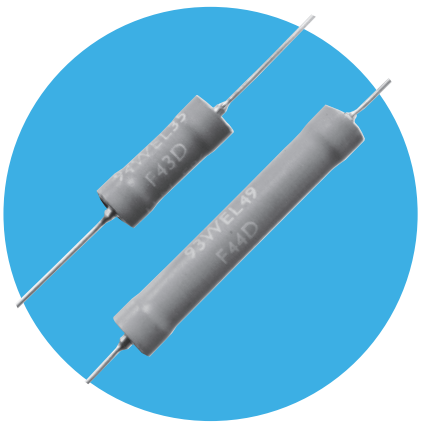
Resistors

High Voltage Thick Film Resistors

F Series

- Working voltage up to 28kV
- Resistance up to 150G
- Termination variants
- Sets supplied with matched characteristics
- Good ratio matching over wide voltage range



All Pb-free parts comply with EU Directive 2011/65/EU (RoHS2)

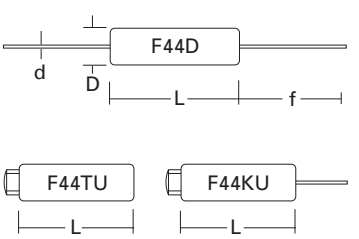
Electrical Data

		F43	F44	Notes
Power rating	watts	0.7	1.3	
Resistance range	ohms	2M to 100G	2M to 150G	
Limiting element voltage	volts	4K	14K	In air
	volts	8K	28K	In oil
TCR 20° - 70°C	ppm/°C	-2000		
Resistance tolerance	%	2, 5, 10		Measured at 100 volts dc
Standard values		E24 preferred		Any value to special order
Thermal impedance	°C/watt	44	33	
Ambient temperature range	°C	-55 to 100		

Physical Data

Dimensions (mm) & Weight (g)

Type	L max	D max	f min	d nom	PCB mounting centres	Min. Bend Radius	Wt. nom
F43D	25.4	8.4	32.0	0.8	31.8	1.2	3.1
F44D	50.8	8.4	32.0	0.8	57.2	1.2	5.6
F43KU	30.2	8.5	32.0	0.8			3.9
F44KU	53.2	8.5	32.0	0.8			7.4
F43TU	32.6	8.5					5.8
F44TU	55.6	8.5					8.2



General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.
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Construction
The Cermetox® thick film is fired on to the surface of a high quality ceramic former. Turned brass end caps are fitted. 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 SF6 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
Non standard wire terminations available upon request.

Material: Solder coated copper wire

Strength: The terminations meet the requirements of IEC 68.2.21.

Solderability: The terminations meet the requirements of IEC 115-1, Clause 4.17.3.2.

Screw Terminations: Styles TU and KU

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 date code are legend marked. The resistance values conform to IEC 62.

Solvent Resistance
The lacquer and protective sleeve provide excellent resistance to all normal industrial cleaning solvents suitable for printed circuits.

Performance Data

		Maximum	Typical
Load at rated power: 1000 hours at 20°C	ΔR%	5	1
Shelf life: 12 months at room temperature	ΔR%		0.5
Derating from rated power at 20°C		Zero at 100°C	
Noise (μV/V in a decade of frequency)			<2.5
Voltage coefficient of resistance	ppm/V		<25

Application Notes

Mounting
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 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 of corona and surface tracking. A special lacquer is available, suitable for immersion in transformer oil of SF6.

When resistors are required to be potted, the preferred encapsulant is a silicone compound.

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

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.

Enquiries are welcomed for special resistors and sets when resistor length, operating voltage or resistance vale is outside the catalogued range.

Packaging
All components are supplied in boxes.

Standard Quantities Per Box

All Types	10 or 20 per box

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Ordering Procedure

Example: F44 wire-ended and sleeved at 4.7 gigohms and 5% tolerance -

F 4 4 D – 4 G 7 J I

Type

Termination

D	Wire / wire
KU	Wire / screw
TU	Screw / screw

Protection

	Lacquered & Sleeved
H	Lacquered only (for use in oil or SF_6)

Value (use IEC62 code)

Tolerance (use IEC62 code)

G	2%
J	5%
K	10%

Packing

I	Box	10 or 20/box	Standard

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