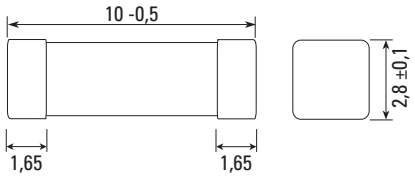
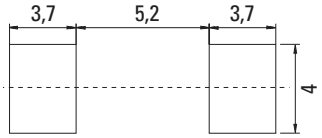
TTP / No. 457

Dimensions (mm)



Chip Size 10030

Pad Layout



Telecom Protector, 250V/600V

Overcurrent Protection for Telecom Equipment

Time-Current Characteristic
Transient Tolerant

Applicable Standards
UL 1950/60950 3rd Edition
Telcordia (Bellcore) GR-1089
FCC 47 CFR Part 68
ITU-T K. 20, K.21 and K.45.

Approvals
cULus Recognized: File No. E 67006

Features

Surge proof for telecom line applications
No need for series resistors (1.25A & 2.00A)
Reduced PCB space requirements
Lead-free construction
Flame resistant ceramic housing
Irreversible physical separation under fault
Highly defined cut-off times
Low internal resistance minimizes line losses

WebLinks

Data Sheet - latest version
www.wickmannusa.com/products/457.pdf

Approval Certificates
www.wickmannusa.com/approvals

Packaging
www.wickmannusa.com/pack

Telcom Standards
www.wickmannusa.com/download/teleguide.pdf

Specifications

Packaging Code and Info
000: 2500 pcs./330mm reel (Blister Tape)
001: 500 pcs./178mm reel (Blister Tape)

Materials
Housing: Ceramic tube
Element: Wire
Terminals: Copper, nickel & silver plated

Operating Temperature
-40°C to +125°C (consider de-rating)

Climatic Test
Damp heat, steady state
40°C/93%/21 days (IEC 60068-2-3)

Stock Conditions
+10°C to +60°C
relative humidity ≤ 75% yearly average,
without dew, maximum value for 30 days - 95%

Recommended Soldering
260°C, 3 sec. (Wave)
240°C, 30 sec. (Reflow)

Solderability
acc. to IEC 60068-2-58
235°C, 2 sec.

Soldering Heat Resistance
260°C, 10 sec. (IEC 60068-2-58)
280°C, 5 sec. (IEC 60068-2-58)

Recommended Solder Glue
Grace Amicon 125 F or equivalent

Minimum Cross Section, Copper
Conducting path - 0.175mm²
Path thickness - 0.035mm

Mounting
Avoid circuit traces below the 457.
457 should not be enclosed in potting materials.

Marking
Logo, Current Rating

Unit Weight
0.25g (approx.)

Operating Conditions

Type (I)	100% x I (W)	250% x I (W)
500mA ... 2.00A	> 4h	1 ... 120s

Permissible continuous operating current is ≤ 80% at ambient temperature of 23°C (73.4°F).

Type Code	Current	Voltage Rating	Interrupting Rating 50-60Hz, cos φ = 1.0 250VAC	Interrupting Rating 50-60Hz, cos φ = 1.0 600VAC	Voltage Drop 1.0 x I_{Rated} (W) max. (mV)	Cold Resistance 0.1 x I_{Rated} (W) max. (mΩ)	Melting Integral 10 x I_{Rated} (W) typ. (A²s)	Approval cURus
0500	500mA	250VAC	50A	60A	450	640	2	•
1250	1.25A	250VAC	50A	60A	250	150	16	•
1251	2.00A	250VAC	50A	60A	375	115	18	•

AC Power Fault Ratings

	UL 1950/60950 3rd Edition				Telcordia GR-1089 (2nd Level)			
Type Code	Test M1 600V/1.5s	Test M2 600V/5s	Test M3 600V/30min	Test M3 Max. ΔT (°C)	Test 1 277V/15min	Test 2 600V/5s	Test 3 600V/5s	Test 4 600V/15min
0500	40A	7A	2.2A	--	25A	60A	7A	2.2A
1250	40A	7A	2.2A	120	25A	60A	7A	2.2A
1251	40A	7A	2.2A	50	25A	60A	7A	2.2A

Lightning Surge Ratings

	FCC 47 CFR Part 68		Telcordia GR-1089 (1st Level)	
Type Code	Type A Metallic 800V/10x560µs/2 pulses	Type A Longitudinal 1500V/10x160µs/2 pulses	Test 3 1000V/10x1000µs/50 pulses	Test 4 2500V/2x10µs/20 pulses
0500	45A	70A	30A	N/A
1250 [1]	115A	160A	100A	500A
1251 [1]	115A	160A	100A	500A

[1] Contact WICKMANN for lightning surge test data per European telecom equipment standards - ITU-T K. 20, K.21 and K.45.

Order Information

Qty.	Order-Number	Series	Type Code	Pack. Code
		457		

Specifications are subject to change without notice.

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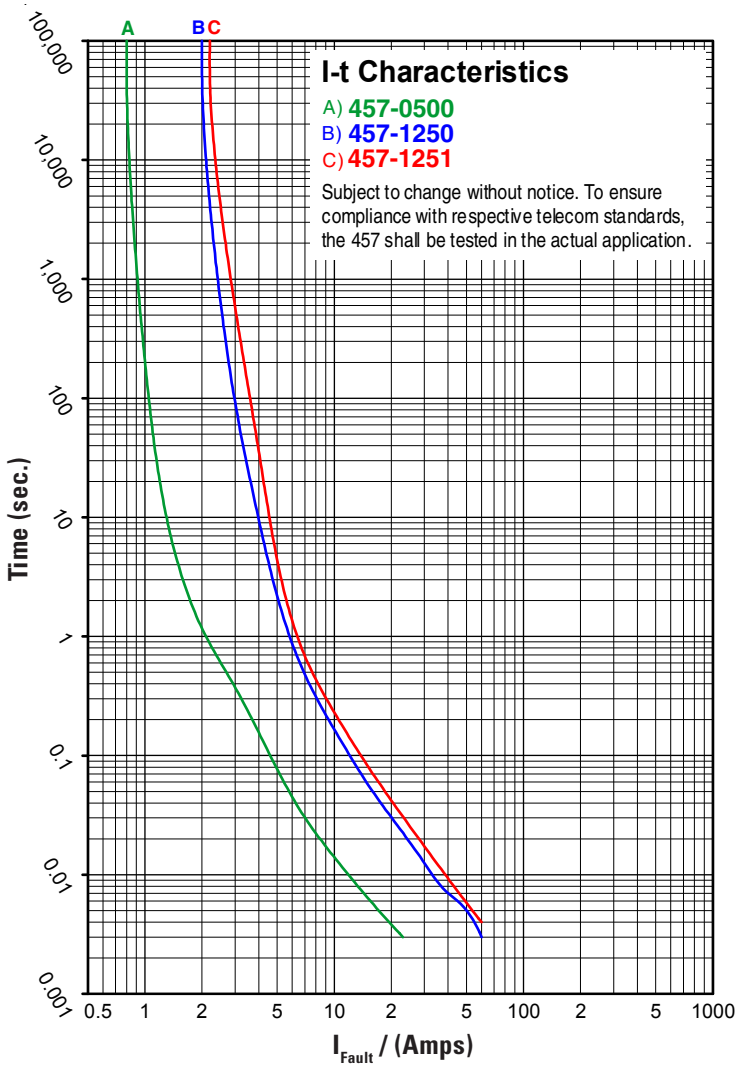
E-mail: sales@wickmann.com

• Americas Tel: +1 (404) 699-7820
E-mail: service@wickmannusa.com

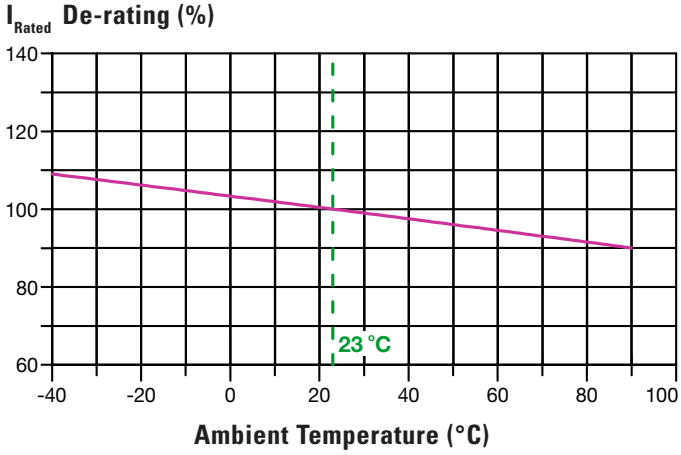
• Asia Tel: +852 26 14-1108
E-mail: sales@wickmann.com.hk

TTP / No. 457

Time-Current Characteristics



Thermal De-rating



Thermal De-rating Calculations

1) Estimate the maximum continuous ambient temperature measured 1cm from the fuse.

2) Determine the De-rating factor (%) from the curve above.

3) To calculate the minimum fuse current rating (I_{rated}) required, divide the measured continuous operating current of the circuit by the De-rating factor (%):

$$I_{\text{min. fuse current rating}} \geq \frac{I_{\text{Operating (Ambient)}}}{\%\ \text{De-rating}}$$

4) These calculations pertain only to fuse de-rating under varying ambient temperatures. Additional calculations for determining minimum fuse rating may also be required. Please also consider the applicable fuse standard (IEC vs. UL) and the presence of inrush or pulsing currents.

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