4S2F

FERROXCUBE
A YAGEO COMPANY

Cost Effective EMI Suppression

Wide-band EMI suppression material specified on impedance and optimized for frequencies from 30 to 1000 MHz.

FERROXCUBE is a member of the Yageo Group, which is among the world's strongest suppliers of high quality passive components. As a leading supplier of ferrite components, FERROXCUBE has manufacturing operations, sales offices, and customer service centers all over the world.

We supply one of the broadest ranges of high-quality, innovative products and place strong emphasis on miniaturization of magnetic functions. Ferrite components and accessories from FERROXCUBE are used in a wide range of applications, from telecommunications and computing electronics through consumer electronic products to automotive.

FERROXCUBE offers a wide range of materials for different frequency bands, thermal conditions and type of noise to be suppressed, with complete data and characterization to ease the design process. Materials can be found in most appropriate shapes for its use: toroids for common mode chokes, cable shields, beads, rods and several ready to mount solutions like SMD beads, through hole wideband chokes and encapsulated cable shields.

Conducted interference through cables can now be suppressed at lower cost with Ferroxcube's new range of cable shields in 4S2F material. All the standard cable shielding shapes are available in 4S2F with similar performance to 4S2 such as tubular, round, and flat.

There is also available a designer kit so that you can test your several 4S2F alternatives in your equipment (designer kit ordering code: 43270322191)

Ferroxcube Designer Kit

A cable shield is necessary to prevent emission of electromagnetic waves from the cable respectively to protect data and signal conductors from external electromagnetic interference (EMI). Ferroxcube offers three types of cable shields.

4S2F

The Cost Effective Alternative for EMI Suppression

Material Specifications

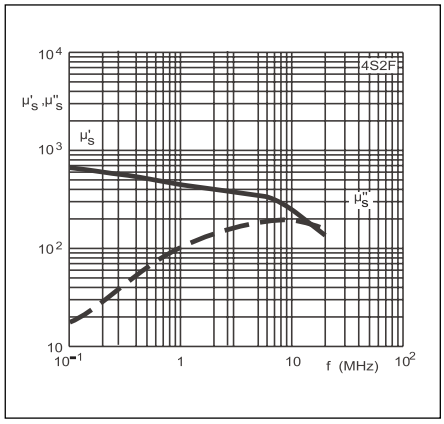

Fig. 1 Complex permeability as a function of frequency

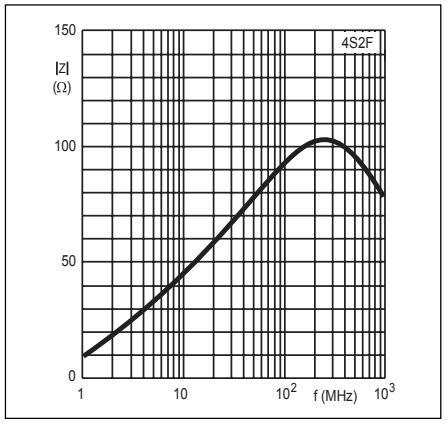

Fig. 2 Impedance as a function of frequency, measured on a bead ø5xø2x10 mm

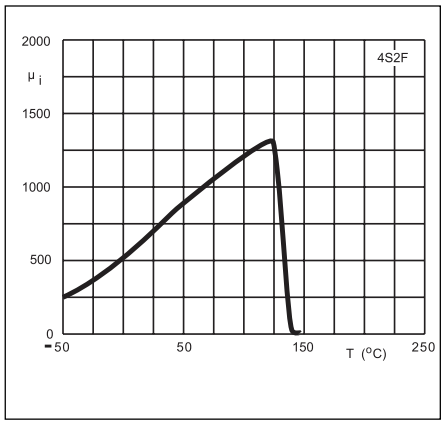

Fig. 3 Initial permeability as a function of temperature

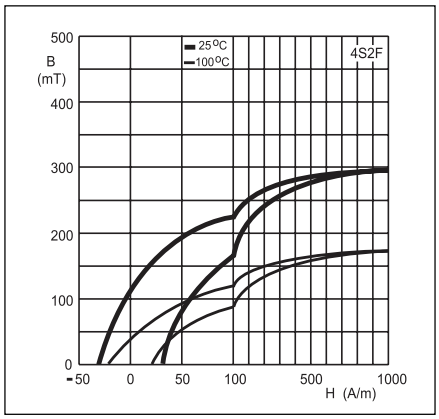

Fig. 4 Typical B-H loops

SYMBOL	CONDITION	VALUE	UNIT
μi	25°C; 10kHz; 0.25 mT	≈700	
Bsat	25°C; 10kHz; 1200A/m 100°C; 10kHz; 1200A/m	≈290 ≈170	mT
|Z| (1)	25°C; 30 MHz 25°C; 300 MHz	≥50 ≥85	Ω
ρ	DC, 25°C	≈10^4	Ωm
Tc		≥120	°C
Density		≈4800	kg/m^3

(1) Measured on a bead ø5xø2x10 mm.

Tubular cable shields

Type Number	Dimensions			$\|Z_{typ}\|$ [2] (Ω) at	
	D	d	L	25 MHz	100 MHz
CST9.5/4.8/4.8-4S2F	9.5 ± 0.25	4.75 ± 0.25	4.8 ± 0.2	18	35
CST9.5/4.8/6.4-4S2F	9.5 ± 0.25	4.75 ± 0.25	6.35 ± 0.35	23	50
CST9.5/4.8/9.5-4S2F	9.5 ± 0.25	4.75 ± 0.15	9.5 ± 0.35	40	70
CST9.5/4.8/10-4S2F	9.5 ± 0.25	4.75 ± 0.15	10.4 ± 0.25	53	80
CST9.5/4.8/13-4S2F	9.5 ± 0.25	4.75 ± 0.15	12.7± 0.5	60	95
CST9.5/4.8/19-4S2F	9.5 ± 0.25	4.75 ± 0.15	19.05 ±0.7	100	145
CST9.5/5.1/15-4S2F	9.5 ± 0.3	5.1 ± 0.15	14.5 ± 0.45	66	110
CST9.7/5/5.1-4S2F	9.65 ± 0.25	5 ± 0.2	5.05 ±0.45	26	43
CST14/6.4/5.3-4S2F	14.3 ± 0.45	6.35 ± 0.25	5.3 ±0.45	35	60
CST14/6.4/10-4S2F	14.3 ± 0.45	6.35 ± 0.25	10.1±0.4	70	105
CST14/6.4/14-4S2F	14.3 ± 0.45	6.35 ± 0.25	13.8 ±0.4	90	150
CST14/6.4/15-4S2F	14.3 ± 0.45	6.35 ± 0.25	15 ±0.45	100	170
CST14/6.4/29-4S2F	14.3 ± 0.45	6.35 ± 0.25	28.6 ±0.75	170	250
CST14/7.3/29-4S2F	14.3 ± 0.45	7.25 ± 0.15	28.6 ±0.75	143	215
CST16/7.9/14-4S2F	16.25 ± 0.75	7.9 ± 0.25	14.3 ±0.35	70	113
CST16/7.9/29-4S2F	16.25 ± 0.75	7.9 ± 0.25	28.6 ±0.75	130	213
CST17/9.5/13-4S2F	17.45 ± 0.4	9.5 ± 0.25	12.7 ±0.5	55	88
CST17/9.5/29-4S2F	17.45 ± 0.35	9.53 ± 0.25	28.55 ± 0.75	125	250
CST19/10/15-4S2F	19 − 0.65	10.15 ± 0.25	14.65 − 0.75	70	110
CST19/10/29-4S2F	19 − 0.65	10.15 ± 0.25	28.6 ± 0.75	128	196
CST26/13/21-4S2F	25.9 ±0.75	12.8 ±0.25	21.3±0.5	110	180
CST26/13/29-4S2F	25.9 ±0.75	12.8 ±0.25	28.6 ±0.8	145	225
CST29/19/7.5-4S2F	29 ±0.75	19 ±0.5	7.5 ±0.25	28	47

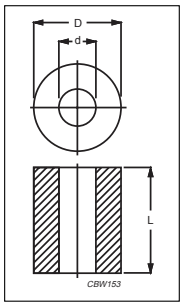

Fig. 1 Tubular cable shield

Flat cable shields (split)

Type Number	Fig.	Dimensions					$\|Z_{typ}\|$ [2] (Ω) at	
		A	B	C	D	E	25 MHz	100 MHz
Flat cable shields (split)								
CSU45/6.4/29-4S2F	2a	45.1 ±0.75	34.4 ±0.7	28.6 ±0.7	6.35 ±0.25	0.85 ±0.2	96	225
CSU76/6.4/29-4S2F	2a	76.2 ±1.5	65.3 ±1.3	28.6 ±0.8	6.35 ±0.25	0.85 ±0.2	75	215
CLI-CSU6.4	2c	16.1	11.0	12.7	11.4	8.0	–	–
Flat cable shields in matching nylon cases								
CSU45/6.4/29-4S2-EN	2a+b	49.5	34.3	32.3	8.1	20	96	225
Nylon case	2b	49.5	34.3	32.3	8.1	20	–	–
CSU76/6.4/29-4S2-EN	2a+b	80.8	65.5	32.3	8.1	50.8	75	215
Nylon case	2b	80.8	65.5	32.3	8.1	50.8	–	–

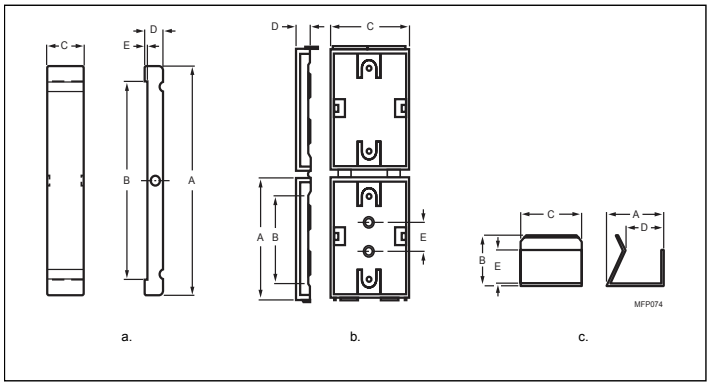

Fig. 2 Outlines of flat cable shields (split) and accessories

Round cable shields (split)

Type Number	Fig.	Dimensions					$\|Z_{typ}\|^{(2)}$ (Ω) at	
		A	B	C	D	E	25 MHz	100 MHz
Round cable shields								
CSA15/7.5/29-4S2F	3	15 ±0.25	6.6 ±0.3	28.6 ±0.8	7.5 ±0.15	–	165	275
CSA19/9.4/29-4S2F	3	18.65 ±0.4	10.15 ±0.3	28.6 ±0.8	9.4 ±0.15	–	140	225
CSA26/13/29-4S2F	3	25.9 ±0.5	13.05 ±0.3	28.6 ±0.8	12.8 ±0.25	–	155	250
CSC16/7.9/14-4S2F	5	15.9 ±0.4	7.9 ±0.3	14.3 ±0.4	7.95 ±0.2	–	50	113
Round cable shields in matching nylon cases								
CSA15/7.5/29-4S2-EN	3+4	17.9	7.0	32.3	9.2	9.0	165	275
Nylon case	4	17.9	7.0	32.3	9.2	9.0	–	–
CSA19/9.4/29-4S2-EN	3+4	22.1	10.2	32.3	11.7	9.0	140	225
Nylon case	4	22.1	10.2	32.3	11.7	9.0	–	–
CSA26/13/29-4S2-EN	3+4	29	13.4	32.5	14.8	18.0	155	250
Nylon case	4	29	13.4	32.5	14.8	18.0	–	–
CSC16/7.9/14-4S2-EN	5+6	24.7	7.6	22.8	10.2	17.8	50	113
Nylon case	6	24.7	7.6	22.8	10.2	17.8	–	–

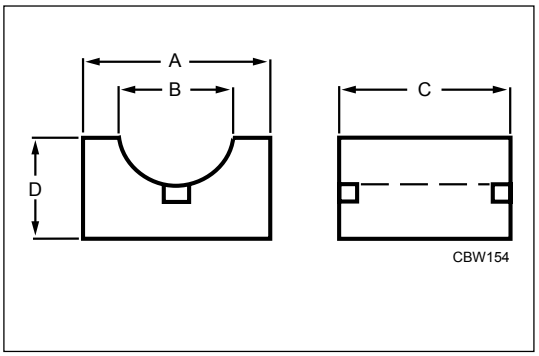

Fig. 3 Shield (CSA) outline

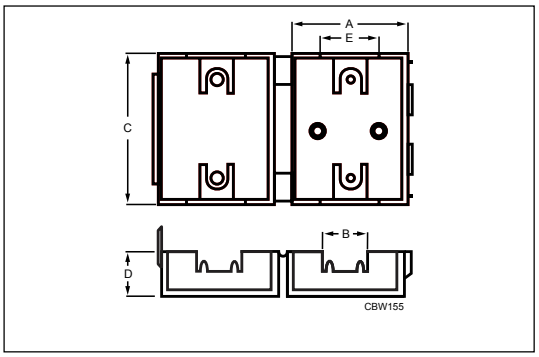

Fig. 4 Nylon case

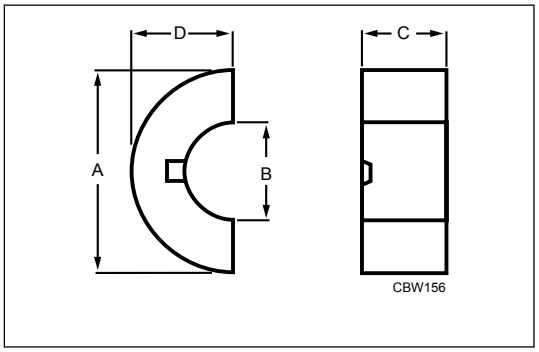

Fig. 5 Shield (CSC) outline

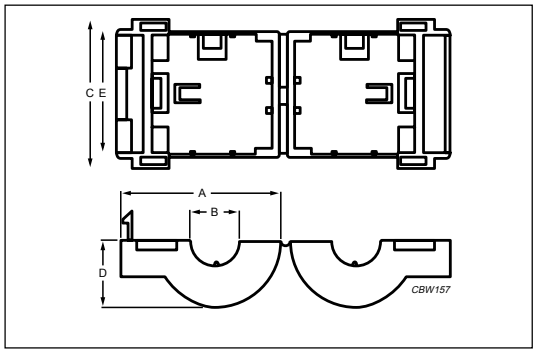

Fig. 6 Nylon case

(2) Minimum guaranteed impedance is |Z|typ–20%.

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