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TDK·Lambda PXE20/30 Series

20-30W Single and Dual Output Isolated DC-DC Converters

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



Industrial Test COMM Broadcast

The PXE isolated DC-DC converters feature a 2:1 input range, and for some models, a wide 4:1 input range in a 2 x 1.6" (50.8 x 40.6mm) industry standard package. With IEC/UL/CSA/EN 62368-1 and single or dual output options, these models also feature a six-sided, shielded metal case for reduced radiated noise, making them suitable for a wide variety of Industrial, ICT (Information and Communications Technology) and Test and Measurement applications.

Features	Benefits
• IEC/UL/CSA/EN 62368-1 Approvals	• Easier System Approvals
• Wide Range Input	• Less Parts to Inventory
• Six Sided Shielding	• Reduced Radiated Noise
• Up to 90% Efficiency	• Long Field Life

Related Products

Type	Part Number	Description
Accessory	7G0011A	PXE heatsink with adhesive pad
Smaller size DC-DC converter	CCG	1.3 to 30W single/dual output DC-DC converters (1 x 1 x 0.39")

PXE-	30	-24	S	05	-N
Series	20 20W Output Power 30 30W Output Power	-12 9 - 18V input -24 18 - 36V input -48 36 - 75V input -24W 9 - 36V input -48W 18 - 75V input	S Single Output D Dual Output	**Single Output** 3P3 3.3V Output Voltage **Single and Dual Output** 05 5V Output Voltage 12 12V Output Voltage 15 15V Output Voltage	Blank Positive Logic Remote On/Off -N *Negative Logic Remote On/Off

Preferred model

*PXE30 Wide Range Only

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Model Selector

Model	Input Voltage (V)	Output Voltage (V)	Maximum Current (A)	No Load Input Current (mA)	Ripple & Noise (mV_{pk-pk})	Efficiency (%)	Maximum Load Capacitance (uF)
Single Outputs							
PXE30-12S3P3	9 - 18	3.3	6	115	50	85	19,500
PXE30-24S3P3	18 - 36	3.3	6	50	50	88	19,500
PXE30-48S3P3	36 - 75	3.3	6	30	50	87	19,500
PXE30-24WS3P3	10 - 40	3.3	6	50	60	87	19,500
PXE30-48WS3P3	18 - 75	3.3	6	30	60	87	19,500
PXE20-24WS05	9 - 36	5	4	10	75	79	6,800
PXE20-48WS05	18 - 75	5	4	10	75	80	6,800
PXE30-12S05	9 - 18	5	6	95	50	87	10,200
PXE30-24S05	18 - 36	5	6	50	50	88	10,200
PXE30-48S05	36 - 75	5	6	35	50	89	10,200
PXE30-24WS05	10 - 40	5	6	65	75	87	10,200
PXE30-48WS05	18 - 75	5	6	30	75	88	10,200
PXE20-24WS12	9 - 36	12	1.67	20	100	81	2,200
PXE20-48WS12	18 - 75	12	1.67	10	100	81	2,200
PXE30-12S12	9 - 18	12	2.5	35	75	88	3,240
PXE30-24S12	18 - 36	12	2.5	30	75	89	3,300
PXE30-48S12	36 - 75	12	2.5	25	75	90	3,300
PXE30-24WS12	10 - 40	12	2.5	65	100	87	3,300
PXE30-48WS12	18 - 75	12	2.5	35	100	87	3,300
PXE20-24WS15	9 - 36	15	1.33	20	100	81	755
PXE20-48WS15	18 - 75	15	1.33	10	100	81	755
PXE30-12S15	9 - 18	15	2	45	75	88	1,100
PXE30-24S15	18 - 36	15	2	30	75	89	1,100
PXE30-48S15	36 - 75	15	2	25	75	90	1,100
PXE30-24WS15	10 - 40	15	2	70	100	88	1,100
PXE30-48WS15	18 - 75	15	2	45	100	88	1,100
Dual Outputs							
PXE20-24WD05	9 - 36	±5	±2.0	15	75	79	±3400
PXE20-48WD05	18 - 75	±5	±2.0	10	75	79	±3400
PXE20-24WD12	9 - 36	±12	±0.833	20	100	81	±680
PXE20-48WD12	18 - 75	±12	±0.833	15	100	83	±680
PXE30-12D12	9 - 18	±12	±1.25	60	100	87	±1020
PXE30-24D12	18 - 36	±12	±1.25	30	100	88	±1020
PXE30-48D12	36 - 75	±12	±1.25	20	100	88	±1020
PXE30-24WD12	10 - 40	±12	±1.25	30	100	84	±1000
PXE30-48WD12	18 - 75	±12	±1.25	25	100	85	±1000
PXE20-24WD15	9 - 36	±15	±0.666	25	100	82	±450
PXE20-48WD15	18 - 75	±15	±0.666	20	100	84	±450
PXE30-12D15	9 - 18	±15	±1.0	40	100	87	±675
PXE30-24D15	18 - 36	±15	±1.0	30	100	88	±675
PXE30-48D15	36 - 75	±15	±1.0	20	100	88	±675
PXE30-24WD15	10 - 40	±15	±1.0	35	100	85	±680
PXE30-48WD15	18 - 75	±15	±1.0	25	100	86	±680

Specifications

Model		PXE20W	PXE30
Input			
Input Voltage Range	-	See Model Selector Table	
Input Surge Voltage	Vdc	12V input: 36, 24V input: 50, 48V input: 100 (100ms maximum)	
Start-up Time	ms	20	25 (10 for PXE30W Models)
No Load Input Current	-	See Model Selector Table	
Efficiency	-	See Model Selector Table	
Conducted & Radiated EMI	-	EN55032-A (Class B - See installation diagrams for external circuitry)	
Immunity	-	See Immunity Section	
Safety Certifications and Markings	-	IEC/UL/CSA/EN62368-1, CE Mark and UKCA Mark	

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Immunity

Test	Standard	Test Level	Criteria	Notes
ESD	EN61000-4-2	3	B	Air ± 8kV and Contact ± 6kV
Radiated Susceptibility	EN61000-4-3	3	A / B	10V/m (Criteria A for PXE30W Models)
Electrical Fast Transient Burst	EN61000-4-4	3 (±2kV)	B	With an input filter capacitor (Nippon chemi-con KY series, 220µF/100V)
Surge	EN61000-4-5	2 (±1kV)	B	
Conducted Susceptibility	EN61000-4-6	3	A	10Vrms
Magnetic Fields	EN61000-4-8	5	A	100A/m continuous; 1000A/m 1s

Specifications

Model		PXE20W	PXE30
Output			
Output Voltage Accuracy	%	±1	
Output Voltage Adjustment	%	±10	
Switching Frequency	kHz	270 - 330	
Line Regulation	%	Single Output: ±0.2, Dual Output: ±-0.5	
Load Regulation	%	Single Output: ±0.5, Dual Output: ±3	Single Output: ±0.5, Dual Output: ±1
Cross Regulation	%	Dual Output: ±5 (Asymmetrical 25% to 100% load change)	
External Load Capacitance	-	See Model Selector Table	
Ripple & Noise (1)	-	See Model Selector Table	
Temperature Coefficient	%/°C	±0.02	
Minimum Load (2)	%	10	None
Transient Response (25% step load)	µs	500	300
Overcurrent Protection	%	150 (Hiccup Mode with Auto-Recovery)	
Overvoltage Protection	V	3.3V: 3.9, 5V: 6.2, 12V: 15, 15V: 18 (Zener Diode Clamp)	
Overtemperature Protection	°C	None	115
Short Circuit Protection	-	Hiccup Mode with Auto-Recovery	
Remote Sense	-	No Remote Sense	
Remote On/Off	-	Positive Logic (-P): ON: Open or 3.5-12V, OFF: Short or 0-1.2V	Positive Logic (-P): ON: Open or 3-12V, OFF: Short or 0-1.2V (PXE30W Only) Negative Logic (-N): ON: Short or 0-1.2V, OFF Open or 3-12V
Environmental			
Operating Temperature	°C	-40 to +85 (See Derating Curves below)	
Maximum Case Temperature	°C	100	
Thermal Impedance	°C/W	10	
Storage Temperature	°C	-55 to +125	
Humidity (non condensing)	%RH	5 - 95 (Operating & Storage)	
Cooling	-	Convection	
Withstand Voltage (For 1 minute)	Vdc	Input to Output, Input to Case, Output to Case: 1,600	
Isolation Resistance	Ω	10^9	
Isolation Capacitance	pF	300	1,000
Vibration (Operating)	-	MIL-STD-810F	
Thermal Shock	-	MIL-STD-810F	
Other			
Weight (Typ)	g	48	
Size (LxWxH)	mm	50.8 x 40.6 x 10.2	
Size (LxWxH)	Inches	2 x 1.6 x 0.4	
Case Material	-	Nickel-coated Copper	
Base Material	-	Non-conductive Black Plastic	FR4 PCB
Potting Material	-	Epoxy (UL94 V-0)	
MTBF - MIL-HDBK-217F, Full Load	Hours	1,922,000	1,283,000 (759,800 for PXE30W Models)
Warranty	yrs	3	

Notes
See website for detailed specifications, test methods and installation manual
(1) Measured with a 20MHz bandwidth oscilloscope across a 0.1uF/50V MLCC
(2) To meet regulation & noise specifications. Operation at zero load will not damage the device

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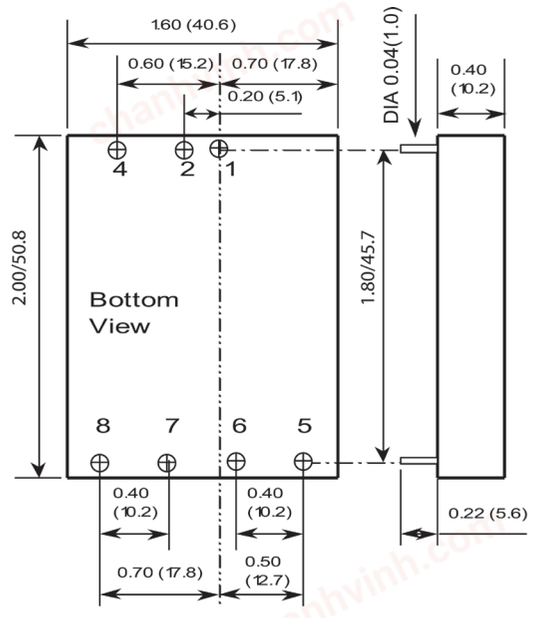
PXE Outline Drawing

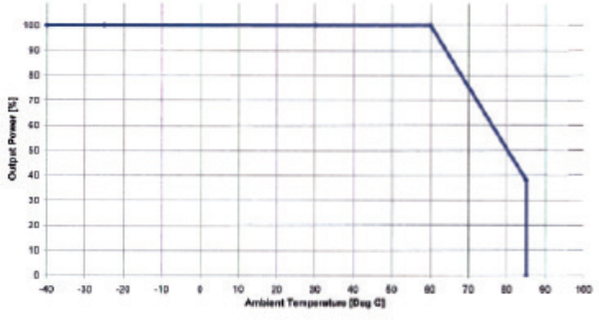


1. All dimensions in Inches (mm)
2. Pin pitch tolerance ±0.014(0.35)

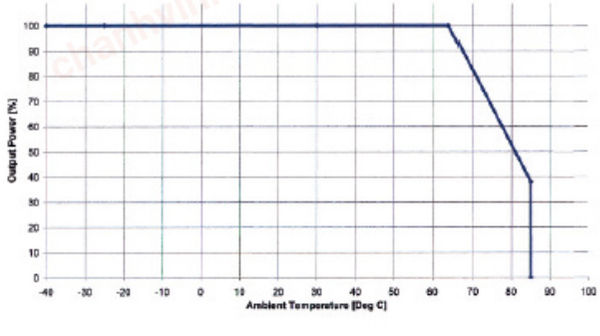
PXE Pinout

PIN	Function	
	Single O/P	Dual O/P
1	+Vin	+Vin
2	-Vin	-Vin
4	Remote On/Off	Remote On/Off
5	No Pin	+Vout
6	+Vout	Common
7	-Vout	-Vout
8	Trim	Trim

PXE20 Derating Curve



PXE30 Derating Curve



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