



2002-05-15

## PRODUKTINFORMATION

Vi reserverar oss mot fel samt förbehåller oss rätten till ändringar utan föregående meddelande

### ELFA artikelnr

58-761-72 Toroid 3E25 25x15x10 mm TN25/15/10-3E25

58-763-70 Toroid 3F3 25x15x10 mm TN25/15/10-3F3

# DATA SHEET

**TN25/15/10**  
Ferrite toroids

Supersedes data of November 2000

2002 Feb 01

**RING CORES (TOROIDS)**

**Effective core parameters**

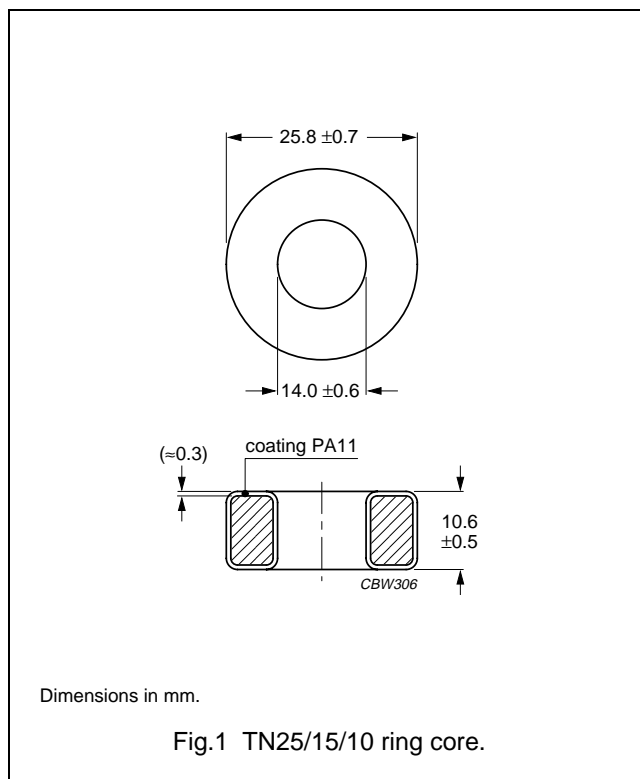
SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(I/A)$	core factor (C1)	1.23	mm <sup>-1</sup>
$V_e$	effective volume	2944	mm <sup>3</sup>
$l_e$	effective length	60.2	mm
$A_e$	effective area	48.9	mm <sup>2</sup>
m	mass of core	≈ 15	g

**Coating**

The cores are coated with polyamide 11 (PA11), flame retardant in accordance with "UL 94V-2"; UL file number E 45228 (M).

**Isolation voltage**

DC isolation voltage: 2000 V.  
 Contacts are applied on the edge of the ring core, which is also the critical point for the winding operation.



**Ring core data**

GRADE	$A_L$ (nH)	$\mu_i$	COLOUR CODE	TYPE NUMBER
3F3	1840 ± 25%	≈ 1800	blue	TN25/15/10-3F3
3C90	2350 ± 25%	≈ 2300	ultramarine	TN25/15/10-3C90
3C11	4400 ± 25%	≈ 4300	white	TN25/15/10-3C11
3E25	5620 ± 25%	≈ 5500	orange	TN25/15/10-3E25

**Properties of cores under power conditions**

GRADE	B (mT) at	CORE LOSS (W) at		
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; $\hat{B}$ = 200 mT; T = 100 °C	f = 100 kHz; $\hat{B}$ = 100 mT; T = 100 °C	f = 400 kHz; $\hat{B}$ = 50 mT; T = 100 °C
3C90	≥320	≤ 0.33	≤ 0.33	–
3F3	≥320	–	≤ 0.32	≤ 0.56




**DATA SHEET STATUS DEFINITIONS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

**DISCLAIMER**

**Life support applications** — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

**PRODUCT STATUS DEFINITIONS**

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.

# DATA SHEET

## **3E25** Material specification

Supersedes data of November 2000

2002 Feb 01

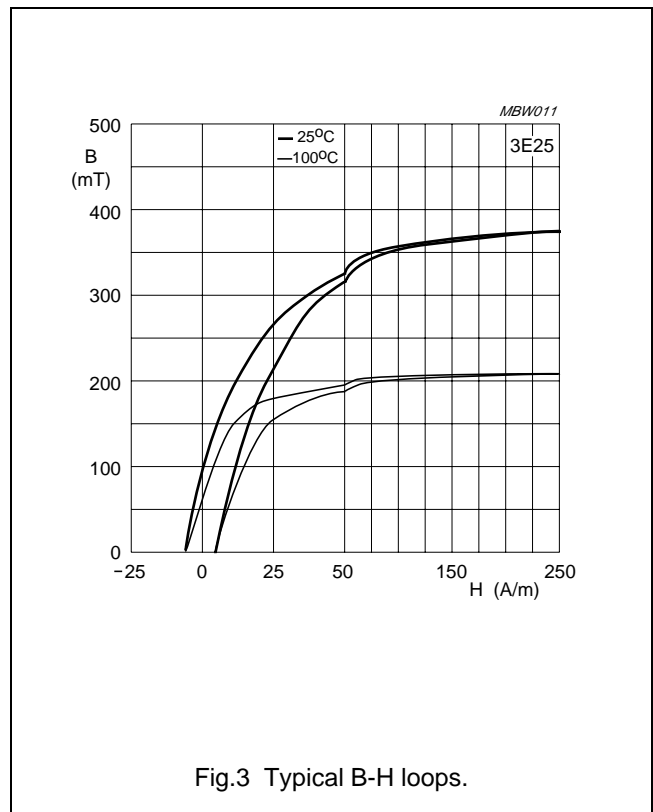
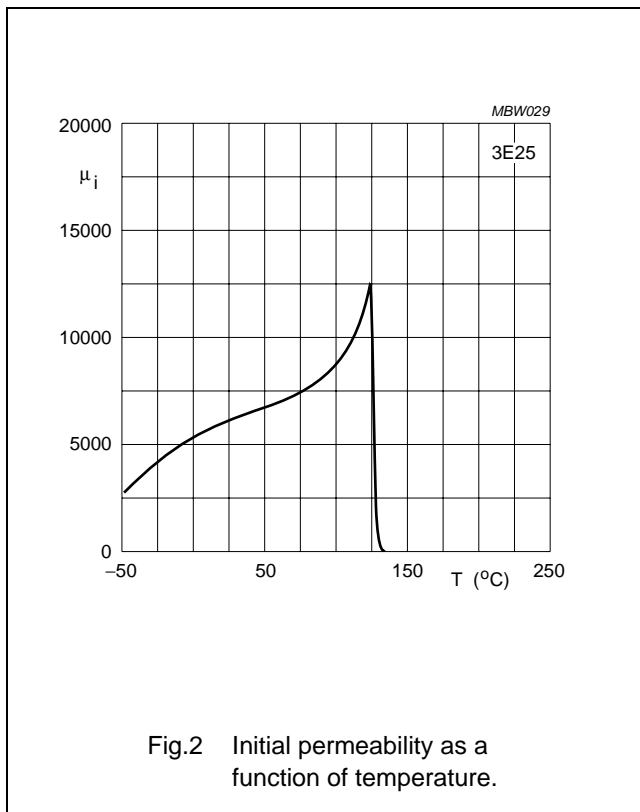
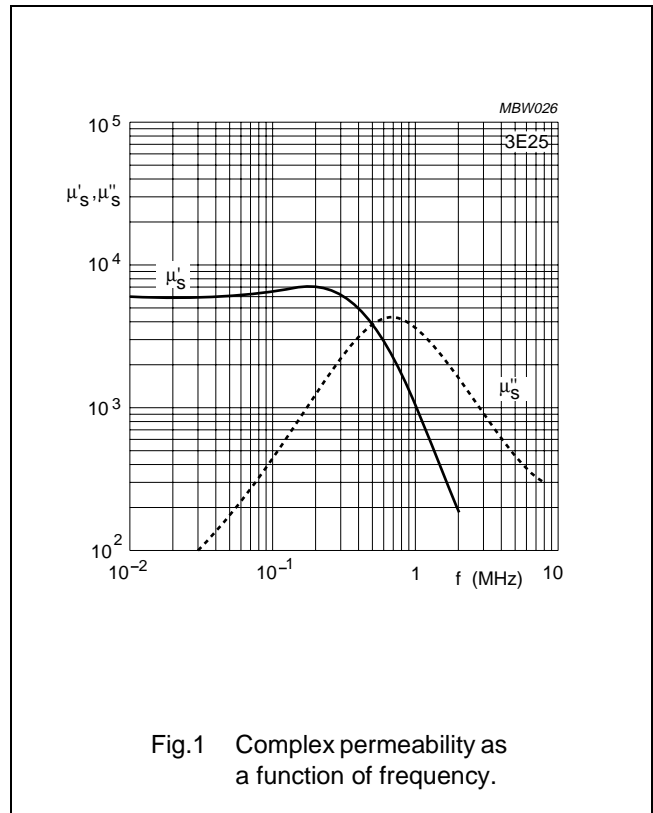
Material specification

3E25

3E25 SPECIFICATIONS

A medium permeability material mainly for use in current compensated chokes in EMI-suppression filters.

SYMBOL	CONDITIONS	VALUE	UNIT
$\mu_i$	25 °C; $\leq 10$ kHz; 0.1 mT	$6000 \pm 20\%$	
B	25 °C; 10 kHz; 250 A/m 100 °C; 10 kHz; 250 A/m	$\approx 350$ $\approx 180$	mT
$\tan\delta/\mu_i$	25 °C; 100 kHz; 0.1 mT 25 °C; 300 kHz; 0.1 mT	$\leq 25 \times 10^{-6}$ $\leq 200 \times 10^{-6}$	
$\rho$	DC; 25 °C	$\approx 0.5$	$\Omega\text{m}$
$T_C$		$\geq 125$	°C
density		$\approx 4900$	$\text{kg/m}^3$



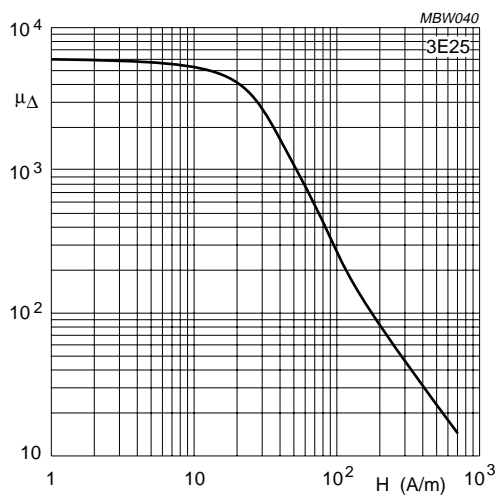


Fig.4 Incremental permeability as a function of magnetic field strength.

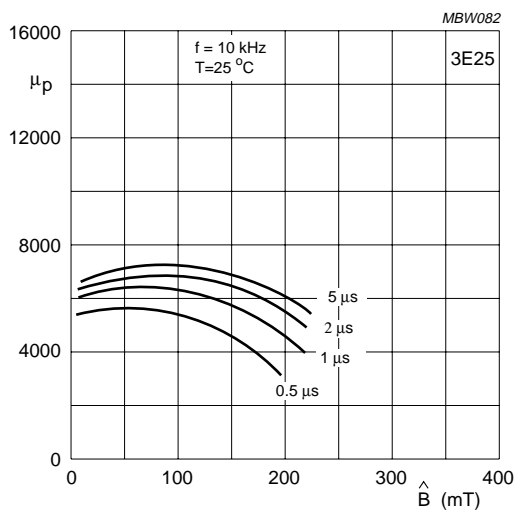


Fig.5 Pulse characteristics (unipolar pulses).




**DATA SHEET STATUS DEFINITIONS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

**DISCLAIMER**

**Life support applications** — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

**PRODUCT STATUS DEFINITIONS**

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.



# DATA SHEET

## **3F3** Material specification

Supersedes data of November 2000

2002 Feb 01

**3F3 SPECIFICATIONS**

A medium frequency power material for use in power and general purpose transformers at frequencies of 0.2 - 0.5 MHz.

SYMBOL	CONDITIONS	VALUE	UNIT
$\mu_i$	25 °C; $\leq 10$ kHz; 0.1 mT	2000 $\pm 20\%$	
$\mu_a$	100 °C; 25 kHz; 200 mT	$\approx 4000$	
B	25 °C; 10 kHz; 250 A/m 100 °C; 10 kHz; 250 A/m	$\geq 400$ $\geq 330$	mT
$P_V$	100 °C; 100 kHz; 100 mT 100 °C; 400 kHz; 50 mT	$\leq 80$ $\leq 150$	kW/m <sup>3</sup>
$\rho$	DC; 25 °C	$\approx 2$	$\Omega\text{m}$
$T_C$		$\geq 200$	°C
density		$\approx 4750$	kg/m <sup>3</sup>

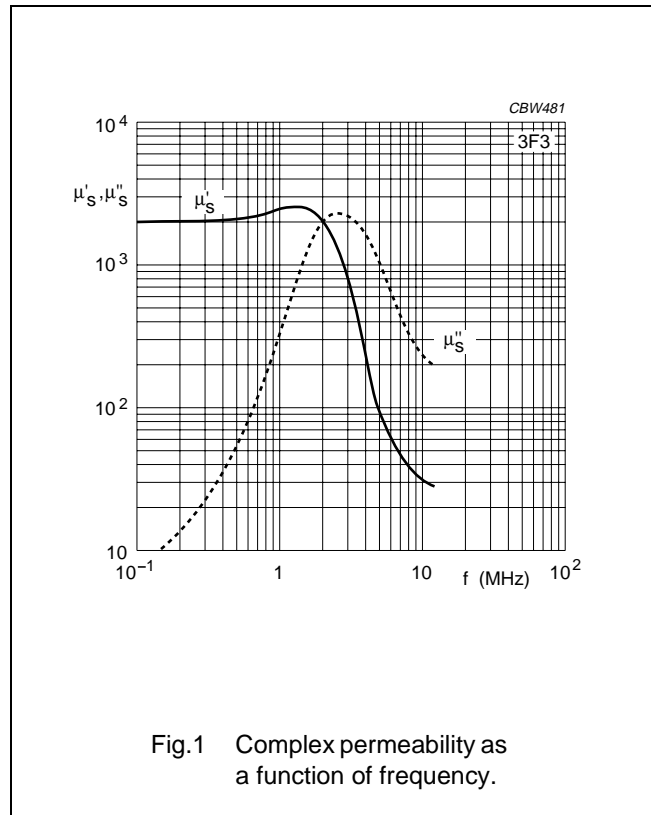


Fig.1 Complex permeability as a function of frequency.

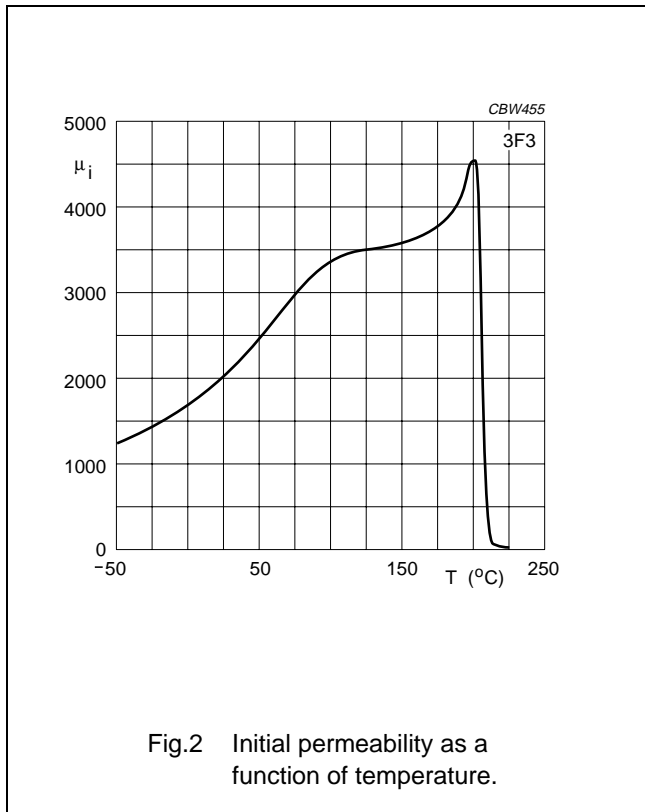


Fig.2 Initial permeability as a function of temperature.

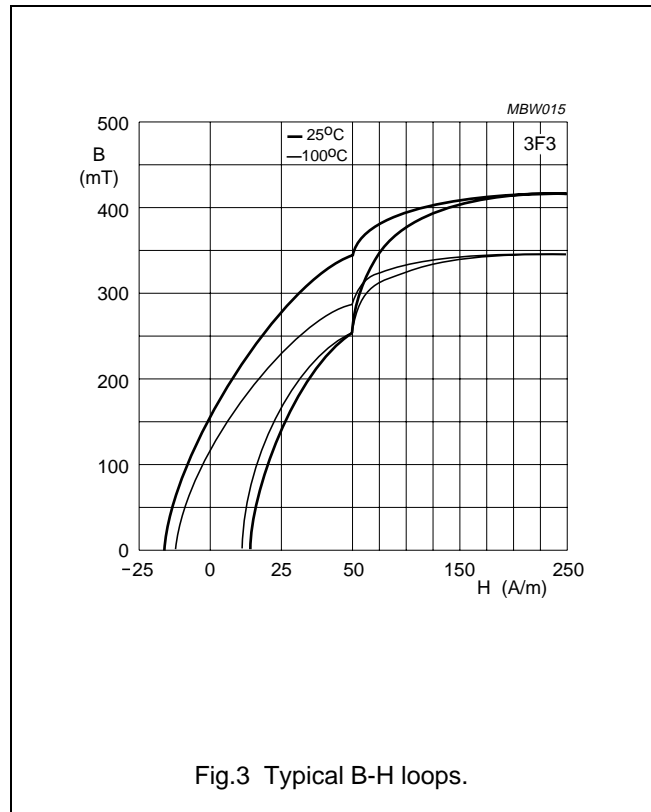
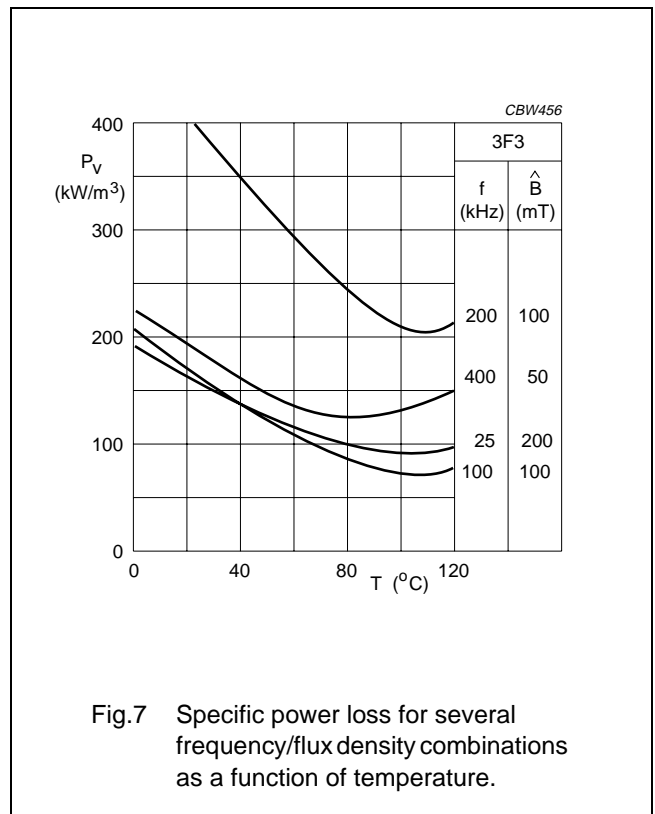
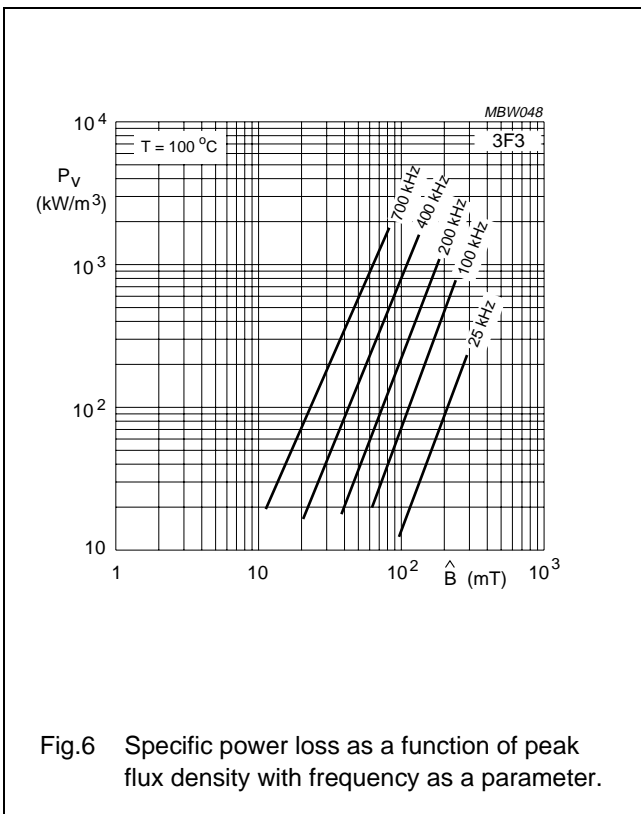
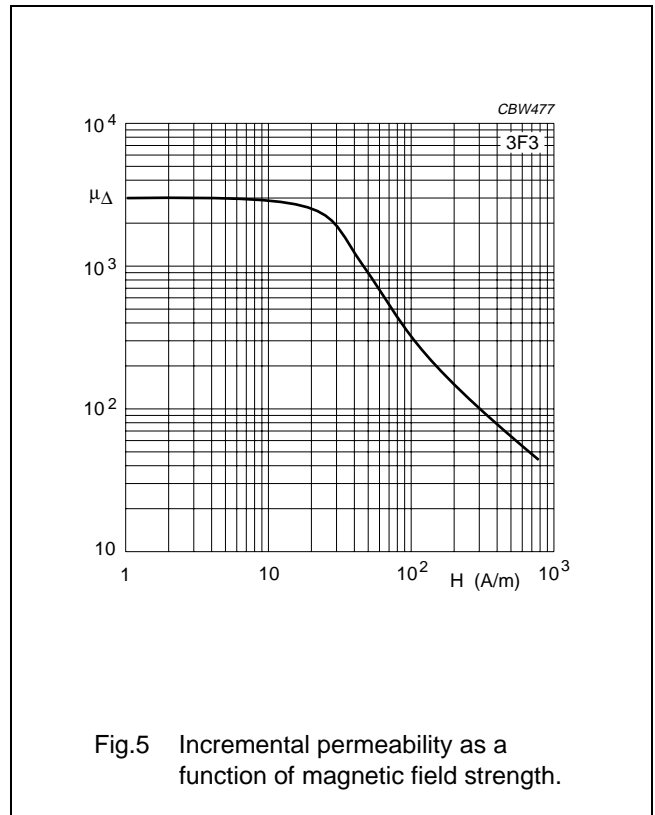
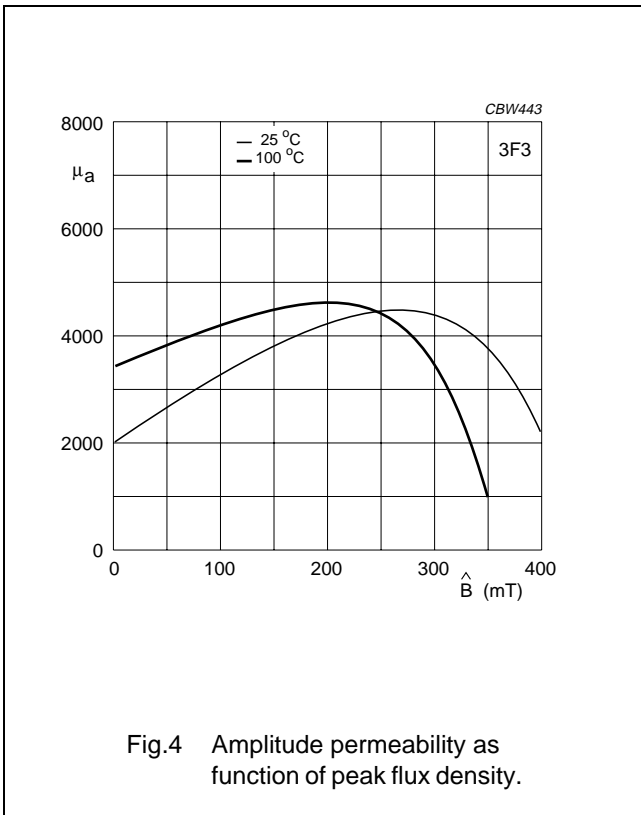


Fig.3 Typical B-H loops.






**DATA SHEET STATUS DEFINITIONS**

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Ferroxcube reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

**DISCLAIMER**

**Life support applications** — These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Ferroxcube customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Ferroxcube for any damages resulting from such application.

**PRODUCT STATUS DEFINITIONS**

STATUS	INDICATION	DEFINITION
<b>Prototype</b>		These are products that have been made as development samples for the purposes of technical evaluation only. The data for these types is provisional and is subject to change.
<b>Design-in</b>		These products are recommended for new designs.
<b>Preferred</b>		These products are recommended for use in current designs and are available via our sales channels.
<b>Support</b>		These products are <b>not</b> recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability.