

Supersedes data of September 2004

2008 Sep 01



#### **3C90 SPECIFICATIONS**

A low frequency power material for use in power and general purpose transformers at frequencies up to 0.2 MHz.

	CONDITIONS	VALUE	UNIT
μ <sub>i</sub>	25 °C; ≤10 kHz; 0.25 mT	2300 ±20%	
μ <sub>a</sub>	100 °C; 25 kHz; 200 mT	5500 ±25%	
В	25 °C; 10 kHz; 1200 A/m	≈ 470	mT
	100 °C; 10 kHz; 1200 A/m	≈ 380	mT
P <sub>V</sub>	100 °C; 25 kHz; 200 mT	≤ 80	kW/m <sup>3</sup>
	100 °C; 100 kHz; 100 mT	≤ 80	
	100 °C; 100 kHz; 200 mT	≈ 450	
ρ	DC, 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥220	°C
density		≈ 4800	kg/m <sup>3</sup>











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#### **3C91 SPECIFICATIONS**

A medium frequency power material with minimum power losses around 60  $^{\circ}$ C for use in power and general purpose transformers at frequencies up to 0.3 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ	25 °C; ≤10 kHz;	3000 ±20%	
	0.25 mT		
μ <sub>a</sub>	100 °C; 25 kHz;	5500 ±25%	
	200 mT		
В	25 °C; 10 kHz;	≈ 470	mT
	1200 A/m		
	100 °C; 10 kHz;	≈ 370	mT
	1200 A/m		
Pv	60 °C; 100 kHz;	≤ 40	kW/m <sup>3</sup>
	100 mT		
	60 °C; 100 kHz;	≈ 300	
	200 mT		
ρ	DC, 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥220	°C
density		≈ 4800	kg/m <sup>3</sup>









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#### **3C92 SPECIFICATIONS**

A low frequency, high Bsat power material for use in power inductors at frequencies up to 0.2 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ	25 °C; ≤10 kHz; 0.25 mT	1500 ±20%	
$\mu_a$	100 °C; 25 kHz; 200 mT	≈ 5000	
В	25 °C; 10 kHz; 1200 A/m	≈ 540	mT
	100 °C; 10 kHz; 1200 A/m	≈ 460	
	140 °C; 10 kHz; 1200 A/m	≈ 400	
P <sub>V</sub>	100 °C; 100 kHz; 100 mT	≈ 50	kW/m <sup>3</sup>
	100 °C; 100 kHz; 200 mT	≈ 350	
ρ	DC; 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥ 270	°C
density		≈ 4800	kg/m <sup>3</sup>











3C92A

FERROXCUBE



2020 June 08



#### 3C92A

#### **3C92A SPECIFICATION**

A low to medium frequency power material with high saturation, dedicated for application with high dc current like output chokes, power inverters, DC-DC converters. Available in selected product range, up to 40 mm size.

SYMBOL	CONDITIONS	VALUE	UNIT
μi	25°C; 10kHz; 0.25mT	1800 ± 25%	
μa	100°C; 25kHz; 200mT	≈ 5500	
В	25°C; 10kHz; 1200A/m	≈ 570	mT
	100°C; 10kHz; 1200A/m	≈ 480	
	140ºC; 10kHz; 1200A/m	≈ 400	
Pv	100°C; 100kHz; 200mT	≈ 300	k W / m <sup>3</sup>
ρDC	25°C	≈ 5	Ωm
Тс		≥ 270	°C
density		≈ 4900	k g / m 3









3C92A









Supersedes data of September 2004

2008 Sep 01



#### **3C93 SPECIFICATIONS**

A low to medium frequency power material with minimum power losses around 140 °C for use in power transformers at frequencies up to 0.5 MHz.

	CONDITIONS	VALUE	UNIT
$\mu_i$	25 °C; ≤10 kHz; 0.25 mT	1800 ±20%	
μ <sub>a</sub>	100 °C; 25 kHz; 200 mT	≈ 5000	
В	25 °C; 10 kHz; 1200 A/m	≈ 520	mT
	100 °C; 10 kHz;	≈ 430	
	1200 A/m		
	140 °C; 10 kHz;	≈ 360	
	1200 A/m		
Pv	140 °C; 100 kHz;	≈ 50	kW/m <sup>3</sup>
	100 mT		
	140 °C; 100 kHz;	≈ 350	
	200 mT		
	140 °C; 500 kHz;	≈ 300	
	50 mT		
ρ	DC; 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥ 240	°C
density		≈ 4800	kg/m <sup>3</sup>









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Supersedes data of September 2004

2008 Sep 01



#### **3C94 SPECIFICATIONS**

A low frequency power material for use in power and general purpose transformers at frequencies up to 0.3 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
μ <sub>i</sub>	25 °C; ≤10 kHz;	2300 ±20%	
	0.25 mT		
$\mu_a$	100 °C; 25 kHz;	5500 ±25%	
	200 mT		
В	25 °C; 10 kHz;	≈ 470	mT
	1200 A/m		
	100 °C; 10 kHz;	≈ 380	
	1200 A/m		
Pv	100 °C; 100 kHz;	≈ 50	kW/m <sup>3</sup>
	100 mT		
	100 °C; 100 kHz;	≈ 350	
	200 mT		
ρ	DC, 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥220	°C
density		≈ 4800	kg/m <sup>3</sup>









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Supersedes data of September 2008

2015 October 02



#### **3C95 SPECIFICATIONS**

A low to medium frequency power material with low power losses from 25 to 100 °C for use in power transformers at frequencies up to 0.5 MHz. Especially suited for broad temperature range applications like automotive, lighting and mobile / handheld.

SYMBOL	CONDITIONS	VALUE	UNIT
μ	25 °C; ≤10 kHz; 0.25 mT	3000 ± 20 %	
$\mu_a$	100 °C; 25 kHz; 200 mT	≈ 5000	
В	25 °C; 10 kHz; 1200 A/m	≈ 530	mT
	100 °C; 10 kHz; 1200 A/m	≈ 410	
Pv	25 °C; 100 kHz; 200 mT	≈ 350	kW/m <sup>3</sup>
	100 °C; 100 kHz; 200 mT	≈ 290	
ρ	DC, 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥ 215	°C

SYMBOL	CONDITIONS	VALUE	UNIT
$\alpha_{F}$	≤10 kHz; 0.25 mT; -40 to 25 °C	1±2 ×10 <sup>-6</sup>	K <sup>-1</sup>
	≤10 kHz; 0.25 mT; -10 to 55 °C	$1.5\pm 2 \times 10^{-6}$	K <sup>-1</sup>
	≤10 kHz; 0.25 mT; 0 to 25 °C	$1.5\pm 2 \times 10^{-6}$	K <sup>-1</sup>
	≤10 kHz; 0.25 mT; 25 to 55 °C	$1.5\pm 2 \times 10^{-6}$	K <sup>-1</sup>
	≤10 kHz; 0.25 mT; 25 to 55 °C	$1.5\pm 2 \times 10^{-6}$	K <sup>-1</sup>
D <sub>F</sub>	25 °C; 10 kHz; 0.25 mT	≤ 8 × 10 <sup>-6</sup>	
density		≈ 4800	kg/m <sup>3</sup>





μa

 $P_V$ 

(kW/m<sup>3</sup>)

## Material specification



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# 2016 February 19



#### **3C95A SPECIFICATION**

A low to medium frequency power material with low power losses from 25 to 100  $^{\circ}$ C for use in power transformers up to 0.5 MHz. Especially suited for broad temperature range applications like automotive, lighting, hand held.

SYMBOL	CONDITIONS	VALUE	UNIT
μi	25⁰C; 10kHz; 0.25mT	3300 ± 20%	
μа	100ºC; 25kHz; 200mT	≈ 5000	
В	25ºC; 10kHz; 1200A/m	≈ 550	mT
	100ºC; 10kHz; 1200A/m	≈ 430	
Pv	25ºC; 100kHz; 200mT	≈ 300	mW/cm³
	100ºC; 100kHz; 200mT	≈ 290	
ρDC	25ºC	≈ 10	Ωm
Тс		≥ 220	₀C
density		≈ 4850	kg/m3









#### 3C95A







![](_page_28_Figure_1.jpeg)

2017 January 18th

![](_page_28_Picture_3.jpeg)

#### 3C95F

#### **3C95F SPECIFICATION**

A medium frequency power material optimized for 200-400kHz power conversion, with flat losses in 25-100°C.

SYMBOL	CONDITIONS	VALUE	UNIT
μi	25°C; 10kHz; 0.25mT	3000 ± 25%	
μa	100°C; 25kHz; 200mT	≈ 4500	
В	25ºC; 10kHz; 1200A/m	≈ 550	mT
	100°C; 10kHz; 1200A/m	≈ 430	
Pv	25°C; 200kHz; 125mT	≈ 220	k W / m <sup>3</sup>
	60°C; 200kHz; 125mT	≈ 240	
	80°C; 200kHz; 125mT	≈ 240	
	100°C; 200kHz; 125mT	≈ 250	
Pv	25°C; 300kHz; 100mT	≈ 220	k W / m <sup>3</sup>
	60°C; 300kHz; 100mT	≈ 260	
	80°C; 300kHz; 100mT	≈ 260	
	100°C; 300kHz; 100mT	≈ 270	
ρDC	25°C	≈ 10	Ωm
Tc		≥ 210	°C
density		≈ 4850	k g / m 3

![](_page_29_Figure_6.jpeg)

![](_page_29_Figure_7.jpeg)

![](_page_29_Figure_8.jpeg)

![](_page_29_Figure_9.jpeg)

5000

4000

3000

2000

1000

0 0

hа

#### Material specification

![](_page_30_Figure_3.jpeg)

![](_page_30_Figure_4.jpeg)

![](_page_30_Figure_5.jpeg)

Fig.5 Power loss as function of peak flux density at 100°C

![](_page_31_Picture_1.jpeg)

Supersedes data of September 2004

2008 Sep 01

![](_page_31_Picture_4.jpeg)

#### **3C96 SPECIFICATIONS**

A low to medium frequency power material for use in power and general purpose transformers at frequencies up to 0.4 MHz.

	CONDITIONS	VALUE	UNIT
μ <sub>i</sub>	25 °C; ≤10 kHz; 0.25 mT	2000 ±20%	
μ <sub>a</sub>	100 °C; 25 kHz; 200 mT	≈ 5500	
В	25 °C; 10 kHz; 1200 A/m	≈ 500	mT
	100 °C; 10 kHz; 1200 A/m	≈ 440	
P <sub>V</sub>	100 °C; 100 kHz; 100 mT	≈ 40	kW/m <sup>3</sup>
	100 °C; 100 kHz; 200 mT	≈ 300	
	100 °C; 500 kHz; 50 mT	≈ 250	
ρ	DC; 25 °C	≈ 5	Ωm
T <sub>C</sub>		≥240	°C
density		≈ <b>4800</b>	kg/m <sup>3</sup>

![](_page_32_Figure_5.jpeg)

![](_page_32_Figure_6.jpeg)

![](_page_32_Figure_7.jpeg)

![](_page_33_Figure_3.jpeg)

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![](_page_35_Figure_1.jpeg)

Supersedes data of June 2013 2018 August 09th

![](_page_35_Picture_3.jpeg)

#### **3C97 SPECIFICATION**

A low to medium frequency power material with low power losses from 50 to 150 °C. For use in power and general purpose transformers at frequencies up to 0.5MHz. Material should not be exposed to temperatures exceeding 150°C for long time.

SYMBOL	CONDITIONS	VALUE	UNIT	
μi	25°C; 10kHz; 0.25mT	3000 ± 25%		
µa	25℃; 25kHz; 200mT	≈ 5000		
В	25ºC; 10kHz; 1200A/m	≈ 550	mT	
	100ºC; 10kHz; 1200A/m	≈ 430		
	140ºC; 10kHz; 1200A/m	≈ 360		
Pv	60°C; 100kHz; 200mT	≈ 320	k W / m <sup>3</sup>	
	140°C; 100kHz; 200mT	≈ 380		
ρDC	25°C	≈ 10	Ωm	
Tc		≥ 215	°C	
density		≈ 4850	kg / m <sup>3</sup>	
Typical performance of unstressed ring T25/15/12				

# 100

![](_page_36_Figure_7.jpeg)

5000 4000 3000 2000 1000 0 -50 50 250 150 T (°C) Fig.2 Permeability as function of temperature

![](_page_36_Figure_9.jpeg)

![](_page_37_Figure_2.jpeg)

![](_page_37_Figure_3.jpeg)

![](_page_38_Picture_1.jpeg)

2013 Jun 03

![](_page_38_Picture_3.jpeg)

#### **3C98 SPECIFICATIONS**

A low to medium frequency power material for use in power and general purpose transformers at frequencies up to 0.4 MHz.

	CONDITIONS	VALUE	UNIT
$\mu_i$	25 °C; ≤10 kHz; 0.25 mT	2500 ±20%	
μ <sub>a</sub>	100 °C; 25 kHz; 200 mT	≈ 5500	
В	25 °C; 10 kHz; 1200 A/m	≈ 530	mT
	100 °C; 10 kHz; 1200 A/m	≈ 440	
Pv	25 °C; 100 kHz; 200 mT	≈ 500	kW/m <sup>3</sup>
	60 °C; 100 kHz; 200 mT	≈ 350	
	100°C; 100 kHz; 200 mT	≈ 250	
ρ	DC; 25 °C	≈ 8	Ωm
Т <sub>С</sub>		≥ 230	°C
density		≈ 4850	kg/m <sup>3</sup>

![](_page_39_Figure_6.jpeg)

a function of frequency.

![](_page_39_Figure_8.jpeg)

![](_page_39_Figure_9.jpeg)

![](_page_40_Figure_2.jpeg)

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![](_page_42_Picture_0.jpeg)

CHILISIN ELECTRONICS CORP. Total Solution Provider for Power, EMI and RF.

![](_page_42_Picture_2.jpeg)

# **3C99** – High temperature material for power conversion **NEW**

## Optimized for 200\*C working temperature Low-to-medium frequency (100-400 kHz)

## 3C99 SPECIFICATION

A medium frequency power material with high Curie temperature, optimized for 200°C working temperature.

SYMBOL	CONDITIONS	VALUE	UNIT
рі	25ºC; 10kHz; 0.25mT	800 ± 20%	
µа	200°C; 10kHz; 200mT	≈ 4000	6
В	25ºC; 10kHz; 1200A/m	≈ 500	mT
	100°C; 10kHz; 1200A/m	≈ 450	
	200°C; 10kHz; 1200A/m	≈ 320	
Pv	200°C; 25kHz; 200mT	≈ 140	kW/m <sup>3</sup>
	200°C; 100kHz; 100mT	≈ 140	
	200°C; 400kHz; 50mT	≈ 220	
ρDC	25°C	≈ 6	Ωm
Тс		≥ 300	°C
density		≈ 4800	kg/m3

![](_page_42_Figure_8.jpeg)