

## 48V Input, Single and Dual Output Isolated DC-DC Converters for Telecom/Network Applications

Single and dual output converters are composed of next-generation, board-mountable, isolated, fixed switching frequency DC-DC converters that use synchronous rectification to achieve extremely high power conversion efficiency. The power dissipated by the converter is so low that a heatsink is not required, which saves cost, weight, height, and application effort. All of the power and control components are mounted to the multi-layer PCB substrate.

### Operational Features

- ◆ Ultra-high efficiency up to 97%
- ◆ Wide input voltage ranges:
  - 18-36V (PQ24)
  - 18-60V (PQ30)
  - 18-75V (PQ40)
  - 35-75V (PQ48, PQ60, DQ6)
  - 44-52V (PQ50)
  - 38-55V (PQ55)
  - 40-75V (PQ65)
- ◆ Withstand up to 100V, 100ms input voltage transient (PQ60, PQ40 models only)
- ◆ Fixed frequency switching, low output noise
- ◆ No minimum load requirement (except PQ60525HTA04)
- ◆ Full Feature optional on some models

### Protection/Control Features

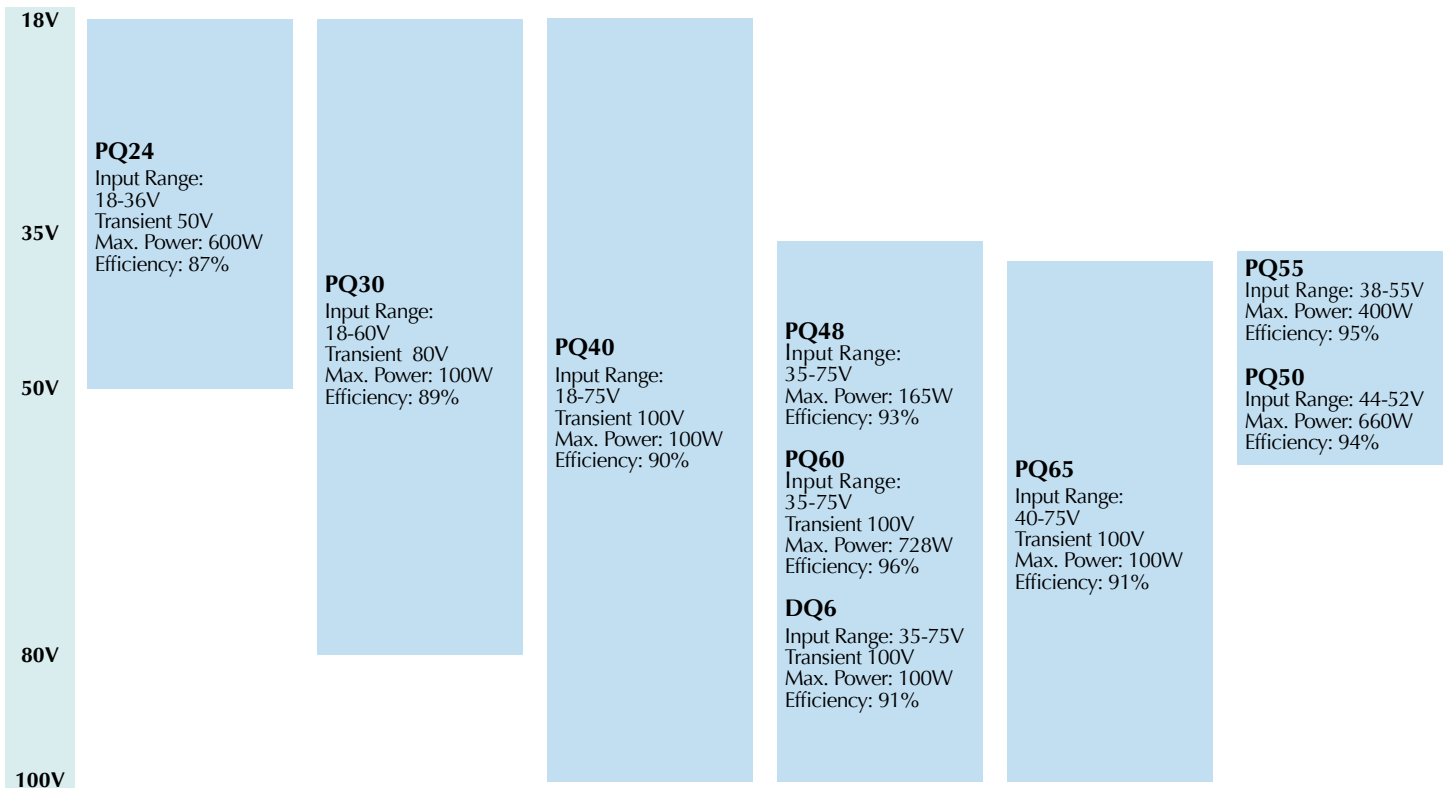
- ◆ Input under-voltage lockout (UVLO)
- ◆ Output current limit (OCP) and short circuit protection
- ◆ Output over-voltage protection (OVP)
- ◆ Thermal shutdown (OTP)
- ◆ Back-drive protection (starts into pre-biased load)
- ◆ On/Off control referenced to input side (Fully isolated for Full Bricks)
- ◆ Remote sense
- ◆ Output voltage trim (industry std. trim equations)
- ◆ Digital Output Current Sharing (HZ only)

### General Specifications

- ◆ Operating Temperature -40°C to +100°C
- ◆ Output Voltage Set Point ±1.0% to 1.5%
- ◆ Output Voltage Trim Range
  - +10% to -20%
  - Sixteenth Brick +10% to -10%
  - Half Brick Zeta +10% to -50%
- ◆ Output Voltage Ripple <1% of Vout (typ.) pk-pk
- ◆ Input Ref. Ripple Current <1% of Iin (typ.) rms
- ◆ Switching Frequency 200 - 300kHz
- ◆ Isolation Voltage Up to 2250Vdc
- ◆ Industry standard pin-out configurations and standard footprints



# TELECOM / DATACOM ISOLATED DC-DC CONVERTERS



## POWERQOR ISOLATED DC-DC CONVERTER

Base Part Number							Option Descriptions			
Family	Cont. Input Voltage	Output Voltage		Package Size	Performance Series	Thermal Design	Max. Output Current	Enable Logic	Pin Length	Feature Set
PQ	<b>24:</b> 18-36V <b>30:</b> 18-60V <b>40:</b> 18-75V <b>48:</b> 35-75V <b>50:</b> 44-52V <b>55:</b> 38-55V <b>60:</b> 35-75V <b>65:</b> 40-75V	<b>010:</b> 1V <b>012:</b> 1.2V <b>015:</b> 1.5V <b>016:</b> 1.65V <b>018:</b> 1.8V <b>020:</b> 2V <b>025:</b> 2.5V <b>033:</b> 3.3V <b>050:</b> 5V <b>053:</b> 5.3V <b>060:</b> 6V	<b>080:</b> 8V <b>090:</b> 9V <b>120:</b> 12V <b>150:</b> 15V <b>180:</b> 18V <b>240:</b> 24V <b>260:</b> 26V <b>280:</b> 28V <b>480:</b> 48V <b>500:</b> 50V <b>525:</b> 52.5V <b>530:</b> 53V <b>540:</b> 54V	<b>S:</b> Sixteenth Brick <b>E:</b> Eighth Brick <b>Q:</b> Quarter Brick <b>H:</b> Half Brick <b>F:</b> Full Brick	<b>K:</b> Kilo <b>M:</b> Mega <b>G:</b> Giga <b>T:</b> Tera <b>P:</b> Peta <b>E:</b> Exa <b>Z:</b> Zeta	<b>A:</b> Open frame <b>B:</b> Baseplate <b>C:</b> Encased <b>D:</b> Encased Non-threaded Baseplate <b>L:</b> Low profile <b>M:</b> Low Profile Baseplate	<b>25:</b> 25A <b>30:</b> 30A <b>40:</b> 40A <b>60:</b> 60A <b>80:</b> 80A <b>A0:</b> 100A (not all models are shown)	<b>P:</b> Pos. <b>N:</b> Neg.	<b>K:</b> 0.110" <b>N:</b> 0.145" <b>R:</b> 0.180" <b>Y:</b> 0.250"	<b>S:</b> Standard <b>F:</b> Full Feature

**Part Numbering Example:** PQ60120QZB33NNS-G For valid part numbers, refer to the website or contact your local sales representative or distributor.

## DUALQOR ISOLATED DC-DC CONVERTER

Family	Input Voltage	1st Output Voltage	2nd Output Voltage	Package Size	Series	Thermal Design	Max Power Output	Enable Logic	Pin Length	Feature Set
DQ	<b>6:</b> 35-75V (100V Trans.)	<b>33:</b> 3.3V <b>50:</b> 5.0V	<b>25:</b> 2.5V <b>33:</b> 3.3V	<b>Q:</b> Quarter Brick	<b>K:</b> Kilo <b>M:</b> Mega <b>G:</b> Giga	<b>A:</b> Open frame <b>B:</b> Baseplate	<b>04:</b> 40W <b>06:</b> 60W	<b>P:</b> Pos. <b>N:</b> Neg.	<b>K:</b> 0.110" <b>N:</b> 0.145" <b>R:</b> 0.180" <b>Y:</b> 0.250"	<b>S:</b> Standard

**Part Numbering Example:** DQ65033QMA06NNS-G For valid part numbers, refer to the website or contact your local sales representative or distributor.

See "Open Frame Packages" on page MECH-81 for package outlines.

# TELECOM / DATACOM ISOLATED DC-DC CONVERTERS

## PQ24

Vout	1.8V	3.3V	5V	12V	15V	28V	50V
24Vdc Input (18-36Vdc Input Range, 50Vdc Transient on Full Brick)							
Full Brick	FTx					21.5A 600W	
Quarter Brick	QEx		40A 200W	25A 300W	20A 300W	10.7A 308W	6A 300W
	QGL		25A 83W				
	QGA	25A 45W	25A 83W	20A 100W	8.33A 100W	6.67A 100W	



## PQ30

Vout	3.3V
24 and 48Vdc Input (18-60Vdc Input Range, 80Vdc Transient)	
Quarter Brick	QGA
	30A 100W
	25A 83W
Eighth Brick	EGA
	20A 66W

## PQ55

Vout	7V	53V	54V
48Vdc Input (38-55Vdc Input Range)			
Half Brick	HZB	52A 364W	
	HEB		7.6A 400W
	HTL		5.1A 275W

## PQ40

Vout	3.3V	5V	8V	12V	15V	
24 and 48Vdc Input (18-75Vdc Input Range, 100Vdc Transient)						
Quarter Brick	QGA	25A 83W	20A 100W	9A 72W	8.33A 100W	6.67A 100W

## PQ65

Vout	18V
48Vdc Input (40-75Vdc Input Range, 100Vdc Transient)	
Quarter Brick	QGA
	5.6A 100W

## PQ48

Vout	1.5V	1.8V	2V	2.5V	3.3V	5V	5.3V	6V	12V	15V	
48Vdc Input (35-75Vdc Input Range)											
Half Brick	HTA	60A 90W	60A 108W	60A 120W	60A 150W	38A 125W	33A 165W	30A 160W	13.8A 165.6W	11A 165W	
	HGA	40A 60W	40A 72W	40A 80W	40A 100W	40A 132W	30A 150W		12A 144W	10A 150W	
	HMA	30A 45W	30A 54W	30A 60W	30A 75W	30A 99W	25A 125W				
	HKA	20A 30W	20A 36W	20A 40W	20A 50W	20A 66W	20A 100W				
Quarter Brick	QGA	25A 37.5W	25A 45W	25A 50W	25A 62.5W	25A 82.5W	20A 100W		17A 102W	8.3A 99.6W	6.7A 100W



## PQ50

Vout	5V	7.3V	9V	12V	18V
48Vdc Input (44-52Vdc Input Range)					
Half Brick	HZA		60A 438W	55A 660W	
	HPA	50A 250W			
	HTA				10A 180W
Quarter Brick	QGB		11A 99W		



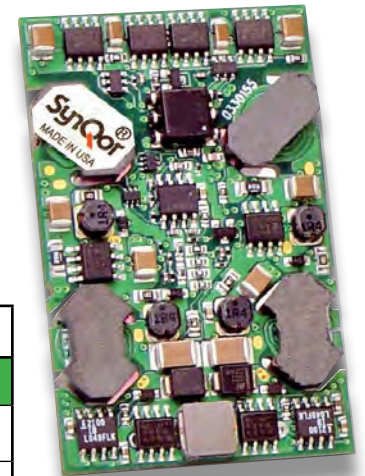
# TELECOM / DATACOM ISOLATED DC-DC CONVERTERS

<b>PQ60</b>	Vout	1.2V	1.5V	1.8V	2.5V	3.3V	5V	12V	15V	18V	24V 26V	28V	40V	50V 52.5V	
<b>48Vdc Input (35-75Vdc Input Range, 100Vdc Transient)</b>															
<b>Full Brick</b>	<b>FTA</b>											26A 728W			
<b>Half Brick</b>	<b>HZA</b>						60A 300W	50A 600W	40A 600W			25A 600W	21.5A 602W	15A 600W	12A 600W
	<b>HEA</b>											12.8A 360W			
	<b>HPA</b>	100A 120W	100A 150W	100A 180W	80A 200W	70A 230W	45A 225W	20A 240W							
	<b>HTA</b>	60A 72W	60A 90W			50A 165W	33A 165W	14A 168W		9.2A 166W	9.6A 250W				3.85A 200W
	<b>HGA</b>					40A 132W	30A 150W								
	<b>HMA</b>					30A 99W									

<b>PQ60</b>	Vout	1V	1.2V	1.5V	1.65V	1.8V	2.5V	3.3V	5V	6V	12V	15V	24V	48V	
<b>48Vdc Input (35-75Vdc Input Range, 100Vdc Transient)</b>															
<b>Quarter Brick</b>	<b>QZB</b>										33A 400W				
	<b>QEA</b>										25A 300W				
	<b>QEA</b>										17A 204W				
	<b>QPA</b>	60A 60W	60A 72W	60A 90W		60A 108W	60A 150W	45A 150W							
	<b>QTA</b>	40A 40W	40A 48W	40A 60W	40A 66W	40A 72W	40A 100W	35A 115W	30A 150W			12A 144W			3.0A 144W
	<b>QGA</b>			25A 37.5W		25A 45W	25A 62.5W	25A 82.5W	20A 100W	17A 100W	8.3A 100W		5.0A 120W		
	<b>QML</b>			15A 22.5W		15A 27W	15A 37.5W	15A 50W	15A 75W						
<b>Eighth Brick</b>	<b>ETx</b>			45A 37.5W		45A 81W	35A 87.5W	30A 99W							
	<b>EGx</b>	25A 25W	25A 30W	25A 37.5W		25A 45W	25A 62.5W	20A 66W	15A 75W		7.0A 84W	5.0A 75W	3.0A 72W		
	<b>EGx</b>	20A 20W	20A 24W	20A 30W		20A 36W	20A 50W								
	<b>EMx</b>	15A 15W	15A 18W	15A 22.5W		15A 27W	15A 37.5W	15A 50W	10A 50W		4.0A 48W				
	<b>EKx</b>		30A 36W	25A 37.5W		25A 45W	20A 50W	15A 50W	10A 50W		4.0A 48W	3.3A 50W			
<b>Sixteenth Brick</b>	<b>SMx</b>		25A 30W	25A 37.5W		25A 45W	20A 50W	15A 50W	10A 50W		4.0A 48W	3.0A 45W			

# DualQor®

**Dual Output Isolated Converters**



<b>DQ6</b>	Vout	2.4/1.2V	3.3/1.2V	3.3/1.5V	3.3/1.8V	3.3/2.5V	5.0/3.3V	+12/-12V
<b>48Vdc Input (35-75Vdc Input Range, 100Vdc Transient)</b>								
<b>Quarter Brick</b>	<b>QGL</b>		15/15A 68W	15/15A 72W	15/15A 77W	15/15A 87W	10/15A 100W	
	<b>QMA</b>				12/22A 44W	12/16A 40W	12/18A 60W	5/5A 60W
	<b>QKA</b>	8/16A 20W					8/12A 40W	

