40W Single and Dual Output DC-DC converters

https://product.tdk.com/en/power/pxd
www.emea.lambda.tdk.com/pxd


Industrial


Test


COMM


Broadcast

The PXD40 industrial DC-DC converters feature wide 4:1 input ranges in a compact 2 x 1" (50.8 x 25.4mm) industry standard package. With efficiencies up to 93%, the PXD40 series typically draws a low 3mA input current when the remote on/off function is used, prolonging battery life for portable equipment. The modules have six-sided shielding to reduce radiated noise.

Features	Benefits
• Wide 4:1 Input Range	• Supports Dual 12/24V or 24/48V System Voltages
• Compact 2" x 1" Industry Package	• Less Board Area Needed
• Certified to IEC/UL/CSA/EN 62368-1	• Suitable For Industrial Applications
• Low No Load Power Consumption	• Longer Battery Life
• Six Sided Shielding	• Reduces Radiated Noise

Model Selector

Model	Input Voltage (V)	Output Voltage (V)	Maximum Current (A)	Maximum Power (W)	No Load Input Current (mA)	Efficiency (%)	Maximum Load Capacitance (uF)
Single Outputs							
PXD40-24WS3P3	9 - 36	3.3	12.2	40.3	15	89.5	22,000
PXD40-48WS3P3	18 - 75	3.3	12.2	40.3	10	90	22,000
PXD40-24WS05	9 - 36	5	8	40	15	92	12,000
PXD40-48WS05	18 - 75	5	8	40	10	91	12,000
PXD40-24WS12	9 - 36	12	3.333	40	15	92	2,000
PXD40-48WS12	18 - 75	12	3.333	40	10	92	2,000
PXD40-24WS15	9 - 36	15	2.666	40	15	93	1,300
PXD40-48WS15	18 - 75	15	2.666	40	10	92	1,300
PXD40-24WS24	9 - 36	24	1.666	40	15	91	490
PXD40-48WS24	18 - 75	24	1.666	40	10	92	490
PXD40-24WS48	9 - 36	48	0.833	40	15	91	120
PXD40-48WS48	18 - 75	48	0.833	40	10	92	120
Dual Outputs							
PXD40-24WD12	9 - 36	±12	±1.666	40	15	91	±980
PXD40-48WD12	18 - 75	±12	±1.666	40	10	91	±980
PXD40-24WD15	9 - 36	±15	±1.333	40	15	91	±630
PXD40-48WD15	18 - 75	±15	±1.333	40	10	91	±630
PXD40-24WD24	9 - 36	±24	±0.833	40	15	91	±250
PXD40-48WD24	18 - 75	±24	±0.833	40	10	92	±250

PXD	40	-24W	S	05	-	-
Series	Output Power 40W	-24W 9 - 36V input -48W 18 - 75V input	S Single Output D Dual Output	**Output Voltage** 05 = 5V 12 = 12V 15 = 15V 24 = 24V 48 = 48V	Blank Positive Logic Remote On/Off -N Negative Logic Remote On/Off	Blank No heatsink fitted -HC1 Heatsink with 7.62mm fins -HC2 Heatsink with 12.7mm fins -HC3 Heatsink with 20.32mm fins

Preferred model

Related Products

Type	Part Number	Description
Heatsink kit (User installation)	ACC-PX2X1-HC01	HC1 heatsink, thermal pad and 2 clips
Heatsink kit (User installation)	ACC-PX2X1-HC02	HC2 heatsink, thermal pad and 2 clips
Heatsink kit (User installation)	ACC-PX2X1-HC03	HC3 heatsink, thermal pad and 2 clips

Specifications

Model		PXD40
Input		
Input Voltage Range	-	See model selector table
Input Surge Voltage	Vdc	-24W models: 50, -48W models: 100. (1s maximum)
Input Shutdown Voltage	Vdc	-24W models: 7 - 8.8, -48W models: 15 - 17.5
Start-up Time	ms	60 max
No Load Current Consumption	mA	See model selector table. Typically 3 when remote on/off is activated
Efficiency	-	See model selector table
Conducted & Radiated EMI	-	EN55032. See instruction manual on website for external circuitry
Immunity	-	See immunity section
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark

Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	Air ± 8kV and Contact ± 6kV	A	-
Radiated Susceptibility	EN61000-4-3	10V/m	A	-
Electrical Fast Transient Burst	EN61000-4-4	± 2kV	A	With an input filter of two 220uF capacitors and a TVS (SMDJ58A for PXD40-24W or SMDJ120A for PXD40-48W)
Surge	EN61000-4-5	± 2kV	A	
Conducted Susceptibility	EN61000-4-6	10 Vrms	A	-
Magnetic Fields	EN61000-4-8	100A/m continuous; 1000A/m 1s	A	-

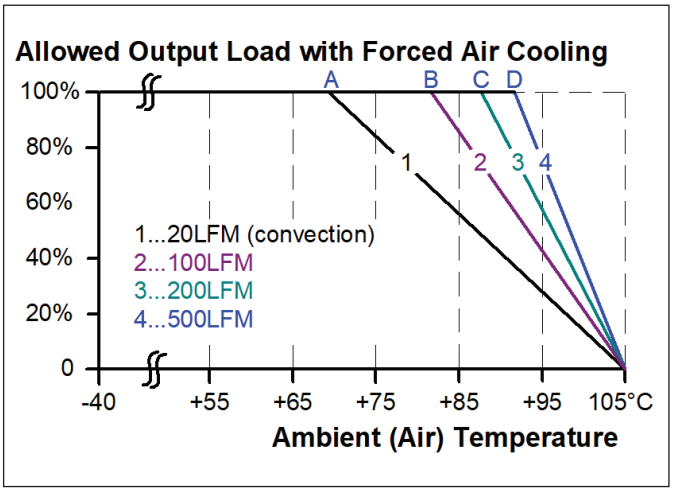
Specifications

Model		PXD40
Output		
Output Voltage Tolerance	%	± 1
Output Voltage Adjustment	%	Single output only. 3.3V-12V, 48V: ±10, 15V-24V: -10/+20, Dual output none
Switching Frequency	kHz	225 - 275
Line Regulation	%	± 0.2
Load Regulation	%	Single output: ±0.3 Dual output: ±0.5
Cross Regulation	%	Dual output: ±-5 (Asymmetrical 25% to 100% load change)
External Load Capacitance	uF	See model selector table
Ripple & Noise (1)	mVp-p	Single output: 3.3-5V outputs: 75, 12-15V outputs: 100, 24V outputs: 150, 48V outputs: 300
Temperature Coefficient	%/°C	± 0.02
Minimum Load	-	No minimum load required
Transient Loading	-	250us recovery time for a 25% load change
Overcurrent Protection (typ)	%	150, hiccup mode
Overvoltage Protection (typ)	V	Zener clamp method. 3.3V: 3.9, 5V: 6.2, 12V: 15, 15V: 20, 24V: 30, 48V: 60
Overtemperature Protection	°C	115
Remote Sense	-	No remote sense
Remote On/Off	-	Positive Logic (Blank): ON: Open or 3-12V, OFF Short or 0-1.2V Negative Logic (-N): ON: Short or 0-1.2V, OFF: Open or 3-12V
Environmental		
Operating Temperature (2)	°C	-40 to +105 - see derating section and instruction manual on website (Confirm case temperatures in end system)
Maximum Case Temperature	°C	105 (Overtemperature Protection 115)
Thermal Impedance	°C/W	No heatsink: 10.8, -HC1: 9.3, -HC2: 7.7, -HC3: 6.2
Storage Temperature	°C	-55 to +125
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)
Cooling	-	Convection or forced air
Altitude	m	5,000 (operating)
Withstand Voltage (For 1 minute)	Vdc	Input to output 1,600
Isolation Capacitance	pF	1500
Vibration (Operating)	-	MIL-STD-810F
Thermal Shock	-	MIL-STD-810F
Other		
Weight (Typ)	g	34 (no heatsink)
Size (LxWxH)	mm	50.8 x 25.4 x 10.2 (no heatsink)
Size (LxWxH)	Inches	2 x 1 x 0.4 (no heatsink)
Case Material	-	Copper
MTBF - MIL-HDBK-217F, Full Load	Hours	1,245,000
Warranty	yrs	3

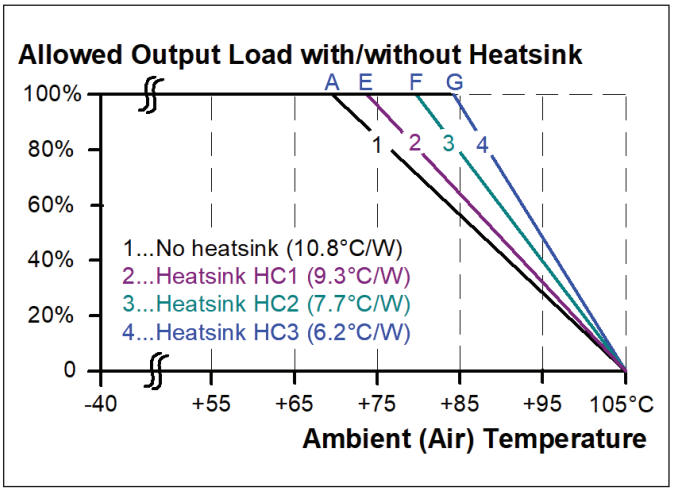
Notes
See website for detailed specifications, test methods and installation manual
(1): Measured with a 20MHz bandwidth oscilloscope across a 1uF/100V X7R multi-layer ceramic capacitor
(2). The case temperature must be confirmed in end application. The product rating may be affected by airflow direction and physical obstructions near the module.

Derating Section

PXD40-24WS05 - Derating Diagram



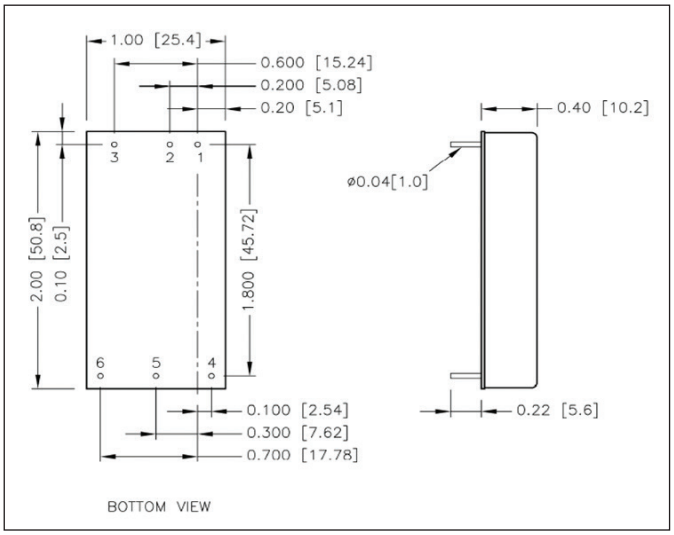
PXD40-24WS05 - Derating Diagram



The required power reduction depends on the individual device. The example shows the PXD40-24WS05. The points A to G describe the temperatures at which the power reduction starts. For other models, these points can be taken from the table.

Derating Starting Point	A 20LFM (convection)	B 100LFM	C 200LFM	D 500LFM	E with HS1	F with HS2	G with HS3
PXD40-24WS3P3	53°C	73°C	82°C	86°C	57°C	62°C	65°C
PXD40-24WS05	69°C	83°C	88°C	92°C	74°C	81°C	84°C
PXD40-24WS12	68°C	82°C	88°C	91°C	73°C	80°C	83°C
PXD40-24WS15	71°C	84°C	90°C	93°C	76°C	83°C	87°C
PXD40-24WS24	56°C	78°C	85°C	89°C	60°C	65°C	68°C
PXD40-24WD12	63°C	79°C	86°C	89°C	67°C	74°C	77°C
PXD40-24WD15	64°C	80°C	87°C	90°C	69°C	75°C	78°C
PXD40-24WD24	63°C	79°C	87°C	90°C	67°C	74°C	77°C
PXD40-48WS3P3	55°C	74°C	82°C	87°C	59°C	64°C	67°C
PXD40-48WS05	63°C	79°C	86°C	89°C	67°C	74°C	77°C
PXD40-48WS12	68°C	82°C	88°C	91°C	73°C	80°C	83°C
PXD40-48WS15	73°C	85°C	91°C	94°C	78°C	85°C	89°C
PXD40-48WS24	66°C	81°C	87°C	90°C	71°C	77°C	81°C
PXD40-48WD12	63°C	79°C	86°C	90°C	67°C	74°C	77°C
PXD40-48WD15	63°C	80°C	86°C	90°C	67°C	74°C	77°C
PXD40-48WD24	67°C	82°C	87°C	91°C	72°C	78°C	82°C

Outline Drawing



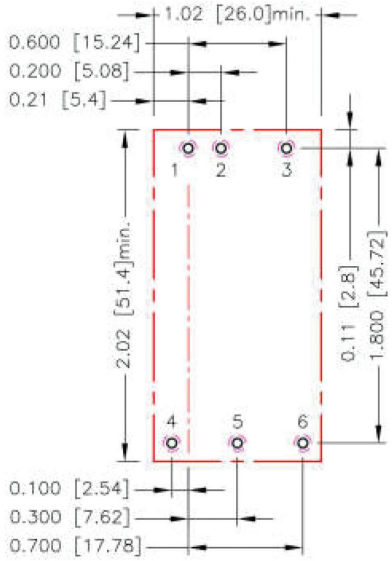
Pinout

PIN	Function	
	Single	Dual
1	+Vin	
2	-Vin	
3	Ctrl	
4	+Vout	
5	-Vout	Com
6	Trim	-Vout

1. All dimensions in inch (mm)
   Tolerance: x.xx±0.02 [x.x ± 0.5]
   x.xx±0.02 [x.x ± 0.25]
2. Pin dimension tolerance ±0.004 [0.10]

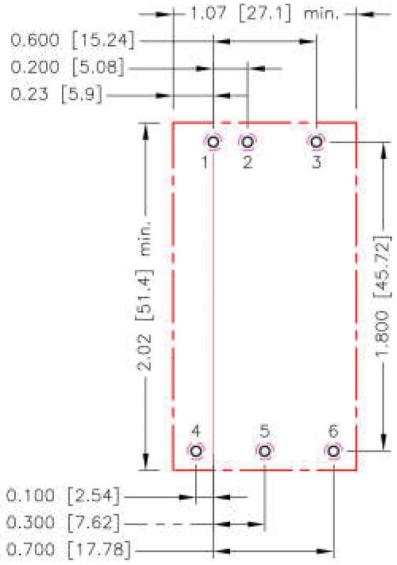
Recommended Pcb Layout

Standard



Recommended Pcb Layout

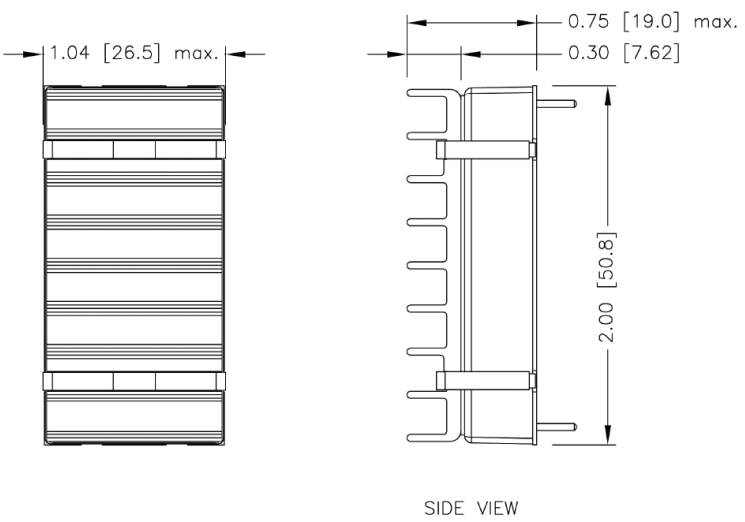
-HC1、-HC2、-HC3



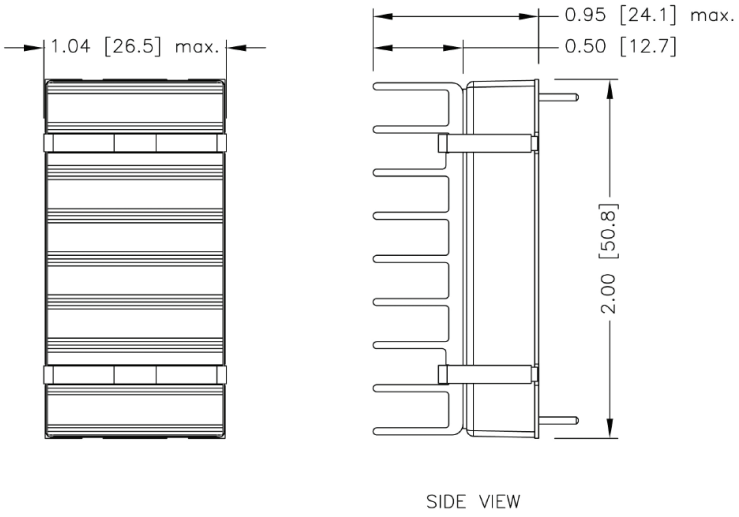
All dimensions in inch[mm]
Pad size(lead free recommended)
Through hole 1.2.3.4.5.6: Φ0.051[1.30]
Top view pad 1.2.3.4.5.6: Φ0.064[1.63]
Bottom view pad 1.2.3.4.5.6: Φ0.102[2.60]

Heat-Sink Type Options

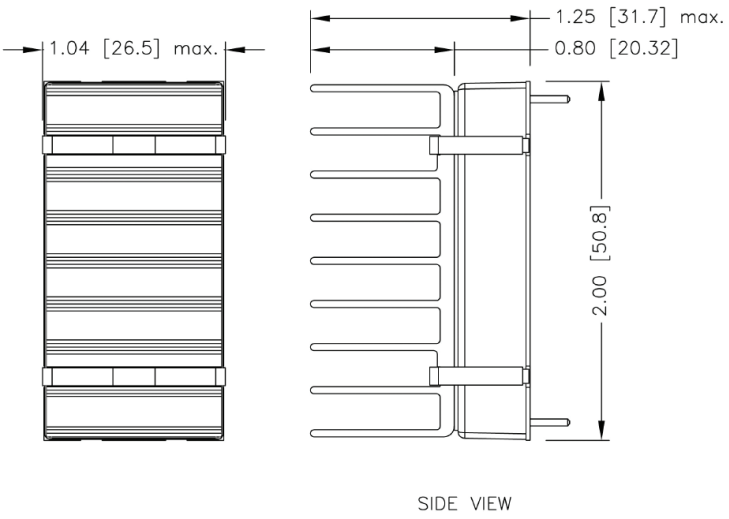
HC1



HC2



HC3



1. All dimensions in inch [mm]
2. Tolerance :x.xx±0.02 [x.x±0.5]
x.xxx±0.010 [x.xx±0.25]

TDK-Lambda France SAS
Tel: +33 1 60 12 71 65
france@fr.tdk-lambda.com
www.emea.lambda.tdk.com/fr

Italy Sales Office
Tel: +39 02 61 29 38 63
info.italia@it.tdk-lambda.com
www.emea.lambda.tdk.com/it

Netherlands
info@nl.tdk-lambda.com
www.emea.lambda.tdk.com/nl

TDK-Lambda Germany GmbH
Tel: +49 7841 666 0
info@de.tdk-lambda.com
www.emea.lambda.tdk.com/de

Austria Sales Office
Tel: +43 2256 655 84
info@at.tdk-lambda.com
www.emea.lambda.tdk.com/at

Switzerland Sales Office
Tel: +41 44 850 53 53
info@ch.tdk-lambda.com
www.emea.lambda.tdk.com/ch

Nordic Sales Office
Tel: +45 8853 8086
info@dk.tdk-lambda.com
www.emea.lambda.tdk.com/dk

TDK-Lambda UK Ltd.
Tel: +44 (0) 12 71 85 66 66
info@uk.tdk-lambda.com
www.emea.lambda.tdk.com/uk

TDK-Lambda Ltd.
Tel: +9 723 902 4333
info@tdk-lambda.co.il
www.emea.lambda.tdk.com/il

C.I.S.
Commercial Support:
Tel: +7 (495) 665 2627
Technical Support:
Tel: +7 (812) 658 0463
info@tdk-lambda.ru
www.emea.lambda.tdk.com/ru

TDK-Lambda Americas
Tel: +1 800-LAMBDA-4 or 1-800-526-2324
powersolutions@us.tdk-lambda.com
www.us.lambda.tdk.com

TDK Electronics do Brasil Ltda
Tel: +55 11 3289-9599
sales.br@tdk-electronics.tdk.com
www.tdk-electronics.tdk.com/en

TDK-Lambda Corporation
Tel: +81-3-6778-1113
www.jp.lambda.tdk.com

TDK-Lambda (China) Electronics Co. Ltd.
Tel: +86 21 6485-0777
powersolutions@cn.tdk-lambda.com
www.lambda.tdk.com.cn

TDK-Lambda Singapore Pte Ltd.
Tel: +65 6251 7211
tls.mkt@sg.tdk-lambda.com
www.sg.lambda.tdk.com

TDK India Private Limited, Power Supply Division
Tel: +91 80 4039-0660
mathew.philip@in.tdk-lambda.com
www.sg.lambda.tdk.com

For additional information, please visit
https://product.tdk.com/en/power/