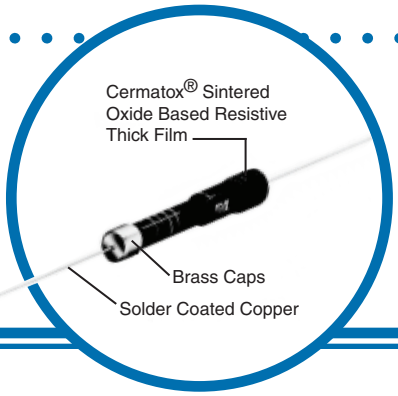
High Voltage Thick Film Resistor

TT electronics

F Series

- Termination variants
- Wide resistance range
- Good resistance stability
- Working voltage up to 28KV
- Sets available with matched characteristics
- Good ratio matching over wide voltage range
- Series connection of resistors by screw terminals



Electrical Data

IRC Type	Power Rating @ 20°C (watts)	Resistance Range (ohms)	Limiting Element Voltage (volts)		TCR (±ppm/°C) (values>1G: TCR is 250ppm/°C)	Resistance Tolerance (%) (measured at 100 volts dc)	Values (any value to special order)	Thermal Impedance (°C/watt)	Operating Temperature Range (°C)
			In Air	In Oil					
F43	0.7	2M to 100G	4K	8K	-2000	2, 5, 10	EIA 2% values preferred	44	-55 to 100
F44	1.3	2M to 150G	14K	28K	-2000	2, 5, 10		33	-55 to 100

CONSTRUCTION:
The Cermatox® sintered oxide based resistive thick film is fired onto the surface of a high quality ceramic onto which turned brass end caps are pressed. A helical cut is made into the film to adjust its ohmic value and finally a sleeve is fitted to provide mechanical protection and electrical insulation. Resistors for use in oil or SF_6 can be supplied with a lacquer protection instead of the sleeve.

TERMINATIONS:
Three styles of termination are available to permit resistors to be screwed together in a series chain, with the end members having axial wires for soldering.

Wire Terminations: Styles D and KU. See illustration.

Material: Solder-coated copper wire.

Screw Terminations: Styles D and KU. See illustration.

Material: Turned brass.

Screw Thread: All caps are tapped UNF-10 x 4.2 deep. UNF-10 is 32 TPI, 60° thread angle 4.72±0.07 mm outside diameter, 3.83 mm core diameter.

Coupling Stud: All KU & TU resistors are supplied with 8 mm long screwed brass studs.

MARKING:
Type reference, resistance value, tolerance and data code are legend marked.

SOLVENT RESISTANCE:
The lacquer and protective sleeve provide excellent resistance to all normal industrial cleaning solvents suitable for printed circuits.

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IRC
A subsidiary of TT electronics plc

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Environmental Data

Typical	Load @ Rated Power (1000 hrs @ 20°C) ΔR%	Shelf Life (12 months @ room temperature) ΔR%	Derating From Rated Power @ 20°C	Noise (μV/V in decade of frequency)	Voltage Coefficient of Resistance (ppm/volt)
	1	0.5	zero at 100°C	<2.5	<25

APPLICATION NOTES:

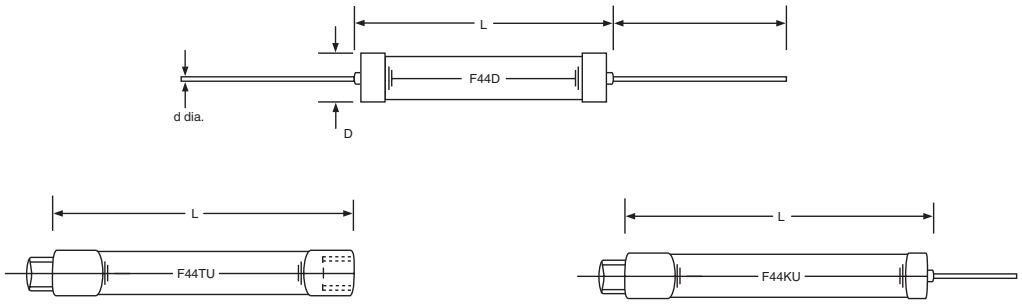
Due to the high voltage which can appear between the end cap and any adjacent metal part, resistors should be mounted at an adequate distance from other conductors.

Resistors may be screwed together as a stick to provide an assembly which will be capable of withstanding any desired voltage, providing no individual resistor is subjected to a greater stress or power dissipation than is recommended in this data sheet.

For some high voltage applications it is required to immerse the components in oil or gas to reduce the effects or corona and surface tracking. A special lacquer is available, suitable for immersion in transformer oil or SF_6. When resistors are required to be plotted, the preferred encapsulant is a silicone compound.

For voltage dividers with a low resistance section below the medium available value of an F43 resistor, it is entirely suitable to use an RC Series resistor, available down to 1 ohm.

Physical Data



Dimensions (Inches and (mm))

IRC Type	L max	D max	T min	d nom	PCB mounting centers	Min Bend Radius	Weight nom (g)
F43D	1.00 (25.4)	0.330 (8.4)	1.260 (32.0)	0.331 (0.8)	1.252 (31.8)	0.047 (1.2)	3.1
F44D	2.0 (50.8)	0.330 (8.4)	1.260 (32.0)	0.331 (0.8)	2.252 (57.2)	0.047 (1.2)	5.6
F43KU	1.19 (30.2)	0.335 (8.5)	1.260 (32.0)	0.331 (0.8)			3.9
F44KU	2.09 (53.2)	0.335 (8.5)					7.4
F43TU	1.28 (32.6)	0.335 (8.5)					5.8
F44TU	2.19 (55.6)	0.335 (8.5)					8.2

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MATCHED SETS:
Matched sets can be supplied for use as voltage dividers. These may be screwed together to form sticks and, by selecting the KU type of termination, a wire connection can be provided at each end of the stick.

Inquiries are welcome for special resistors and sets when resistor length, operating voltage or resistance values is outside the catalog range.

Ordering Data

Specify type, reference, etc. as indicated in this example of type F44KU, 6.8Ω, 2% resistor.