

# PFC3514QM-231K06B-00 Datasheet





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DiGi Electronics Part Number PFC3514QM-231K06B-00-DG

Manufacturer TDK Corporation

Manufacturer Product Number PFC3514QM-231K06B-00

Description CHOKE COMMON MODE

Detailed Description 230 µH Unshielded Drum Core, Wirewound Inducto

r 5.5 A Radial, Horizontal, 8 Leads Choke Coils for P

FC (Pin Terminal Type)



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DiGi is a global authorized distributor of electronic components.



### **Purchase and inquiry**

Manufacturer Product Number:	Manufacturer:
PFC3514QM-231K06B-00	TDK Corporation
Series:	Product Status:
PFC	Active
Type:	Material - Core:
Drum Core, Wirewound	Ferrite
Inductance:	Tolerance:
230 µН	±10%
Current Rating (Amps):	Current - Saturation (Isat):
5.5 A	
Shielding:	DC Resistance (DCR):
Unshielded	
Q@Freq:	Frequency - Self Resonant:
Ratings:	Operating Temperature:
	-30°C ~ 120°C
Inductance Frequency - Test:	Features:
65 kHz	Choke Coils for PFC (Pin Terminal Type)
Mounting Type:	Package / Case:
Through Hole	Radial, Horizontal, 8 Leads
Supplier Device Package:	Size / Dimension:
	1.457" L x 1.181" W (37.00mm x 30.00mm)
Height - Seated (Max):	
0.610" (15.50mm)	

### **Environmental & Export classification**

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
ECCN:	HTSUS:
EAR99	8504.50.8000



August 2021













### **Choke Coils for PFC**

Pin terminal type

# PFC series

PFC3514QM

**PFC3318QM** 

**PFC3519QM** 

**PFC3819QM** 

PFC4124QM

PFC2723ER

PFC3125ER

PFC3525ER

PFC3820QN

PFC3831QN

### Dynamic characteristic data

- PFC-QM series
- PFC-ER series
- PFC-QN series



### An attention matter on use

Please read this specifications before using this product by all means.

### An attention matter on security

I undertake use with this product, and it is paid attention enough, and please design an attention matter safely.

<b>⚠ Atten</b>	tion on a design
<ul> <li>When designing the board, use our recommended hole diameter or p</li> <li>Magnetic flux to leak out occurs. Please confirm it about influence of there is fear to cause false movement of machinery.</li> <li>When designing the board, ensure a distance from the transformer in the product is not quakeproof structure. Accordingly please do not act the product produces possibility to lose a function.</li> </ul>	magnetic flux beforehand.  accordance with the applicable safety standards.
<b>⚠</b> Attention	on on the handling
Please do not use it when you let a product drop. The product produces possibility to lose a function. Be careful not to get injured because the tip of the terminal is sharper For storage, avoid dust, dust, fog, water droplets and direct sunlight. There is fear to cause false movement of machinery. Do not use or store in an environment with gas corrosion (salt, acid, a The product produces possibility to lose a function. When mounting, do not apply excessive force to the product with met The product produces possibility to lose a function.	alkali, etc.).
$\triangle$	Attention
conditions (drive frequency and maximum ON period), etc., so avoid There are destruction of a circuit part and fear of ignition.  The operating temperature and humidity ranges are determined in co so please avoid using in a range exceeding this range.  There is a risk of burning or ignition.  Avoid using it in an environment where dust and dirt are likely to adher there is a risk of cause a fire.  The products listed on this specification sheet are intended for use in home appliances, amusement equipment, computer equipment, persunder a normal operation and use condition.  The products are not designed or warranted to meet the requirements stringent level of safety or reliability, or whose failure, malfunction or to	possideration of the characteristics of the components and the self-temperature rise, ere.  general electronic equipment (AV equipment, telecommunications equipment, sonal equipment, office equipment, measurement equipment, industrial robots)  s of the applications listed below, whose performance and/or quality require a more trouble could cause serious damage to society, person or property.  exceeding the scope and conditions of this specification or by using it for a specific purpose, please contact us in advance.
<ol> <li>(1) Aerospace/Aviation equipment</li> <li>(2)Transportation equipment (cars, electric trains, ships, etc.)</li> <li>(3) Medical equipment</li> <li>(4) Power-generation control equipment</li> <li>(5) Atomic energy-related equipment</li> <li>(6) Seabed equipmentapplications</li> <li>(7) Transportation control equipment</li> </ol>	<ul> <li>(8) Public information-processing equipment</li> <li>(9) Military equipment</li> <li>(10) Electric heating apparatus, burning equipment</li> <li>(11) Disaster prevention/crime prevention equipment</li> <li>(12) Safety equipment</li> <li>(13) Other applications that are not considered general-purpose applications</li> </ul>

When designing your equipment even for general-purpose applications, you are kindly requested to take into consideration securing protection circuit/device or providing backup circuits in your equipment.



# **Choke Coils for PFC PFC series**

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### **Choke Coils for PFC**

### Pin terminal type

### **Development Concept of the PFC series**

This is a power - factor improvement circuit for choke coils for smaller, thinner and narrow floor space in recent years electronic equipment.

#### 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 the original core shape for PFC has been developed.

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

#### 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

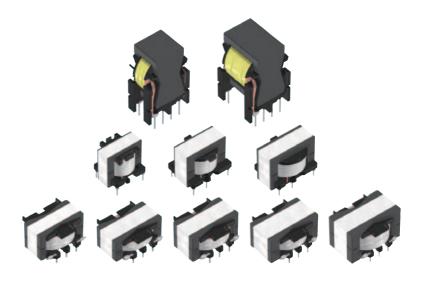
While the existing line-up of standard products remains available, new products can also be manufactured to meet customers' requests. Using design tools developed with TDK's comprehensive know-how, high-precision design has been achieved in a short period of time.

- 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.

### **ENVIRONMENT**

The PFC series is RoHS directive-compliant product.





### **Choke Coils for PFC**

Pin terminal type

### Product compatible with RoHS directive Compatible with lead-free solders

### **Overview of the PFC series**

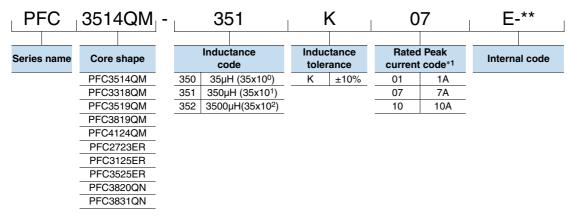
#### **FEATURES**

- A low height(15.5 to 27mm in height) and narrow floor space(QN type) are achieved.
- O Large current is achieved in a small shape.

#### APPLICATION

AV equipment, digital consumer electronics

### ■ PART NUMBER CONSTRUCTION



<sup>\*1</sup> The rounded-off value.

### ■ OPERATING TEMPERATURE RANGE, PACKAGE QUANTITY, PRODUCT WEIGHT

	Temperat	ure range			
Туре	Operating Storage temperature*3		Package quantity	Individual weight*4	
	(°C)	(°C)	(pieces/box)	(g)	
PFC3514QM	-30 to +120	-40 to +80	175	40.0	
PFC3318QM	-30 to +120	-40 to +80	140	27.6	
PFC3519QM	-30 to +120	-40 to +80	140	50.3	
PFC3819QM	-30 to +120	-40 to +80	100	60.5	
PFC4124QM	-30 to +120	-40 to +80	90	91.9	
PFC2723ER	-30 to +120	-40 to +80	150	34.1	
PFC3125ER	-30 to +120	-40 to +80	120	49.7	
PFC3525ER	-30 to +120	-40 to +80	120	57.3	
PFC3820QN	-30 to +120	-40 to +80	105	71.9	
PFC3831QN	-30 to +120	-40 to +80	63	115.3	

<sup>\*2</sup> Operating temperature range includes self-temperature rise.

<sup>\*3</sup> The Storage temperature range is for after the circuit board is mounted.

<sup>\*4</sup> Typical weight.

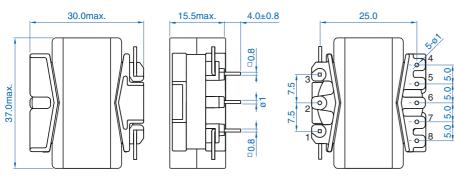
O RoHS Directive Compliant Product: See the following for more details.https://product.tdk.com/info/en/environment/rohs/index.html



### PFC QM series

# PFC3514QM Type

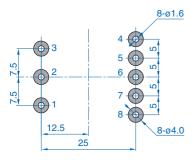
### **SHAPE & DIMENSIONS**



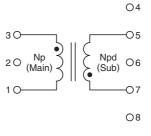


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QM series PFC3514QM Type

### **ELECTRICAL CHARACTERISTICS**

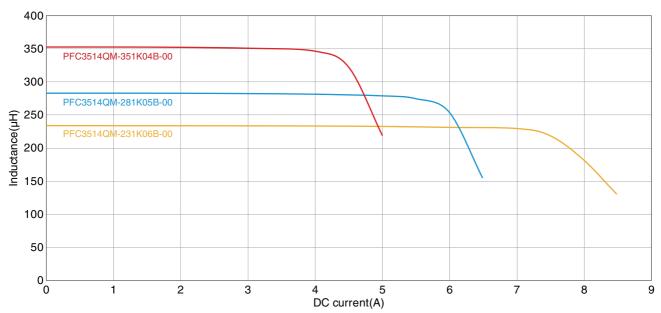
#### □ CHARACTERISTICS SPECIFICATION TABLE

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (µH)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC3514QM-351K04B-00	Through hole	65	100	350	3.7	10.0
PFC3514QM-281K05B-00	Through hole	65	125	280	4.6	9.8
PFC3514QM-231K06B-00	Through hole	65	150	230	5.5	9.6

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



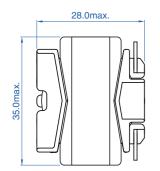
<sup>\*2</sup> Equivalent measurement equipment may be used.

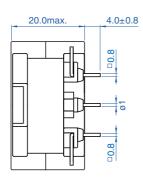


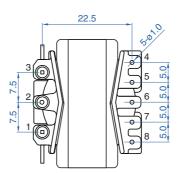
### PFC QM series

# PFC3318QM Type

### **SHAPE & DIMENSIONS**



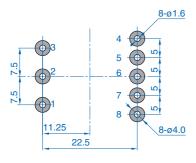




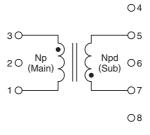


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QM series PFC3318QM Type

### **ELECTRICAL CHARACTERISTICS**

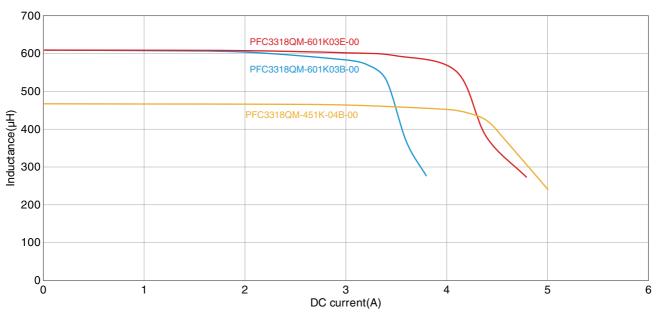
#### **CHARACTERISTICS SPECIFICATION TABLE**

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (µH)	Rated peek current* <sup>1</sup> (A)	Turn ratio (Np/Npd)
PFC3318QM-601K03B-00	Through hole	50	75	600	2.8	9.0
PFC3318QM-601K03E-00	Through hole	50	75	600	2.8	9.6
PFC3318QM-451K04B-00	Through hole	50	100	450	3.7	9.0

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



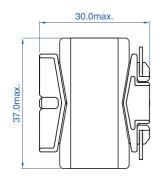
<sup>\*2</sup> Equivalent measurement equipment may be used.

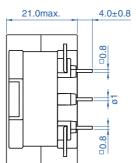


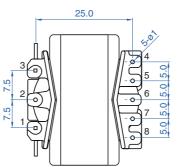
### PFC QM series

# PFC3519QM Type

### ■SHAPE & DIMENSIONS



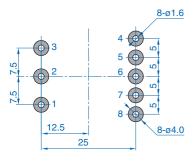




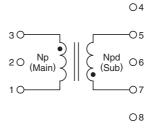


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QM series PFC3519QM Type

### **ELECTRICAL CHARACTERISTICS**

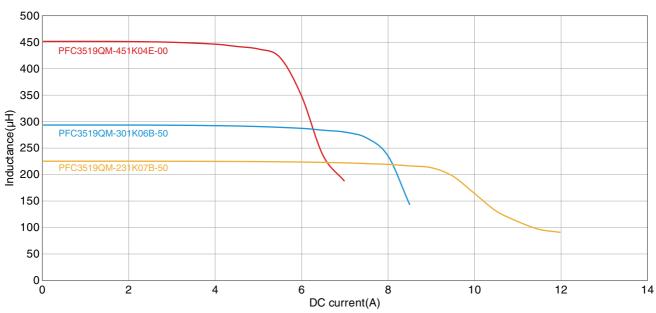
### **CHARACTERISTICS SPECIFICATION TABLE**

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (μΗ)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC3519QM-451K04E-00	Through hole	50	100	450	3.7	10
PFC3519QM-301K06B-50	Through hole	50	150	300	5.5	9.8
PFC3519QM-231K07B-50	Through hole	50	200	230	7.4	9.6

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



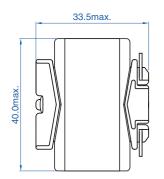
<sup>\*2</sup> Equivalent measurement equipment may be used.

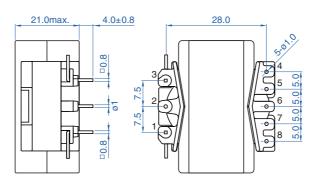


### PFC QM series

# PFC3819QM Type

### **SHAPE & DIMENSIONS**

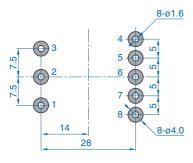




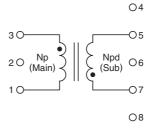


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QM series PFC3819QM Type

### **■ ELECTRICAL CHARACTERISTICS**

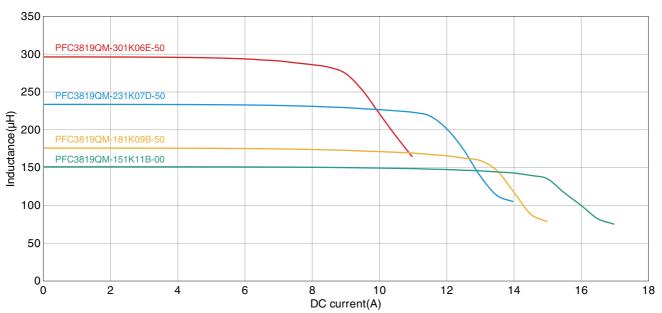
#### □ CHARACTERISTICS SPECIFICATION TABLE

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (μH)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC3819QM-301K06E-50	Through hole	50	150	300	5.5	9.8
PFC3819QM-231K07D-50	Through hole	50	200	230	7.4	9.6
PFC3819QM-181K09B-50	Through hole	50	250	180	8.8	9.5
PFC3819QM-151K11B-00	Through hole	50	300	150	11.1	9.8

### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



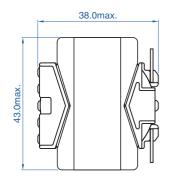
<sup>\*2</sup> Equivalent measurement equipment may be used.

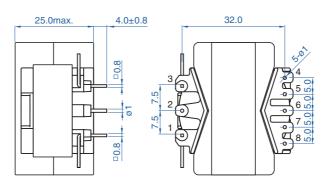


### PFC QM series

# PFC4124QM Type

### **SHAPE & DIMENSIONS**

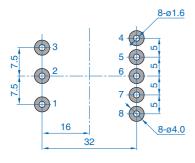




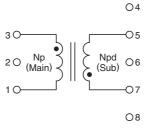


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QM series PFC4124QM Type

### **ELECTRICAL CHARACTERISTICS**

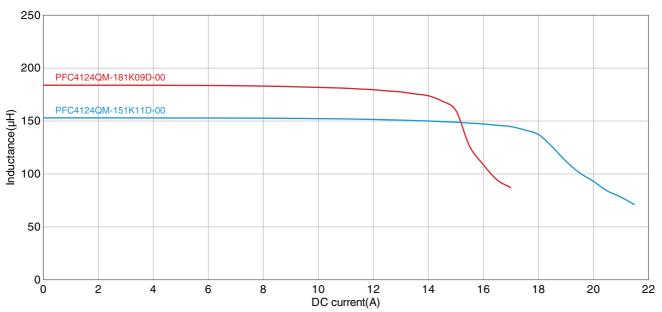
#### **CHARACTERISTICS SPECIFICATION TABLE**

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (μΗ)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC4124QM-181K09D-00	Through hole	50	250	180	8.8	9.5
PFC4124QM-151K11D-00	Through hole	50	300	150	11.1	9.8

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



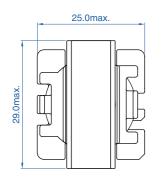
<sup>\*2</sup> Equivalent measurement equipment may be used.

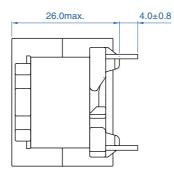


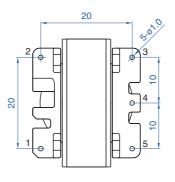
### PFC ER series

# PFC2723ER Type

### **SHAPE & DIMENSIONS**



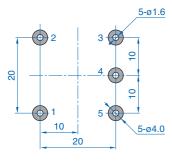




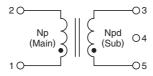
Dimensions in mm



### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC ER series PFC2723ER Type

### **ELECTRICAL CHARACTERISTICS**

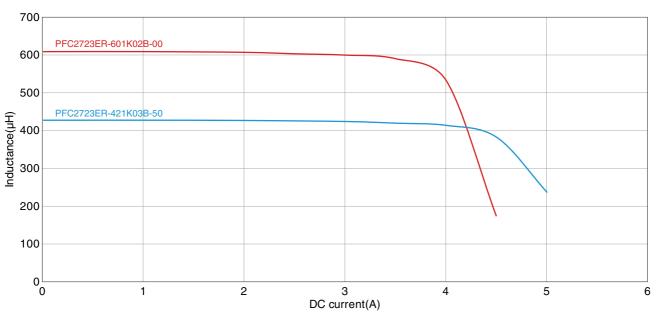
#### **CHARACTERISTICS SPECIFICATION TABLE**

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (μΗ)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC2723ER-601K02B-00	Through hole	50	75	600	2.4	9.8
PFC2723ER-421K03B-50	Through hole	50	100	420	3.4	10.8

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



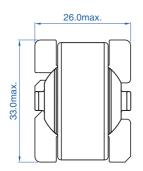
<sup>\*2</sup> Equivalent measurement equipment may be used.

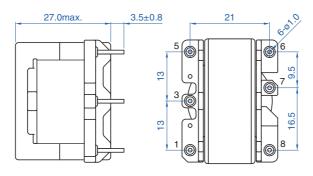


### PFC ER series

# PFC3125ER Type

#### **SHAPE & DIMENSIONS**

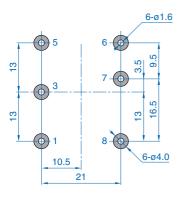




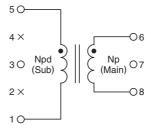


Dimensions in mm

### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC ER series PFC3125ER Type

### **ELECTRICAL CHARACTERISTICS**

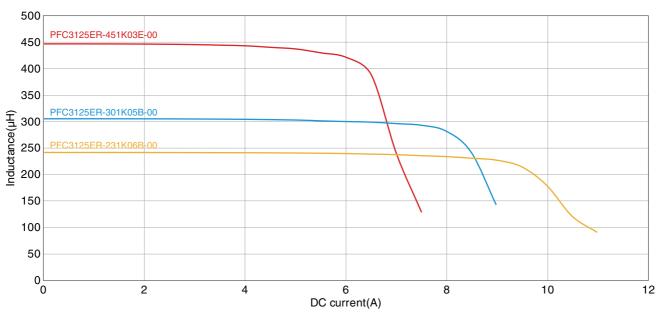
#### □ CHARACTERISTICS SPECIFICATION TABLE

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (µH)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC3125ER-451K03E-00	Through hole	50	100	450	2.7	10.0
PFC3125ER-301K05B-00	Through hole	50	150	300	4.9	10.4
PFC3125ER-231K06B-00	Through hole	50	200	230	6.4	9.0

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



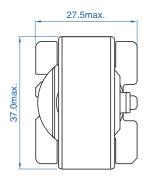
<sup>\*2</sup> Equivalent measurement equipment may be used.

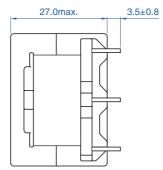


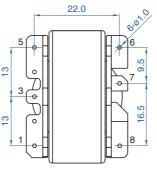
### PFC ER series

# PFC3525ER Type

### **SHAPE & DIMENSIONS**



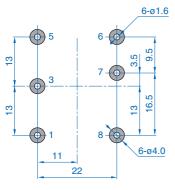




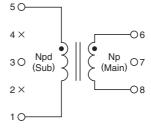




### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC ER series PFC3525ER Type

### **ELECTRICAL CHARACTERISTICS**

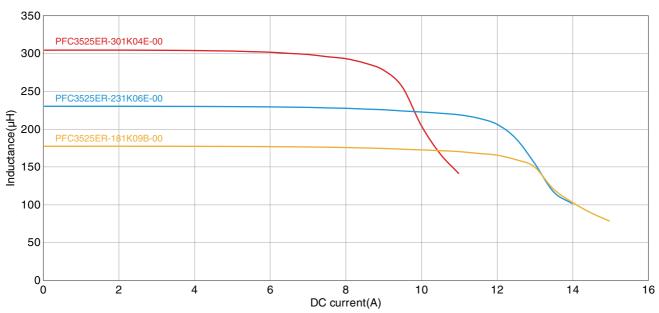
#### □ CHARACTERISTICS SPECIFICATION TABLE

Part number	Mount method	Frequency (kHz) min.	PFC output power (W)	Inductance (μΗ)	Rated peek current*1 (A)	Turn ratio (Np/Npd)
PFC3525ER-301K04E-00	Through hole	50	150	300	4.1	10.4
PFC3525ER-231K06E-00	Through hole	50	200	225	5.6	10.0
PFC3525ER-181K09B-00	Through hole	50	250	180	9.5	10.5

#### ○ Measurement equipment\*2

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.



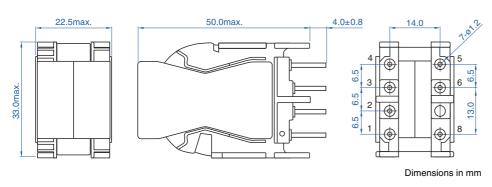
<sup>\*2</sup> Equivalent measurement equipment may be used.



### PFC QN series

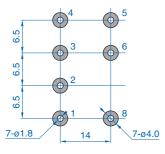
# PFC3820QN Type

### **SHAPE & DIMENSIONS**

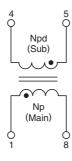




### ■ RECOMMENDED LAND PATTERN



#### Dimensions in mm





### PFC QN series PFC3820QN Type

### **ELECTRICAL CHARACTERISTICS**

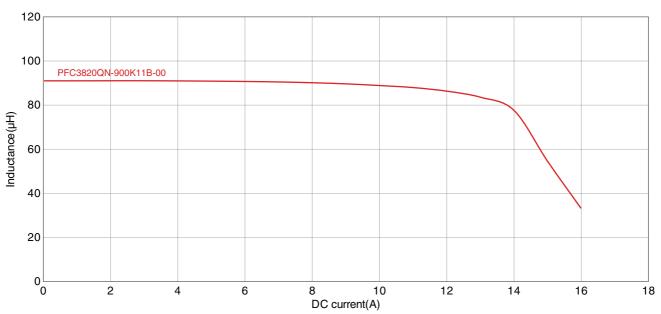
#### □ CHARACTERISTICS SPECIFICATION TABLE

Part number	Mount method	Frequency (kHz) min.	PFC output power*1 (W)	Inductance (μH)	Rated peek current* <sup>2</sup> (A)	Turn ratio (Np/Npd)
PFC3820QN-900K11B-00	Through hole	35	800	90	11	7

#### ○ Measurement equipment\*3

Measurement item	Product No.	Manufacturer
Inductance	4284A	Keysight Technologies
DC bias characteristics	4284A + 42841A	Keysight Technologies

<sup>\*1</sup> Output power at 220 Vac input.



<sup>\*2</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.

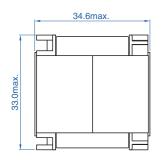
<sup>\*3</sup> Equivalent measurement equipment may be used.

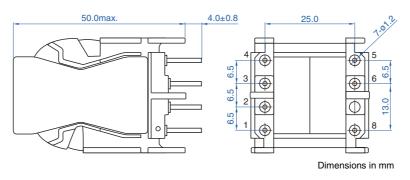


### PFC QN series

# PFC3831QN Type

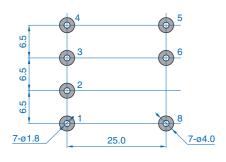
### **SHAPE & DIMENSIONS**







### ■ RECOMMENDED LAND PATTERN



Dimensions in mm





### PFC QN series PFC3831QN Type

### **■ ELECTRICAL CHARACTERISTICS**

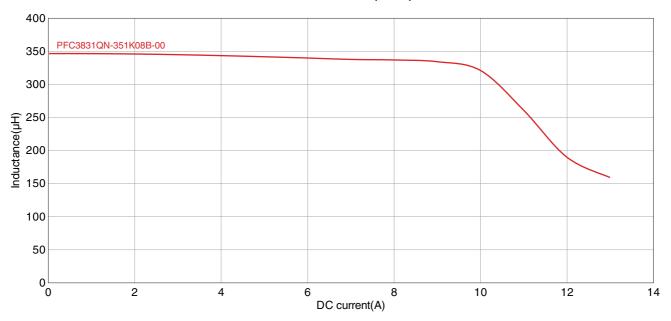
#### **CHARACTERISTICS SPECIFICATION TABLE**

Part number	Mount method	Frequency (kHz) min.	PFC output power*1 (W)	Inductance (µH)	Rated peek current* <sup>2</sup> (A)	Turn ratio (Np/Npd)
PFC3831QN-351K08B-00	Through hole	50	900	350	8	_

#### ○ Measurement equipment\*3

Measurement item	Product No.	Manufacturer	
Inductance	4284A	Keysight Technologies	
DC bias characteristics	4284A + 42841A	Keysight Technologies	

<sup>\*1</sup> Output power at 220 Vac input.



<sup>\*2</sup> The rated peak current is the peak value of the triangular wave current flowing through the PFC coil.

<sup>\*3</sup> Equivalent measurement equipment may be used.



Р	FC Circuit Inductance Specification Reque	est Form	Is	ssued on /	/			
1.	Company name							
	Address							
2.	Department, applicant's name							
	Name:	Person in Charge from Sales Promotion Dep.:  Person in Charge from Sales Dep.:			d Date / /			
	TEL/FAX :				Recorded Date / /			
	E-mail:		Recorded	d Date / /				
3.	Circuit system (Fill in the $(\Box)$ square like this $(\blacksquare)$ to make your se	election.)						
	□Continuous mode □Critical mode □Interleave □Other (	)						
4.	Input specifications							
	AC input voltage: Rated (V) to(V	V) Opera	ting range:	(V) to	(V)			
	Frequency (Hz)	Minimum operating inp	ut voltage:	(V) to	(V)			
5.	Design condition							
	(1) Clock frequency (Fill in the (□) square like this (■) to make you	ur selection.)	ntinuous mode(fixed	frequency):	(kHz			
	☐ Critical mode(lowest frequency): (kH.							
	(2) Output voltage		,	. ,,	(Vdc)			
	(3) Rated output power/Maximum peak power			(W) /	(W)			
	(4) Minimum operating input voltage				(Vac)			
	(5) Overcurrent point condition (ex.: 130% in (3)Rated output power and (4) Minimum operating input voltage) (%)							
	(6) Maximum temperature rise			ΔΤ	(°C)			
	Condition in temperature evaluation (ex.: minimum input							
	(7) Auxiliary winding (Fill in the (□) square like this (■) to make your selection.)							
	Number of windings (Winding							
	Desired voltage value and current	(V) /	(mA)					
	Necessity of insulation (Fill in the $(\Box)$ square like this $(\blacksquare)$ to ma	ulation Reinforced	l insulation					
	(8) Circuit diagram (If you desire any pin number, attach a circuit di	iagram.)	□Yes	□No				
6.	Inductance value and saturated current value for reference							
	Inductance value:	μ(H) S	aturated current valu	ıe:	(A)			
7.	Desired core size and external size							
	Core size: External size	L: W:	H(Height fro	om the board):	mm max.			
8.	IC expected to be used							
	Manufacturer name:	Product No.:						
9.	Production quantity information							
	Final set name: Desired price/Currency:							
	Acceptance conditions of the above price (FCA CHN, CIP LA, DDP Paris etc.):							
	Production volume: k/M Production start po							
	Prototyping time: (ES1) (ES2)							
10.	Sample information		\ /	\ /-				
	Required sample quantity pcs.	Requested delivery tir	me:					
11.	Note company regulations, such as safe distance and dielectri							
	Hote company regulations, such as sale distance and dielectric		-					
12.	If there are any other requests (priorities in the company, size							
	TDK Corporation Magnetics Business Group, Strategic Prodi 2-5-1 Nihonbashi, Chuo-ku, Tokyo, 103-6128, Japan TEL: 81-3-67		-1155					

Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.



### **OUR CERTIFICATE**

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