



**GRAINGER INTERNATIONAL, INC.
GLOBAL SOURCING DIVISION**

-- GGS TECHNICAL SPECIFICATION --

TECHNICAL SPECIFICATION NUMBER:
22UY58_TSREV0

GGS SKU(s):
See 4.2

PRODUCT DESCRIPTION:
Midget Fuse

PROGRAM NAME:
Midget Fuse

1.0 PRODUCT DESCRIPTION	See 4.2
Application	22UY58~22UY76: Supplemental protection of lighting, solenoid, motor, and transformer circuits ; 22UY84~22UZ04: Protect high inrush control transformer, solenoids, inductive loads, lighting, heating and general-purpose loads

2.0: BRAND	Power First
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3.0 PRODUCT IMAGE(S)		
	Representative image for 22UY58~22UY76	Representative image for 22UY84~22UZ04

NOTE: Product photos are shown for display purposes only and may not be representative of the actual product. The product is to be manufactured according to the specific requirements listed in Sections 4.0 PRODUCT REQUIREMENTS through 9.0 IMPORTANT NOTES AND CONDITIONS and the included technical drawings.

4.0 PRODUCT REQUIREMENTS
4.1 Key Product Attributes
22UY58~22UY80: Supplemental Fuses meet CAN/CSA C22.2 No. 248.1/14 & UL 248-1 and UL248-14
22UY84~22UZ04 : Class CC fuses are non-renewable and current limiting, meet CAN/CSA C22.2 No. 248.1 /4&UL 248-1 and UL248-4

4.2 Properties / Performance / Reliability	Requirement
Fuse Type	Time Delay
Body Style	Cylindrical

SKU	Supplier MFR Model No	Description	Voltage Rating	Fuse Amps	Element	Interrupt Rating	Length (±0.03")	Diameter (±0.004")	Functionally Equal To
22UY58	HC10S1U5	Fuse 1A 500V	500V AC	1A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY59	HC10S1.25U5	Fuse 1.25 500V	500V AC	1.25 A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY60	HC10S1.5U5	Fuse 1.5A 500V	500V AC	1.5A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY61	HC10S1.6U5	Fuse 1.6A 500V	500V AC	1.6A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY62	HC10S2U5	Fuse 2A 500V	500V AC	2A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY63	HC10S2.5U5	Fuse 2.5A 500V	500V AC	2.5A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY64	HC10S3U5	Fuse 3A 500V	500V AC	3A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ

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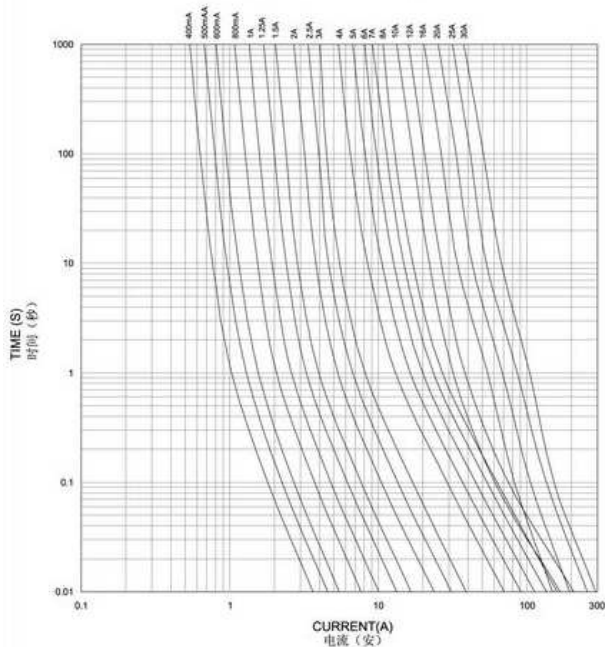
SKU	Supplier MFR Model No	Description	Voltage Rating	Fuse Amps	Element	Interrupt Rating	Length (±0.03")	Diameter (±0.004")	Functionally Equal To
22UY65	HC10S3.5U5	Fuse 3.5A 500V	500V AC	3.5A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY66	HC10S4U5	Fuse 4A 500V	500V AC	4A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY67	HC10S5U5	Fuse 5A 500V	500V AC	5A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY68	HC10S6U5	Fuse 6A 500V	500V AC	6A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY69	HC10S7U5	Fuse 7A 500V	500V AC	7A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY70	HC10S8U5	Fuse 8A 500V	500V AC	8A	Dual	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY71	HC10S10U5	Fuse 10A 500V	500V AC	10A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY72	HC10S12U5	Fuse 12A 500V	500V AC	12A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY73	HC10S15U5	Fuse 15A 500V	500V AC	15A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY74	HC10S20U5	Fuse 20A 500V	500V AC	20A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY75	HC10S25U5	Fuse 25A 500V	500V AC	25A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY76	HC10S30U5	Fuse 30A 500V	500V AC	30A	Single	10kA at 500V AC	1-1/2"	13/32"	Ferraz/ATQ, Littelfuse/FLQ,Bussmann/FNQ
22UY84	HC10SR1U6	Fuse 1A 600V	600V AC	1A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY85	HC10SR1.25U6	Fuse 1.25A 600V	600V AC	1.25A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY86	HC10SR1.5U6	Fuse 1.5A 600V	600V AC	1.5A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY87	HC10SR1.6U6	Fuse 1.6A 600V	600V AC	1.6A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY88	HC10SR2U6	Fuse 2A 600V	600V AC	2A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY89	HC10SR2.5U6	Fuse 2.5A 600V	600V AC	2.5A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY90	HC10SR3U6	Fuse 3A 600V	600V AC	3A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY91	HC10SR3.5U6	Fuse 3.5A 600V	600V AC	3.5A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY92	HC10SR4U6	Fuse 4A 600V	600V AC	4A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY93	HC10SR5U6	Fuse 5A 600V	600V AC	5A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY94	HC10SR6U6	Fuse 6A 600V	600V AC	6A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R
22UY95	HC10SR7U6	Fuse 7A 600V	600V AC	7A	Dual	200kA at 600V AC	1-1/2"	13/32"	Bussmann/FNQ-R

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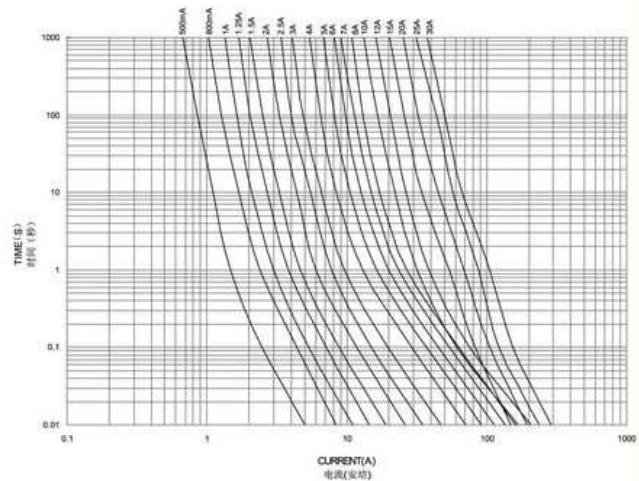
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SKU	Supplier MFR Model No	Description	Voltage Rating	Fuse Amps	Element	Interrupt Rating	Length (±0.03")	Diameter (±0.004")	Functionally Equal To
22UY96	HC10SR 8U6	Fuse 8A 600V	600V AC	8A	Dual	200kA at 600V AC	1-1/2"	13/32"	Busmann/FNQ-R
22UY97	HC10SR 9U6	Fuse 9A 600V	600V AC/300V DC	9A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UY98	HC10SR 10U6	Fuse 10A 600V	600V AC/300V DC	10A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UY99	HC10SR 12U6	Fuse 12A 600V	600V AC/300V DC	12A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UZ01	HC10SR 15U6	Fuse 15A 600V	600V AC/300V DC	15A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UZ02	HC10SR 20U6	Fuse 20A 600V	600V AC/300V DC	20A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UZ03	HC10SR 25U6	Fuse 25A 600V	600V AC/300V DC	25A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R
22UZ04	HC10SR 30U6	Fuse 30A 600V	600V AC/300V DC	30A	Single	200kA at 600V AC, 10kA at 300V DC	1-1/2"	13/32"	Busmann/FNQ-R

HC10S平均I-T曲线图 (仅供参考)
HC10S AVERAGE I-T CHARACTERISTICS CURVE (FOR REFERENCE)



HC10SR平均I-T曲线图 (仅供参考)
HC10SR AVERAGE I-T CHARACTERISTICS CURVE (FOR REFERENCE)



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电气特性 ELECTRICAL CHARACTERISTICS:

额定电流的% % of CURRENT RATING	熔断时间 BLOWING TIME	
100%	最快4小时 4 hours Min.	
135%	最慢1小时 1 hour Max.	
200%	300mA-3A	5-120秒 5-120seconds
	3.15A-30A	12-120秒 12-120seconds

22UY58~22UY80

电气特性ELECTRICAL CHARACTERISTICS:

额定电流的% % OF CURRENT RATING	熔断时间 BLOWING TIME
110%	最快15分钟 15 minutes Min.
135%	最慢1小时 1 hour Max.
200%	12秒-4分钟 12 seconds - 4 minutes

22UY84~22UZ04

4.3 Materials / Construction	Requirement
Body material	Ceramic
Ferrule Material	22UY58~22UY76 Silver plated brass; 22UY84~22UZ04 Nickel plated brass

4.4 Finish / Color	Requirement
All Surface Finishes	a) Surface finishes must be uniform and continuous. The surface finish must not exhibit any visual defects such as breakage, dents, burnishing, blisters, rust, corrosion, mold, scratches, peeling, bubbles, or cracking. b) All exposed surfaces must be free of burrs and sharp edges. c) All applied finishes must adhere to the surface and show no signs of delamination or peeling. d) All painted or coated surface finishes must be lead-free. Test report must be submitted to GGS Compliance Department (ggscompliance@grainger.com).
Color	White

4.5 Labels or Printing Applied to Product	Requirement
Appearance of all Labels and/or Printing	All labels must be applied straight and even without any air-bubbles or creases. The labels must adhere uniformly to the surface. Any surface printing must be permanent and legible without pinholes, smearing, or other such defects that would render the print unreadable.
Bar Code Label	Also see Sections 8.0, 8.1
Product data to be marked on base.	cUL, UL logo to be marked. Voltage/Amp rating, Interrupt Rating, "Time Delay", models
Country of origin	Made in China shall be marked on products or sell packages.

4.6 Product Packaging	Requirement
Product Packaging (including Master Pack, Inner Pack, and Sell Pack): Ship Test Integrity & Durability See Section 2.2 of the GGS Supplier Handbook for General Shipping & Packaging Requirements	a) All products must be securely packaged in such a manner as to pass the ISTA 1A or 1B (refer to www.ista.org) shock/drop test or other GGS Engineering defined tests as outlined in this specification. These tests simulate repeated product handling and shipping by sea, air, rail and truck. b) The product must be packaged and protected as necessary to prevent any shipping damage that may be incurred by abrasion, corrosion, moisture (humidity or condensation), vibration and/or shock. c) Upon receipt at GGS, all packaging must be intact and all product components must remain functional and firmly attached to the product as when the unit was originally built. There shall be no evidence of breakage, dents, burnishing, blisters, rust, corrosion, mold, scratches, peeling, bubbles, or cracking. d) All wooden pallets and wooden crates must be checked for moisture content. The moisture content reading must be below 22% to prevent mold developing.
Special Packaging Requirements	

5.0 ACCESSORIES TO BE INCLUDED WITH THE PRODUCT

Description	Quantity / Notes
OIPM, Instruction Sheet, Separate Parts, Assembly Drawings, etc.	No

6.0 AGENCY CERTIFICATION & REGULATORY COMPLIANCE

6.1 Agency Certification	Requirement
cUL, UL listed (22UY58~22UY76); cULus listed (22UY84~22UZ04)	22UY58~22UY76: Supplemental Fuses meet CAN/CSA C22.2 No. 248.1/14 & UL 248-1 and UL248-14; UL file E156471

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	22UY84~22UZ04 : Class CC fuses are non-renewable and current limiting, meet CAN/CSA C22.2 No. 248.1 / .4&UL 248-1 and UL248-4; UL file E346810
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6.2 Regulatory Compliance	Requirement
Product must comply with RoHS	Products meet the limits per ROHS DIRECTIVE (2002/95/EC) NOTE: Supplier must submit proof of agency certification, test report and/or Certificate of Conformance (COC) to the GGS Compliance Department at ggscompliance@granger.com before the product is put into commerce.

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-----**INFORMATION BELOW FOR INTERNAL AND SUPPLIER USE ONLY**-----

7.0 PACKAGING, ARTWORK, BAR CODES, CARTON LABELS, AND CARTON MARKINGS

Refer to the GGS Supplier Handbook for specific information regarding bar code labels and packaging. The GGS Supplier Handbook can be found on the GGS Supplier Connect Website, located at www.supplierconnect.com/ggs/. Suppliers should contact their GGS Procurement representative for assistance in obtaining the current version of the GGS Supplier Handbook.

The packaging, artwork, bar codes, carton labels and carton markings are subject to quality control and inspection, and must meet the requirements given in Section 2.0 of the GGS Supplier Handbook.

Products labeled, marketed, and/or sold with Grainger's exclusive brands are subject to the requirements given in their respective brand identity standards.

Package quantities, dimensions, and weights are also subject to review against the Official Product Detail.

All bar codes, labels, carton markings, artwork, and packaging must be approved by GGS prior to the first shipment. Any subsequent changes must also be approved by GGS prior to implementation.

8.0 QUALITY AND INSPECTION REQUIREMENTS

- a) Prior to packaging, each unit shall be inspected and tested by the manufacturer for function, appearance and adherence to these specifications. The unit must function properly in accordance with the procedures and operations cited within the Operator's Manual (OIPM) and must be free of breakage, dents, burnishing, blisters, rust, corrosion, mold, scratches, peeling, bubbles, and cracking.
- b) If this is the first shipment of this product to GGS, GGS Engineering must approve production samples before the product is shipped to GGS. Refer to the *GGS Supplier Handbook* Section 7.0.

9.0 IMPORTANT NOTES AND CONDITIONS

- a) After approval of the initial Production Sample, **SUPPLIERS MUST COMMUNICATE ANY AND ALL PROPOSED PRODUCT or FACTORY CHANGES TO GGS ENGINEERING PRIOR TO MAKING ANY CHANGES TO THE PRODUCT.** No product changes can be made or accepted without prior communication with GGS Engineering.
- b) Refer to the *GGS Supplier Handbook* for additional information regarding packaging, shipping, carton markings, bar-code labels, quality and GGS contact information. Contact your local GGS Procurement representative to obtain a copy of the GGS Supplier Handbook.

10.0 REVISION HISTORY

Rev. No.	Rev. Date	Description of Revision	Revised By & Title	Approved By & Title
0	2013-8-30	INITIAL RELEASE	Sherry Wu/PE	

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