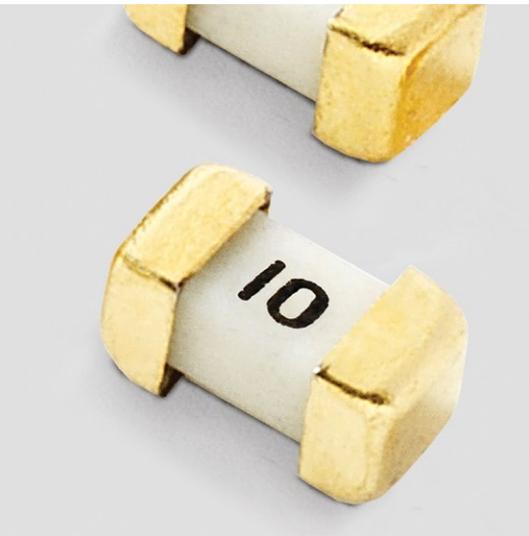


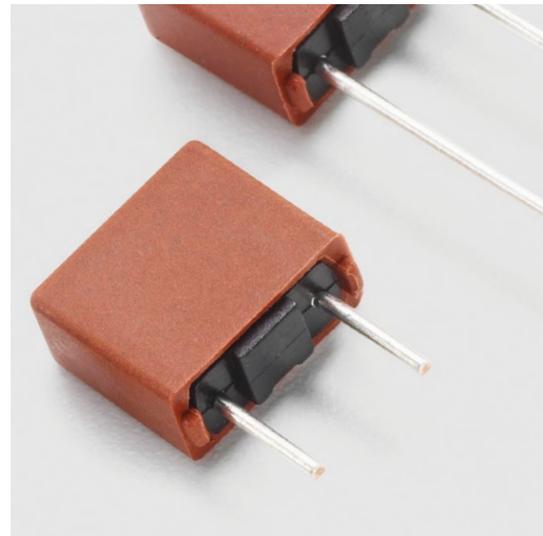


Expertise Applied | Answers Delivered



# FUSE

Selection Guide



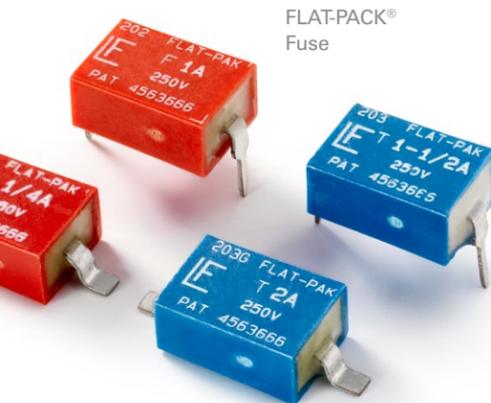
## Simplifying the Fuse Selection Process

Fuses are current-sensitive devices that provide reliable protection for discrete components or circuits by melting under current overload conditions. Littelfuse offers a comprehensive range of innovative fuses designed to address an expanding array of circuit protection challenges. However, even seasoned electronics design engineers can discover that identifying the optimum fuse for a specific application can be a confusing, time-consuming process.

This Fuse Selection Guide is designed to speed and simplify this process, making it easier to optimize the reliability and performance of the application. The included Fuse Accessories Selection Guide also identifies the fuseholders designed for use with each fuse series.

### FUSE SELECTION GUIDE

Max. Voltage	DC Protection ≥ 250VDC						
	Through-Hole			Surface Mount Fuses			
Mounting	Cartridge			TE	NANO <sup>28</sup> Fuse		
Fuse Type							
Footprint	5 × 20mm	6 × 25mm	6 × 32mm	—	10.5 × 4.5mm	12.1 × 4.5mm	10.86 × 4.78mm
Body Material	Ceramic	Ceramic	Ceramic	Thermoplastic	Thermoplastic	Ceramic	Thermoplastic
Current Rating*	500mA to 20A	5A to 40A	315mA to 30A	1A to 5A	500mA to 5A	500mA to 3.15A	1A to 5A
Interrupt Rating*	400A @ 400VDC 1500A @ 400VDC 200A @ 450VDC	5 to 40A 1500A @ 250VAC	1000A @ 250VDC 10kA @ 1000VDC	10kA @ 250VDC 10kA @ 450VDC	150A @ 250VDC 100A @ 350VDC	100A @ 600VDC	100A @ 500VDC (1A-3.15A) 100A @ 450VDC (4A-5A)
Characteristics/Agency Approvals							
70VDC	—	688 (70VDC)	—	—	—	—	—
250VDC	—	—	—	808 (250VDC to 450VDC)	462 (250VDC)	—	—
420VDC	487 (420VDC)	—	504 (420VDC)	—	—	—	—
450VDC	—	—	—	808 (250VDC to 450VDC)	—	—	—
400VDC Time Lag IEC	477 (400VDC)	—	—	—	—	—	—
450VDC Time Lag IEC	977 (450VDC)	—	—	—	—	—	—
500VDC	—	—	505 (500VDC)	—	—	—	885 (500VDC)
600VDC	—	—	506 (600VDC)	—	—	485 (600VDC)	—
650VDC	—	—	507 (650VDC)	—	—	—	—
1000VDC	—	—	508 (1000VDC)	—	—	—	—



FLAT-PACK<sup>®</sup> Fuse



NANO<sup>28</sup> Fuse

### FUSE ACCESSORIES SELECTION GUIDE

Fuseholder Type	In-Line Fuseholders	Panel Mount Fuse Enclosures	Circuit Board Mount Fuse Enclosures	Fuse Blocks	Fuse Clips	
Circuit Connection Method	Wire	Wire Connector Terminals	TH= Thru-Hole SM= Surface Mount	CT= Wire Connector Terminal	QC= Quick Connect	
Fuse Type	Fuse Series					
4.5×14.5 mm (2AG)	208 / 209 225 / 229	150274 150300 150307	3452 Series Int. Shocksafe 345 Series Int. Shocksafe (old) 245001 Solder QC 245002 NEMA QC 286377 Flip Top	—	CT 254 011 - 008 TH 254 101, 254 121 TH 254 131 TH 254 201 - 208	TH 111501 SM 111505 TH 111506 TH 111510 TH 111512 TH 52100001009 TH 51900001009 TH 51800001009 TH 523 Series TH 445 Series
	213 / 215 216 / 217 218 / 219XA 232 / 233 234 / 235 239 / 285 377 / 477 617 / 618	150274 150300 150307 150315 150316 150317 150318 150319 PTF0080M FH503	345 Shocksafe 3455 Int. Shocksafe 286677 Flip Top 800 / 801 / 802 / 821 Series 823 Series Snap-in 824 / 824 - 20 / 850 / 851 / 860 Series 870 Series Medical Grade 820 / 820-20 Series Mini Shocksafe PTF030 / PTF035 / PTF040 PTF055 / PTF070	TH 345121 High Voltage Series TH 810 / 811 / 813 / 814 TH 830 / 831 / 834 TH 852 / 853 / 862 TH PTF045 / PTF050	TH 445073 TH 520 002, 520 101 QC 520 003, 520 005 CT 520 004 TH 646 / 649 / 656 CT 647 SM 658 TH PTF015 / PTF065 TH PTF075 / PTF077 TH PTF078 FB55 / FB58	TH 100 / 111 Series TH 04450001 / 00300210 TH 5200001 TH 52000001009 TH NY61AP TH FC51
5×20 mm	312 313 314 322 326 332 373 377 505 506 508 605	155 Series 150312 150322 150603 445004 445005 PTF080 FH602 / FH604 150603	3453 Series Int. Shocksafe 345 High Voltage Series 342 Series Traditional 342006 Watertight 344 Series Snap / Panel Mount 348 Series Snap Mount 340 Series RF Shielded / Watertight 346877 Flip Top 342021 (FHN26W) Water Tight 342024 (FHN26G2) Drip Proof 342025 (FHN20G) Drip Proof 800 Series Shocksafe 803-01 Series 860 Series	TH 345101 High Voltage Series TH 810 Series TH 811 Series TH 813 Series TH 814 Series TH 862 Series	CT 354 Series QC 35406 Series QC 35407 Series QC 35408 Series QC 35409 Series CT 354701 Series CT 356 Series CT 359 Series QC OMN002 QC OMN004 QC OMN006 QC FB65 / FB66	CT 101001 / 101002 CT 101003 / 102064 CT 121001 / 121002 CT 121003 / 121004 TH 102071 TH 102076 / 102078 TH 102079 / 102080 TH 122083 / 122087 TH 122088 / 122093 TH 122090 / 100058 TH 51800001009 CT 101010 TH 102074 TH 10207101009
	303 / 369 370 / 372 373 / 374 382 / 383 385 / 392 395 / 396 397 / 398 400 / 682 663 / 664 665 / 804 807 / 808	—	570 Series	TH 571 Series TH 559 / 560 / 562 Series SM 564 Series TH 576 Series TH 556 / 557 Series	—	—
TE5/TR5 <sup>®</sup> Fuse	—		—	—	—	
	262 / 268 269 / 272 273 / 274 278 / 279	—	282001 Front Mount Neoprene 282007 Front Mount Conductive 282002 Rear Mount Neoprene 282008 Rear Mount Conductive 280004 32V Indicating	TH 281005 Vertical Silver TH 281007 Horizontal Silver TH 281008 Vertical Tin TH 281010 Horizontal Tin	—	
Micro <sup>™</sup> Fuse / TR3	—		—	—	—	
	—	—	—	—	—	

TE5/TR5<sup>®</sup> Fuse



\*Rating may vary by voltage and current rating. Refer to the datasheet for all values.

## FUSE SELECTION GUIDE

Max. Voltage	<250VAC/VDC																			
Mounting	Surface Mount Fuses												Through-Hole							
Fuse Type	NANO <sup>28</sup> Fuse					Thin Film Fuse							Ceramic Chip Fuse			PICO <sup>®</sup> SMF Fuse	PICO <sup>®</sup> Fuse	TE	MICRO <sup>™</sup> Fuse	Hazardous Area Fuse
Footprint	1206	2410	2410	Fuse/FH Assy. (2410)	4012	12.5 × 10mm	0402	0603	1206	1206	1206	1206	0603	1206	1206	7.24 × 4.32 × 3.05 mm	—	—	—	13 × 8mm
Body Material	Ceramic	Ceramic	Ceramic	Ceramic/Thermoplastic/Metal	Ceramic	Thermoplastic	FR4	FR4	FR4	FR4	FR4	FR4	Ceramic	Ceramic	Ceramic	Thermoplastic	Ceramic body coated in epoxy	Thermoplastic	Metal/Thermoplastic	Polyamide
Current Rating*	1A to 10A	62mA to 20A	6.3A to 15A	62mA to 10A	20A to 40A	60A to 100A	250 mA to 5A	250 mA to 5A	7A	125mA to 5A	375mA to 15A	500mA to 2A	250mA to 6A	250mA to 8A	10A to 20A	62mA to 5A	62mA to 30A	50mA to 6.3A	2mA to 5A	0.062A to 5A
Interrupt Rating*	50A @ 48VAC 50A @ 75VDC	50A @ 125VAC 50A @ 1245VDC 300A @ 24VDC 100A @ 75VDC	100A @ 125VAC 300A @ 125VDC 10kA @ 86VDC	50A @ 125VAC/VDC 300A @ 32VDC	100A @ 125VAC 500A @ 72VDC	1500A @ 75VDC	35A @ 32VDC	50A @ 32VAC/VDC	35A @ 24VAC/VDC	50A @ 125VAC/VDC	50A @ 32VAC 50A @ 32VDC	50A @ 125VAC/VDC 300A @ 32VDC	50A @ 63VDC	50A @ 125VAC/VDC	150A @ 32VDC	300A @ 125VDC	50A @ 125VAC 300A @ 32VDC	100A @ 125VAC	10kA @ 125VAC/VDC	50A @ 125VAC 300A @ 125VDC
Characteristics / Agency Approvals																				
Fast Acting UL	—	451/453 (125VAC/VDC)	—	—	—	—	—	—	—	—	—	470 (125VAC/VDC)	—	—	—	—	—	395 (125VAC)	—	—
Fast Acting IEC	—	—	—	—	456 (125 VAC/72 VDC) Only 20 to 30A	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fast Acting UR	458 (48 VAC/75 VDC)	448 (125VAC/VDC) 451/453 (125VAC/VDC)	476 (125VAC/VDC 86VDC)	154 (125VAC/VDC) 157 (125VAC/VDC)	456 (125 VAC/72 VDC)	881 (75VDC)	435 (32VDC)	467 (32VAC/VDC)	429007.L (24VAC/VDC)	466 (125VAC/VDC)	483 (75VAC/VDC)	—	438 (32VDC) 441 (32VDC)	437 (125VAC/VDC) 440 (32VAC/VDC)	501 (32VDC)	459 (125VAC/VDC)	251 (125VAC/VDC) 275 (32VAC/VDC)	—	272 (125VAC/VDC) 273 (125VAC/VDC)	—
SLO-BLO <sup>®</sup> Fuse UL	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	396 (125VAC)	—	—
Time Lag IEC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SLO-BLO <sup>®</sup> Fuse UR	—	452/454 (125VAC/VDC) 449 (125VAC/VDC)	—	154T (125VAC/VDC) 157T (125VAC/VDC)	—	—	—	—	—	468 (63VAC/VDC)	—	—	—	469 (63VDC)	—	460 (125VAC/VDC)	471 (125VAC/VDC) 472 (125VAC/VDC) 473 (125VAC/VDC)	—	—	—
Hazardous Area Protection	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	259 (125VAC/VDC) 259 UL 913 (125VAC/VDC)

\*Rating may vary by voltage and current rating. Refer to the datasheet for all values.

NANO<sup>28</sup> Fuse



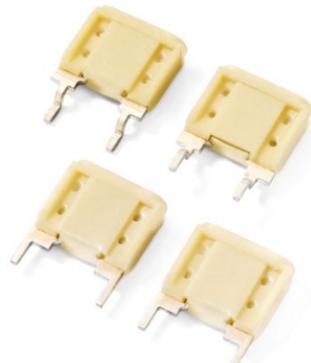
Cartridge Fuse



Ceramic Chip Fuse



Electronic Ballast Fuse



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**FUSE SELECTION GUIDE**

Max. Voltage	≥ 250VAC																					
	Through-Hole /Fuseholder										Surface Mount Fuses											
Mounting	TR/TE	Barrier	Cartridge						PICO <sup>®</sup> Fuse	EBF		FLAT-PAK <sup>®</sup> Fuse	NANO <sup>2®</sup> Fuse								Hazardous Area Fuse	
Fuse Type																						
Footprint	—	—	3.6mm × 10mm	4.5mm × 15mm (2 AG)	5 × 20mm		6 × 32mm (3 AG/3 AB)		10 × 32mm	—	—	6.35 × 10.16mm	2410	10.1 × 3.12mm	10.1 × 3.12mm	10.1 × 3.12mm	12.1 × 4.5mm	10.1 × 3.12mm (Telecom Nano)	10.5 × 4.5mm	10.86 × 4.78mm	13.67 × 6.09 × 6.03mm	
Body Material	Thermoplastic	Ceramic	Ceramic	Glass	Ceramic	Glass	Ceramic	Glass	Melamine	Cermic body coated in epoxy	Thermoplastic	Thermoplastic	Thermoplastic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Thermoplastic	Thermoplastic	Thermoplastic
Current Rating*	40mA to 10A	40mA to 750mA	50mA to 10A	100mA to 10A	50mA to 20A	32mA to 16A	125mA to 40A	10mA to 30A	40A to 63A	62mA to 5 A	2A to 10 A	2A to 10 A	62mA to 5A	1A to 5A	500mA to 5A	500mA to 5A	15A to 30A	250mA to 6.3A	500mA to 2A	500mA to 5A	1A to 5A	50mA to 750mA
Interrupt Rating*	100A @ 300VAC	1500A @ 277VAC/VDC 4000A @ 250VAC/VDC	63A @ 250VAC	400A @ 125VAC 100A @ 350VAC	1500A @ 250VAC 200A @ 420VAC 100A @ 500VAC	200A @ 250VAC 10kA @ 125VAC	1000A @ 500VAC 20kA @ 450VAC 10kA @ 1000VAC	300A @ 32VAC 200A @ 250VAC	2000A @ 500VAC 10kA @ 250VAC	50A @ 250VAC	100A @ 350VAC	100A @ 350VAC	50A @ 250VAC	100A @ 250VAC	50A @ 250VAC	50A @ 280VAC	100A @ 250VAC 50A @ 100VDC	100A @ 250VAC	60A @ 600VAC	150A @ 250VAC/VDC 100A @ 350VAC/VDC	100A @ 350VAC	1500A @ 277VAC/VDC
Characteristics / Agency Approvals																						
Very Fast Acting	—	—	—	—	—	—	231 (500VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fast Acting UL	373 (250VAC)	—	874 (250VAC)	224 (250VAC) 225 (250VAC)	—	235 (250VAC)	324/314 (250VAC)	312/318 (250 VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fast Acting IEC	370 (250VAC)	—	876 (250VAC)	—	216 (250VAC) 216SP (250VAC)	217 (250VAC)	—	—	—	—	—	—	—	—	—	—	464 (250VAC)	—	—	—	885 (350VAC)	—
Fast Acting UR	808 (250VAC)	242 (250VAC/VDC)	—	208 (350VAC) 220 (300VAC)	—	—	—	—	263 (250VAC)	—	202 (250VAC)	476 (250VAC)	—	—	463 (250VAC/100VDC)	485 (250VAC)	—	—	—	—	—	—
Medium Acting UL	—	—	—	—	—	201 (250VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
SLO-BLO <sup>®</sup> Fuse UL	374 (250VAC)	—	875 (250VAC)	229 (250VAC) 230 (250VAC)	—	233 (125VAC) 234 (250VAC)	326/325 (250VAC)	313/315 (250 VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Time Lag IEC	372 (250VAC) 382 (250VAC) 392 (250VAC) 400 (250VAC) 804 (250VAC)	—	877 (250VAC)	—	215 (250VAC) 215SP (250VAC) 835 (250VAC) 477 (500VAC)	218 (250VAC) 219XA high i <sub>2t</sub> (250VAC)	—	—	—	—	—	—	—	—	—	—	465 (250VAC)	—	462 (250VAC/VDC)	—	—	—
SLO-BLO <sup>®</sup> Fuse UR	369 (300VAC) 383 (300VAC) 807 (300VAC)	—	—	209 (350VAC)	—	—	—	—	—	—	203 (250VAC)	—	443 (250VAC)	443LC (280VAC)	—	—	—	462 (350VAC/VDC)	—	—	—	—
Electronic Ballast	—	—	—	—	—	—	—	—	447 (350VAC)	446 (350VAC)	—	—	—	—	—	—	—	—	—	—	—	—
420VAC/VDC	—	—	—	—	487 (420VAC/VDC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
300VAC	—	—	—	—	—	—	328 (300VAC/100VDC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
500VAC	—	—	—	—	477 (500VAC) 977 (500VAC)	—	504 (500VAC) 505 (500VAC) 514 (500VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
600VAC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	461 (600VAC)	—	—	—	—
1000VAC	—	—	—	—	—	—	508 (1000VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Audio	—	—	—	—	285 (250VAC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hazardous Area Protection	—	242 (250VAC/VDC) 305 (277VAC/277VDC)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	304 (277VAC/VDC)	—	304 (277VAC/VDC)

\*Rating may vary by voltage and current rating. Refer to the datasheet for all values.



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