# DATA SHEET

# E58/11/38
## Planar E cores

Product specification
Supersedes data of November 1997
File under Ferrite Ceramics, MA01

1999 Dec 23

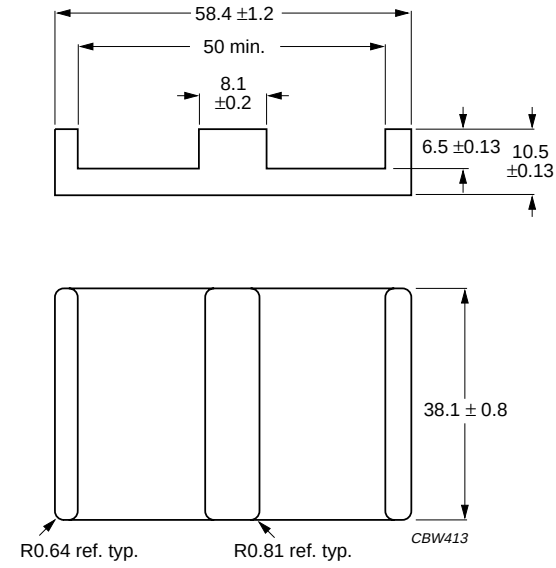
Philips
Components

PHILIPS

## CORES

### Effective core parameters of a set of E cores

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| Σ(l/A) | core factor (C1) | 0.268 | $mm^{-1}$ |
| $V_e$ | effective volume | 24600 | $mm^3$ |
| $l_e$ | effective length | 81.2 | mm |
| $A_e$ | effective area | 305 | $mm^2$ |
| m | mass of core half | ≈62 | g |




Dimensions in mm.

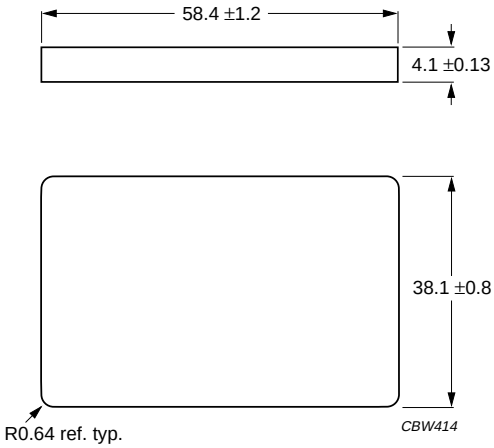
Fig.1 E58/11/38 core half.

### Effective core parameters of an E/PLT combination

| SYMBOL | PARAMETER | VALUE | UNIT |
|---|---|---|---|
| Σ(l/A) | core factor (C1) | 0.224 | $mm^{-1}$ |
| $V_e$ | effective volume | 20800 | $mm^3$ |
| $l_e$ | effective length | 68.3 | mm |
| $A_e$ | effective area | 305 | $mm^2$ |
| m | mass of core half | ≈44 | g |

### Ordering information for plates

| GRADE | TYPE NUMBER |
|---|---|
| 3C90 | PLT58/38/4-3C90 |
| 3F3 | PLT58/38/4-3F3 |
| 3F4 des | PLT58/38/4-3F4 |




Dimensions in mm.

Fig.2 PLT 58/38/4.

**Core halves for use in combination with an E core**

$A_L$ measured in combination with a non-gapped core half, clamping force for $A_L$ measurements, 40 ±20 N.

| GRADE | $A_L$ (nH) | $\mu_e$ | AIR GAP (μm) | TYPE NUMBER |
|---|---|---|---|---|
| 3C90 | 315 ±3%(1) | ≈67 | ≈1400 | E58/11-3C90-E315-E |
| | 400 ±3%(1) | ≈85 | ≈1100 | E58/11-3C90-E400-E |
| | 630 ±5%(1) | ≈134 | ≈650 | E58/11-3C90-E630-E |
| | 1000 ±5% | ≈213 | ≈400 | E58/11-3C90-A1000-E |
| | 1600 ±10% | ≈341 | ≈200 | E58/11-3C90-A1600-E |
| | 8480 ±25% | ≈1800 | ≈0 | E58/11/38-3C90 |
| 3F3 | 315 ±3%(1) | ≈67 | ≈1400 | E58/11-3F3-E315-E |
| | 400 ±3%(1) | ≈85 | ≈1100 | E58/11-3F3-E400-E |
| | 630 ±5%(1) | ≈134 | ≈650 | E58/11-3F3-E630-E |
| | 1000 ±5% | ≈213 | ≈400 | E58/11-3F3-A1000-E |
| | 1600 ±10% | ≈341 | ≈200 | E58/11-3F3-A1600-E |
| | 7710 ±25% | ≈1640 | ≈0 | E58/11/38-3F3 |
| 3F4 des | 315 ±3%(1) | ≈67 | ≈1400 | E58/11-3F4-E315-E |
| | 400 ±3%(1) | ≈85 | ≈1100 | E58/11-3F4-E400-E |
| | 630 ±5%(1) | ≈134 | ≈650 | E58/11-3F4-E630-E |
| | 1000 ±5% | ≈213 | ≈400 | E58/11-3F4-A1000-E |
| | 1600 ±10% | ≈341 | ≈200 | E58/11-3F4-A1600-E |
| | 4030 ±25% | ≈860 | ≈0 | E58/11/38-3F4 |

**Note**

1. Measured in combination with an equal gapped E core half, clamping force for $A_L$ measurements, 40 ±20 N.

**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, 40 ±20 N.

| GRADE | $A_L$ (nH) | $\mu_e$ | AIR GAP (μm) | TYPE NUMBER |
|---|---|---|---|---|
| 3C90 | 315 ±3% | ≈56 | ≈1400 | E58/11-3C90-A315-P |
| | 400 ±3% | ≈71 | ≈1100 | E58/11-3C90-A400-P |
| | 630 ±5% | ≈112 | ≈650 | E58/11-3C90-A630-P |
| | 1000 ±5% | ≈178 | ≈400 | E58/11-3C90-A1000-P |
| | 1600 ±10% | ≈285 | ≈200 | E58/11-3C90-A1600-P |
| | 9970 ±25% | ≈780 | ≈0 | E58/11/38-3C90 |
| 3F3 | 315 ±3% | ≈56 | ≈1400 | E58/11-3F3-A315-P |
| | 400 ±3% | ≈71 | ≈1100 | E58/11-3F3-A400-P |
| | 630 ±5% | ≈112 | ≈650 | E58/11-3F3-A630-P |
| | 1000 ±5% | ≈178 | ≈400 | E58/11-3F3-A1000-P |
| | 1600 ±10% | ≈285 | ≈200 | E58/11-3F3-A1600-P |
| | 9070 ±25% | ≈1620 | ≈0 | E58/11/38-3F3 |

| GRADE | $A_L$ (nH) | $\mu_e$ | AIR GAP ($\mu$m) | TYPE NUMBER |
|---|---|---|---|---|
| 3F4 des | 315 ±3% | ≈56 | ≈1400 | E58/11-3F4-A315-P |
| | 400 ±3% | ≈71 | ≈1100 | E58/11-3F4-A400-P |
| | 630 ±5% | ≈112 | ≈650 | E58/11-3F4-A630-P |
| | 1000 ±5% | ≈178 | ≈400 | E58/11-3F4-A1000-P |
| | 1600 ±10% | ≈285 | ≈200 | E58/11-3F4-A1600-P |
| | 4780 ±25% | ≈850 | ≈0 | E58/11/38-3F4 |

**Properties under power conditions**

| CORE COMBINATION | B (mT) at | CORE LOSS (W) at | | | | |
|---|---|---|---|---|---|---|
| | H = 250 A/m; f = 10 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 | f = 1 MHz; $\hat{B}$ = 30 mT; T = 100 °C | f = 3 MHz; $\hat{B}$ = 10 mT; T = 100 °C |
| E+E58-3C90 | ≥320 | ≤2.95 | ≤3.10 | – | – | – |
| E+PLT58-3C90 | ≥320 | ≤2.50 | ≤2.65 | – | – | – |
| E+E58-3F3 | ≥320 | – | ≤2.70 | ≤4.70 | – | – |
| E+PLT58-3F3 | ≥320 | – | ≤2.30 | ≤4.00 | – | – |
| E+E58-3F4 | ≥250 | – | – | – | ≤7.40 | ≤8.00 |
| E+PLT58-3F4 | ≥250 | – | – | – | ≤6.25 | ≤6.80 |