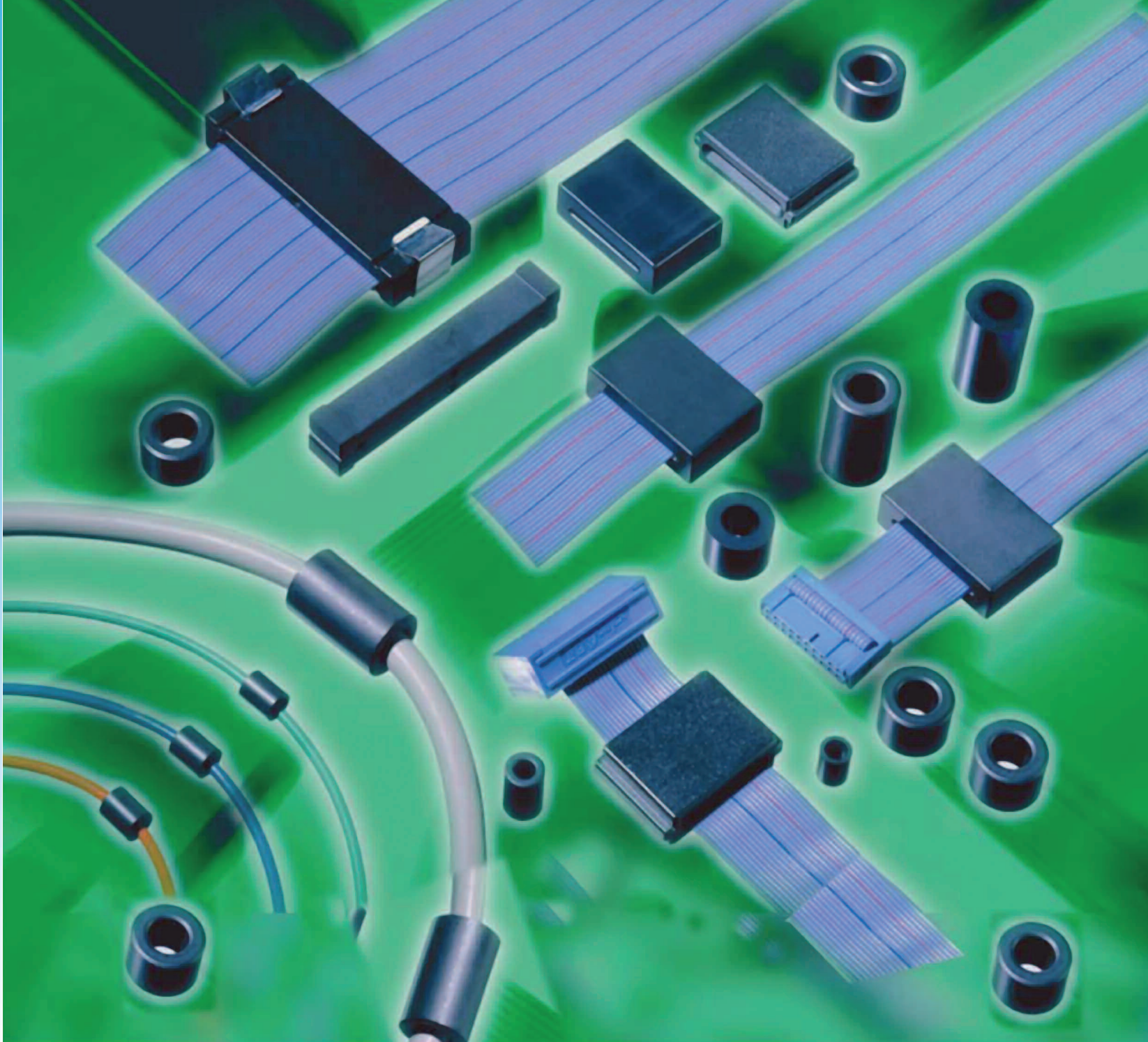


# 4S2F

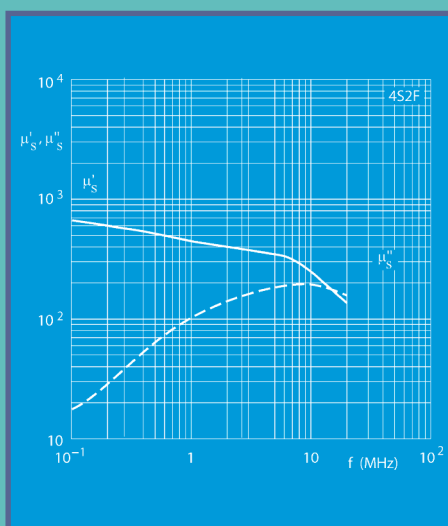
The cost effective  
EMI suppression alternative



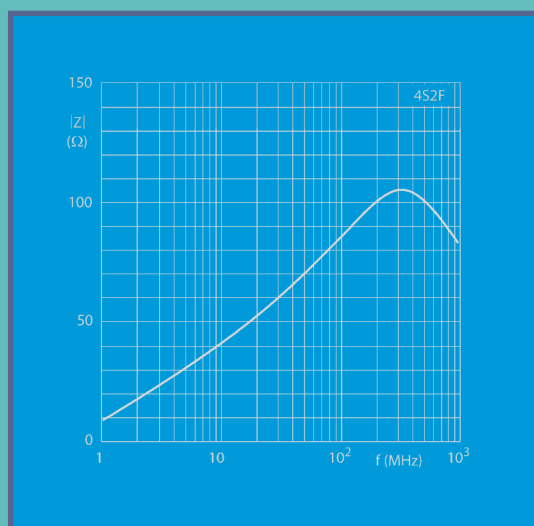
# Material specifications

SYMBOL	CONDITIONS	VALUE	UNIT
$\mu_i$	25°C; 10kHz; 0.25 mT	$\approx 700$	
B	25°C; 10kHz; 1200A/m 100°C; 10kHz; 1200A/m	$\approx 290$ $\approx 170$	mT
$ Z $ <sup>(1)</sup>	25°C; 30 MHz 25°C; 300 MHz	$\geq 50$ $\geq 85$	$\Omega$
$\rho$	DC, 25°C	$\approx 10^4$	$\Omega\text{m}$
$T_c$		$\geq 120$	°C
density		$\approx 4800$	$\text{kg/m}^3$

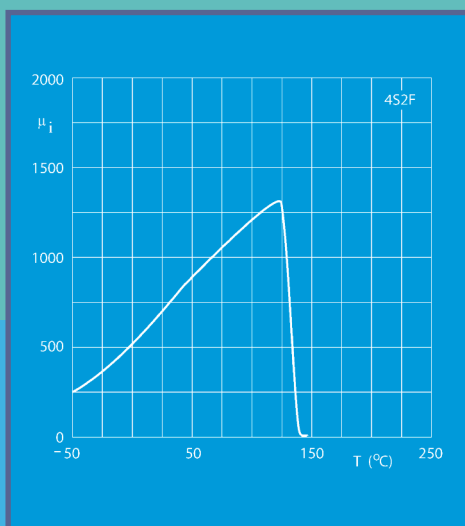
(1) Measured on a bead  $\text{Ø}5 \times \text{Ø}2 \times 10$  mm.



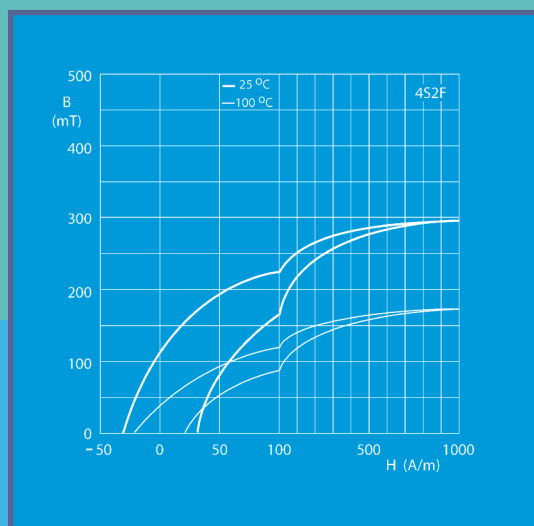
**Fig. 1** Complex permeability as a function of frequency



**Fig. 2** Impedance as a function of frequency, measured on a bead  $\text{Ø}5 \times \text{Ø}2 \times 10$  mm



**Fig. 3** Initial permeability as a function of temperature



**Fig. 4** Typical B-H loops

# The cost effective

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 new designer kit so that you can test several 4S2F alternatives in your equipment (ordering code of the sample box: 432703222191)

## Tubular cable shields

TYPE NUMBER	DIMENSIONS (Fig 1)			Z <sub>typ</sub>   <sup>2</sup> (Ω)	
	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

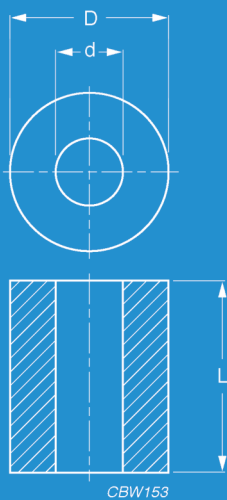


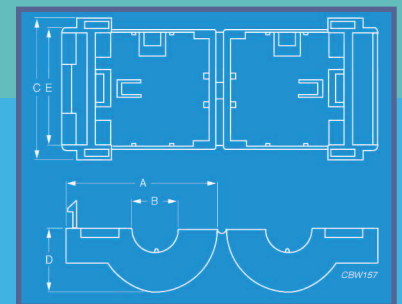
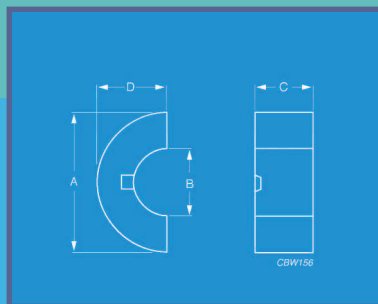
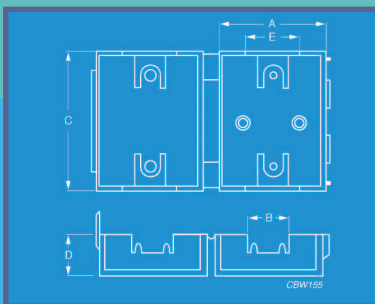
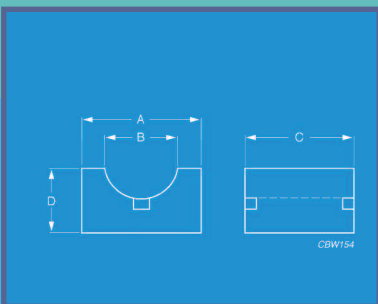
Fig. 1 Tubular cable shield



# alternative for EM

## Round cable shields (split)

TYPE NUMBER	FIG.	DIMENSIONS					Z <sub>typ</sub>   <sup>2</sup> (Ω)	
		A	B	C	D	E	25 MHz	100 MHz
Round cable shields								
CSA15/7.5/29-4S2F	2	15 ±0.25	6.6 ±0.3	28.6 ±0.8	7.5 ±0.15	-	165	275
CSA19/9.4/29-4S2F	2	18.65 ±0.4	10.15 ±0.3	28.6 ±0.8	9.4 ±0.15	-	140	225
CSA26/13/29-4S2F	2	25.9 ±0.5	13.05 ±0.3	28.6 ±0.8	12.8 ±0.25	-	155	250
CSC16/7.9/14-4S2F	4	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								
CSA15/7.5/29-4S2F-EN	2+3	17.9	7.0	32.3	9.2	9.0	165	275
Nylon case	3	17.9	7.0	32.3	9.2	9.0	-	-
CSA19/9.4/29-4S2F-EN	2+3	22.1	10.2	32.3	11.7	9.0	140	225
Nylon case	3	22.1	10.2	32.3	11.7	9.0	-	-
CSA26/13/29-4S2F-EN	2+3	29	13.4	32.5	14.8	18.0	155	250
Nylon case	3	29	13.4	32.5	14.8	18.0	-	-
CSC16/7.9/14-4S2F-EN	4+5	24.7	7.6	22.8	10.2	17.8	50	113
Nylon case	5	24.7	7.6	22.8	10.2	17.8	-	-



**Fig. 2** Shield (CSA) outline

**Fig. 3** Nylon case

**Fig. 4** Shield (CSC) outline

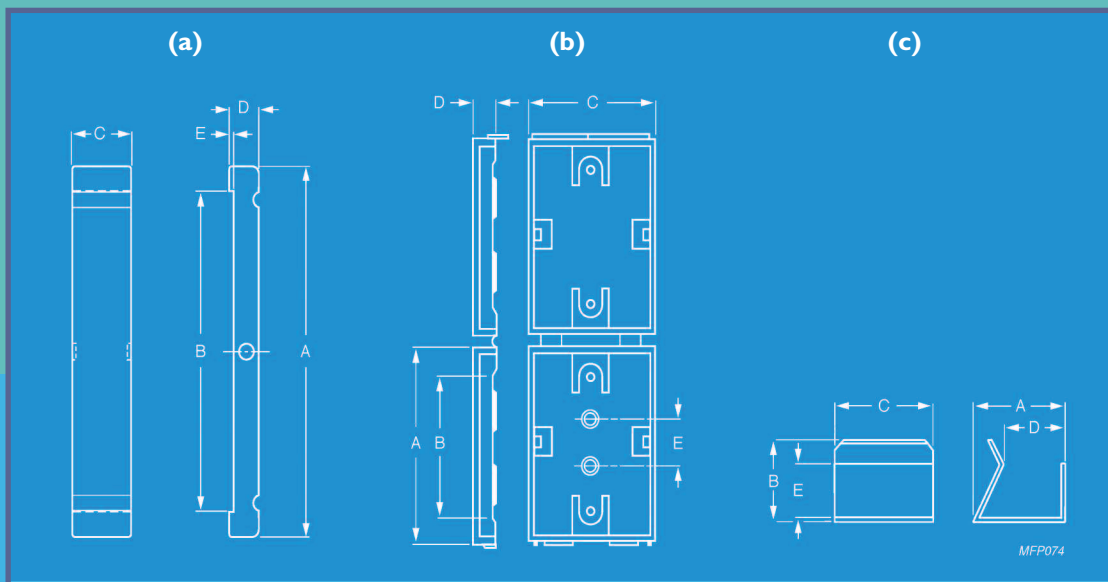
**Fig. 5** Nylon case

# EM suppression

## Flat cable shields (split)

TYPE NUMBER	FIG.	DIMENSIONS					Z <sub>typ</sub>  2 (Ω)	
		A	B	C	D	E	25 MHz	100 MHz
Flat cable shields (split)								
CSU45/6.4/29-4S2F	6a	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	6a	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	6c	16.1	11.0	12.7	11.4	8.0	-	-
Round cable shields in matching nylon cases								
CSU45/6.4/29-4S2F-EN	6a+b	49.5	34.3	32.3	8.1	20	96	225
Nylon case	6b	49.5	34.3	32.3	8.1	20	-	-
CSU76/6.4/29-4S2F-EN	6a+b	80.8	65.5	32.3	8.1	50.8	75	215
Nylon case	6b	80.8	65.5	32.3	8.1	50.8	-	-

(2) Minimum guaranteed impedance is  $|Z|_{\text{typ}} - 20\%$



**Fig. 6** Outlines of flat cable shields (split) and accessories

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Printed in Spain 9930 030 00161

Date of Release: Mar 2012



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