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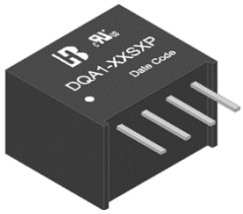
DQA1P Series

1W, Isolated DC-DC Converters

Pulse
a YAGEO company



Features

- SIP4 Package
- Input / Output Isolation: 1500VDC
- High Efficiency
- Lead Free Design, RoHS Compliant
- Operating Temperature Range: -40°C to +105°C
- UL/cUL/IEC/EN 62368-1 Safety Approval

Applications

These converters are well suitable for battery operated equipment, measurement equipment, telecom, wireless network, Industry control system, everywhere where isolated, tightly regulated voltages and compact size are required.

Models and Ratings

Model Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
DQA1-03S0P	2.97 - 3.63 3.3V nominal	3.3	303	15	409	74	2200
DQA1-03S1P		5	200	15	370	72	2200
DQA1-03SAP		9	110	15	361	83	1000
DQA1-05S0P	4.5 - 5.5 5V nominal	3.3	303	8	270	74	2200
DQA1-05S1P		5	200	8	244	82	2200
DQA1-05SAP		9	110	8	239	83	1000
DQA1-05S2P		12	83	8	237	84	560
DQA1-05S3P		15	67	8	239	84	560
DQA1-05S5P		24	42	8	237	85	220
DQA1-05S1YP		5	200	28	260	77	47
DQA1-05S1P-R1		5	200	5	241	83	1000
DQA1-05S1PJ		5	200	35	260	77	47
DQA1-09S0P	8.1 - 9.9 9V nominal	3.3	303	8	150	74	2200
DQA1-09S1P		5	200	8	136	82	2200
DQA1-09SAP		9	110	8	133	83	1000
DQA1-09S2P		12	83	8	132	84	560
DQA1-09S3P		15	67	8	133	84	560
DQA1-12S0P	10.8 - 13.2 12V nominal	3.3	303	8	113	74	2200
DQA1-12S1P		5	200	8	102	82	2200
DQA1-12SAP		9	110	8	99	83	1000
DQA1-12S2P		12	83	8	99	84	560
DQA1-12S3P		15	67	8	100	84	560
DQA1-12S5P		24	42	8	99	85	220
DQA1-12S0P-R		3.3	303	5	109	76	68

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Models and Ratings (continued)							
Model Number	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Input Current (mA) typ.		Efficiency (%) typ.	Capacitive Load (µF) max.
			Full Load	No Load	Full Load		
DQA1-15S0P	13.5 - 16.5 15V nominal	3.3	303	8	90	74	2200
DQA1-15S1P		5	200	8	81	82	2200
DQA1-15SAP		9	110	8	80	83	1000
DQA1-15S2P		12	83	8	79	84	560
DQA1-15S3P		15	67	8	80	84	560
DQA1-24S0P	21.6 - 26.4 24V nominal	3.3	303	8	56	74	2200
DQA1-24S1P		5	200	8	51	82	2200
DQA1-24SAP		9	110	8	50	83	1000
DQA1-24S2P		12	83	8	49	84	560
DQA1-24S3P		15	67	8	50	84	560
DQA1-24S5P		24	42	8	49	85	220

Input Specifications

Surge voltage	1 s max.	
	3.3Vin models	10VDC max.
	5Vin models	10VDC max.
	9Vin models	12VDC max.
	12Vin models	15VDC max.
	15Vin models	20VDC max.
	24Vin models	30VDC max.
Input filter		Capacitor

Output Specifications

Output power		1 Watt max.
Voltage accuracy	Nominal Vin and full load	See 'Output Voltage Tolerance'
	Nominal Vin and 20% load (DQA1-05S1PJ only)	5.45 - 5.5V
Minimum load		10% load of full load
Line regulation	1% Vin step	±1.2% max.

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Output Specifications (continued)		
Load regulation	10% to 100% load	
	3.3Vout models	15% typ. / 18% max.
	5Vout models	8% typ. / 13% max.
	9Vout models	7% typ. / 9% max.
	12Vout models	6% typ. / 8% max.
	15Vout models	5% typ. / 8% max.
	24Vout models	5% typ. / 7% max.
Ripple and noise	20MHz bandwidth and full load	75 mVp-p max.
Capacitive load	Nominal Vin and constant resistive load	See ‘Models and Ratings’ table
Short circuit protection		Continuous, Auto recovery
Temperature coefficient	Full Load	±0.02%/°C typ.
General Specifications		
Efficiency	Nominal Vin and full load	See ‘Models and Ratings’ table
Switching frequency	Nominal Vin and full load	100 - 350 kHz
Isolation voltage	Input to output, 60 s	1500 VDC min.
Isolation resistance	500 VDC	1000 MΩ min.
Isolation capacitance	10 kHz and 0.3V	15 pF typ.
Reliability, calculated MTBF	MIL-HDBK-217F, Ground Benign	2×10^6 h
Operating ambient temperature	With derating	-40°C to +105°C
Case temperature		+115°C max.
Storage temperature range		-55°C to +125°C
Relative humidity		95% RH max.
Cooling		Natural convection
Physical Specifications		
Case material		Plastic (UL 94 V-0)
Potting material		Epoxy (UL 94 V-0)
Dimensions		11.6 × 10.1 × 6.0 mm
Weight		1.5 g typ.

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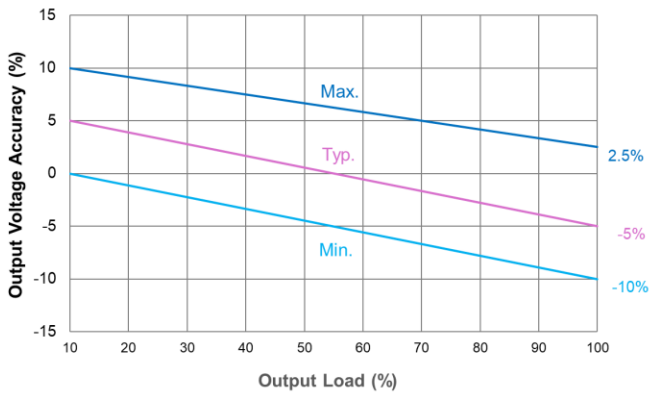
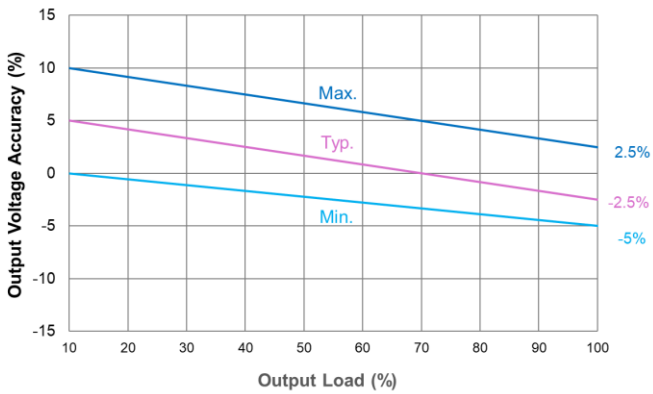
Characteristic Curves

Output Voltage Tolerance (Nominal Vin)

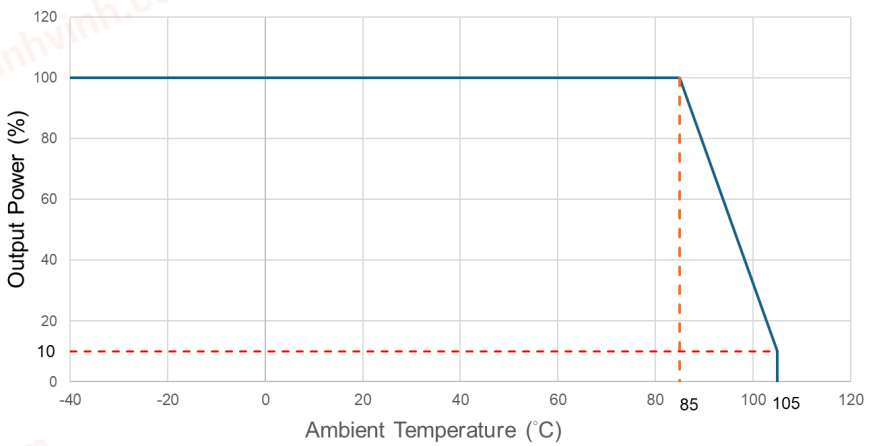
3.3Vout models



Other models



Power Derating Curve



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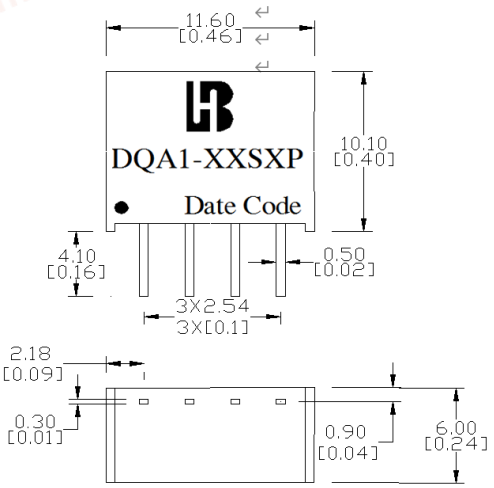
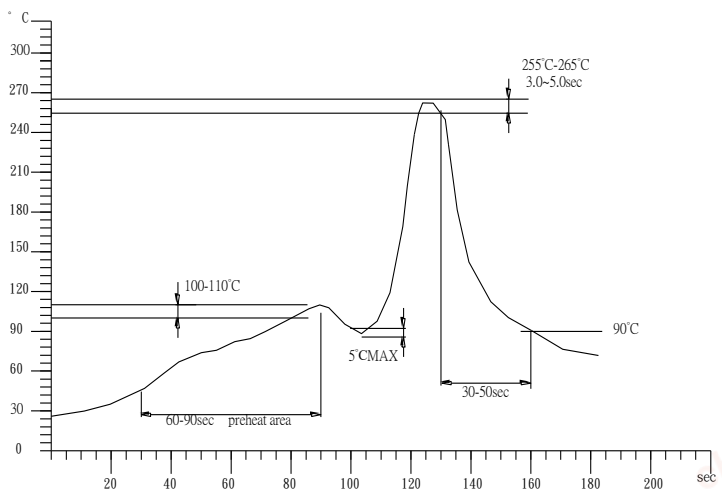
Mechanical



Pinout	
PIN	Function
1	-Vin
2	+Vin
3	-Vout
4	+Vout

All dimensions in mm [inch]
Tolerances: ±0.5 [±0.02]
Pin dimension tolerances: ±0.10 [±0.004]

Wave Soldering Temperature Curve



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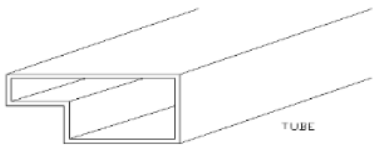
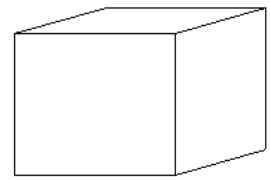
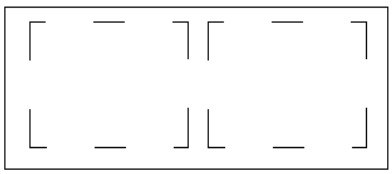
Carton Package







TUBE = 42PCS
INNER CARTON = 50 TUBE = 50*42 = 2100PCS
EXPORT CARTON = 2 INNER CARTON = 2*2100 = 4200PCS

For More Information:

Americas-prodinfonetworkamericas@pulseelectronics.com | Europe-comms-Apps-Europe@pulseelectronics.com | Asia-prodinfonetworkapac@pulseelectronics.com

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