Enclosed or L Bracket
PCB Mount
Non Isolated

DC-DC Selector

Nominal Input Voltage	# of Outputs	Output Power (W) 3 10 30 50 100 150 300 600
5V	Single	CC-E
		iAC, iBA
	Dual	CC-E
12V	Single	CC-E
		iA, iBC
		PXD,PXE,PXF
	Dual	CC-E
		PXD,PXE,PXF
	Triple	PXF
24V	Single	CC-E
		PXD,PXE,PXF
		PH-F
		PH-S
		iQ, PAH300
		PAF
	Dual	CC-E
		PXD,PXE,PXF
		PAH75D*
	Triple	PXF
48V	Single	CC-E
		PXD,PXE,PXF
		iSA, PAE*, iE, iP*
		iQ, PAQ*
		PH-F
		PH-S
		iH, PAH
		PAF
	Dual	CC-E
		PXD,PXE,PXF
		PAQ*
		PAH75D*
	Triple	PXF
	Multiple	Vega*
82-185VDC	Single	PH-F
		PH-S
200-400VDC	Single	PH-F
		PH-S
		PAF

* See website

TDK·Lambda

PH-F Series

Full function, 50 to 300W DC-DC converters

RoHS

- High Density
- Wide Range Input
- Wide output adjustment capability
- Remote On/Off
- Fixed Switching Frequency
- International Safety Approvals
- Parallel Operation

Key Market Segments & Applications

Telecom
Custom Power Supplies
N+1 redundant systems
Scalable systems
Point of Load

PH Features and Benefits

Feature	Benefit
◆ Low component count	◆ High reliability demonstrated 5 million hours MTBF
◆ Wide output adjustment	◆ Avoids the need for custom modules
◆ Signals to support N+1 redundancy	◆ Ease of use in redundant configurations
◆ Variety of input voltages	◆ Systems can operate from different input voltages

Specifications

ITEMS		2V	3.3V	5V	12V	15V	24V	28V
Input range	VDC	24V nom: 18-36, 48V nom: 36-76V, 110V nom: 82-185V, 280V nom: 200-400V						
Output Voltage Adj. Range	VDC	1.6~2.4	2.64~3.96	2~6	4.8~14.4	6~18	9.6~28.8	11.2~33.6
Line Regulation	-	0.4% or 20mV (whichever is greater) over entire input range with constant load						
Load Regulation	-	0.8% or 40mV (whichever is greater) from no load to full load with constant input line						
Ripple and Noise	pk-pk	100mV			150mV		240mV	280mV
Series Operation	-	Possible - Refer to installation manual						
Over Voltage Protection	-	150 - 180%		125 - 145%				
Overload Protection	-	Approximately 105 - 140%, automatic recovery						
Remote On/Off	-	Low = ON, Open = OFF						
Remote Sensing	-	Yes						
Parallel operation	-	Using current share pin (PC). Will share within 5%, see app. notes for connection details						
Inverter Good signal	-	Signal available for status of inverter						
Auxiliary Bias Supply	-	8V 10mA auxiliary voltage to supply power to interface circuits (AUX pin)						
Thermal Protection	-	Internal sensing, self resetting						
Cooling	-	Conduction or forced air. See application notes for cooling and heatsink selection						
Operating Temperature Range	-	Baseplate temperature -20°C to +85°C. -40°C start up possible - consult factory						
Storage Temperature	-	-40°C to +85°C						
Temperature Coefficient	-	0.02%/°C						
Isolation	-	Input to output: 3000VAC, Input to Baseplate: 2500VAC(1)						
Isolation Resistance	-	Output to Baseplate -100MOhm at 500VDC and 70%RH						
Safety Agency Approval	-	UL60950-1, CSA60950-1, EN60950-1 and CE Mark.						
Warranty	-	Two years						

Note: See Installation Manual for full details, test methods of parameters and application notes
(1) 24V input models input to output: 2kVAC; input to baseplate: 2kVAC

PH-F Series

Model Selector

Nominal Output Voltage (V)	Output Current (A)	Output Power (W)	24V input	48V input	110V input	280V input
2.0	15.0	30	-	PH75F48-2	PH75F110-2	PH75F280-2
2.0	20.0	40	PH100F24-2	-	-	-
2.0	30.0	60	-	PH150F48-2	PH150F110-2	PH150F280-2
2.0	60.0	120	-	PH300F48-2	PH300F110-2	PH300F280-2
3.3	15.0	45	-	PH75F48-3	PH75F110-3	PH75F280-3
3.3	20.0	60	PH100F24-3	-	-	-
3.3	30.0	90	-	PH150F48-3	PH150F110-3	PH150F280-3
3.3	60.0	180	-	PH300F48-3	PH300F110-3	PH300F280-3
5.0	15.0	75	-	PH75F48-5	PH75F110-5	PH75F280-5
5.0	20.0	100	PH100F24-5	-	-	-
5.0	30.0	150	-	PH150F48-5	PH150F110-5	PH150F280-5
5.0	60.0	300	-	PH300F48-5	PH300F110-5	PH300F280-5
12.0	6.3	75	-	PH75F48-12	PH75F110-12	PH75F280-12
12.0	8.4	100	PH100F24-12	-	-	-
12.0	12.5	150	-	PH150F48-12	PH150F110-12	PH150F280-12
12.0	20.0	240	PH300F24-12	-	-	-
12.0	25.0	300	-	PH300F48-12	PH300F110-12	PH300F280-12
15.0	5.0	75	-	PH75F48-15	PH75F110-15	PH75F280-15
15.0	6.7	100	PH100F24-15	-	-	-
15.0	10.0	150	-	PH150F48-15	PH150F110-15	PH150F280-15
15.0	20.0	300	-	PH300F48-15	PH300F110-15	PH300F280-15
24.0	3.2	75	-	PH75F48-24	PH75F110-24	PH75F280-24
24.0	4.2	100	PH100F24-24	-	-	-
24.0	6.3	150	-	PH150F48-24	PH150F110-24	PH150F280-24
24.0	12.6	300		PH300F48-24	PH300F110-24	PH300F280-24
28.0	2.7	50	-	PH75F48-28	PH75F110-28	PH75F280-28
28.0	3.6	100	PH100F24-28	-	-	-
28.0	5.4	150	-	PH150F48-28	PH150F110-28	PH150F280-28
28.0	10.8	300	PH300F24-28	PH300F48-28	PH300F110-28	PH300F280-28

Pinout

Pin Description	Function
-Vin	Negative Input Terminal
+Vin	Positive Input Terminal
+S	Positive Remote sense
-S	Negative Remote sense
+V	Positive Output Terminal
-V	Negative Output Terminal
AUX	Bias voltage output (secondary reference)
IOG	DC Good
TRIM	Output adjustment trim pin
CNT	On/Off Control Terminal
SG	Signal (CNT RTN)
PC	Parallel control connection

Other Lambda DC-DC Products

PH Simple Func.	50 - 300W, lower cost version of PH
PAQ, PAH, PAF	50 - 700W quarter, half & full bricks
PX	10-40W, 12-48V input, DC-DC
CC-E	1.5-25W, 5-48V input, DC-DC