shock-Safe	TH 646 / 649 / 656 Series	CT	520 003 - 005				TH	05200001			
		286677 Flip Top	TH 810 / 811 / 814 Series	CT	647 Series				TH	51800001009			
		800 / 801 / 802 / 821 Series	TH 830 / 831 / 834 Series	SM	658 Series				TH	51900001009			
		820/820 - 20 Series Mini Shocksafe	TH 852 / 853 / 862 Series						TH	52000001009			
		823 Series Snap-in	TH OPTF Series						TH	52100001009			
		824/824-20 / 850 / 851 / 860 series							TH	100 / 111 Series			
		870 Series Medical Grade							TH	523 / 445 Series			

## 6.3mm X 32mm (3AB / 3AG) Size Fuse Series and Holder Options



Fuse Options																						
Fuse Series Name	Time Lag (Slo-Blo®)	Medium Acting	Fast Acting	Very Fast Acting	Device Range * (Operating Current Options in Amps)	Max. Voltage Rating * (Volts)	Interrupting Rating at Max Voltage Rating * (Amps)	Operating Temperature Range	Agency Approvals *													
									Americas				Europe				Asia		RoHS Compliant	Lead Free		
									UL	UR	CSA	OPL	CE	VDE	TUV	BSI	Semko	PSE			K	CCC
312			•		0.01 - 35	250 / 125 / 32	35 - 300	-55°C to +125°C	•	•	•	•	•	•	•	•	•	•	•	•	•	
313	•				0.01 - 30	250 / 125 / 32	35 - 300		•	•	•	•	•	•	•	•	•	•	•	•	•	
314			•		0.125 - 40	250	35 - 1000		•	•	•	•	•	•	•	•	•	•	•	•	•	•
322				•	1 - 30	250 / 65	100 - 1000		•	•	•	•	•	•	•	•	•	•	•	•	•	•
326	•				0.01 - 30	250 / 125	100 - 600		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Holder Options																						
Circuit Connection Method	Wire		Wire Connector Terminals		TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole																	
Fuse Holder Type	In- Line Fuse Holders		Panel Mount Fuse Enclosure		Circuit Board Mount Fuse Enclosure		Fuse Blocks		Fuse Clips													
	150322		342006 Watertight		TH	345101 Shocksafe		CT	354 Series		RS	101001 / 101002										
	150 Series		342021 (FHN26W) Water Tight		TH	354101-GY		ST	356 Series		RS	101003 / 102064										
	155 Series		342024 (FHN26G2) Drip Proof		TH	810 Series		ST	359 Series		TH	102071 / 102074										
	LHFB Series		342025 (FHN20G) Drip Proof		TH	811 Series					TH	102076 / 102078										
			346877 Flip Top		TH	814 Series					TH	102079 / 102080										
			340 Series RF Shielded / Watertight		TH	862 Series					RS	121001 / 121002										
			342 Series Traditional								RS	121004										
			344 Series Snap / Panel Mount								TH	100058 / 122083										
			345 Series Int. Shocksafe (old)								TH	122087 / 122088										
			3453 Series Int. Shocksafe								TH	122090 / 122093										
			348 Series Snap Mount								TH	10207101009										
			800 Series Shocksafe								TH	51800001009										
			801 / 802 / 803-01 Series																			
			860 Series																			

### Fuseholder Re-Rating

For 25°C ambient temperatures, it is recommended that fuseholders be operated at no more than 60% of the nominal current rating established using the controlled test conditions specified by Underwriters Laboratories.

The primary objective of these UL test conditions is to specify common test standards necessary for the continued control of manufactured items intended for protection against fire, etc. A copper dummy fuse is inserted in the fuseholder by Underwriters Laboratories, and then the current is increased until a certain temperature rise occurs.



The majority of the heat is produced by the contact resistance of the fuseholder clips. This value of current is considered to be the rated current of the fuseholder, expressed as 100% of rating.

Some of the more common, everyday applications may differ from these UL test conditions as follows: fully enclosed fuseholders, high contact resistance, air movement, transient spikes, and changes in connecting cable size (diameter and length).

Even small variations from the controlled test conditions can greatly affect the ratings of the fuseholder. For this reason, **it is recommended that fuseholders be de-rated by 40% (operated at no more than 60% of the nominal current rating)** established using the Underwriter Laboratories test conditions).

\* In some cases for these categories the ratings, agency approvals and specifications vary by part number and are presented here as ranges representing the whole series.

## TE5®/TR5® Type Fuse Series and Holder Options

	Fuse Options																					
	Fuse Series Name	Time Lag (Slo-Blo®)	Medium Acting	Fast Acting	Very Fast Acting	Device Range * (Operating Current Options in Amps)	Max. Voltage Rating * (Volts)	Interrupting Rating at Max Voltage Rating * (Amps)	Operating Temperature Range	Agency Approvals *									RoHS Compliant	Lead Free		
										Americas				Europe				Asia				
										UL	UR	CSA	OPL	CE	VDE	TUV	BSI	Semko			PSE	K
	370			•		0.4 - 6.3	250	35 - 50	-40°C to +85°C		•									•	•	
372	•				0.4 - 6.3	250	35 - 50			•										•	•	
373			•			0.5 - 10	250	50			•										•	•
374	•					0.5 - 10	250	50			•	•									•	•
382	•					1 - 10	250	100			•										•	•
383	•					1 - 10	300	50 - 100			•										•	•
	369	•				1 - 6.3	300	50	-40°C to +85°C		•									•	•	
385	•					0.35 - 1.5	125	50			•										•	•
391			•			0.125 - 4	65	50			•										•	•
392	•					0.8 - 6.3	250	25 - 63			•										•	•
395	•			•		0.05 - 6.3	125	100			•										•	•
396	•					0.05 - 6.3	125	100			•										•	•
397	•					0.35 - 1.5	125	50			•										•	•
398		•				0.125 - 4	65	50			•										•	•
399	•					0.125 - 4	65	50			•										•	•
400	•					0.5 - 6.3	250	130			•										•	•
808				•		1 - 5	250	100			•										•	•
Holder Options																						
Circuit Connection Method	Wire Connector Terminals				TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole																	
Fuse Holder Type	Panel Mount Fuse Enclosure				Circuit Board Mount Fuse Enclosure																	
	570 Series				TH	571 0000 000																
					TH	559 / 560 / 562 Series																
					SM	564 Series																
					TH	576 Series																

## Micro™/TR3® Type Fuse Series and Holder Options

	Fuse Options																					
	Fuse Series Name	Time Lag (Slo-Blo®)	Medium Acting	Fast Acting	Very Fast Acting	Device Range * (Operating Current Options in Amps)	Max. Voltage Rating * (Volts)	Interrupting Rating at Max Voltage Rating * (Amps)	Operating Temperature Range	Agency Approvals *									RoHS Compliant	Lead Free		
										Americas				Europe				Asia				
										UL	UR	CSA	OPL	CE	VDE	TUV	BSI	Semko			PSE	K
	262 / 268 / 269				•	0.002 - 5	125	10,000	-55°C to +125°C		•	•	•									
	272 / 278				•	0.002 - 5	125	10,000	-55°C to +125°C		•	•	•									
	273 / 274 / 279				•	0.002 - 5	125	10,000	-55°C to +85°C													
Holder Options																						
Circuit Connection Method	Wire Connector Terminals				TH= Thru-Hole Solder SM= Surface Mount Solder ST= Screw Terminal CT= Wire Connector Terminal RS= Rivet/Screw Hole																	
Fuse Holder Type	Panel Mount Fuse Enclosure				Circuit Board Mount Fuse Enclosure																	
	282001 Front mt. Neoprene				TH	281005 Vertical Silver																
	282007 Front mt. Conductive				TH	281007 Horizontal Silver																
	282002 Rear mt. Neoprene				TH	281008 Vertical Tin																
	282008 Rear mt. Conductive				TH	281010 Horizontal Tin																
	280004 32V indicating																					

As the world's #1 brand in circuit protection, Littelfuse offers the broadest and deepest portfolio of circuit protection products and a global network of technical support backed by more than 80 years of application design expertise. Visit our design support center to access:

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- > Technical Articles
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Littelfuse offers technologies that protect electronic and electrical circuits and their users against electrostatic discharge (ESD), load switching surges, lightning strike effects, overloads, short circuits, power faults, ground faults and other threats.

### Overcurrent Protection Products:

**Fuses** Littelfuse offers the world's broadest range of fuse types and ratings, including cartridge, leaded, surface mount and thin film designs

**PTCs** Positive Temperature Coefficient thermistor technology provides resettable current-limiting protection

**Protection Relays** Electronic and microprocessor-based protection relays minimize damage to equipment and personnel caused by electrical faults

### Overvoltage Protection Products:

**Varistors** Littelfuse offers surface mount Multi-Layer Varistors (MLVs) and industrial Metal Oxide Varistors (MOVs) to protect against transients

**GDTs** Gas Discharge Tubes (GDTs) to dissipate transient voltage through a contained plasma gas

**Thyristors** Solid state switches that control the flow of current in a wide range of appliances, tools and equipment

**SIDACtor® Devices** Overvoltage protection specifically designed for legacy telecom and today's broadband connections

**TVS Diodes** Silicon Transient Voltage Suppression (TVS) devices

**SPAs** Silicon Protection Arrays designed for analog and digital signal line protection

**PulseGuard® ESD Suppressors** Small, fast-acting Electrostatic Discharge (ESD) suppressors

### Special Application Products:

**PLED LED Protectors** LED string reliability devices that offer open LED bypass, ESD protection and reverse connection protection



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