

DATA SHEET

EQ38/8/25

EQ cores and accessories

New data

2008 Sep 01

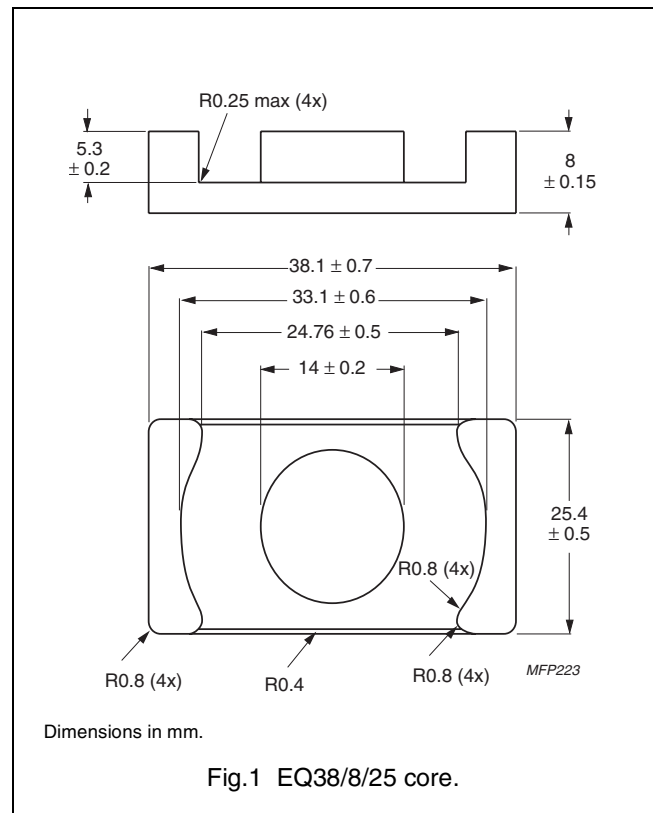


FERROXCUBE
A YAGEO COMPANY

CORES

Effective core parameters of a set of EQ cores

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|-------------------|--------|------------------|
| $\Sigma(l/A)$ | core factor (C1) | 0.341 | mm ⁻¹ |
| V_e | effective volume | 7900 | mm ³ |
| l_e | effective length | 51.9 | mm |
| A_e | effective area | 152 | mm ² |
| A_{min} | minimum area | 119 | mm ² |
| m | mass of core half | ≈ 21.5 | g |

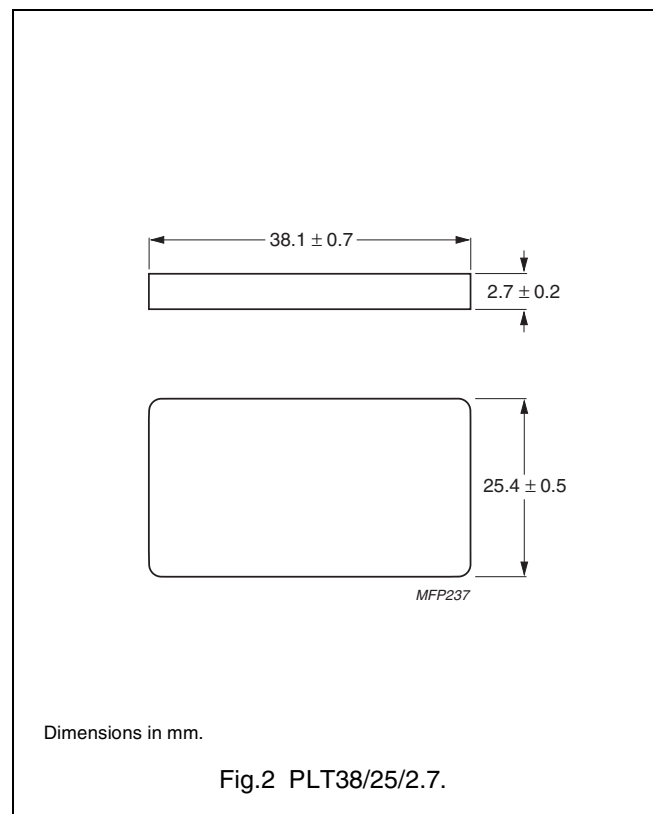


Effective core parameters of an EQ/PLT combination

| SYMBOL | PARAMETER | VALUE | UNIT |
|---------------|------------------|--------|------------------|
| $\Sigma(l/A)$ | core factor (C1) | 0.282 | mm ⁻¹ |
| V_e | effective volume | 6190 | mm ³ |
| l_e | effective length | 41.7 | mm |
| A_e | effective area | 148 | mm ² |
| A_{min} | minimum area | 119 | mm ² |
| m | mass of plate | ≈ 14.6 | g |






Ordering information for plates

| GRADE | TYPE NUMBER |
|--------------------------|-------------------|
| 3C94 | PLT38/25/2.7-3C94 |
| 3C95 <small>des</small> | PLT38/25/2.7-3C95 |
| 3C96 <small>des</small> | PLT38/25/2.7-3C96 |
| 3F35 <small>des</small> | PLT38/25/2.7-3F35 |
| 3F4 <small>des</small> | PLT38/25/2.7-3F4 |
| 3F45 <small>prot</small> | PLT38/25/2.7-3F45 |








Core halves for use in combination with an EQ core

A_L measured in combination with a non-gapped core half, clamping force for A_L measurements, 50 ± 20 N.

| GRADE | A_L (nH) | μ_e | AIR GAP (μm) | TYPE NUMBER |
|--|------------------|----------------|------------------------------|----------------|
| 3C94 | $7000 \pm 25 \%$ | ≈ 1900 | ≈ 0 | EQ38/8/25-3C94 |
| 3C95  | $8810 \pm 25 \%$ | ≈ 2395 | ≈ 0 | EQ38/8/25-3C95 |
| 3C96  | $6300 \pm 25 \%$ | ≈ 1710 | ≈ 0 | EQ38/8/25-3C96 |
| 3F35  | $4500 \pm 25 \%$ | ≈ 1220 | ≈ 0 | EQ38/8/25-3F35 |
| 3F4  | $3000 \pm 25 \%$ | ≈ 815 | ≈ 0 | EQ38/8/25-3F4 |
| 3F45  | $3000 \pm 25 \%$ | ≈ 815 | ≈ 0 | EQ38/8/25-3F45 |

Core halves for use in combination with a plate (PLT)

A_L measured in combination with a plate (PLT), clamping force for A_L measurements, 50 ± 20 N.

| GRADE | A_L (nH) | μ_e | AIR GAP (μm) | TYPE NUMBER |
|--|-------------------|----------------|------------------------------|-------------------|
| 3C94 | $8200 \pm 25 \%$ | ≈ 1840 | ≈ 0 | PLT38/25/2.7-3C94 |
| 3C95  | $10220 \pm 25 \%$ | ≈ 2295 | ≈ 0 | PLT38/25/2.7-3C95 |
| 3C96  | $7400 \pm 25 \%$ | ≈ 1660 | ≈ 0 | PLT38/25/2.7-3C96 |
| 3F35  | $5300 \pm 25 \%$ | ≈ 1190 | ≈ 0 | PLT38/25/2.7-3F35 |
| 3F4  | $3500 \pm 25 \%$ | ≈ 785 | ≈ 0 | PLT38/25/2.7-3F4 |
| 3F45  | $3500 \pm 25 \%$ | ≈ 785 | ≈ 0 | PLT38/25/2.7-3F45 |

Properties of core sets under power conditions

| CORE COMBINATION | B (mT) at | CORE LOSS (W) at | | | |
|------------------|---|---|--|---|--|
| | H = 250 A/m; f = 10 kHz; T = 100 °C | f = 100 kHz; \hat{B} = 100 mT; T = 100 °C | f = 100 kHz; \hat{B} = 200 mT; T = 25 °C | f = 100 kHz; \hat{B} = 200 mT; T = 100 °C | f = 500 kHz; \hat{B} = 50 mT; T = 100 °C |
| EQ+EQ38-3C94 | ≥ 320 | ≤ 0.72 | ≤ 4.8 | – | – |
| EQ+PLT38-3C94 | ≥ 320 | ≤ 0.56 | ≤ 3.8 | – | – |
| EQ+EQ38-3C95 | ≥ 320 | – | ≤ 4.66 | ≤ 4.42 | – |
| EQ+PLT38-3C95 | ≥ 320 | – | ≤ 3.65 | ≤ 3.47 | – |
| EQ+EQ38-3C96 | ≥ 340 | ≤ 0.52 | – | ≤ 3.5 | ≤ 3.1 |
| EQ+PLT38-3C96 | ≥ 340 | ≤ 0.42 | – | ≤ 2.8 | ≤ 2.4 |
| EQ+EQ38-3F35 | ≥ 300 | – | – | – | ≤ 1.2 |
| EQ+PLT38-3F35 | ≥ 300 | – | – | – | ≤ 0.94 |

Properties of core sets under power conditions (continued)

| CORE COMBINATION | B (mT) at | CORE LOSS (W) at | | | |
|------------------|---|---|--|--|--|
| | H = 250 A/m; f = 10 kHz; T = 100 °C | f = 500 kHz; \hat{B} = 100 mT; T = 100 °C | f = 1 MHz; \hat{B} = 30 mT; T = 100 °C | f = 1 MHz; \hat{B} = 50 mT; T = 100 °C | f = 3 MHz; \hat{B} = 10 mT; T = 100 °C |
| EQ+EQ38-3F35 | ≥ 300 | ≤ 8.9 | – | – | – |
| EQ+PLT38-3F35 | ≥ 300 | ≤ 7.0 | – | – | – |
| EQ+EQ38-3F4 | ≥ 300 | – | ≤ 4.1 | – | ≤ 5.8 |
| EQ+PLT38-3F4 | ≥ 300 | – | ≤ 3.2 | – | ≤ 4.6 |
| EQ+EQ38-3F45 | ≥ 300 | – | ≤ 3.2 | ≤ 12 | ≤ 4.7 |
| EQ+PLT38-3F45 | ≥ 300 | – | ≤ 2.5 | ≤ 9.0 | ≤ 3.7 |




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. |

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PRODUCT STATUS DEFINITIONS

| STATUS | INDICATION | DEFINITION |
|------------------|---|--|
| Prototype |  | 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. |
| Design-in |  | These products are recommended for new designs. |
| Preferred | | These products are recommended for use in current designs and are available via our sales channels. |
| Support |  | These products are not recommended for new designs and may not be available through all of our sales channels. Customers are advised to check for availability. |