

**SERIES:** PQS075-S | **DESCRIPTION:** DC-DC CONVERTER

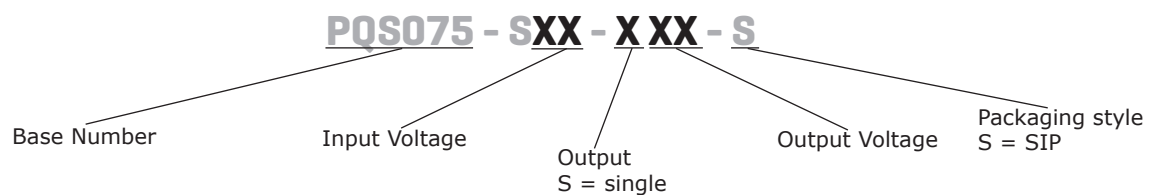
**FEATURES**

- 0.75W isolated output
- single regulated output
- high efficiency up to 74%
- continuous short circuit protection
- 1500 Vdc isolation
- designed to meet EN/BS EN 62368


**MODEL**

MODEL	input voltage		output voltage	output current		output power	ripple & noise <sup>1</sup>	efficiency
	typ (Vdc)	range (Vdc)	(Vdc)	min (mA)	max (mA)	max (W)	max (mVp-p)	typ (%)
PQS075-S5-S3-S	5	4.75~5.25	3.3	20	200	0.66	75	68
PQS075-S5-S5-S	5	4.75~5.25	5.0	15	150	0.75	75	72
PQS075-S5-S9-S	5	4.75~5.25	9.0	9	83	0.75	75	72
PQS075-S5-S12-S	5	4.75~5.25	12.0	7	62	0.74	75	73
PQS075-S5-S15-S	5	4.75~5.25	15.0	5	50	0.75	75	74
PQS075-S12-S3-S	12	11.4~12.6	3.3	20	200	0.75	100	68
PQS075-S12-S5-S	12	11.4~12.6	5	15	150	0.75	100	72
PQS075-S12-S12-S	12	11.4~12.6	12	7	62	0.75	100	73
PQS075-S12-S15-S	12	11.4~12.6	15	5	50	0.75	150	74
PQS075-S24-S3-S	24	22.8~25.2	3.3	20	200	0.75	100	68
PQS075-S24-S5-S	24	22.8~25.2	5	15	150	0.75	100	72
PQS075-S24-S12-S	24	22.8~25.2	12	7	62	0.75	100	73
PQS075-S24-S15-S	24	22.8~25.2	15	5	50	0.75	150	74

Notes: 1. Ripple and noise are measured at 20 MHz BW by "parallel cable" method.

**PART NUMBER KEY**


**INPUT**

parameter	conditions/description	min	typ	max	units		
operating input voltage		4.75	5.0	5.25	Vdc		
		11.4	12	12.6	Vdc		
		22.8	24	25.2	Vdc		
current	5 Vdc input full load / no load	3.3 Vdc, 5 Vdc output		209/5	221/10	mA	
		9 Vdc, 12 Vdc output		208/12	221/20	mA	
		15 Vdc output		202/18	215/30	mA	
	12 Vdc input full load / no load	3.3 Vdc output		92/8	98/-	mA	
		5 Vdc output		87/8	92/-	mA	
		12 Vdc output		86/8	91/-	mA	
	24 Vdc input full load / no load	15 Vdc output		85/8	90/-	mA	
		3.3 Vdc output		46/8	51/-	mA	
		5 Vdc output		44/8	48/-	mA	
	filter	capacitance filter	12 Vdc output		43/8	47/-	mA
			15 Vdc output		43/8	46-	mA

**OUTPUT**

parameter	conditions/description	min	typ	max	units
maximum capacitive load	3.3 Vdc output			2,400	μF
	5 Vdc output			2,400	μF
	9 Vdc output			1,000	μF
	12 Vdc output			560	μF
	15 Vdc output			560	μF
voltage accuracy				±3	%
line regulation				±0.25	%
load regulation	10%~100% load			±3	%
	3.3 Vdc output other outputs			±2	%
switching frequency	at full load, nominal input voltage		270		kHz
temperature coefficient	at full load		±0.02		%/°C

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous, auto recovery				

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output, for 1 minute with 1 mA max	1,500			Vdc
isolation resistance	input to output at 500 Vdc	1,000			MΩ
isolation capacitance	input to output, 100 kHz / 0.1 V		20		pF
safety approvals	designed to meet 62368: EN, BS EN				
EMI/EMC	CISPR32/EN 55032 Class B (see recommended circuit)				
ESD	IEC/EN 61000-4-2 Air ±8kV, Contact ±4kV, perf. Criteria B				
MTBF	as per MIL-HDBK-217F, 25°C	3,500			K hours
RoHS	yes				

## ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		85	°C
storage temperature		-55		125	°C
storage humidity	non-condensing	0		95	%
vibration	10-155Hz, 5G, 30 min. along X, Y and Z				

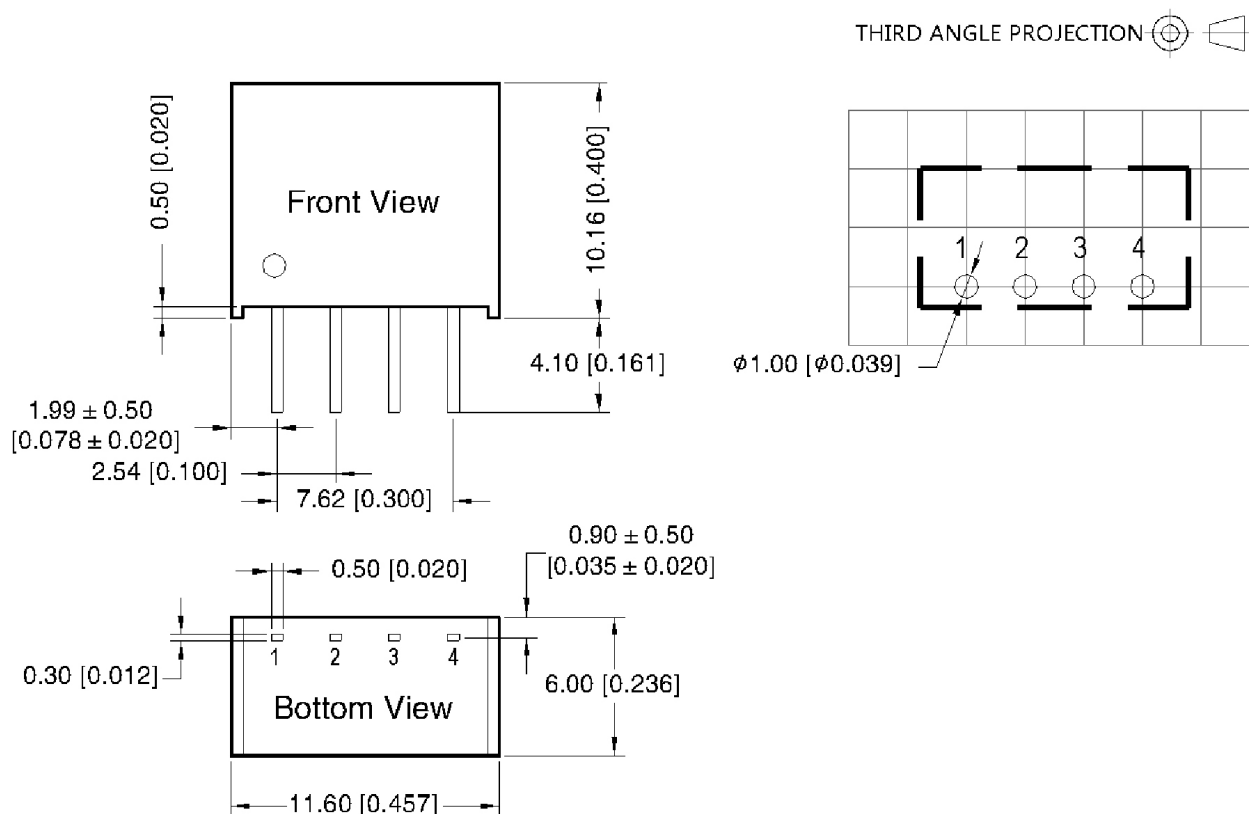
## MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	11.60 x 6.00 x 10.16 [0.457 x 0.236 x 0.4 inch]				mm
case material	black plastic				
weight			1.3		g

## MECHANICAL DRAWING

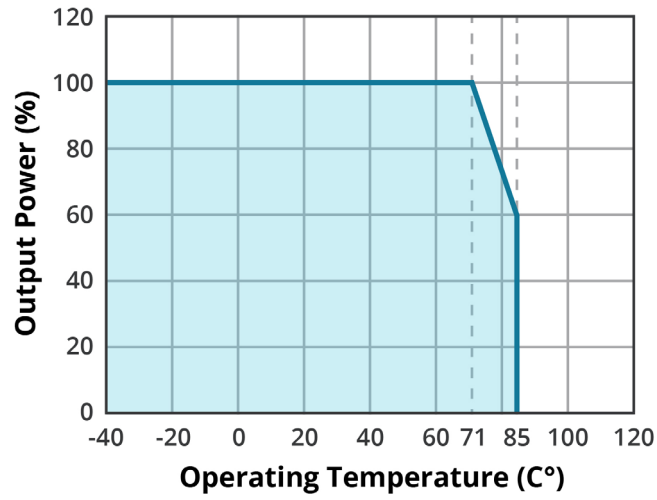
units: mm [inch]  
 pin section tolerance:  $\pm 0.10[\pm 0.004]$   
 general tolerance:  $\pm 0.25[\pm 0.010]$

PIN Out	
PIN	Function
1	GND
2	Vin
3	0V
4	+Vo



## DERATING CURVES

**TEMPERATURE DERATING CURVE**



## APPLICATION CIRCUIT

Figure 1

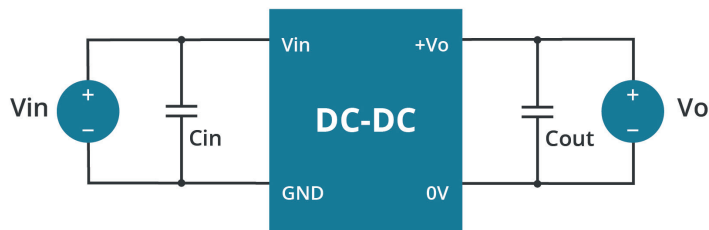


Table 1

Vin (Vdc)	Cin ( $\mu\text{F} / \text{V}$ )	Vo (Vdc)	Cout ( $\mu\text{F} / \text{V}$ )
5	4.7 $\mu\text{F}$	3.3/5	10 $\mu\text{F}$
--	--	9/12	2.2
--	--	15	1
12	2.2 $\mu\text{F} / 25$	3.3/5	10 $\mu\text{F} / 16\text{V}$
24	1 $\mu\text{F} / 50\text{V}$	12	2.2 $\mu\text{F} / 25\text{V}$
--	--	15	1 $\mu\text{F} / 25\text{V}$

## EMC RECOMMENDED CIRCUIT

Figure 2

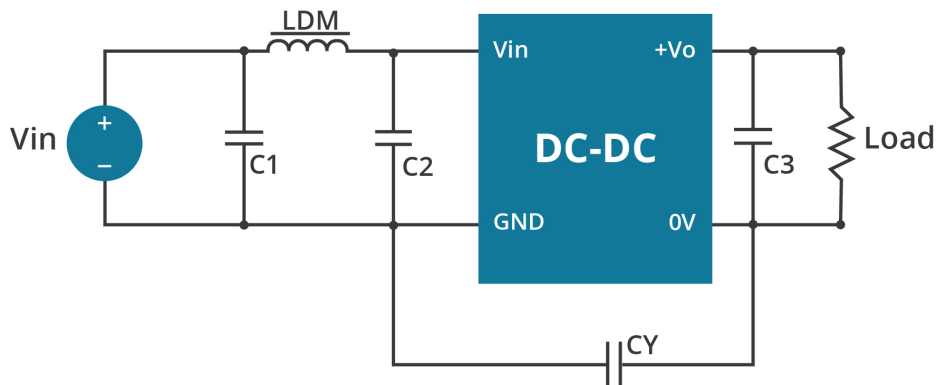


Table 2

Input voltage (Vdc)	Output voltage (Vdc)		3.3/5/9	12/15
	5 Vdc	EMI	C1/C2	4.7 $\mu\text{F} / 25\text{V}$
CY			--	1nF/4KVdc Vishay HGZ10102MBP TDK CD45-E2GA102M-GKA
C3			Refer to the Cout in table 1	
LDM			6.8 $\mu\text{H}$	
12, 24 Vdc	EMI	C1/C2	4.7 $\mu\text{F} / 50\text{V}$	
		CY	270pF/2kV	
		C3	Refer to the Cout in table 1	
		LDM	6.8 $\mu\text{H}$	

## REVISION HISTORY

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rev.	description	date
1.0	initial release	08/17/2020
1.01	mechanical tolerances updated	09/22/2020
1.02	derating curve and circuits updated	06/29/2021
1.03	datasheet updated	09/08/2021
1.04	CE certification updated	12/22/2022

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



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