

**SERIES: PQME1-M | DESCRIPTION: DC-DC CONVERTER**
**FEATURES**

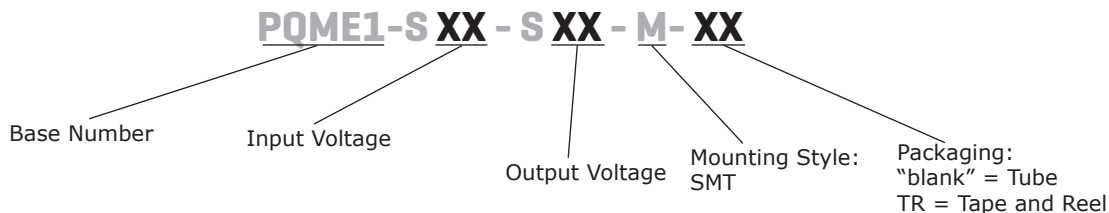
- 0.75 W isolated output
- regulated output
- compact SMT package
- single output models
- continuous short circuit protection
- -40~85 °C temperature range
- 1500 Vdc isolation
- no load input current as low as 5 mA
- industry standard pin-out
- efficiency up to 74%


**MODEL**

MODEL	input voltage		output voltage	output current		output power	ripple & noise <sup>1</sup>	efficiency <sup>2</sup>
	typ (Vdc)	range (Vdc)	(Vdc)	min (mA)	max (mA)	max (W)	max (mVp-p)	typ (%)
PQME1-S5-S3-M	5	4.75~5.25	3.3	20	200	0.66	75	68
PQME1-S5-S5-M	5	4.75~5.25	5	15	150	0.75	75	72
PQME1-S5-S9-M	5	4.75~5.25	9	9	83	0.75	75	72
PQME1-S5-S12-M	5	4.75~5.25	12	7	62	0.75	75	73
PQME1-S5-S15-M	5	4.75~5.25	15	5	50	0.75	75	74

- Notes:
1. Measured at nominal input, 20 MHz bandwidth oscilloscope, with 10  $\mu$ F tantalum and 1  $\mu$ F ceramic capacitors on the output.
  2. Measured at nominal input voltage, full load.
  3. All specifications are measured at  $T_a=25^\circ\text{C}$ , humidity < 75%, nominal input voltage, and rated output load unless otherwise specified.

## PART NUMBER KEY



## INPUT

parameter	conditions/description	min	typ	max	units
operating input voltage		4.75	5	5.25	Vdc
current	3.3, 5 Vdc output models 9, 12 Vdc output models 15 Vdc output model			234 221 215	mA mA mA
filter	filter capacitor				

## OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load <sup>4</sup>	3.3, 5 Vdc output models 9 Vdc output models 12, 15 Vdc output models			2,400 1,000 560	μF μF μF
voltage accuracy				±3	%
line regulation	for Vin change of 1%			±0.25	%
load regulation	from 10% to full load 3.3 Vdc output models all other models			±3 ±2	% %
switching frequency	100% load, nominal input voltage		270		kHz
temperature coefficient	at full load		±0.02		%/°C

Note: 4. Tested at input voltage range and full load.

## PROTECTIONS

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

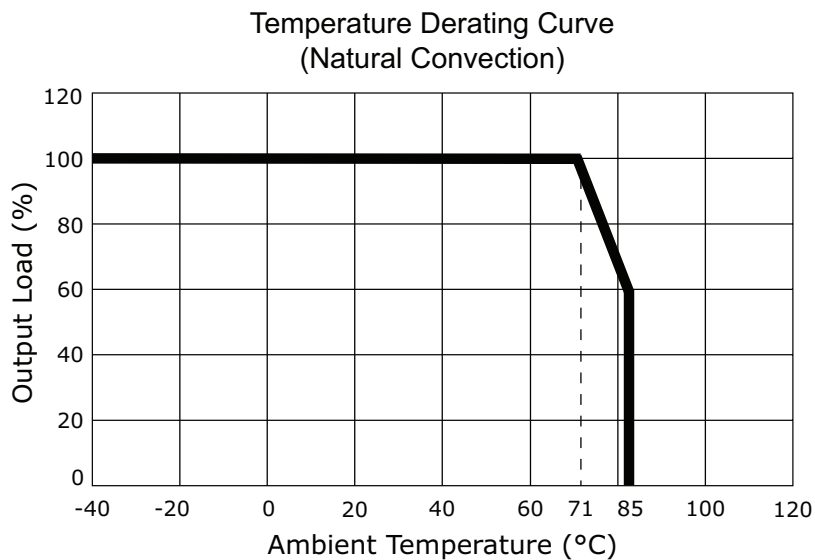
## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute at 1 mA input to output for 1 second at 1 mA	1,500 3,000			Vdc 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	EN 62368-1				
conducted emissions	CISPR32/EN55032, class B (external circuit required, see Figure 2)				
radiated emissions	CISPR32/EN55032, class B (external circuit required, see Figure 2)				
ESD	IEC/EN61000-4-2, air ± 8 kV; contact ± 4 kV, class B				
MTBF	as per MIL-HDBK-217F, 25°C	3,500,000			hours
RoHS	yes				

## ENVIRONMENTAL

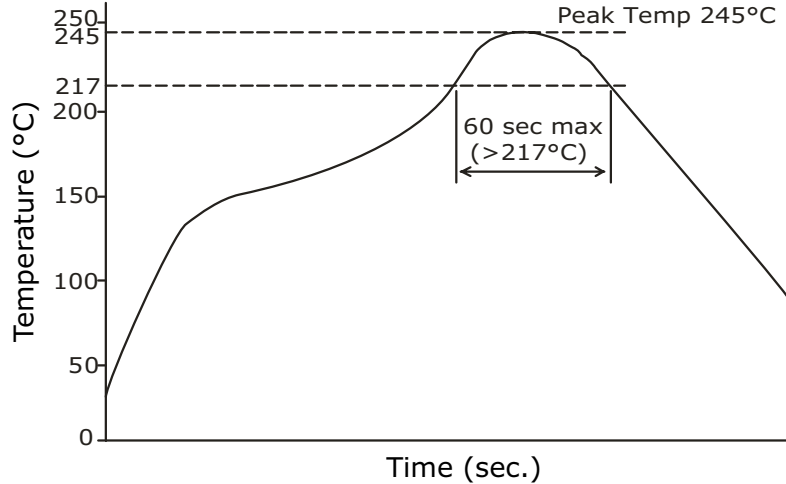
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curves	-40		85	°C
storage temperature		-55		125	°C
storage humidity	non-condensing			95	%
case temperature rise	3.3 Vdc output model at 25°C all other models at 25°C		30 25		°C °C

## DERATING CURVE



## SOLDERABILITY

parameter	conditions/description	min	typ	max	units
reflow soldering	see reflow soldering profile Maximum duration >217°C is 60 seconds. For actual application, refer to IPC/JEDEC J-STD-020D.1			245	°C



## MECHANICAL

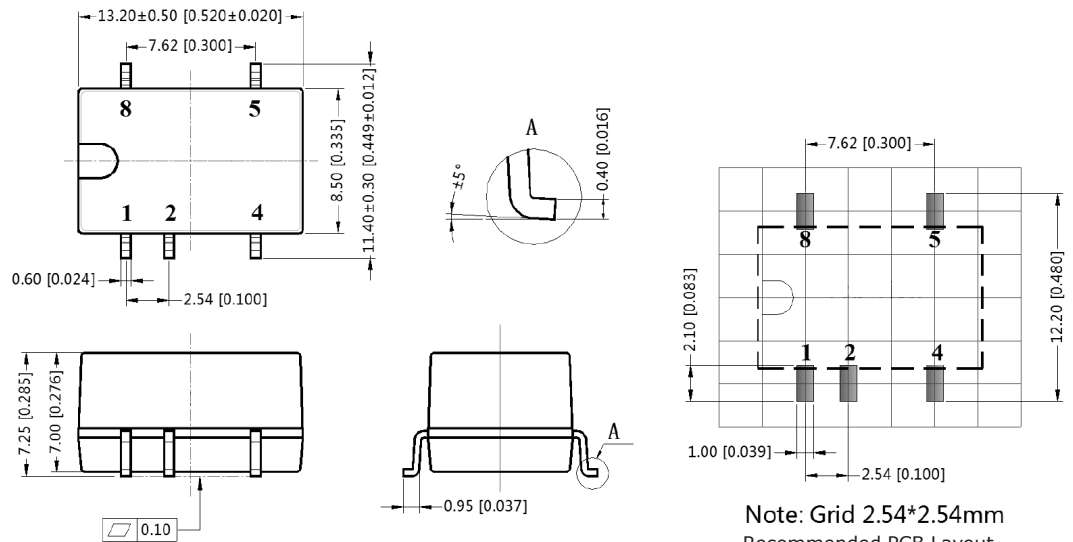
parameter	conditions/description	min	typ	max	units
dimensions	13.20 x 8.50 x 7.25 [0.520 x 0.335 x 0.285 inch]				mm
case material	black flame-retardant and heat-resistant plastic (UL94V-0)				
weight			1.4		g

## MECHANICAL DRAWING

units: mm [inch]  
tolerance: ±0.25[±0.010]  
pin section tolerance: ±0.10[±0.004]

PIN CONNECTIONS	
PIN	Function
1	GND
2	Vin
4	0V
5	+Vout
8	NC

NC = No connect



Note: Grid 2.54\*2.54mm  
Recommended PCB Layout  
Top View

## APPLICATION CIRCUIT

If you want to further reduce the input and output ripple, a filter capacitor may be connected to the input and output terminals (Figure 1) provided that the capacitance is less than the maximum capacitive load of the model, otherwise start-up problems may be caused if the capacitance is too large.

Figure 1



Table 1

Vin (Vdc)	Cin (μF)	Vo (Vdc)	Cout (μF)
5	4.7	3.3, 5	10
		9, 12	2.2
		15	1

## EMC RECOMMENDED CIRCUIT

Figure 2

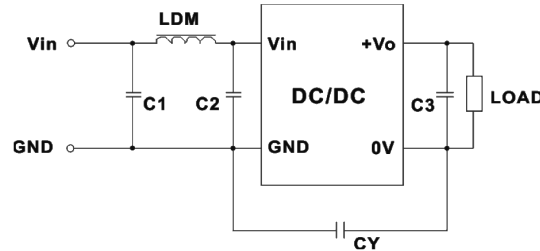


Table 2

Recommended External Circuit Components		
Vo (Vdc)	3.3, 5, 9	12, 15
CY	--	1 nF / 2 kVdc
C3	refer to the Cout in Table 1	
C1, C2	4.7 μF / 25 V	4.7 μF / 25 V
LDM	6.8 μH	6.8 μH

## PACKAGING (TUBE)

units: mm

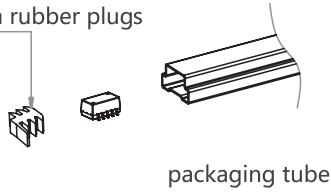
Tube Size: 15.5 x 10.5 mm

Inner Carton Size: 575 x 135 x 100 mm

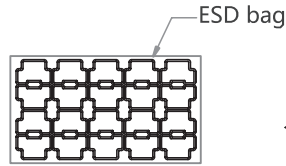
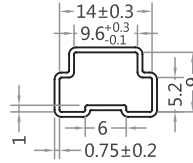
Outer Carton Size: 600 x 285 x 225 mm

Outer Carton QTY: 9,120 pcs

2 PCS of 10mm rubber plugs

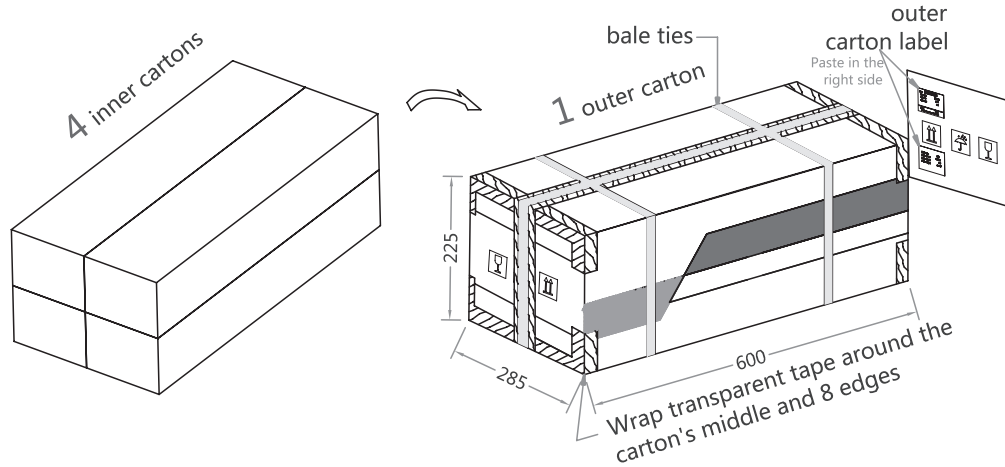
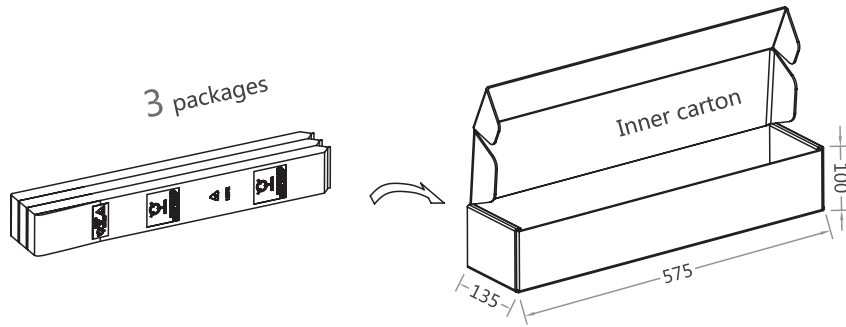
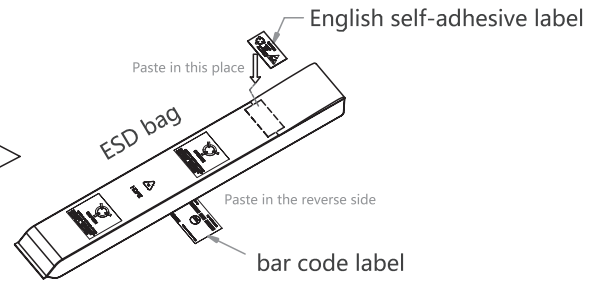


38 products in one packing tube



20 tube in one ESD bag

Using rubber bands to tie the both ends of 20 tubes, then put into the ESD bag



## PACKAGING (TAPE AND REEL)

units: mm

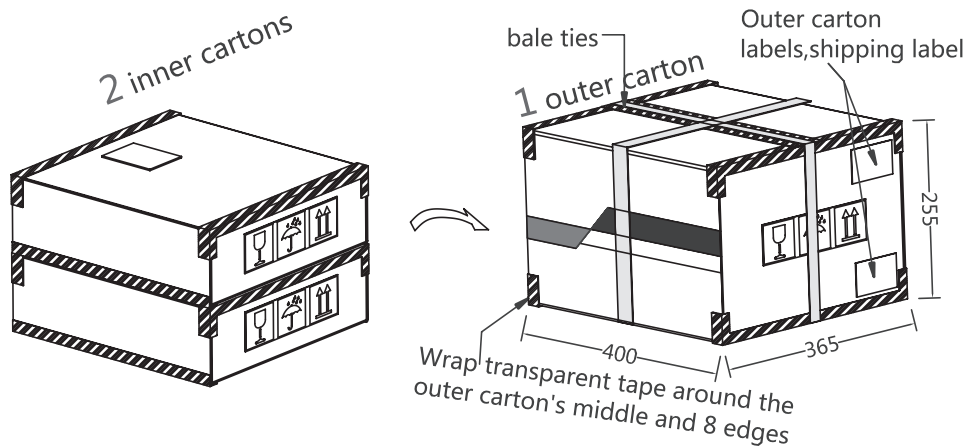
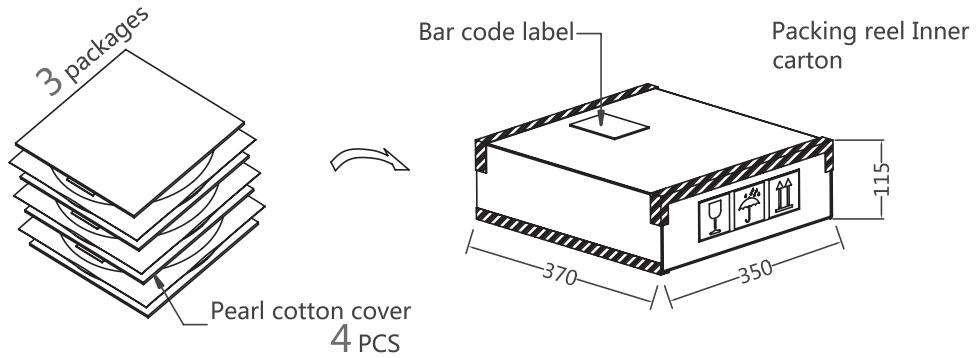
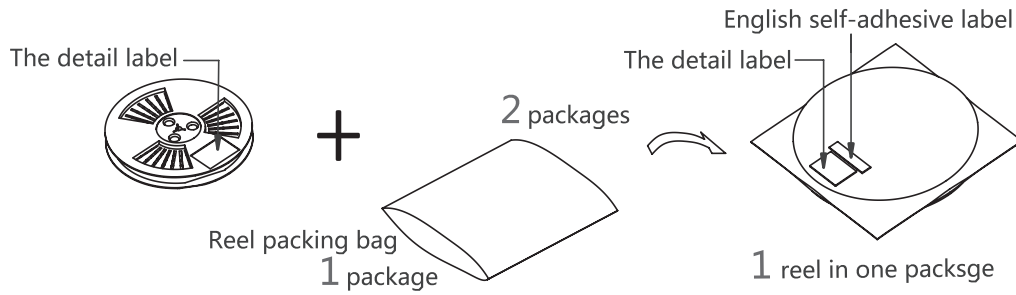
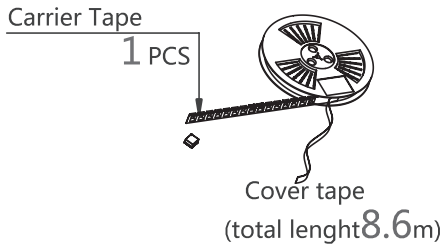
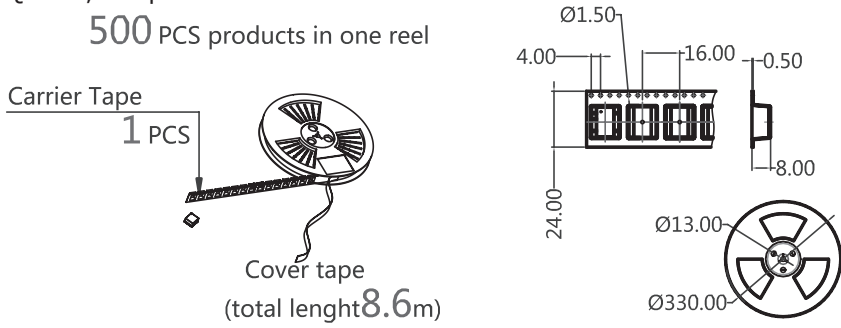
Reel Size: Ø330 mm

Inner Carton Size: 370 x 350 x 115 mm

Outer Carton Size: 400 x 365 x 255 mm

Outer Carton QTY: 3,000 pcs

500 PCS products in one reel



## REVISION HISTORY

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rev.	description	date
1.0	initial release	05/10/2019

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



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