

Transformer cores for switching power supplies in low loss materials 3C85 and 3F3 Material 3F3 manages higher frequencies, has lower losses and has a lower temperature dependence than material 3C85. A_L - and μ_e -values are approximate.

Type ETD 29/16/10

Technical data:

Material:	3C85	3F3
Optimum frequency range:	≤ 200 kHz	≤ 500 kHz
Permeability μ_i :	2000 ± 20 %	1800 ± 20 %
Amplitude permeability at		
25 kHz, 200 mT and 25°C:	4500 ± 25 %	4000 ± 25 %
25 kHz, 200 mT and 100 °C:	5500 ± 25 %	4000 ± 25 %
Induction at		
100 kHz, 250 A/m, B_S :	≥ 400 mT	≥ 400 mT
Power loss at		
25 kHz, 200 mT and 100 °C:	≤ 140 kW/m ³	≤ 90 kW/m ³
100 kHz, 100 mT and 100 °C:	≤ 165 kW/m ³	≤ 80 kW/m ³

l_e :	72 mm
A_e :	76 mm ²
V_e :	5470 mm ³
$\Sigma(l_e/A_e)$:	0.947 mm ⁻¹

Material	Air gap 0 mm		Air gap 0.35 mm		Air gap 0.70 mm	
	A_L	μ_e	A_L	μ_e	A_L	μ_e
3C85	2100	1580	—	—	—	—
3F3	2300	1430	260	200	130	100

l_e :	78.6 mm
A_e :	97.1 mm ²
V_e :	7640 mm ³
$\Sigma(l_e/A_e)$:	0.810 mm ⁻¹

Material	Air gap 0 mm		Air gap 0.5 mm		Air gap 1.0 mm	
	A_L	μ_e	A_L	μ_e	A_L	μ_e
3C85	2500	1600	—	—	—	—
3F3	2600	1480	230	150	125	80

l_e :	92.2 mm
A_e :	125 mm ²
V_e :	11500 mm ³
$\Sigma(l_e/A_e)$:	0.737 mm ⁻¹

Material	Air gap 0 mm		Air gap 0.5 mm		Air gap 1.0 mm	
	A_L	μ_e	A_L	μ_e	A_L	μ_e
3C85	2800	1650	—	—	—	—
3F3	2900	1500	340	200	150	90

l_e : 103 mm
 A_e : 173 mm²
 V_e : 17800 mm³
 $\Sigma(l_e/A_e)$: 0.589 mm⁻¹

Material	Air gap 0 mm		Air gap 0.5 mm		Air gap 1.0 mm	
	A_L	μ_e	A_L	μ_e	A_L	μ_e
3C85	3500	1650	—	—	—	—
3F3	3700	1500	460	220	210	100

l_e : 114 mm
 A_e : 211 mm²
 V_e : 24000 mm³
 $\Sigma(l_e/A_e)$: 0.534 mm⁻¹

Material	Air gap 0 mm		Air gap 0.5 mm		Air gap 1.0 mm	
	A_L	μ_e	A_L	μ_e	A_L	μ_e
3C85	4000	1700	—	—	—	—
3F3	4100	1550	540	230	260	110