

FUSE SELECTION GUIDE

A quick reference guide to selecting fuses for electronic applications

Max. Voltage		< 250VAC/VDC															
Mounting	Surface Mount Fuses											Through-Hole					
Fuse Type	NANO2 [®] Fuse				Thin Film Fuse					Ceramic Chip Fuse		PICO [®] SMF Fuse	PICO [®] Fuse	TE	MICRO [™] Fuse	Hazardous Area Fuse	
Footprint	1206	2410	Fuse/FH Assy. (2410)	4012	12.5 × 10mm	0402	0603	1206	1206	0603	1206	1206	7.24 × 4.32 × 3.05 mm				13 × 8mm
Body Material	Ceramic	Ceramic	Ceramic/Thermoplastic/Metal	Ceramic	Thermoplastic	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 depending on series	62mA to 10A	20A to 40A	60A to 100A	250 mA to 5A	250 mA to 5A	7A	125mA to 10A depending on series	250mA to 6A depending on series	250mA to 8A depending on series	10A to 20A	62mA to 5A depending on series	62mA to 30A depending on series	50mA to 6.3A	2mA to 5A	0.062A to 5A
Interrupt Rating	50A @ 32VAC up to 50A @ 48VAC 50A @ 63VDC up to 50A @ 75VDC	50A @ 65VAC up to 50A @ 125VAC 50A @ 65VDC up to 50A @ 1245VDC 300A @ 24VDC up to 100A @ 75VDC	50A @ 125VAC/VDC 300A @ 32VDC	100A @ 125VAC 180A @ 72VDC up to 500A @ 72VDC depending on rating	1500A @ 75VDC	35A @ 32VDC	35A @ 32VAC/VDC	35A @ 24VAC/VDC	35A @ 24VAC/VDC up to 50A @ 63VAC/VDC depending on rating	50A @ 24VDC up to 50A @ 32VDC depending on rating	50A @ 24VAC/VDC up to 50A @ 63VAC/VDC depending on rating	150A @ 32VDC	50A @ 125VAC 50A @ 125VDC up to 300A @ 125VDC depending on rating	50A @ 32VAC up to 50A @ 125VAC 300A @ 32VDC	100A @ 125VAC	10kA @ 125VAC/VDC	50A @ 125VAC 300A @ 63VDC up to 300A @ 125VDC depending on rating
Characteristics / Agency Approvals																	
Fast Acting UL		451/453 (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)	154 (125VAC/VDC) 157 (125VAC/VDC)	456 (125 VAC/72 VDC)	881 (75VDC)	435 (32VDC)	467 (32VAC/VDC)	429007.L (24VAC/VDC)	466 (63VAC/VDC)	438 (32VDC)	437 (63VAC/VDC) 441 (32VDC)	501 (32VDC)	459 (125VAC/VDC)	251 (125VAC/VDC) 275 (32VAC/VDC)		272 (125VAC/VDC) 273 (125VAC/VDC)	
SLO-BLO [®] Fuse UL															396 (125VAC)		
Time Lag IEC																	
SLO-BLO [®] Fuse UR		452/454 (125VAC/VDC) 449 (125VAC/VDC)	154T (125VAC/VDC) 157T (125VAC/VDC)						468 (63VAC/VDC)		469 (63VAC)		460 (125VAC/VDC)	471 (125VAC/VDC) 472 (125VAC/VDC) 473 (125VAC/VDC)			
Hazardous Area Protection																	259 (125VAC/VDC) 259.UL.913 (125VAC/VDC)

Max. Voltage		≥250VAC																	
Mounting	Through-Hole / Fuseholder								Surface Mount Fuses										
Fuse Type	TR/TE	Barrier	Cartridge						PICO® Fuse	EBF	EBF	FLAT-PAK® Fuse	NANO 2® Fuse						
Footprint			3.6mm x 10mm	4.5mm x 15mm (2 AG)	5 x 20mm			6 x 32mm (3 AG/3 AB)					6.35 x 10.16mm	10.1 x 3.12mm	10.1 x 3.12mm	10.1 x 3.12mm	12.1 x 4.5mm	10.1 x 3.12mm (Telecom Nano)	10.5 x 4.5mm
Body Material	Thermoplastic	Ceramic	Ceramic	Glass	Ceramic	Glass	Ceramic	Glass	Cermic body coated in epoxy	Thermoplastic	Thermoplastic	Thermoplastic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Thermoplastic
Current Rating	40mA and up to 10A depending on series	50mA to 750mA depending on series	50mA to 10A depending on series	100mA to 10A depending on series	50mA to 20A depending on series	32mA to 16A depending on series	125mA to 40A depending on series	10mA to 30A depending on series	62mA to 5A	2A to 10A	2A to 10A	62mA to 5A depending on series	500mA to 5A	500mA to 5A	15A to 30A	250mA to 6.3A depending on series	500mA to 2A	500mA to 5A	
Interrupt Rating	35A @ 250VAC up to 100A @ 300VAC depending on rating	1500A @ 277VAC/VDC up to 4000A @ 250VAC/VDC depending on rating	35A @ 250VAC up to 63A @ 250VAC depending on rating	400A @ 125VAC up to 100A @ 350VAC depending on rating	400A @ 250VAC up to 1500A @ 250VAC or 200A @ 420VAC or 100A @ 500VAC depending on rating	35A @ 250VAC up to 200A @ 250VAC, 10kA @ 125VAC depending on rating	35A @ 250VAC up to 1000A @ 250VAC or 1000A @ 500VAC up to 20kA @ 450VAC or 10kA @ 1000VAC depending on rating	300A @ 32VAC up to 200A @ 250VAC depending on rating	50A @ 250VAC	100A @ 350VAC	100A @ 350VAC	50A @ 250VAC	50A @ 250VAC	50A @ 280VAC	100A @ 250VAC 50A @ 100VDC	100A @ 250VAC	60A @ 600VAC	150A @ 250VAC/VDC up to 100A @ 350VAC/VDC depending on rating	
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 (250VAC)											
Fast Acting IEC	370 (250VAC)		876 (250VAC)		216 (250VAC) 216SP (250VAC)	217 (250VAC)											464 (250VAC)		
Fast Acting UR	808 (250VAC)	242 (250VAC/VDC)		208 (350VAC) 220 (300VAC)					263 (250VAC)			202 (250VAC)			463 (250VAC/100VDC)	485 (250VAC)			
Medium Acting UL						201 (250VAC)													
SLO-BLO® Fuse UL	374 (250VAC)		875 (250VAC)	229 (250VAC) 230 (250VAC)		233 (125VAC) 234 (250VAC)	326/325 (250VAC)	313/315 (250VAC)											
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 _{2t} (250VAC)										465 (250VAC)		462 (250VAC/VDC)	
SLO-BLO® Fuse UR	369 (300VAC) 383 (300VAC) 807 (300VAC)			203 (350VAC)								203 (250VAC)	443 (250VAC)	443C (280VAC)				462 (350VAC/VDC)	
Electronic Ballast 420VAC/VDC					487 (420VAC/VDC)						447 (350VAC)	446 (350VAC)							
300VAC								328 (300VAC/100VDC)											
500VAC					477 (500VAC) 977 (500VAC)			505 (500VAC)											
600VAC																			461 (600VAC)
1000VAC								508 (1000VAC)											
Audio					285 (250VAC)														
Hazardous Area Protection		242 (250VAC/VDC) 305 (277VAC/277VDC)																	

Max. Voltage		DC Protection ≥ 250 VDC					
Mounting	Through-Hole			Surface Mount Fuses			
Fuse Type	Cartridge			TE	NANO 2® Fuse		
Footprint	5 x 20mm	6x25mm	6 x 32mm		10.5 x 4.5mm	12.1 x 4.5mm	
Body Material	Ceramic	Ceramic	Ceramic	Thermoplastic	Thermoplastic	Ceramic	
Current Rating	500mA to 20A depending on series	5A to 40A	315mA to 30A depending on series	1A to 5A	500mA to 5A	500mA to 3.15A	
Interrupt Rating	400A @ 400VDC up to 1500A @ 400VDC or 300A @ 420VDC or 200A @ 450VDC depending on rating	5 to 40A 2500A @ 70VDC 40A 1500A @ 250VAC	1000A @ 250VDC up to 10kA @ 1000VDC depending on rating	10ka @ 250VDC up to 10kA @ 450VDC	150A @ 250 VDC 100 A @ 350 VDC	100A @ 600 VDC	
Characteristics/Agency Approvals							
70VDC		688 (70 VDC)					
250VDC				808 (250 VDC to 450 VDC)	462 (250 VDC)		
420VDC	487 (420VDC)		504 (420VDC)				
450VDC				808 (250 VDC to 450 VDC)			
400VDC Time Lag IEC	477 (400 VDC)						
450VDC Time Lag IEC	977 (450 VDC)						
500VDC			505 (500 VDC)				
600VDC			506 (600 VDC)				
1000VDC			508 (1000 VDC)		485 (600 VDC)		

NOTE:

This tool should ONLY be used as a quick reference guide to suggest a starting point in the overcurrent selection process. After the initial parts have been selected, the designer should reference the below link titled Fuseology. The Fuseology document includes a Step-by-Step selection process to select the correct fuse for the application. Once a part has been selected, the designer should retrieve the actual datasheet from Littelfuse.com. Littelfuse always recommends that application testing be conducted to verify the correct part selection.

In order to use this quick reference guide, the designer just has to know a few of the key parameters such as Max Voltage, Rated Current, Interrupting Rating, Mounting Type, Footprint, Fast Acting or Time Lag, and Safety Certifications.

Fuseology-Fuse Characteristics, Terms and Consideration Factors:
http://www.littelfuse.com/data/en/Product_Selection_Guides/Fuseology.pdf

