

# Choke Coils for PFC

Pin terminal type

PFC(QM) series

PFC(ER) series

**Type:**

- PFC3811QM(Drop-in)**
- PFC3812QM(Drop-in)**
- PFC3514QM(Through hole)**
- PFC3318QM(Through hole)**
- PFC3519QM(Through hole)**
- PFC3819QM(Through hole)**
- PFC4124QM(Through hole)**
- PFC2723ER(Through hole)**
- PFC3125ER(Through hole)**
- PFC3525ER(Through hole)**

Issue date: September 2010

- All specifications are subject to change without notice.
  - Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
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# Choke Coils for PFC

## PFC Series

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# Choke Coils for PFC

## PFC Series

Conformity to RoHS Directive

### Development Concept

This small and thin PFC choke coil utilizes a power factor-improving circuit, which is suitable for the smaller and thinner electronic devices of recent years.

#### ■ MATERIAL

Thanks to the development of an optimized core shape and materials, the choke coil has DC superimposition characteristics suitable for the design of various types of electronic devices.

Optimized materials have been selected, and at the same time a small and thin PFC core with TDK's proprietary core shape has been developed.

The product line-up has been expanded to cater for various types of electronic devices that need to become smaller and thinner.

#### ■ MANUFACTURING METHOD

Since the PFC Series supports automatic winding, the product is of a high quality and can be manufactured stably.

It is designed to support automatic winding, which enables a remarkable reduction in the loss generated to achieve a proficient in manual winding until stable production.

In addition, the characteristic variations of the winding wire and creepage tape have largely been removed, stabilizing the transformer's characteristics.

#### ■ OPTIMIZATION DESIGN

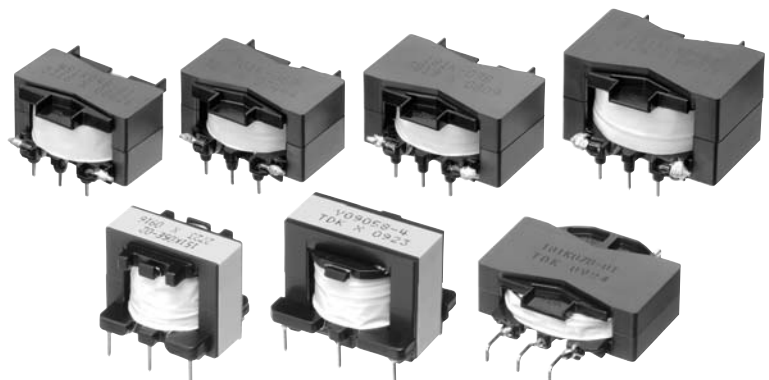
While the existing line-up of standard products remains available, new products can also be manufactured to meet customers' requests. Using design tools developed with TDK's comprehensive know-how, high-precision design has been achieved in a short period of time.

- 1) For optimization design and high-quality stable production, customers can use a specification request form.  
If you provide the necessary information in the form, you will receive the optimization design in a short time.
- 2) TDK recommends design with a standard core gap (AL-value) for optimization and shorter trial and mass production lead time.
- 3) Plans for standard winding connection (patterns of recommended pin arrangement and winding structure) are available.

These help to speed up the design process, support automatic winding, and prevent deterioration in quality.

#### ■ ENVIRONMENT

It is a product conforming to RoHS directive.



- Ferrite cores, bobbins, cases, etc. are not sold individually.
- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.
- All specifications are subject to change without notice.

# Choke Coils for PFC

## PFC Series

### FEATURES

- A low height(8 to 27mm in height) is achieved.
- Large current is achieved in a small shape.

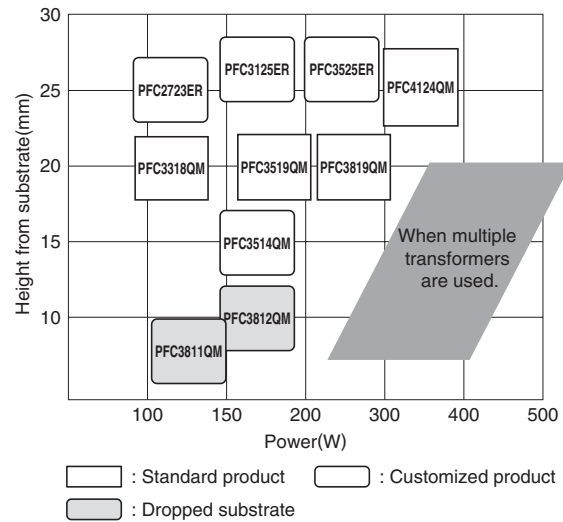
### PRODUCT IDENTIFICATION

PFC	3519QM	- 301	K	07	E	- **
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- (1) Series name
- (2) Core size
- (3) Inductance code
- (4) Inductance tolerance
- (5) Rated peak current code
- (6) Control mark
- (7) Control mark

### APPLICATIONS

AV equipment, digital consumer electronics

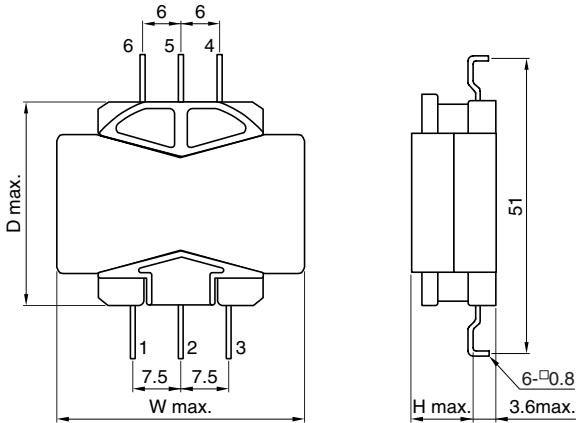


Part No.	Mount method	Height (mm)max.	Frequency (kHz)min.	PFC output power (W)	Inductance (μH)	Rated peak current* (A)	D (mm) max.	W (mm) max.	F (mm)	Turn ratio (Np/Npd)
<b>QM type</b>										
PFC3811QM-221K05B-00	Drop-in	8.5	65	125	220	4.6	33.5	40.0	50.5	10.3
PFC3812QM-221K06B-00R	Drop-in	10.0	65	180	220	5.8	32.0	40.0	44.0	10.3
PFC3514QM-351K04B-00	Through hole	15.5	65	100	350	3.7	30.0	37.0	25.0	10
PFC3514QM-281K05B-00	Through hole	15.5	65	125	280	4.6	30.0	37.0	25.0	9.8
PFC3514QM-231K05B-00	Through hole	15.5	65	150	230	5.5	30.0	37.0	25.0	9.6
PFC3318QM-601K03B-00	Through hole	20.0	50	75	600	2.8	28.0	35.0	22.5	9
PFC3318QM-601K03E-00	Through hole	20.0	50	75	600	2.8	28.0	35.0	22.5	9.6
PFC3318QM-451K04B-00	Through hole	20.0	50	100	450	3.7	28.0	35.0	22.5	9
PFC3519QM-451K04E-00	Through hole	20.0	50	100	450	3.7	30.0	37.0	25.0	10
PFC3519QM-301K06B-00	Through hole	20.0	50	150	300	5.5	30.0	37.0	25.0	9.8
PFC3819QM-301K06E-00	Through hole	20.0	50	150	300	5.5	33.5	40.0	28.0	9.8
PFC3519QM-231K07B-00	Through hole	20.0	50	200	230	7.4	30.0	37.0	25.0	9.6
PFC3819QM-231K07D-00	Through hole	20.0	50	200	230	7.4	33.5	40.0	28.0	9.6
PFC3819QM-181K09B-00	Through hole	20.0	50	250	180	8.8	33.5	40.0	28.0	9.5
PFC4124QM-181K09D-00	Through hole	25.0	50	250	180	8.8	38.0	43.0	32.0	9.5
PFC3819QM-151K11B-00	Through hole	20.0	50	300	150	11.1	33.5	40.0	28.0	9.8
PFC4124QM-151K11D-00	Through hole	25.0	50	300	150	11.1	38.0	43.0	32.0	9.8
<b>ER type</b>										
PFC2723ER-601K02B-00	Through hole	25.0	50	75	600	2.4	25.0	28.0	20.0	9.8
PFC2723ER-421K03B-00	Through hole	25.0	50	100	420	3.4	25.0	28.0	20.0	10.8
PFC3125ER-451K03E-00	Through hole	27.0	50	100	450	2.7	26.0	33.0	21.0	10.0
PFC3125ER-301K05B-00	Through hole	27.0	50	150	300	4.9	26.0	33.0	21.0	10.4
PFC3125ER-231K06B-00	Through hole	27.0	50	200	230	6.4	26.0	33.0	21.0	9.0
PFC3525ER-301K04E-00	Through hole	27.0	50	150	300	4.1	27.5	37.0	22.0	10.4
PFC3525ER-231K06E-00	Through hole	27.0	50	200	225	5.6	27.5	37.0	22.0	10.0
PFC3525ER-181K09B-00	Through hole	27.0	50	250	180	9.5	27.5	37.0	22.0	10.5

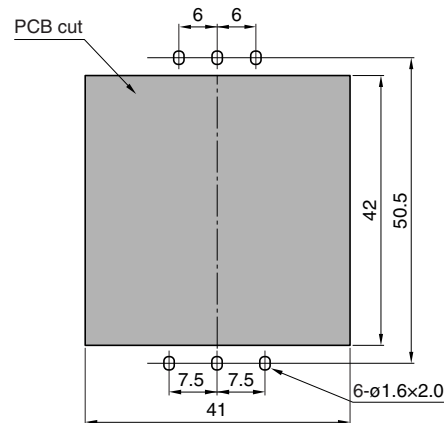
\* The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

# PFC3811QM

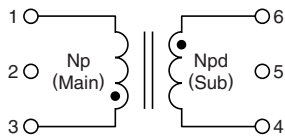
## SHAPES AND DIMENSIONS



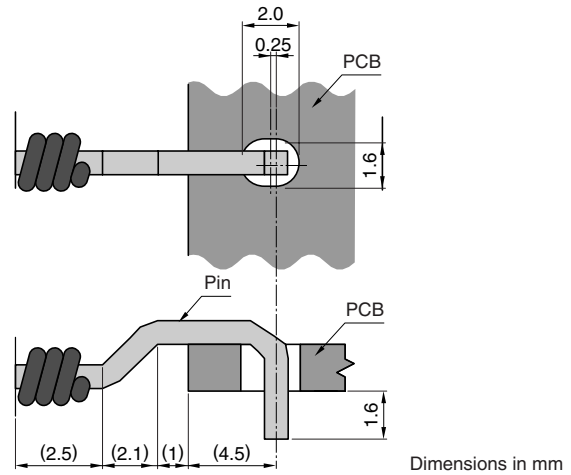
## RECOMMENDED BASE MATERIAL OPENING SIZE



## CIRCUIT DIAGRAM



## PIN DETAILS



Dimensions in mm

Type	D	W	H	P1	P2	F
PFC3811QM	33.5max.	40.0max.	8.5max.	7.5	6.0	50.5

## ELECTRICAL CHARACTERISTICS

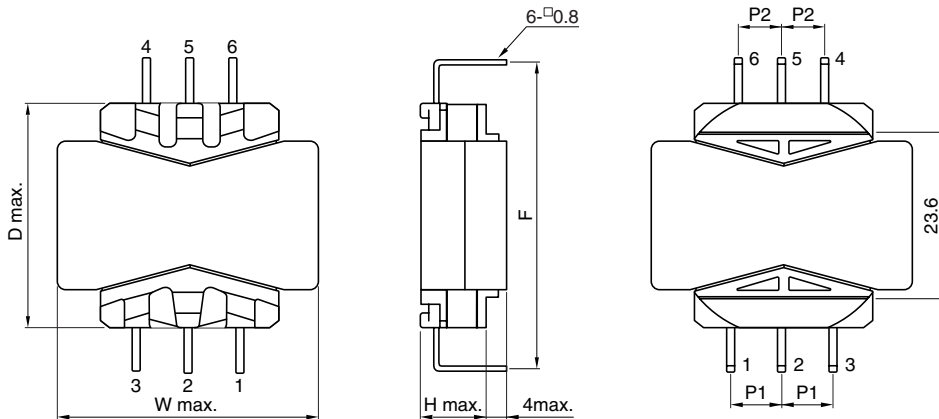
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC3811QM-221K05B-00	85 to 264	65	125	220	4.6	120%	5.5	10.3

\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

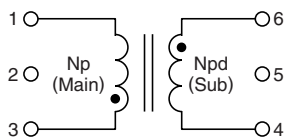
\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC3812QM

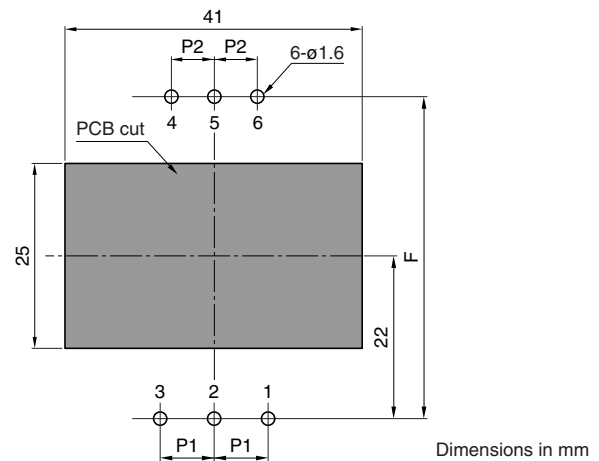
## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



## RECOMMENDED BASE MATERIAL OPENING SIZE



Dimensions in mm

Type	D	W	H	P1	P2	F
PFC3812QM	32.0max.	40.0max.	10max.	7.5	6.0	44

## ELECTRICAL CHARACTERISTICS

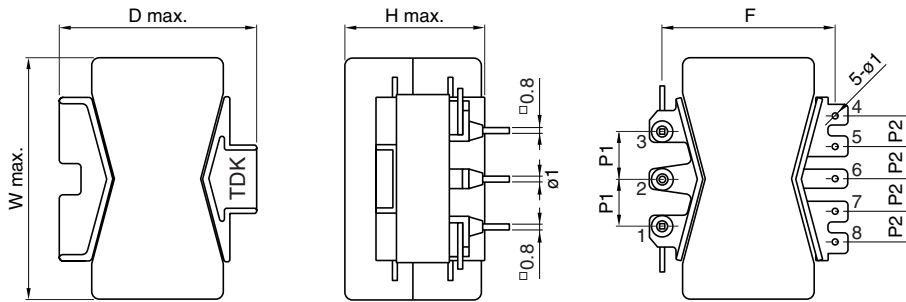
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC3812QM-221K06B-00R	85 to 264	65	180	220	5.8	120%	8.3	10.3

\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

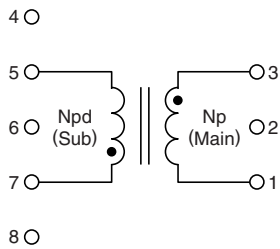
\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC3514QM

## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



Dimensions in mm

Type	D	W	H	P1	P2	F
PFC3514QM	30.0max.	37.0max.	15.5max.	7.5	5.0	25.0

## ELECTRICAL CHARACTERISTICS

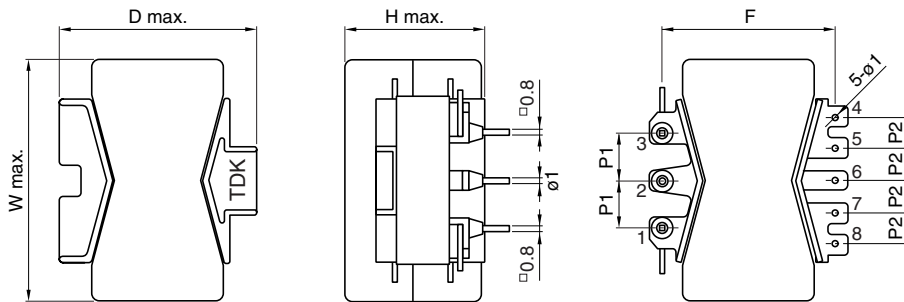
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current* <sup>1</sup> (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current* <sup>2</sup> (A)	
PFC3514QM-351K04B-00	85 to 264	65	100	350	3.7	120%	4.4	10
PFC3514QM-281K05B-00	85 to 264	65	125	280	4.6	120%	6.0	9.8
PFC3514QM-231K06B-00	85 to 264	65	150	230	5.5	120%	7.2	9.6

\*<sup>1</sup> The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

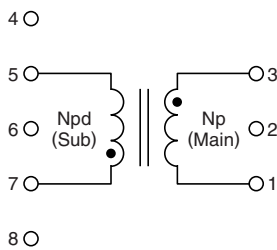
\*<sup>2</sup> The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC3318QM / PFC3519QM PFC3819QM / PFC4124QM

## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



Dimensions in mm

Type	D	W	H	P1	P2	F
PFC3318QM	28.0max.	35.0max.	20.0max.	7.5	5	22.5
PFC3519QM	30.0max.	37.0max.	20.0max.	7.5	5	25
PFC3819QM	33.5max.	40.0max.	20.0max.	7.5	5	28
PFC4124QM	38.0max.	43.0max.	25.0max.	7.5	5	32

## ELECTRICAL CHARACTERISTICS

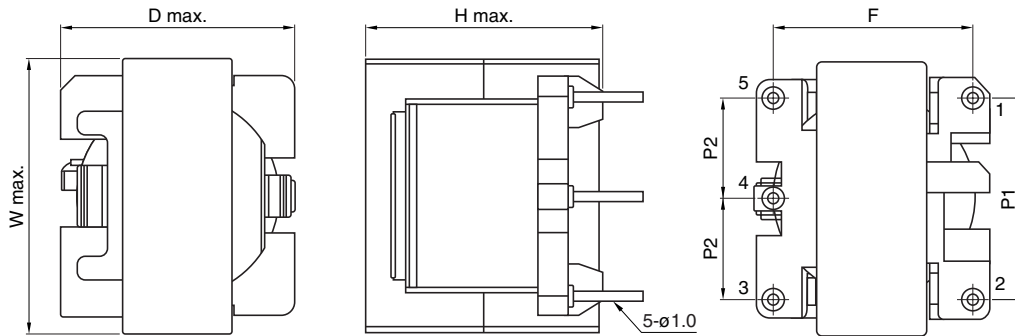
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC3318QM-601K03B-00	85 to 264	50	75	600	2.8	120%	3.3	9
PFC3318QM-601K03E-00	85 to 264	50	75	600	2.8	150%	4.1	9.6
PFC3318QM-451K04B-00	85 to 264	50	100	450	3.7	120%	4.4	9
PFC3519QM-451K04E-00	85 to 264	50	100	450	3.7	150%	5.5	10
PFC3519QM-301K06B-00	85 to 264	50	150	300	5.5	120%	6.6	9.8
PFC3819QM-301K06E-00	85 to 264	50	150	300	5.5	150%	8.3	9.8
PFC3519QM-231K07B-00	85 to 264	50	200	230	7.4	120%	8.8	9.6
PFC3819QM-231K07D-00	85 to 264	50	200	230	7.4	140%	10.4	9.6
PFC3819QM-181K09B-00	85 to 264	50	250	180	8.8	120%	11.1	9.5
PFC4124QM-181K09D-00	85 to 264	50	250	180	8.8	140%	12.9	9.5
PFC3819QM-151K11B-00	85 to 264	50	300	150	11.1	120%	13.3	9.8
PFC4124QM-151K11D-00	85 to 264	50	300	150	11.1	140%	15.5	9.8

\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

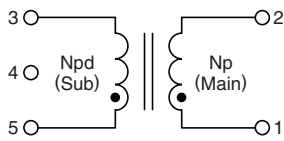
\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC2723ER

## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



Dimensions in mm

Type	D	W	H	P1	P2	F
PFC2723ER	25.0max.	28.0max.	25.0max.	20	10	20

## ELECTRICAL CHARACTERISTICS

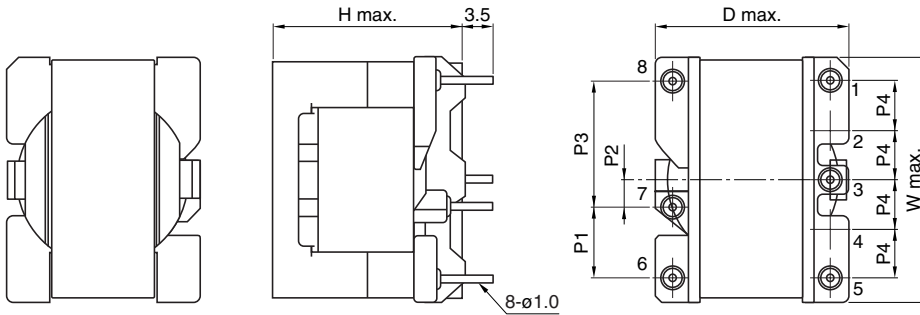
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC2723ER-601K02B-00	85 to 264	50	75	600	2.4	120%	3.3	9.8
PFC2723ER-421K03B-00	85 to 264	50	100	420	3.4	120%	4.5	10.8

\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

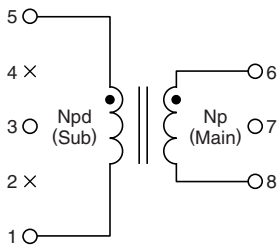
\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC3125ER

## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



Dimensions in mm

Type	D	W	H	P1	P2	P3	P4	F
PFC3125ER	26.0max.	33.0max.	27.0max.	9.5	3.5	16.5	6.5	21

## ELECTRICAL CHARACTERISTICS

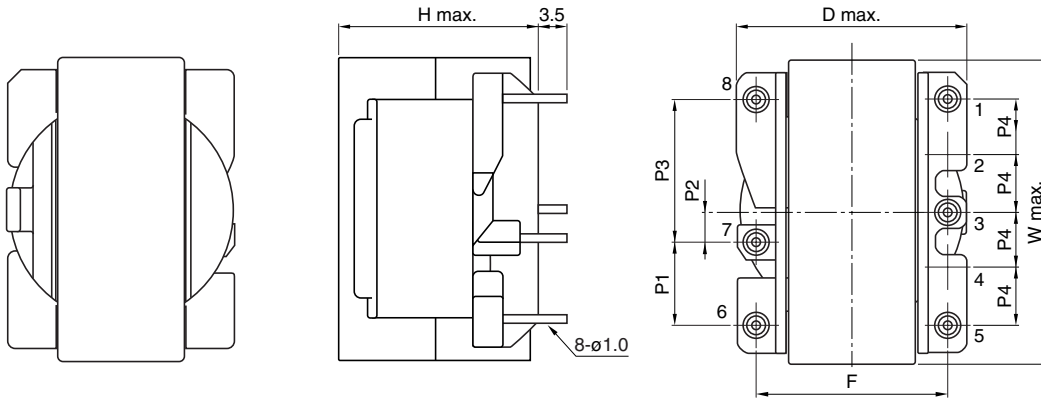
Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC3125ER-451K03E-00	85 to 264	50	100	450	2.7	150%	5.4	10.0
PFC3125ER-301K05B-00	85 to 264	50	150	300	4.9	120%	7.0	10.4
PFC3125ER-231K06B-00	85 to 264	50	200	230	6.4	120%	9.1	9.0

\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

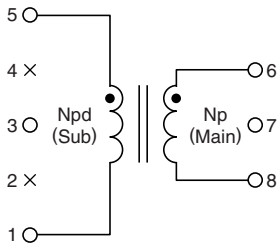
\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

# PFC3525ER

## SHAPES AND DIMENSIONS



## CIRCUIT DIAGRAM



Dimensions in mm

Type	D	W	H	P1	P2	P3	P4	F
PFC3525ER	27.5max.	37.0max.	27.0max.	9.5	3.5	16.5	6.5	22

## ELECTRICAL CHARACTERISTICS

Part No.	Input voltage Eac(V)	Frequency (kHz)min.	PFC output power (W)	Inductance ( $\mu$ H)	Rated peak current*1 (A)	Peak current at OCP		Turn ratio (Np/Npd)
						OCP margin	Saturation current*2(A)	
PFC3525ER-301K04E-00	85 to 264	50	150	300	4.1	150%	8.2	10.4
PFC3525ER-231K06E-00	85 to 264	50	200	225	5.6	150%	11.1	10.0
PFC3525ER-181K09B-00	85 to 264	50	250	180	9.5	120%	13.0	10.5

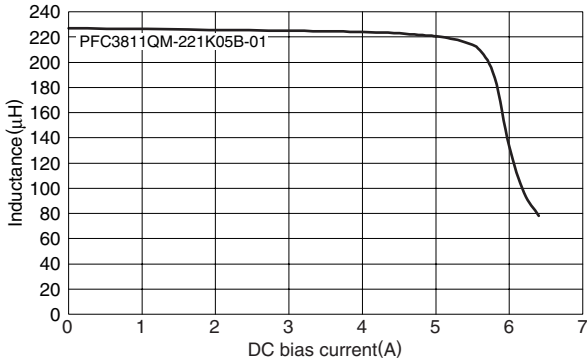
\*1 The rated peak current is determined by the peak value of the triangular waveform current when the temperature increase is less than 40°C during continuous operation.

\*2 The saturated current is specified as a current whose inductance decreases by 20% at a constant temperature of 100°C.

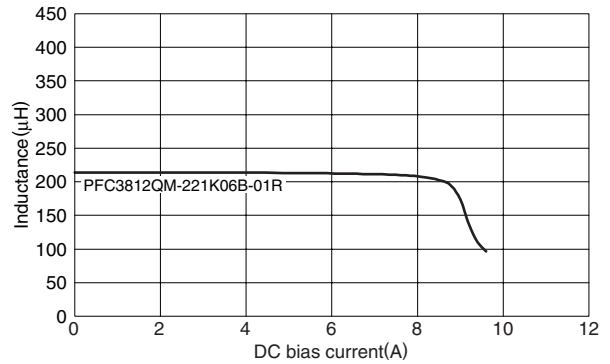
**TYPICAL ELECTRICAL CHARACTERISTICS**

**INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS**

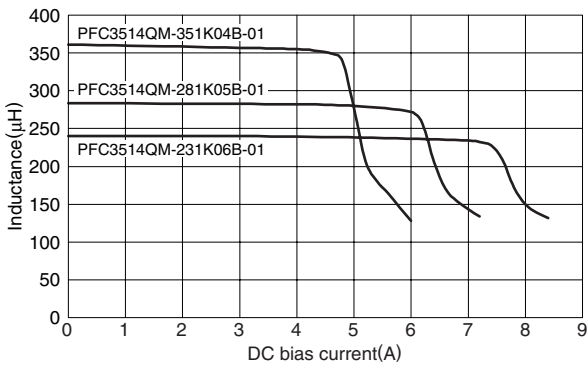
**PFC3811QM**



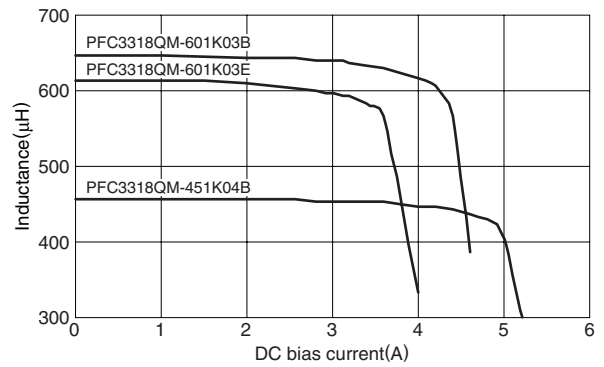
**PFC3812QM**



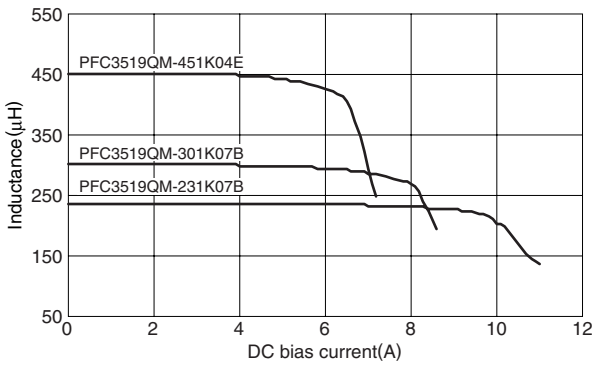
**PFC3514QM**



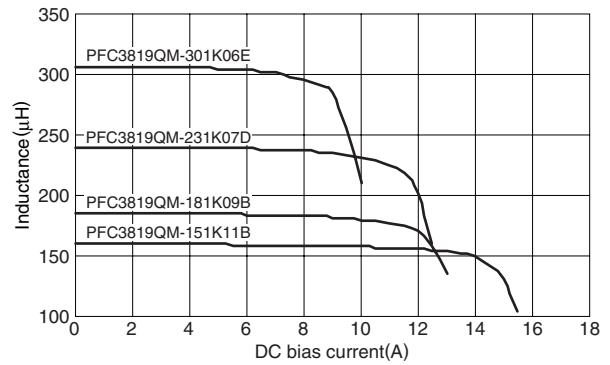
**PFC3318QM**



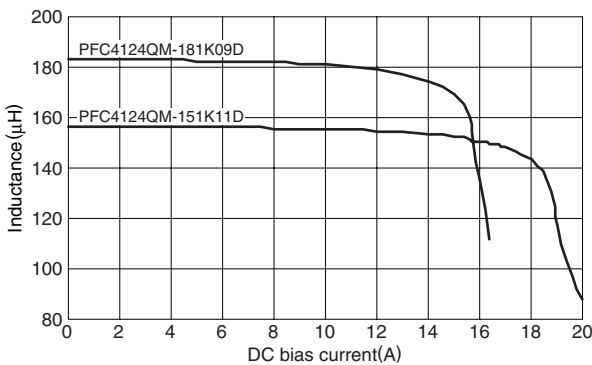
**PFC3519QM**



**PFC3819QM**



**PFC4124QM**

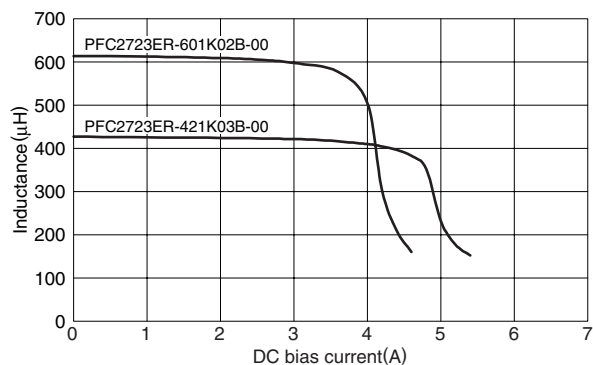


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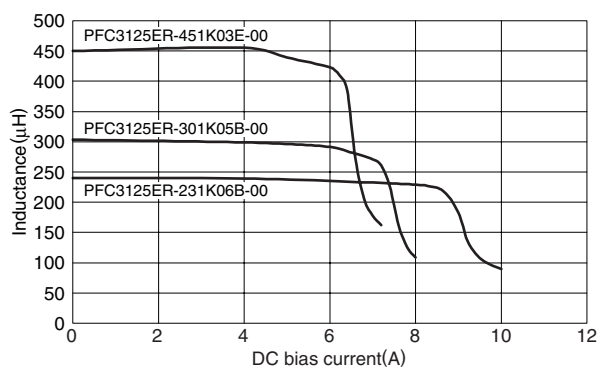
### TYPICAL ELECTRICAL CHARACTERISTICS

#### INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS

##### PFC2723ER



##### PFC3125ER



##### PFC3525ER

