

DATA SHEET

EFD20

EFD cores and accessories

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

2000 Apr 20

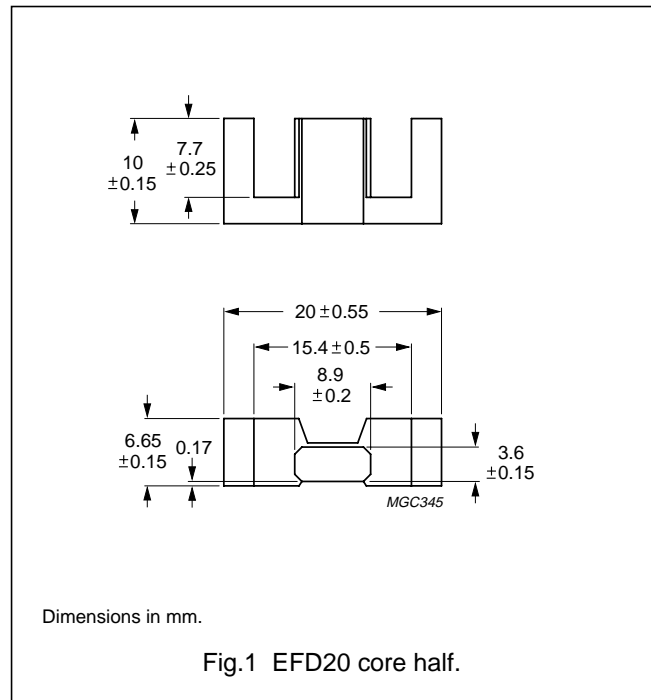
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CORES

Effective core parameters

SYMBOL	PARAMETER	VALUE	UNIT
$\Sigma(l/A)$	core factor (C1)	1.52	mm ⁻¹
V_e	effective volume	1460	mm ³
l_e	effective length	47.0	mm
A_e	effective area	31.0	mm ²
A_{min}	minimum area	29	mm ²
m	mass of core half	≈3.5	g



Core halves and sets

A_L measured as a set or in combination with a non-gapped core half, clamping force for A_L measurements, 20 ± 10 N.

GRADE	A_L (nH)	μ_e	AIR GAP (μ m)	TYPE NUMBER
3C90	1300 ± 25%	≈ 1540	≈ 0	EFD20-3C90
3F3	63 ± 3%	≈ 75	≈ 500	EFD20-3F3-E63-S
	100 ± 3%	≈ 120	≈ 240	EFD20-3F3-A100-S
	160 ± 5%	≈ 195	≈ 140	EFD20-3F3-A160-S
	250 ± 8%	≈ 300	≈ 90	EFD20-3F3-A250-S
	315 ± 10%	≈ 425	≈ 65	EFD20-3F3-A315-S
	1200 ± 25%	≈ 1450	≈ 0	EFD20-3F3
3F4 des	63 ± 3%	≈ 75	≈ 500	EFD20-3F4-E63-S
	100 ± 3%	≈ 120	≈ 240	EFD20-3F4-A100-S
	160 ± 5%	≈ 195	≈ 140	EFD20-3F4-A160-S
	250 ± 8%	≈ 300	≈ 90	EFD20-3F4-A250-S
	315 ± 10%	≈ 425	≈ 65	EFD20-3F4-A315-S
	650 ± 25%	≈ 800	≈ 0	EFD20-3F4

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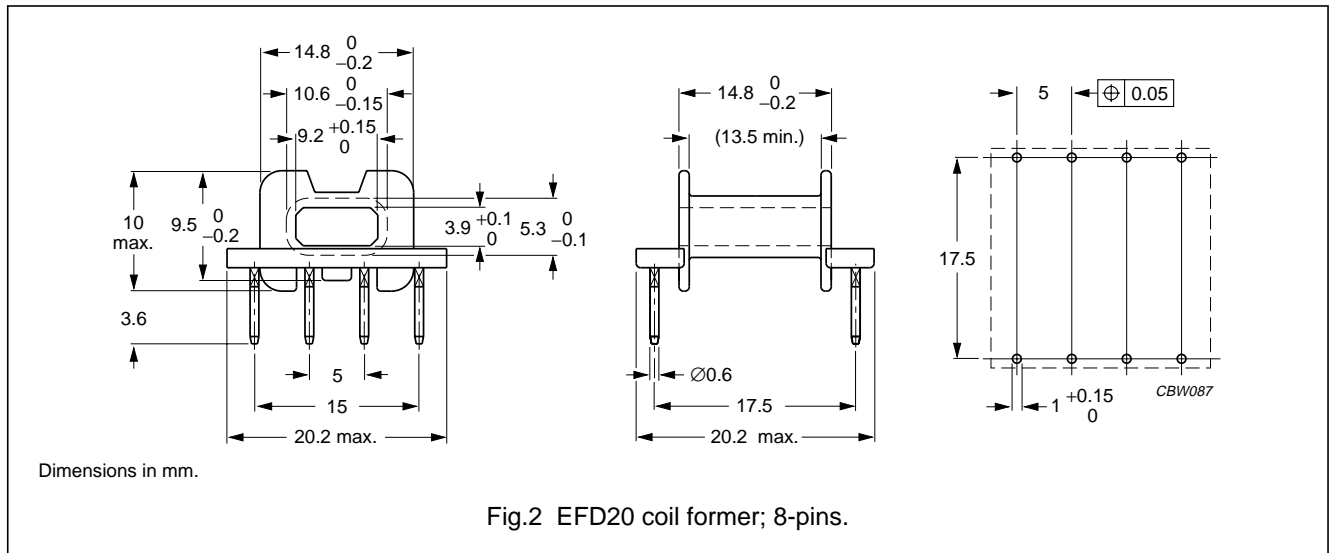
Properties of core sets under power conditions

GRADE	B (mT) at	CORE LOSS (W) at				
	H = 250 A/m; f = 25 kHz; T = 100 °C	f = 25 kHz; B̂ = 200 mT; T = 100 °C	f = 100 kHz; B̂ = 100 mT; T = 100 °C	f = 400 kHz; B̂ = 50 mT; T = 100 °C	f = 1 MHz; B̂ = 30 mT; T = 100 °C	f = 3 MHz; B̂ = 10 mT; T = 100 °C
3C90	≥330	≤0.16	≤0.17	–	–	–
3F3	≥315	–	≤0.17	≤0.28	–	–
3F4	≥300	–	–	–	≤0.30	≤0.50

COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass-reinforced, flame retardant in accordance with "UL94 V-0"; UL file number E167521(M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	180 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for EFD20 coil former with 8-pins

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	26.4	13.2	36.5	CSH-EFD20-1S-8P; see note 1

Note

- Also available with post-inserted pins.

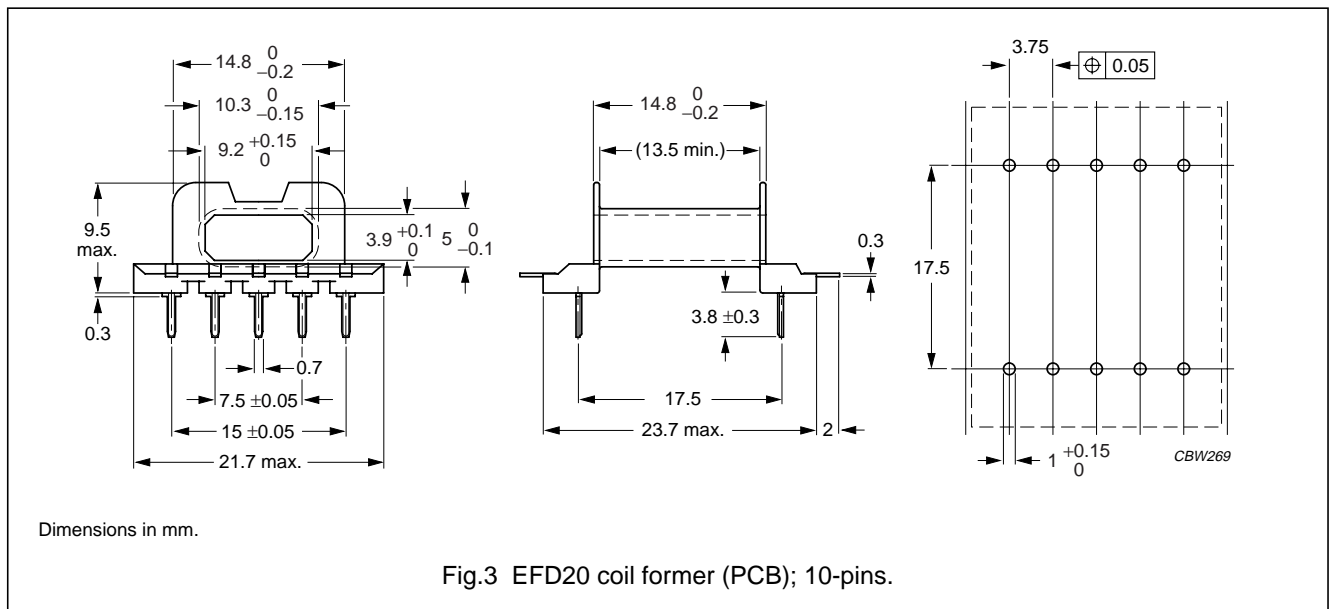
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COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL94 V-0"; UL file number E83005 (M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for EFD20 coil former (PCB) with 10-pins

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	27.7	13.5	34.1	CPH-EFD20-1S-10P

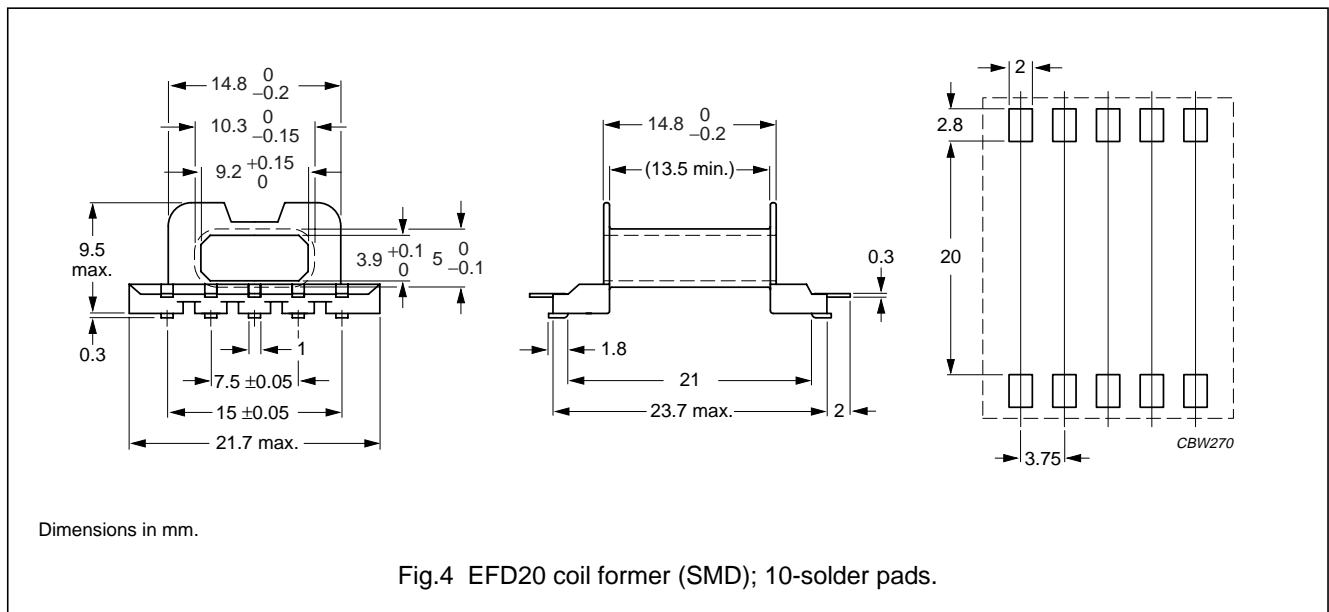
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COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	liquid crystal polymer (LCP), glass reinforced, flame retardant in accordance with "UL94 V-0"; UL file number E83005 (M)
Pin material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	155 °C, "IEC 60085", class F
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for EFD20 coil former (SMD) with 10-solder pads

NUMBER OF SECTIONS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	27.7	13.5	34.1	CPHS-EFD20-1S-10P

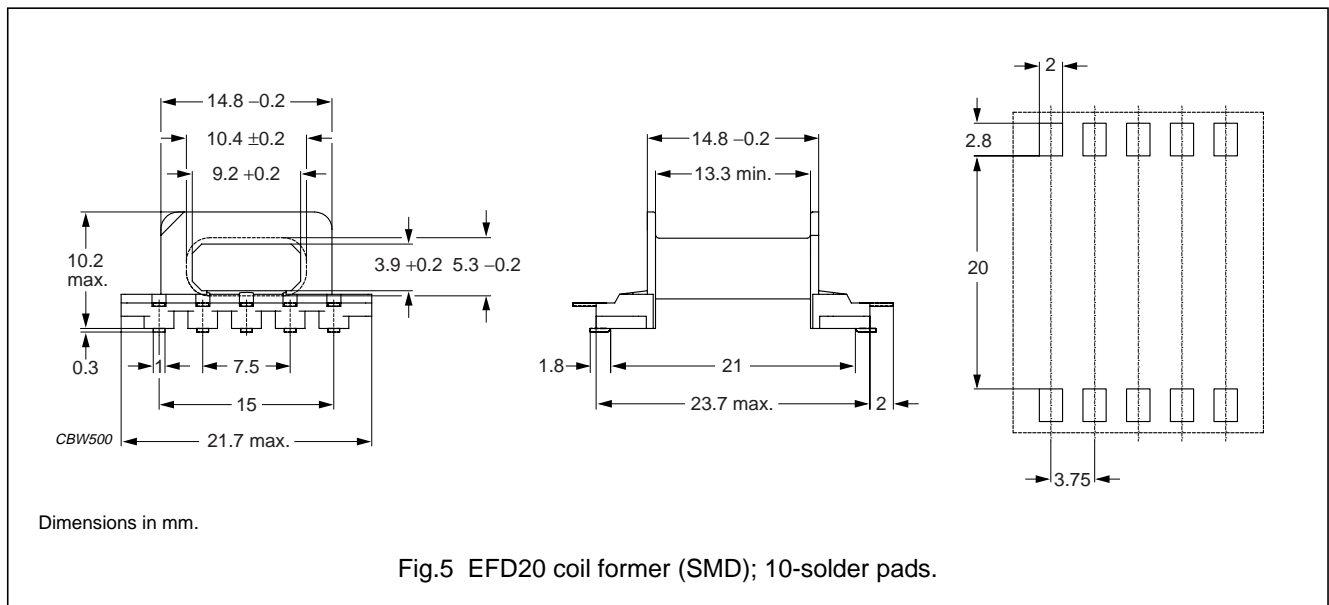
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COIL FORMERS

General data

PARAMETER	SPECIFICATION
Coil former material	phenolformaldehyde (PF), glass reinforced, flame retardant in accordance with "UL94 V-0"; UL file number E41429 (M)
Solder pad material	copper-tin alloy (CuSn), tin-lead alloy (SnPb) plated
Maximum operating temperature	185 °C, "IEC 60085", class H
Resistance to soldering heat	"IEC 60068-2-20", Part 2, Test Tb, method 1B, 350 °C, 3.5 s
Solderability	"IEC 60068-2-20", Part 2, Test Ta, method 1: 235 °C, 2 s



Winding data for EFD20 coil former (SMD) with 10-solder pads

NUMBER OF SECTIONS	NUMBER OF SOLDER PADS	WINDING AREA (mm ²)	MINIMUM WINDING WIDTH (mm)	AVERAGE LENGTH OF TURN (mm)	TYPE NUMBER
1	10	27.2	13.3	34.9	CSHS-EFD20-1S-10P-T

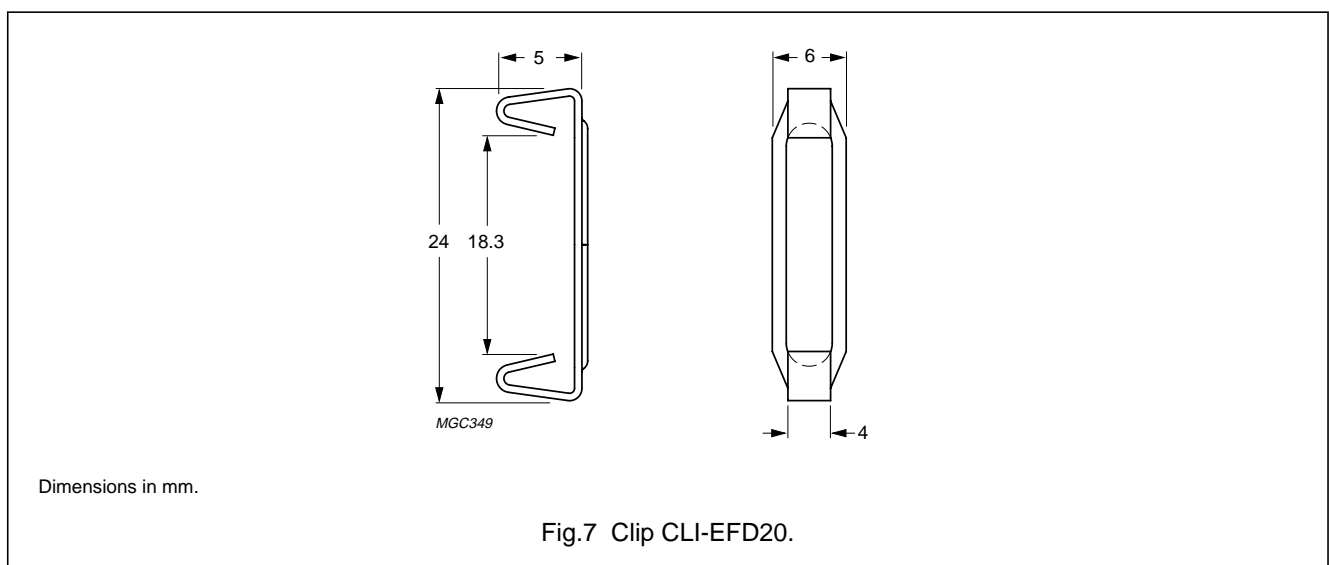
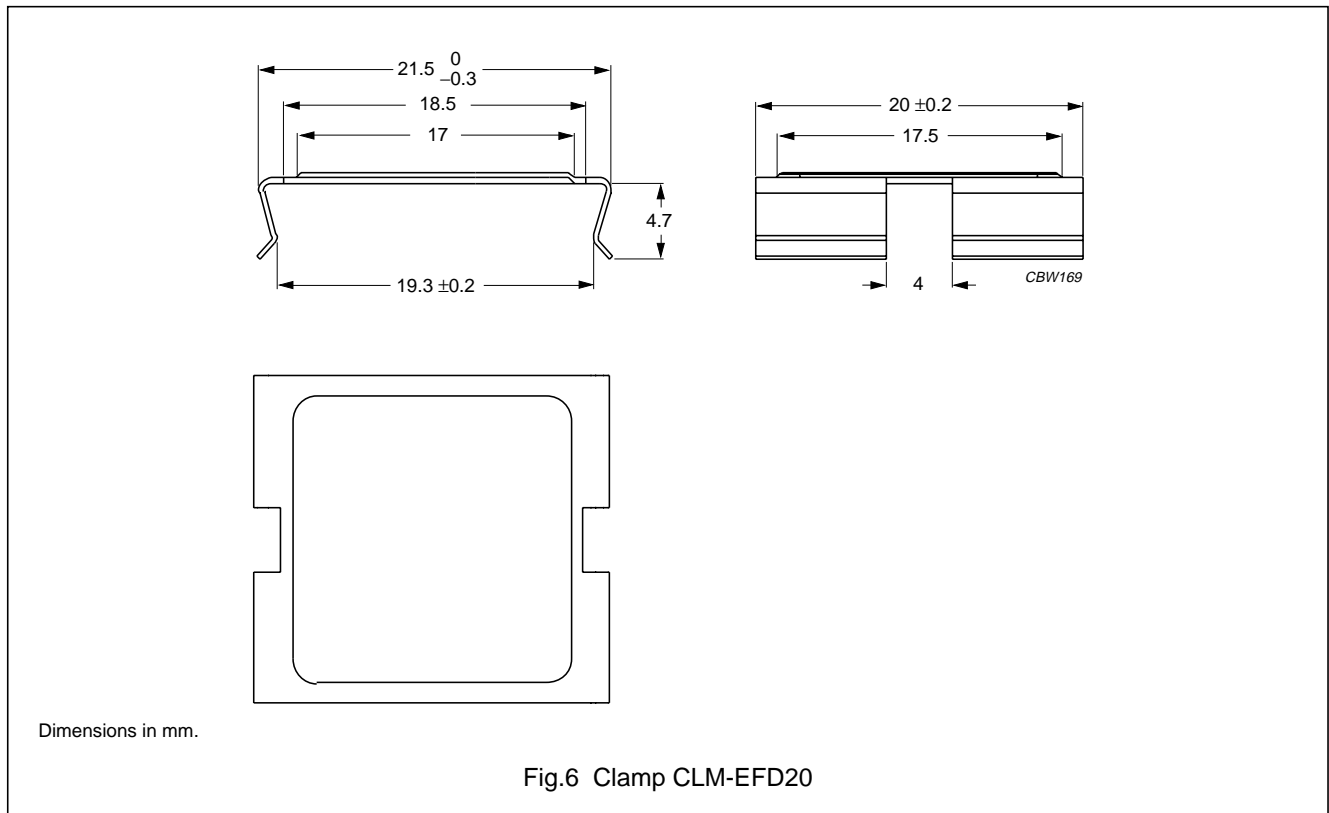
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MOUNTING PARTS

General data

ITEM	REMARKS	FIGURE	TYPE NUMBER
Clamp	stainless steel (CrNi); clamping force \approx 30 N	6	CLM-EFD20
Clip	stainless steel (CrNi); clamping force \approx 20 N	7	CLI-EFD20



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DATA SHEET STATUS DEFINITIONS

DATA SHEET STATUS	PRODUCT STATUS	DEFINITIONS
Preliminary specification	Development	This data sheet contains preliminary data. Philips Components 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. Philips Components 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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