

## HPHF transformer

# HPHF transformer (High Power, High Frequency)

## Breaking the power/frequency barrier with patented pdqb winding technology

Murata's innovative pdqb winding technology makes it possible to construct high frequency transformers of up to 200kW which can operate at frequencies as high as 250 kHz. This is made possible because the construction eliminates constraints that limit conventional manufacturing techniques.

### Features

- Murata pdqb winding configuration that mitigates the high frequency losses and enables the construction of very high power high frequency transformers.
- Wide power range options: 30kW to 200kW
- Up to 10kV input output isolation  
Higher isolation on bespoke solutions
- Over 99.5% efficiency
- Wide operating frequency range: 20-250kHz or higher
- Input/output voltages: 50V up to 1kV
- 1:1 to 10:1 turns ratios
- Scalable technology



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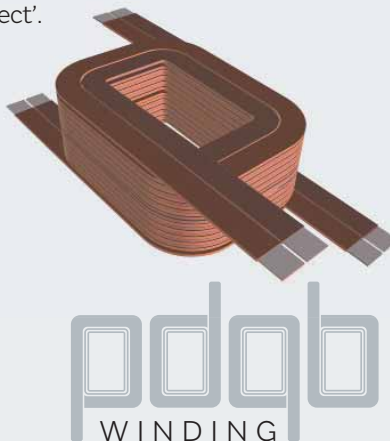
### Eliminating high frequency losses

It is difficult to construct compact single module high frequency power magnetics using conventional transformer design, because neighbouring current carrying conductors become immersed in each other's magnetic fields, creating losses through what is known as 'proximity effect'.

This 'proximity effect', along with other losses associated with conventional construction, has limited miniaturization and the frequency at which high power transformers can operate ... **until now.**

#### Murata's pdqb winding technology

practically eliminates proximity effect while also mitigating the effects of interwinding capacitance and other losses, allowing for higher frequencies at higher power, in smaller packages.



### Applications

- Railway - on-board and line-side
- EV/HEV charging
- Industrial inverters
- Renewable energy
- Energy distribution - smart grids

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### Electrical specifications

Parameter	Unit	Range
Vin	V	50 to 1000
Vout	V	50 to 1000
Turns ratio	-	1:1 to 10:1
Power rating	kW	30 to 200
Operating frequency	kHz	20 to 250
Primary inductance	mH	1 to 15
Leakage inductance	uH	1 to 4
Isolation	kV	≥6
Efficiency	%	>99.5

### Package dimensions

Fully encapsulated products with 20kHz operating frequency not requiring forced air cooling.

Rated power	Length	Width	Height
kW	cm	cm	cm
30	16	16	15
40	18	16	15
50	20	18	16
75	22	18	18
100	25	18	20
200	TBA	TBA	TBA



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