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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	**NANO 2® Fuse**					**Thin Film Fuse**				**Ceramic Chip Fuse**			**PICO® SMF Fuse**	**PICO® Fuse**	**TE**	**MICRO™ Fuse**	**Hazardous Area Fuse**
							–55°C to 90°C				–55°C to 150°C						
Footprint	1206	1206	2410	Fuse/FH Assy. (2410)	4012	0402	0603	1206	1206	0603	1206	1206	7.24 × 4.32 × 3.05 mm				13 × 8mm
Body Material	Ceramic	FR4	Ceramic	Ceramic/ Thermoplastic/ Metal	Ceramic	FR4	FR4	FR4	FR4	Ceramic	Ceramic	Ceramic	Thermoplastic	Ceramic body coated in epoxy	Thermoplastic	Metal/ Thermoplastic	Polyamide
Current Rating	1A to 10A	500 mA to 2A	62 mA to 20A depending on series	62 mA to 10A	20A to 40A	250 mA to 5A	250 mA to 5A	7A	125 mA to 10A depending on series	250 mA to 6A depending on series	250 mA to 8A depending on series	10A to 20A	62 mA to 5A depending on series	62 mA to 30A depending on series	50 mA to 6.3A	2 mA to 5A	0.062A to 5A
Interrupt Rating	50A @ 32VAC up to 50A @ 48VAC 50A @ 63VDC up to 50A @ 75VDC	50A @ 125VAC/VDC 300A @ 32VDC	50A @ 65VAC up to 50A @ 125VAC 50A @ 65VDC up to 50A @ 1245VDC 300A @ 24VDC up to 100A @ 75 VDC	50A @ 125VAC/VDC 300A @ 32VDC	100A @ 125VAC 180A @ 72VDC up to 500A @ 72VDC depending on rating	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	10 kA @ 125VAC/VDC	50A @ 125VAC 300A @ 63VDC up to 300A @ 125VDC depending on rating
	Characteristics / Agency Approvals																
Fast Acting UL		470 (125VAC/VDC)	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)	435 (32VDC)	467 (32VAC/ VDC)	429007.L (24VAC/ VDC)	466 (63VAC/VDC)	438 (32VDC) 441 (32VDC)	437 (63VAC/VDC) 440 (32VAC/VDC)	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 × 10mm	4.5mm × 15mm (2 AG)	5 × 20mm		6 × 32mm (3 AG/3 AB)					6.35 × 10.16mm	2410	10.1 × 3.12mm	10.1 x 3.12 mm	12.1 × 4.5mm	10.1 × 3.12mm (Telecom Nano)	10.5 × 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	Thermoplastic
Current Rating	40 mA and up to 10 A depending on series	50mA to 750mA depending on series	50mA to 10 A depending on series	100mA to 10 A depending on series	50mA to 20 A depending on series	32mA to 16 A depending on series	125mA to 40 A depending on the series	10mA to 30 A depending on series	62mA to 5 A	2 A to 10 A	2 A to 10 A	62mA to 5 A depending on series	1A to 15A	500 mA to 5A	15A to 30A	250mA to 6.3 A depending on series	500 mA to 2 A	500mA to 5 A
Interrupt Rating	35A @ 250VAC up 100A @ 300VAC depending on rating	1500A @ 277VAC/VDC up to 4000 A @ 250VAC/VDC depending on rating	35 A @ 250VAC up to 63 A @ 250VAC depending on rating	400 A @ 125VAC up to 100 A @ 350VAC depending on rating	400 A @ 250VAC up to 1500A @ 250VAC or 200 A @ 420VAC or 100 A @ 500VAC depending on rating	35 A @ 250VAC up to 200 A @ 250VAC, 10kA @ 125VAC depending on rating	35 A @ 250VAC up to 1000 A @ 250VAC or 1000A @ 500VAC up to 20ka @ 450VAC or 10ka @ 1000VAC depending on rating	300 A @ 32VAC up to 200 A @ 250VAC depending on rating	50 A @ 250VAC	100 A @ 350VAC	100 A @ 350VAC	50 A @ 250VAC	100 A @ 250VAC 300 A @ 125VDC 10,000A @ 86VDC depending on rating	50 A @ 250VAC	100 A @ 250VAC 50 A @ 100VDC	100 A @ 250VAC	60 A @ 600VAC	150 A @ 250VAC/ VDC up to 100 A @ 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 (250 VAC)					476 (250VAC/125VDC)					
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 (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 i2t (250VAC)										465 (250VAC)		462 (250VAC/VDC)
SLO-BLO® Fuse UR	369 (300VAC) 383 (300VAC) 807 (300VAC)			209 (350VAC)								203 (250VAC)		443 (250VAC)				462 (350VAC/VDC)
Electronic Ballast										447 (350VAC)	446 (350VAC)							
420VAC/VDC					487 (420VAC/VDC)													
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 × 20mm	6x25mm	6 × 32mm		10.5 × 4.5mm	12.1 × 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)			485 (600 VDC)
1000VDC			508 (1000 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

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