

Protection Application Guide for Telecommunications and Networking Devices

To use this guide, follow the steps below:

1. Select your equipment type from the guide below.
2. Use the Key Device Selection Criteria (time-to-open, surface temperature) to determine best suitability for your application.
3. Use Agency Specification / Selection Guide on the next page to select a specific part number for each application based on the agency requirements.

Application	Specification	Key Device Selection Criteria		
		Faster Time-To-Open	Cooler Surface Temperature	SiBar Thyristor Surge Protectors*
Customer premises equipment, IT equipment Analog modems, V.90 modems, ISDN modems, xDSL modems, ADSL splitters, phone sets, fax machines, answering machines, caller ID, internet appliances, PBX systems, POS terminals, wall plugs	UL 60950	FT600-0500	FT600-2000	TVBxxxSC-L
	TIA-968-A	FT600-1250		
Access network equipment Remote terminals, line repeaters, multiplexers, cross-connects, WAN equipment	Telcordia GR-1089 TIA-968-A	FT600-1250	FT600-2000	TVBxxxSC-L
Central office switching equipment Analog/POTS linecards, ISDN linecards, xDSL modems, ADSL/VDSL splitters, T1/E1 linecards, multiplexers, CSU/DSU, servers	Telcordia GR-1089 TIA-968-A	FT600-1250	FT600-2000	TVBxxxSC-L

Notes: This list is not exhaustive. Raychem Circuit Protection welcomes our customers' input for additional application ideas for overcurrent protection of telecom applications.
* For more information on Raychem Circuit Protection SiBar thyristor surge protectors.

Agency Specification/Selection Guide for FT600 Devices

Use the guide below to select FT600 devices appropriate for use in your application. The following pages contain specifications for part numbers recommended below. FT600 devices enable telecommunication equipment to meet the applicable protection requirements of these industry specifications. Refer to individual agency specifications for test procedures and circuit schematics. Users should independently evaluate the suitability of, and test each product for their application.

Family	Product	Lightning	Power Cross
FT600	FT600-0500	TIA-968-A (formerly FCC Part 68) - Type A & B	UL60950, 3rd Ed. - 600VAC, 40A
	FT600-1250	Telcordia GR-1089 - Level 1 and 2	Telcordia GR-1089 - 600 VAC, 40A
	FT600-2000	TIA-968-A	UL60950

Note: FT600-1250 and FT600-2000 are designed to assist equipment in complying with Telcordia GR-1089 specifications. In-circuit testing is strongly recommended.
The FT600-0500, FT600-1250 and FT600-2000 are designed to meet the UL60950 Power Cross and FCC TIA-968-A 68 lightning surge requirements. Note that Type A tests allow for an overcurrent protection component to fuse open during the surge.

Interrupt Voltage and Current Ratings for FT600 Devices

Part Number	Ampere Rating (A)	Voltage Rating (V)	Typical Resistance (Ω)	Typical I^2t (A^2S)*
FT600-0500	0.50	250	0.5	1
FT600-1250	1.25	250	0.1	16
FT600-2000	2.00	250	0.05	18

The FT600-xxxx devices are designed to carry 100% of rated current for 4 hours minimum and 250% of rated current for 1 second minimum, 120 seconds maximum.
Resistance measured at 10% of rated current.
* I^2t is calculated at 10 ms or less.

Figure FT1 - Thermal Derating Curve (Normalized) for FT600 Devices

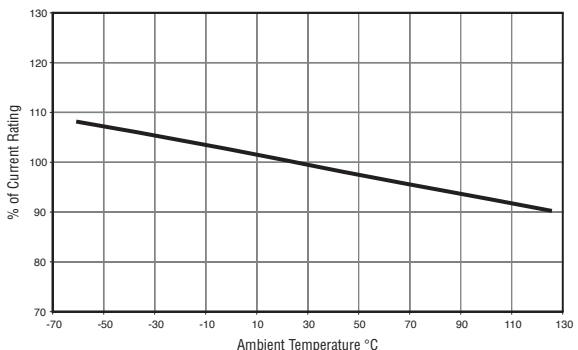


Figure FT2 - Dimension Figures for FT600 Devices

Figure FT2 - Product Dimensions

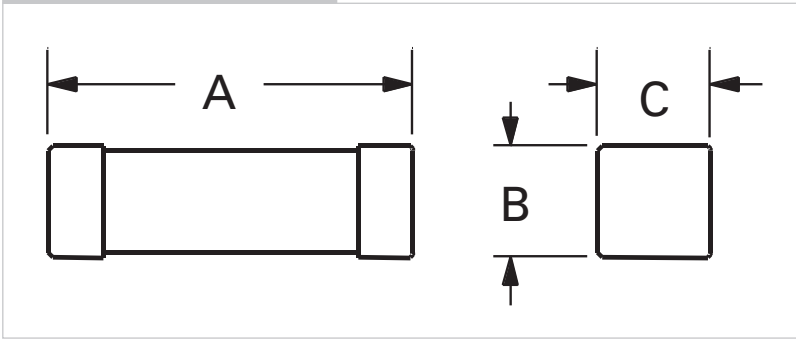


Table FT1 - Dimensions for FT600 Devices in Millimeters (Inches)

Part Number	Dimension A		Dimension B		Dimension C		Figure
	Min.	Max.	Min.	Max.	Min.	Max.	
FT600-0500	—	10.5 (0.413)	—	3.4 (0.133)	—	3.4 (0.133)	FT2
FT600-1250	—	10.5 (0.413)	—	3.4 (0.133)	—	3.4 (0.133)	FT2
FT600-2000	—	10.5 (0.413)	—	3.4 (0.133)	—	3.4 (0.133)	FT2

Figure FT3 - Typical Time-to-open Characteristics (at 20°C) for FT600 Devices

FT600

A = FT600-0500

B = FT600-1250

C = FT600-2000

Figure FT3

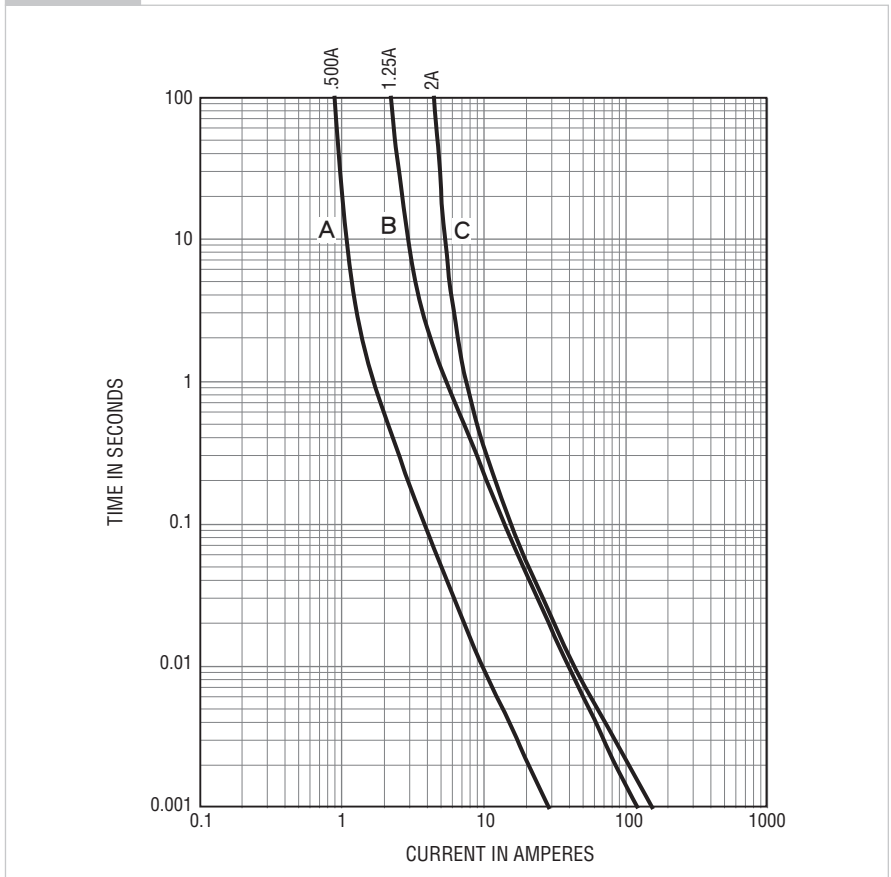


Table FT2 - Physical Characteristics and Environmental Specifications for FT600 Devices*

FT600 Physical Characteristics

Terminal material	Silver-plated brass*
Body material	Ceramic
Termination solderability	Per IEC-60127-4

*FT600 devices use high Pb content solder for internal construction. They are RoHS compliant.

Environmental Specifications

Test	Conditions
Solder heat withstand	Per MIL-STD-202, Method 210, Test Condition J
Solvent resistance	Per MIL-STD-202F, Method 215J
Storage temperature	-40/+85°C
Storage humidity	Per MIL-STD-202F, Method 106F

* FT600 devices use high Pb content solder for internal construction. They are RoHS compliant.

Table FT3 - Packaging and Marking Information for FT600 Devices

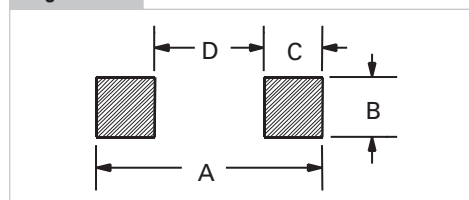
Part Number	Bag Quantity	Tape & Reel Quantity	Standard Package	Part Marking	Agency Recognition
FT600-0500-2	—	2,500	10,000	500	UL, CSA
FT600-1250-2	—	2,500	10,000	1250	UL, CSA
FT600-2000-2	—	2,500	10,000	2000	UL, CSA

Notes: The -2 designates tape and reel, the package style for this product.

Table FT4 - Recommended Pad Layouts for FT600 Devices in millimeters (inches) Nominal

Device	A	B	C	D	Figures for Dimensions
FT600-0500	12.6 (0.496)	4.0 (0.157)	3.7 (0.145)	5.2 0.204	4
FT600-1250	12.6 (0.496)	4.0 (0.157)	3.7 (0.145)	5.2 0.204	4
FT600-2000	12.6 (0.496)	4.0 (0.157)	3.7 (0.145)	5.2 0.204	4

Figure FT4



Solder Reflow and Rework Recommendations for FT600 Devices

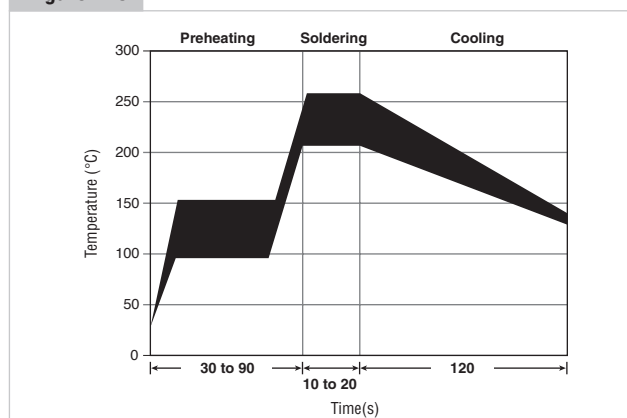
Solder Reflow:

- Recommended reflow methods: IR, vapor phase oven, hot air oven
- Devices can be cleaned using standard industry methods and solvents

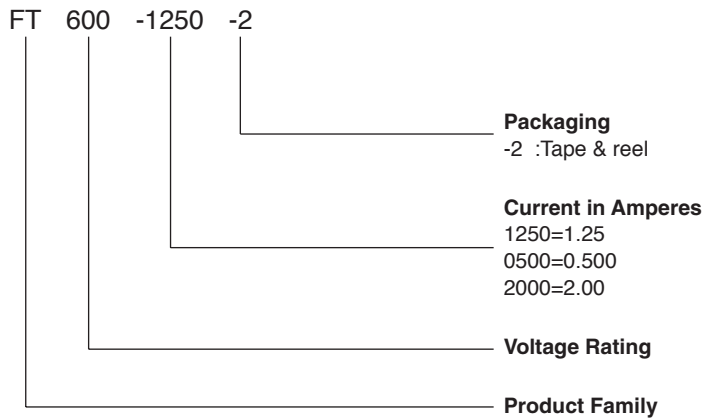
Rework:

- If a device is removed from the board, it should be discarded and replaced by a new device

Figure FT5



Part Numbering System for FT600 Devices



WARNING:

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