

**SERIES:** PVQ100W-D | **DESCRIPTION:** DC-DC CONVERTER

**FEATURES**

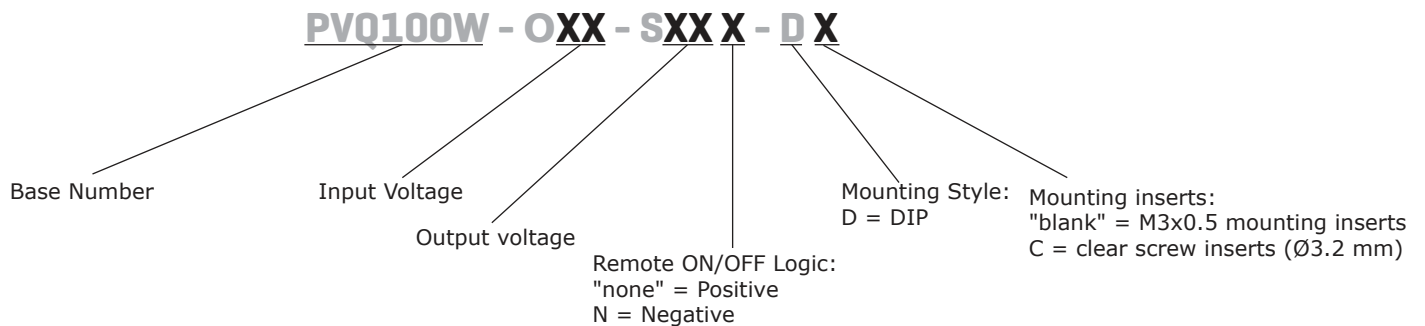
- 100 W isolated output
- ultra-wide 14:1 input range, 12~160 Vdc
- -40 ~ 105 °C operating temperature with derating
- reinforced insulation
- input under-voltage; output over temperature, over current, & over voltage protection
- 4,200 Vdc isolation
- remote on/off
- industry standard 1/4 brick package
- UL/EN/IEC 62368 certified
- meets EN 55032/55035/50155/EN 45545-2 with external circuits



MODEL	input voltage		output voltage	output current	output power	ripple & noise <sup>1</sup>	efficiency <sup>2</sup>
	nom (Vdc)	range (Vdc)	(Vdc)	max (A)	max (W)	max (mVp-p)	typ (%)
PVQ100W-072-S5-D	72	12~160	5	20	100	150	87.5
PVQ100W-072-S12-D	72	12~160	12	8.3	100	150	88
PVQ100W-072-S15-D	72	12~160	15	6.7	100	150	89
PVQ100W-072-S24-D	72	12~160	24	4.2	100	240	89
PVQ100W-072-S28-D	72	12~160	28	3.6	100	240	90
PVQ100W-072-S54-D	72	12~160	54	1.85	100	480	90

Notes: 1. 20MHz bandwidth, peak to peak, 10µF polymer tantalum and 1µF ceramic capacitors.  
 2. Efficiency is measured at 72 Vdc input voltage.  
 3. An external input capacitor 220µF for all models is recommended to reduce input ripple voltage.

**PART NUMBER KEY**



**INPUT**

parameter	conditions/description	min	typ	max	units
operating input voltage		12	72	160	Vdc
under voltage lockout	turn-on voltage threshold	10.7	11	11.7	Vdc
	turn-off voltage threshold	9.7	10	10.7	Vdc
	lockout hysteresis voltage		1.0		Vdc
current	at 16 V input, full load at 12 V input, 80% load			8.0	A
inrush current (I <sup>2</sup> t)	as per ETS300 132-2			0.1	A <sup>2</sup> s
filter	Pi filter				
surge voltage	for maximum of 100ms			185	Vdc
CTRL	positive logic	models ON (3.5~160 Vdc or on/off pin open circuit)			
		models OFF (on/off pin 0~1.2 Vdc)			
	negative logic	models ON (on/off pin 0~1.2 Vdc)			
		models OFF (3.5~160 Vdc or on/off pin open circuit)			
on/off current <sup>4</sup>	I on/off at V on/off = 0V		0.4	1	mA
leakage current <sup>4</sup>	logic high, V on/off = 15V			30	μA

Notes: 4. For both remote on/off logic.

**OUTPUT**

parameter	conditions/description	min	typ	max	units
maximum capacitive load	5 Vdc output model			20,000	μF
	12 Vdc output model			8,300	μF
	15 Vdc output model			6,700	μF
	24 Vdc output model			4,200	μF
	28 Vdc output model			3,600	μF
	54 Vdc output model			1,000	μF
voltage accuracy	at 72 V input, full load, 25°C	-1.0		1.0	%
line regulation	from low line to high line, full load			±0.2	%
load regulation	full load to no load			±0.2	%
temperature coefficient	-40° ~ 105°C			±0.02	%/°C
switching frequency		180	200	220	kHz
transient recovery time	75 ~ 100% of step load change, d <sub>i</sub> /d <sub>t</sub> = 0.1A/μs (within 1% Vout nominal)			250	μs
transient response deviation	75 ~ 100% of step load change, d <sub>i</sub> /d <sub>t</sub> = 0.1A/μs (within 1% Vout nominal)			±5	%
start up time / input voltage	V on/off to 10% Vo_set, remote on		50		ms
start up time / on/off control	Vin_min to 10% Vo_set, power up		50		ms
rise time	10% Vo_set to 90% Vo_set		50		ms
adjustability	Po ≤ max rated power, Io ≤ Io_max				
	54 Vdc output model	-20		10	%
	all other models	-20		15	%
remote sense	Po ≤ max rated power, Io ≤ Io_max % of nominal Vo				
	54 Vdc output model			10	%
	all other models			15	%

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
over voltage protection	limited voltage, % of nominal output				
	54 Vdc output model	112	117	140	%
	all other models	117	125	140	%
over current protection	auto recovery, hiccup	110	150	180	%
short circuit protection	continuous, auto recovery				
over temperature protection	temperature at the center part of case, non-latching shutdown		110		°C
	recovery		100		°C

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output, for 1 minute			3,000 4,200	Vac Vdc
	input to case (base plate), for 1 minute			2,100 3,000	Vac Vdc
	output to case (base plate), for 1 minute			1,500 2,100	Vac Vdc
isolation resistance	input to output	100			MΩ
isolation capacitance	input to output		1,000		pF
safety approvals	certified to 62368: UL/cUL, EN, IEC				
conducted emissions	EN55032 and EN50155 Compliant (with external filter)				
ESD	EN61000-4-2 Level 3: Air ±8kV, Contact ±6kV, perf. Criteria A				
radiated immunity	EN61000-4-3 Level 3: 80~ 1000 MHz, 20V/m, perf. Criteria A				
EFT/burst	EN61000-4-4 Level 3: on power input port, ±2kV, external input capacitor required (EN 50155), perf. Criteria A				
surge	EN61000-4-5 Level 4: Line to Earth, ±4kV, Line to Line ±2kV (EN50155), perf. Criteria A				
conducted immunity	EN61000-4-6 Level 3: 0.15~80MHz, 10V, perf. Criteria A				
voltage supply interruptions	EN50155 Class S3: 20ms interruptions				
MTBF	as per MIL-HDBK-217F, 25°C				
	5 Vdc output model		570		
	12 Vdc output model		690		
	15 Vdc output model		785		K hours
	24 Vdc output model		840		
	28 Vdc output model		800		
	54 Vdc output model		850		
RoHS	yes				

## ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating case temperature	measured at the center of the case plate, see derating curve	-40		105	°C
storage temperature		-55		125	°C
operating humidity	non-condensing			95	%

## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	57.9 × 36.8 × 12.8 [2.28 × 1.45 × 0.50 inch]				mm
case material	plastic, DAP, UL 94V-0				
weight			66		g

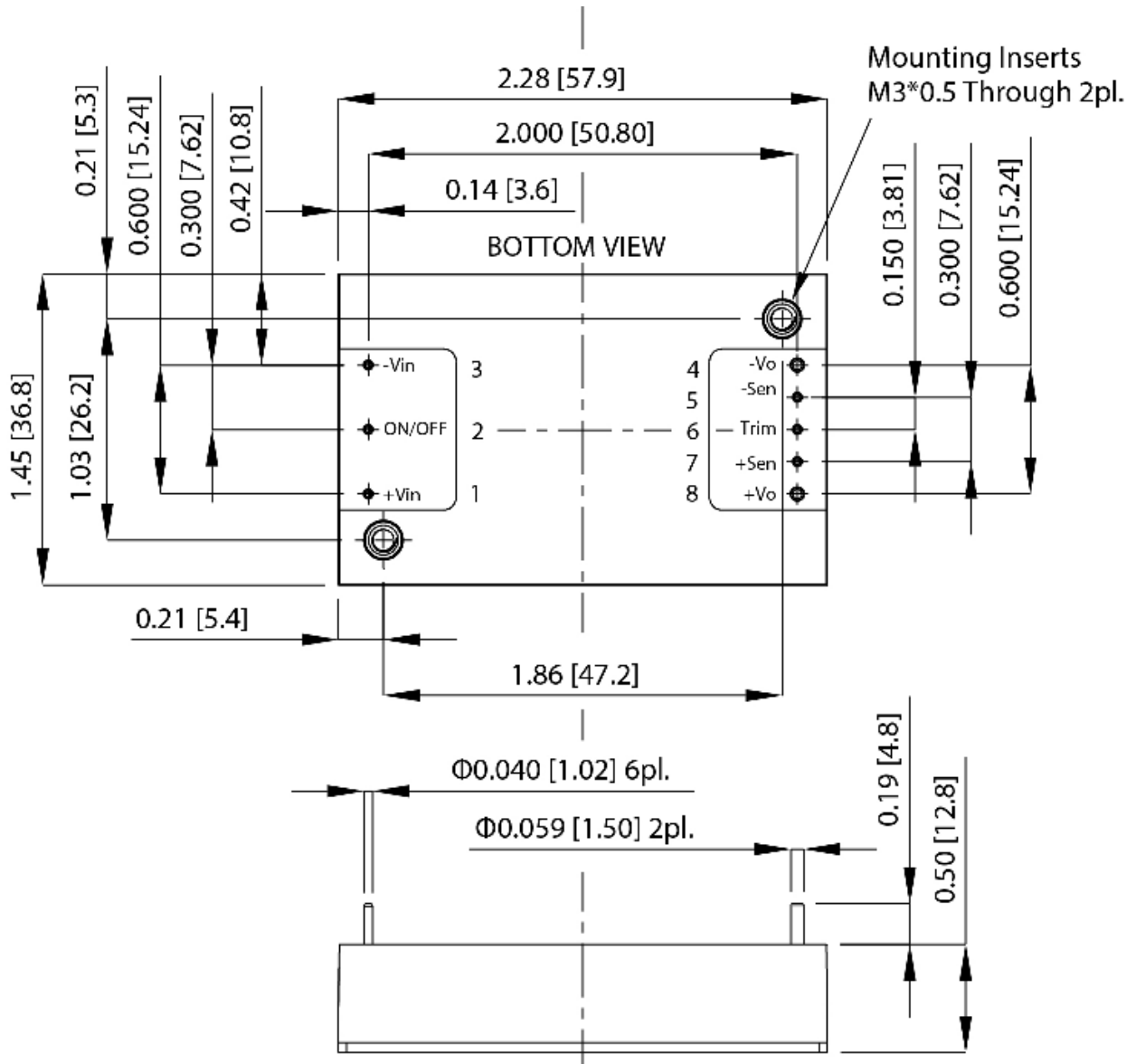
## MECHANICAL DRAWING

units: inch [mm]

tolerances: inches: x.xx = ±0.02, x.xxx = ±0.010

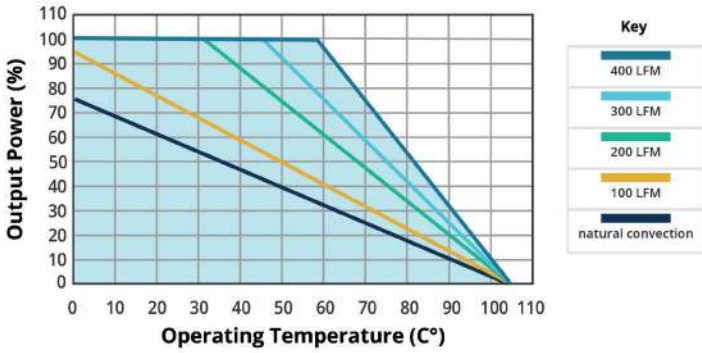
mm: x.x = ±0.5, x.xx = ±0.25

PIN Out	
PIN	Function
1	+Vin
2	on/off
3	-Vin
4	-Vo
5	Sense-
6	Trim
7	Sense+
8	+Vo

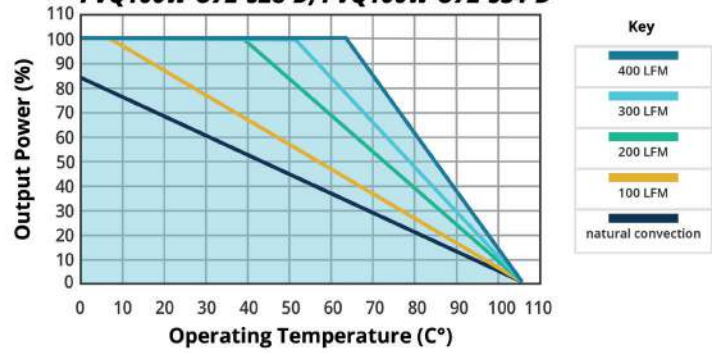


## DERATING CURVES

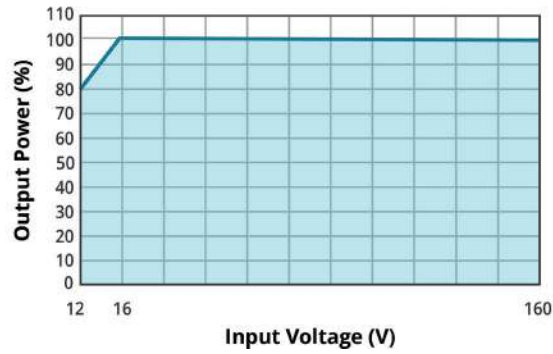
**TEMPERATURE DERATING CURVE (Vin =72 V)**  
**PVQ100W-072-S5-D, PVQ100W-072-S12-D**



**TEMPERATURE DERATING CURVE (Vin =72 V)**  
**PVQ100W-072-S15-D, PVQ100W-072-S24-D,**  
**PVQ100W-072-S28-D, PVQ100W-072-S54-D**

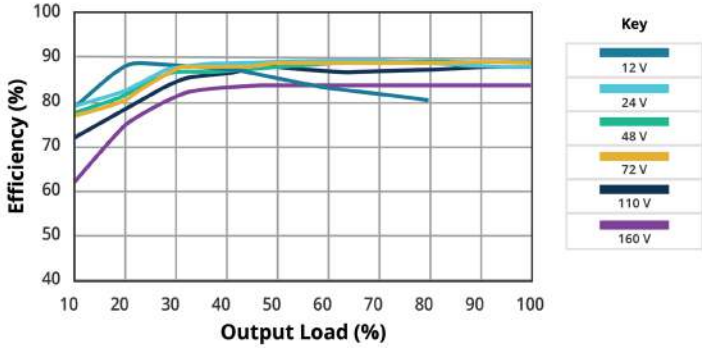


**INPUT VOLTAGE DERATING CURVE**

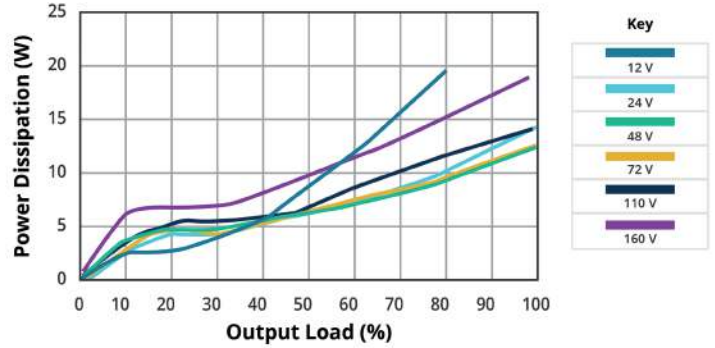


## EFFICIENCY CURVES

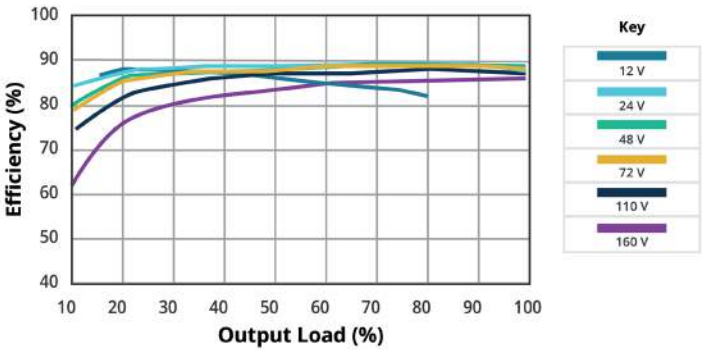
**EFFICIENCY VS OUTPUT LOAD**  
25°C  
**PVQ100W-072-S5-D**



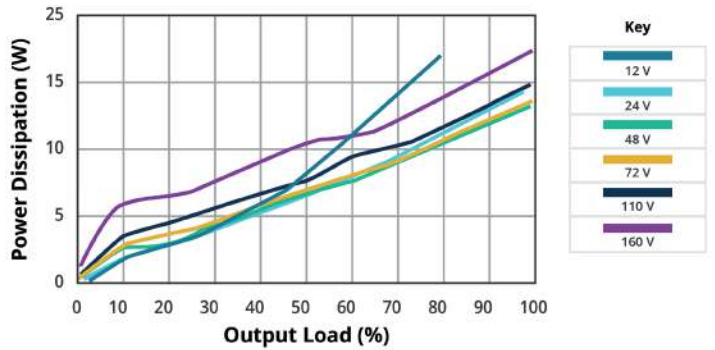
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
**PVQ100W-072-S5-D**



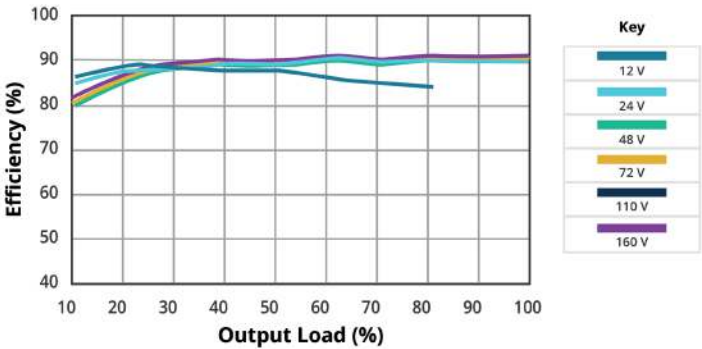
**EFFICIENCY VS OUTPUT LOAD**  
25°C  
**PVQ100W-072-S12-D**



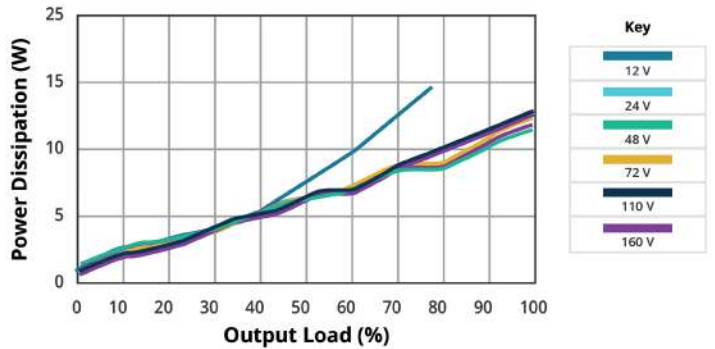
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
**PVQ100W-072-S12-D**



**EFFICIENCY VS OUTPUT LOAD**  
25°C  
**PVQ100W-072-S15-D**



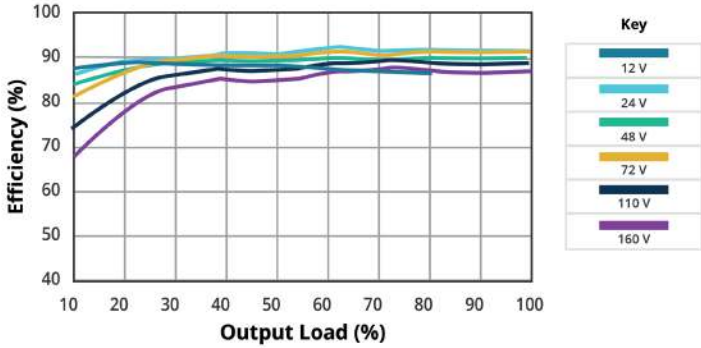
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
**PVQ100W-072-S15-D**



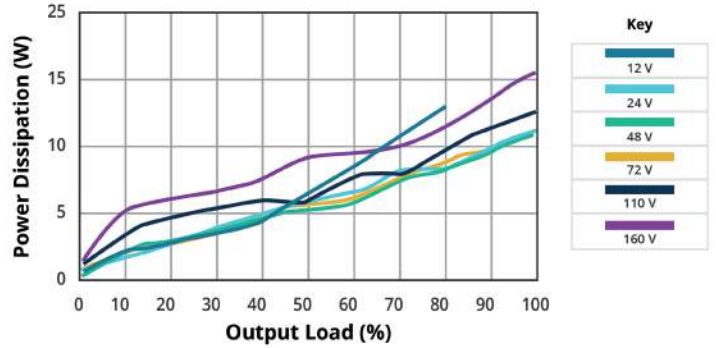


## EFFICIENCY CURVES (CONTINUED)

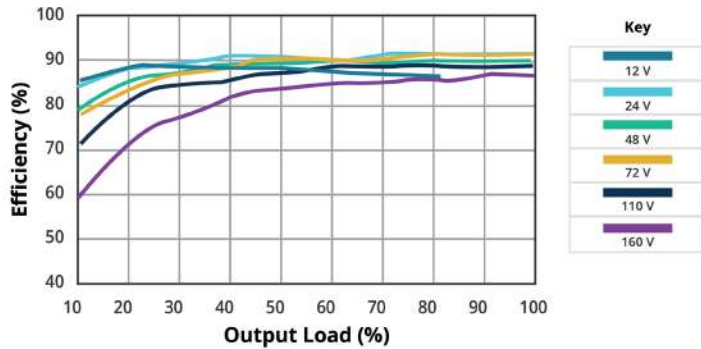
**EFFICIENCY VS OUTPUT LOAD**  
25°C  
PVQ100W-072-S24-D



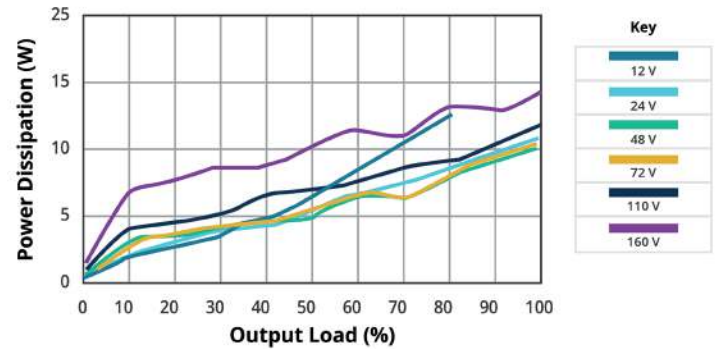
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
PVQ100W-072-S24-D



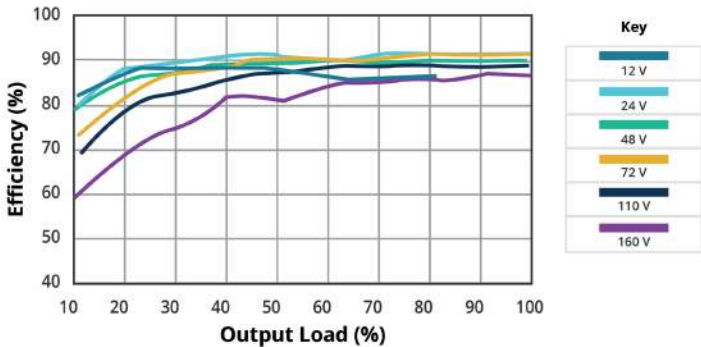
**EFFICIENCY VS OUTPUT LOAD**  
25°C  
PVQ100W-072-S28-D



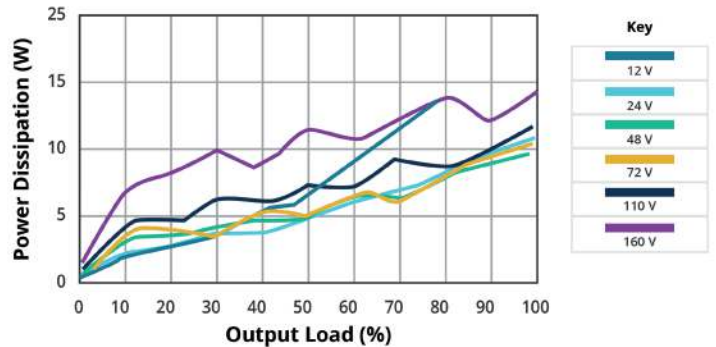
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
PVQ100W-072-S28-D



**EFFICIENCY VS OUTPUT LOAD**  
25°C  
PVQ100W-072-S54-D



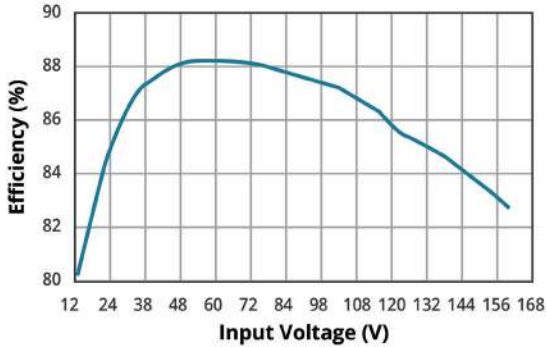
**POWER DISSIPATION VS OUTPUT POWER**  
25°C  
PVQ100W-072-S54-D



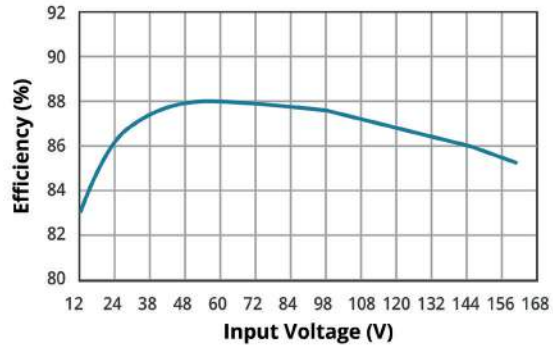
## EFFICIENCY CURVES (CONTINUED)

Efficiency measured at 100% load. At 80% load when Vin is 12 ~ 16V.

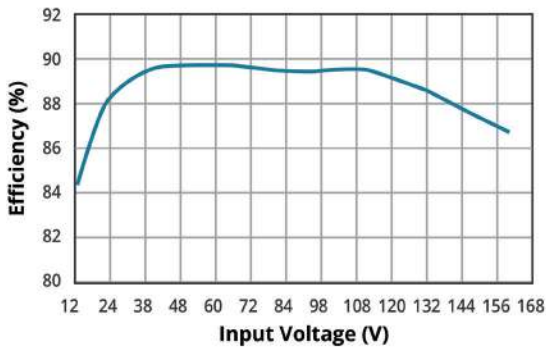
**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S5-D**



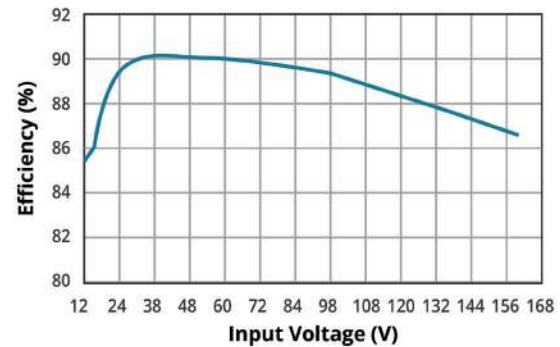
**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S12-D**



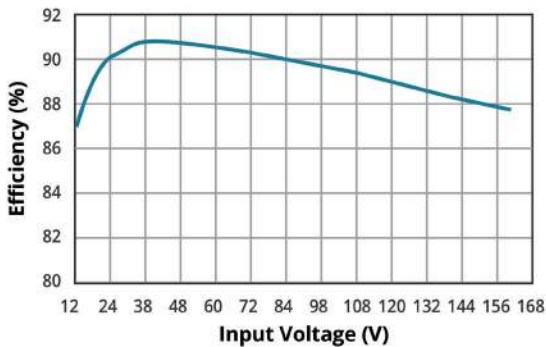
**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S15-D**



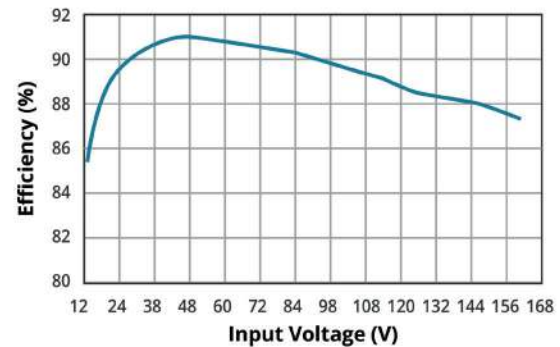
**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S24-D**



**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S28D**



**EFFICIENCY VS INPUT VOLTAGE  
(25°C, FULL LOAD)  
PVQ100W-072-S54-D**





## REVISION HISTORY

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rev.	description	date
1.0	initial release	11/22/2022
1.01	clear mounting insert option added	12/12/2022
1.02	PN key updated	04/17/2023

The revision history provided is for informational purposes only and is believed to be accurate.



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