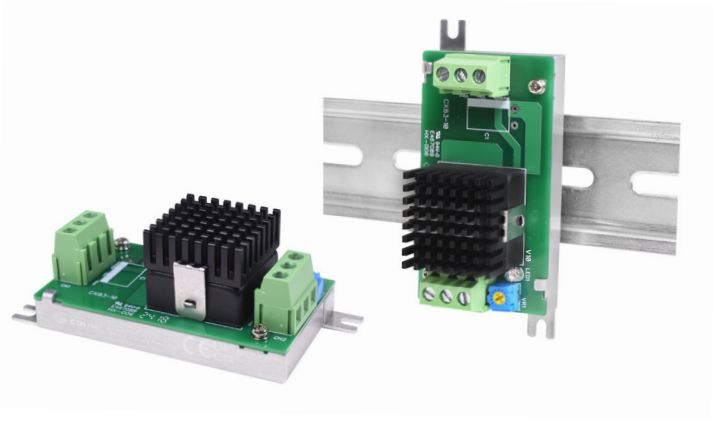
CUI INC
a bel group

SERIES: DQC30 | DESCRIPTION: DC-DC CONVERTER

FEATURES

- up to 30 W isolated output
- single/dual regulated output
- over voltage, input under voltage lockout, short circuit, and over temperature protections
- remote on/off control
- output trim
- -40 to 100°C temperature range, with derating
- certified to IEC/EN 62368-1
- no tantalum capacitors
- 5,000 meter altitude operation
- chassis and DIN rail mount options



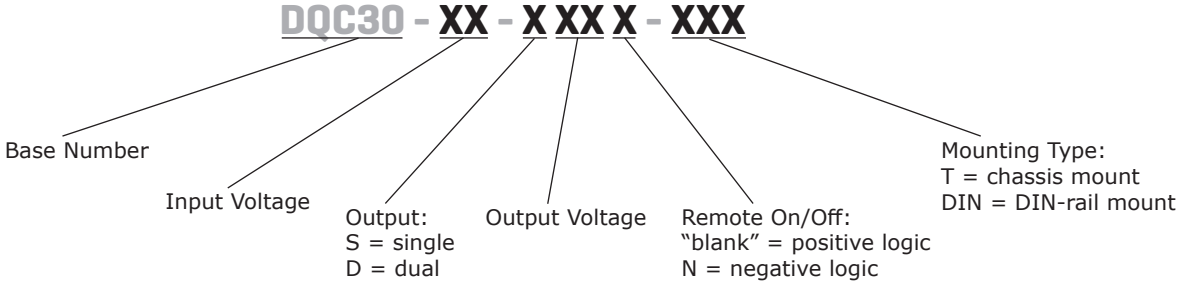
RoHS CE UKCA

MODEL

MODEL	input voltage		output voltage	output current	output power	ripple & noise[1]	efficiency[2]
	typ (Vdc)	range (Vdc)	typ (Vdc)	max (mA)	max (W)	max (mVp-p)	typ (%)
DQC30-24-S3	24	10~36	3.3	7500	30	75	87
DQC30-24-S5	24	10~36	5	6000	30	75	89.5
DQC30-24-S12	24	10~36	12	2500	30	100	88
DQC30-24-S15	24	10~36	15	2000	30	100	89.5
DQC30-24-D12	24	10~36	±12	±1250	30	100	88.5
DQC30-24-D15	24	10~36	±15	±1000	30	100	88.5
DQC30-48-S3	48	19~74	3.3	7500	30	75	88
DQC30-48-S5	48	19~74	5	6000	30	75	89.5
DQC30-48-S12	48	19~74	12	2500	30	100	89
DQC30-48-S15	48	19~74	15	2000	30	100	89
DQC30-48-D12	48	19~74	±12	±1250	30	100	89
DQC30-48-D15	48	19~74	±15	±1000	30	100	90

Notes:
1. At full load, nominal input, 5 to 20 MHz bandwidth oscilloscope, with 1.0 ceramic capacitors.
2. The efficiency is tested at nominal input 24 Vdc.
3. All specifications measured at Ta=25°C, nominal input voltage, rated output load, and after warm up unless otherwise specified.

PART NUMBER KEY



INPUT

parameter	conditions/description	min	typ	max	units
input voltage range	24 Vdc input models 48 Vdc input models	10 19	24 48	36 74	Vdc Vdc
input current (full load/no load)	24 Vdc input / 3.3 Vdc output model 24 Vdc input / 5, 15 Vdc output model 24 Vdc ipnut / 12 Vdc output models 24 Vdc input / ±12, ±15 Vdc output model 48 Vdc input / 3.3 Vdc output model 48 Vdc input / 5 Vdc output model 48 Vdc input / 12, 15, ±12 Vdc output model 48 Vdc input / ±15 Vdc output model		1185/10 1397/10 1420/10 1412/10 586/8 698/8 702/8 694/8		mA mA mA mA mA mA mA mA
surge voltage	100 ms max 24 Vdc input models 48 Vdc input models		 50 100		 Vdc Vdc
turn-on voltage threshold	at full load 24 Vdc input models 48 Vdc input models	 8.8 16.5	 9 17.5	 9.2 18	 Vdc Vdc
turn-off voltage threshold	at full load 24 Vdc input models 48 Vdc input models	 8.2 16	 8.4 16.2	 8.6 16.5	 Vdc Vdc
lockout hysteresis voltage	at full load 24 Vdc input models 48 Vdc input models		 0.5 1		 Vdc Vdc
maximum input current	at 10 Vdc input, full load 24 Vdc input models at 19 Vdc input, full load 48 Vdc input models		4 2		A A
filter	EMI filter				
remote on/off	module on CTRL pin open or pulled high (3.5~74 Vdc) module off CTRL pin pulled low (0~1.2 Vdc)				
	module on CTRL pin pulled low (0~1.2 Vdc) module off CTRL pin open or pulled high (3.5~74 Vdc)				
remote on/off current	module on/off		0.4	1	mA
leakage current	module on/off CTRL pin pulled high			30	µA
off converter input current	shut-down input idle current		4	10	mA

OUTPUT

parameter	conditions/description	min	typ	max	units
maximum capacitive load	3.3 Vdc output models 5 Vdc output models 12 Vdc output models 15 Vdc output models ±12 Vdc output models ±15 Vdc output models			7,500 6,000 2,500 2,000 1,250 1,000	µF µF µF µF µF µF
voltage accuracy	single output dual output			±1.5 -1.8/+1.5	% %
voltage balance	dual output		±1.5		%
transient response deviation	75% to 100% step load change			±5	%
transient response recovery	75% to 100% step load change			250	µs
start-up time	from on/off CTRL Von/off to 10% Vo_set, remote on		10		ms
	from input Vin_min to 10% Vo_set, power up		10		ms
rise time	10% Vo_set to 90% Vo_set		10		ms
load regulation	measured from 0~100% load 3.3, ±12, ±15 Vdc output model all other output models			 ±1 ±0.5	 % %
line regulation	measured from low to high line, full load single output models dual output models			 ±0.3 ±0.5	 % %

OUTPUT

parameter	conditions/description	min	typ	max	units
temperature coefficient				±0.03	%/°C
switching frequency	3.3, 5 Vdc output model all other output models	240 300	270 330	300 360	kHz kHz

PROTECTIONS

parameter	conditions/description	min	typ	max	units
over current protection		110	140	170	%
over voltage protection	zener or TVS clamp 3.3 Vdc output model 5 Vdc output model 12 Vdc output model 15 Vdc output model		 3.9 6.2 15 18		 Vdc Vdc Vdc Vdc
short circuit protection	continuous				
over temperature shutdown	center of the case, non-latching		110		°C
over temperature recovery	center of the case, non-latching		100		°C

SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute			1,500	Vdc
isolation capacitance	input to output, (10 kHz, 0.25V)		3,500		pF
safety approvals	certified to 62368-1: IEC, EN				
EMI	EN 55032 Class A				
ESD	IEC 61000-4-2 Level 3: air ±8 kV, Level 2: contact ±4 kV, perf. Criteria A				
radiated immunity	EN 61000-4-3 Level 2: 80 ~ 1000 MHz, 3 V/m, perf. Criteria A				
fast transient	EN 61000-4-4 Level 1: on power input port, ±0.5 kV, perf. Criteria A				
surge	EN 61000-4-5 Level 1: line to line, ±0.5 kV, perf. Criteria A				
conducted immunity	EN 61000-4-6 Level 2: 0.15 ~ 80 MHz, 3 V, perf. Criteria A				
thermal shock	MIL-STD-810F				
shock/vibration	MIL-STD-810F				
MTBF	as per MIL-HDBK-217F, GB, at 25 °C 24 Vdc input / 3.3 Vdc output model 24 Vdc input / 5 Vdc output model 24 Vdc ipnut / 12 Vdc output models 24 Vdc ipnut / 15 Vdc output models 24 Vdc input / ±12 Vdc output model 24 Vdc input / ±15 Vdc output model 48 Vdc input / 3.3 Vdc output model 48 Vdc input / 5 Vdc output model 48 Vdc input / 12 Vdc output model 48 Vdc input / 15 Vdc output model 48 Vdc input / ±12 Vdc output model 48 Vdc input / ±15 Vdc output model		 848,000 741,000 994,000 1,121,000 1,015,000 1,092,000 868,000 754,000 1,015,000 1,115,000 1,021,000 1,113,000		 hours hours hours hours hours hours hours hours hours hours hours hours
RoHS	yes				

ENVIRONMENTAL

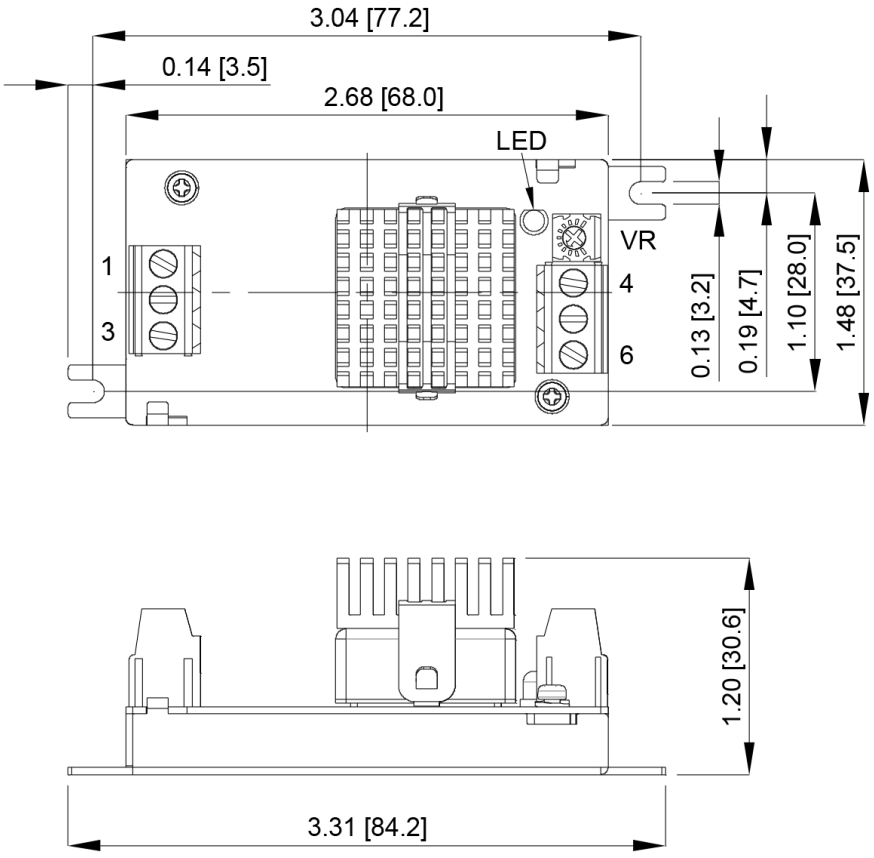
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		100	°C
operating case temperature	at the center	-40		105	°C
storage temperature		-55		125	°C
operating humidity	non condensing	-		95	%

MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	chassis mount: 3.31 x 1.48 x 1.20 [84.2 x 37.5 x 30.6 mm] DIN-rail mount: 3.31 x 1.48 x 1.71 [84.2 x 37.5 x 43.4 mm]				inches inches
case material	black coated copper				
base plate material	aluminum				
potting material	UL 94V-0				
weight	chassis mount DIN-rail mount		66 70		g g
operating altitude			5,000		m

MECHANICAL DRAWING

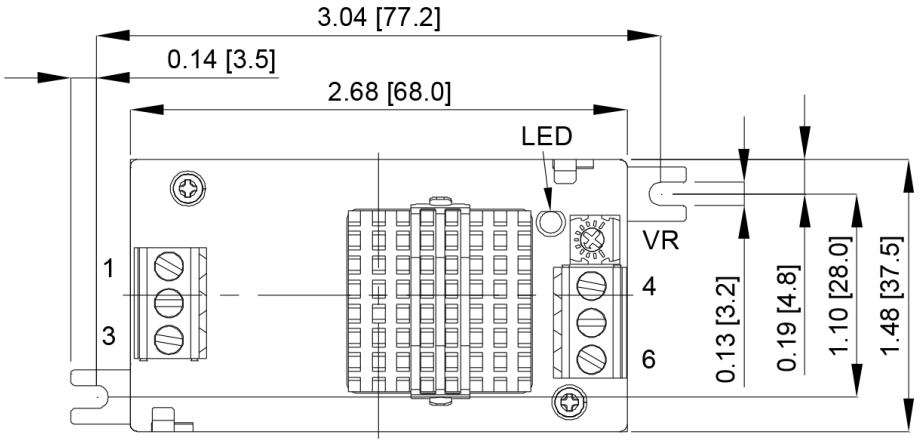
Chassis mount
units: inch [mm]
tolerance: inches: x.xx = ±0.02, x.xxx = ±0.010
mm: x.x = ±0.002, x.xx = ±0.25



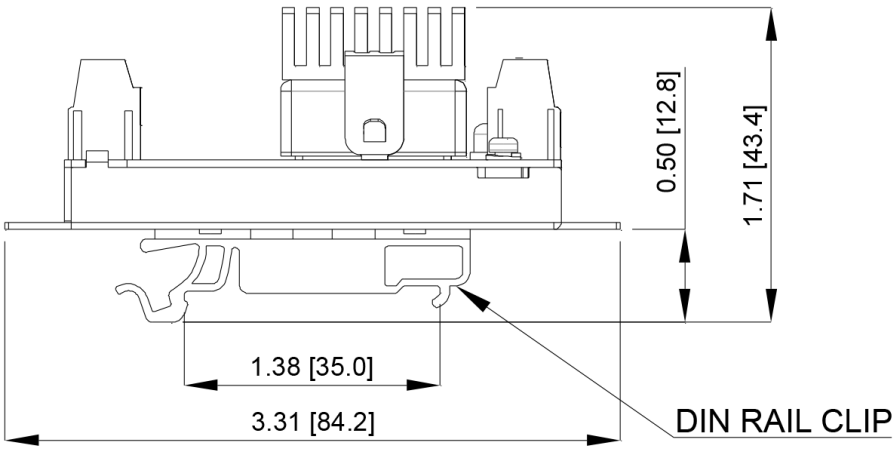
PIN CONNECTIONS		
PIN	Single	Dual
1	remote	remote
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout
VR	yes	no

MECHANICAL DRAWING (CONTINUED)

DIN-rail mount
units: inch [mm]
tolerance: inches: x.xx = ±0.02, x.xxx = ±0.010
mm: x.x = ±0.002, x.xx = ±0.25

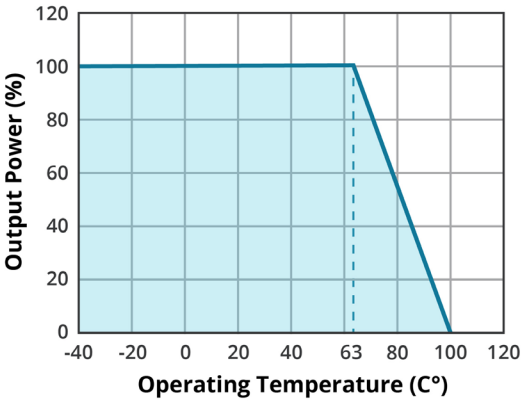


PIN CONNECTIONS		
PIN	Single	Dual
1	remote	remote
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout
VR	yes	no

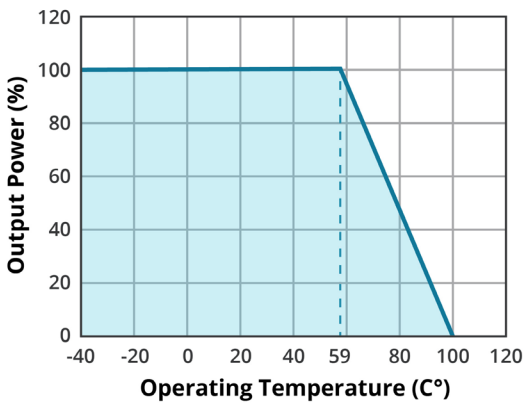


DERATING CURVES

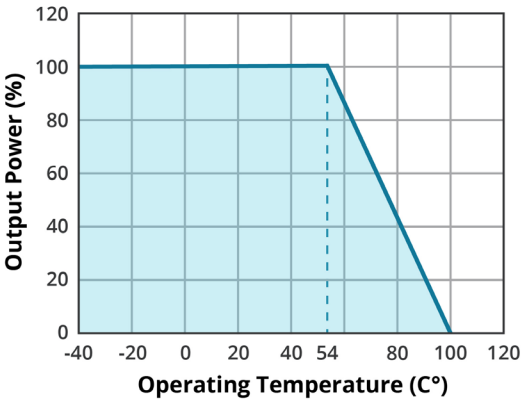
TEMPERATURE DERATING CURVE
(DQC30-24-S3, DQC30-24-S5)



TEMPERATURE DERATING CURVE
(DQC30-24-S12, DQC30-24-S15, DQC30-48-D12, DQC30-48-D15)

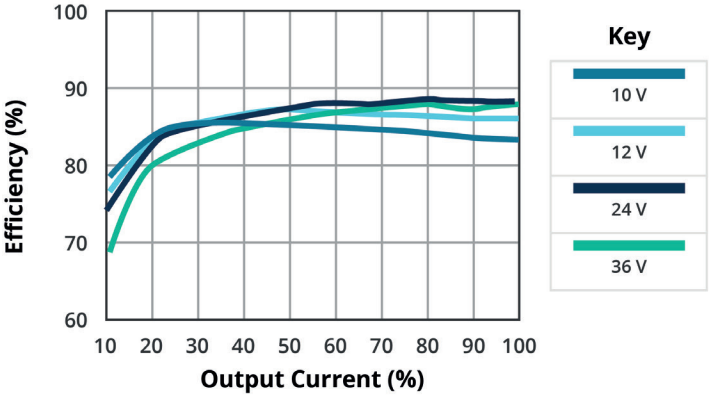


TEMPERATURE DERATING CURVE
(DQC30-24-D12, DQC30-24-D15)

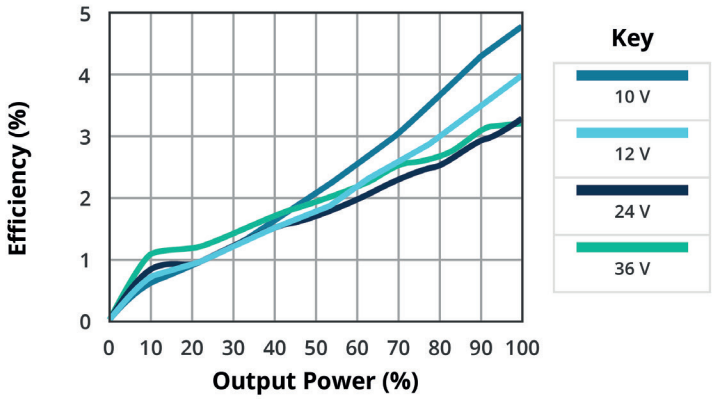


EFFICIENCY CURVES

EFFICIENCY VS OUTPUT LOAD
DQC30-24-S3-T

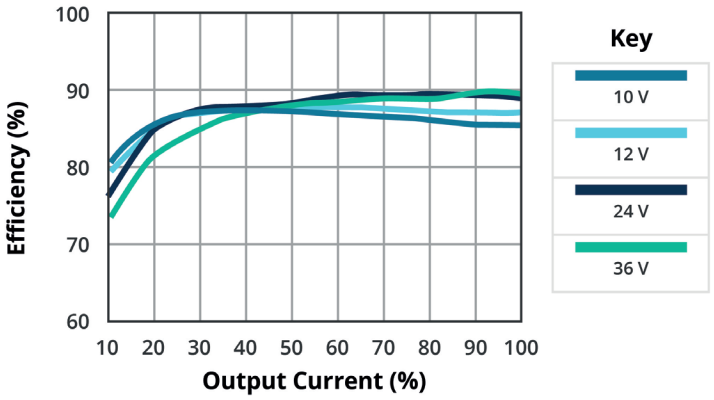


POWER DISSIPATION VS OUTPUT POWER
DQC30-24-S3-T

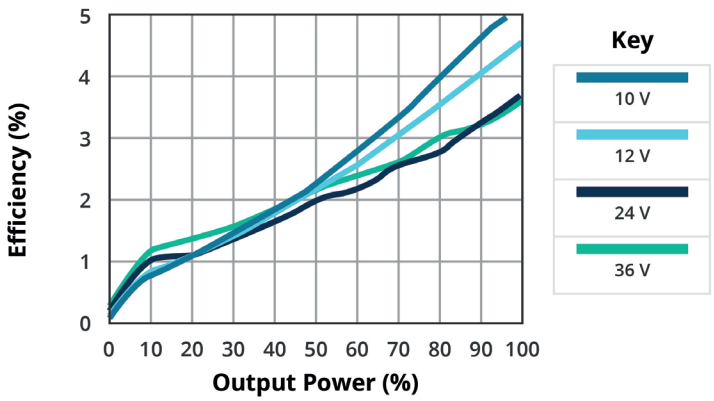


EFFICIENCY CURVES (CONTINUED)

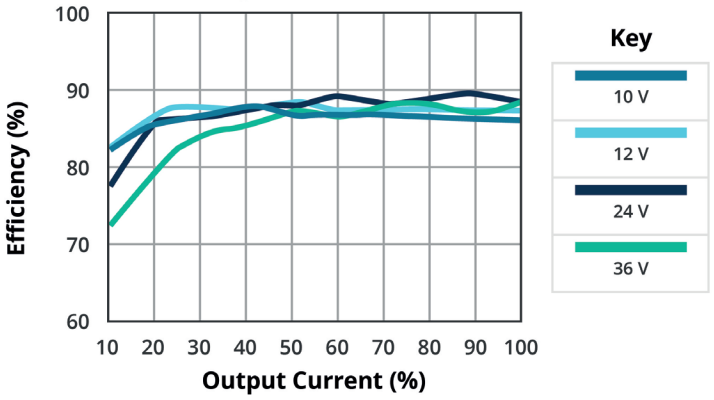
EFFICIENCY VS OUTPUT LOAD
DQC30-24-S5-T



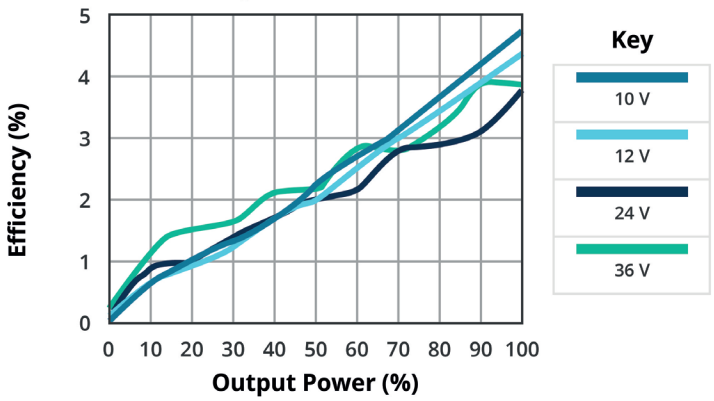
POWER DISSIPATION VS OUTPUT POWER
DQC30-24-S5-T



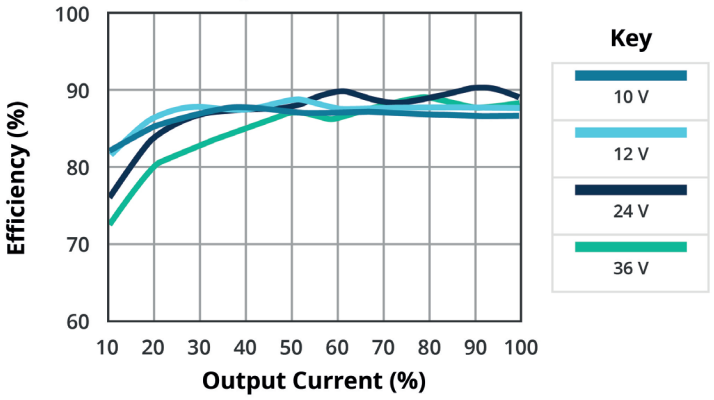
EFFICIENCY VS OUTPUT LOAD
DQC30-24-S12-T



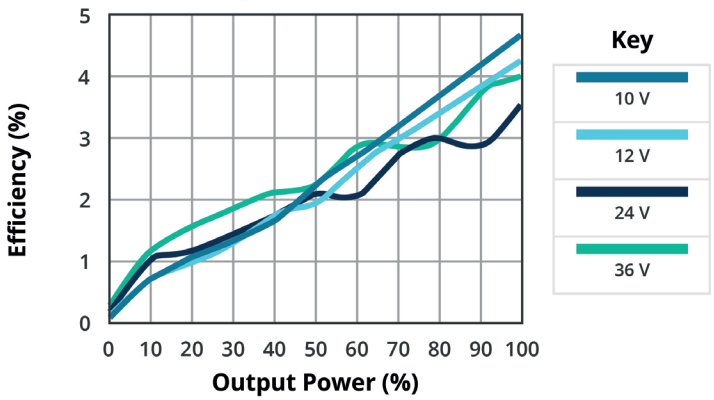
POWER DISSIPATION VS OUTPUT POWER
DQC30-24-S12-T



EFFICIENCY VS OUTPUT LOAD
DQC30-24-S15-T

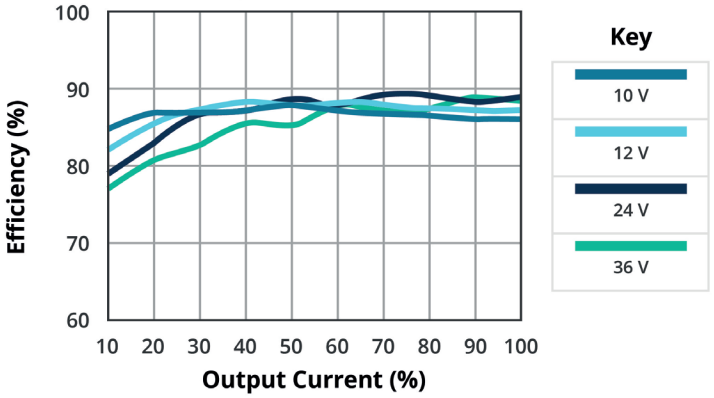


POWER DISSIPATION VS OUTPUT POWER
DQC30-24-S15-T

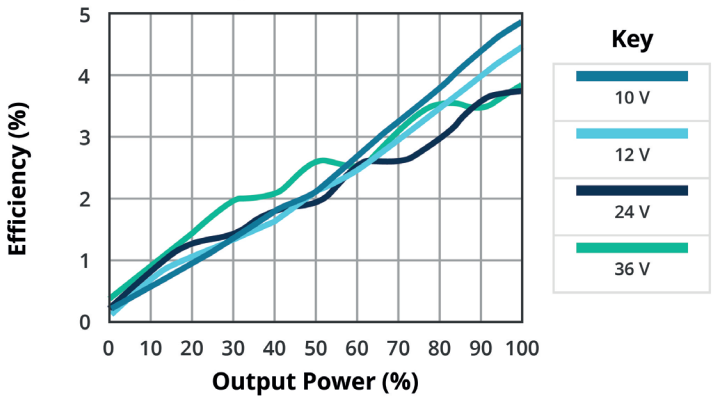


EFFICIENCY CURVES (CONTINUED)

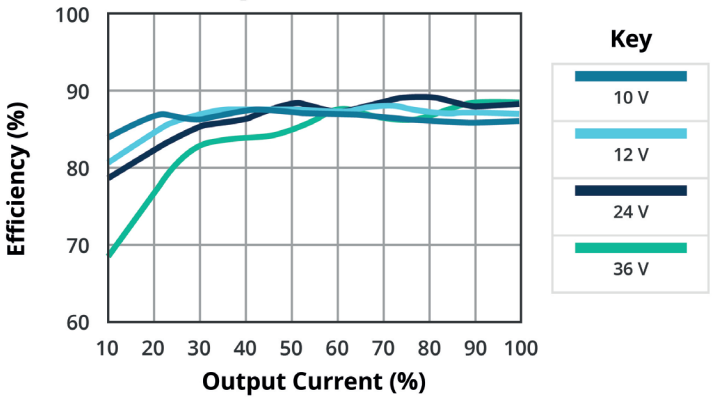
EFFICIENCY VS OUTPUT LOAD
DQC30-24-D12-T



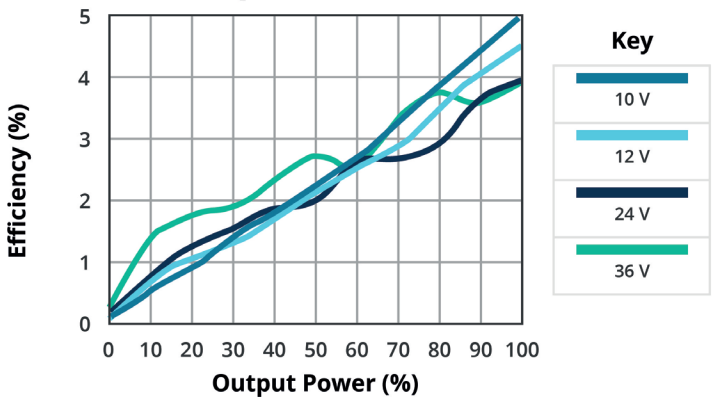
POWER DISSIPATION VS OUTPUT POWER
DQC30-24-D12-T



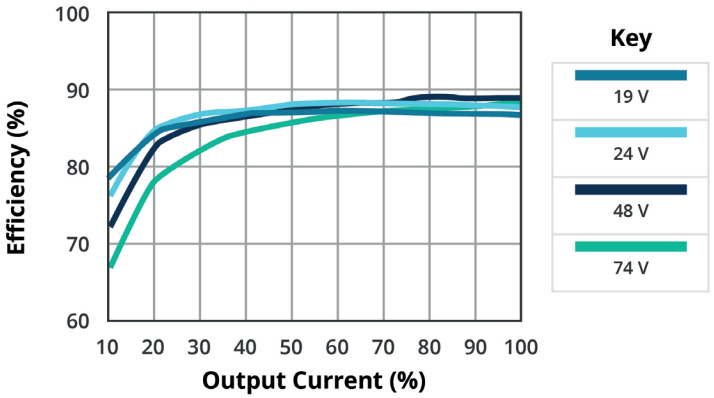
EFFICIENCY VS OUTPUT LOAD
DQC30-24-D15-T



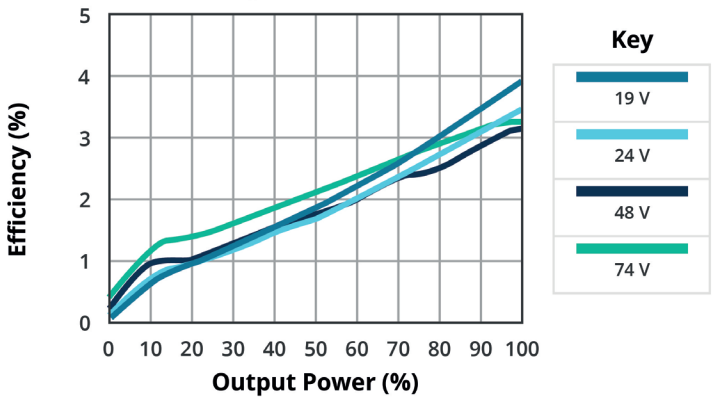
POWER DISSIPATION VS OUTPUT POWER
DQC30-24-D15-T



EFFICIENCY VS OUTPUT LOAD
DQC30-48-S3-T

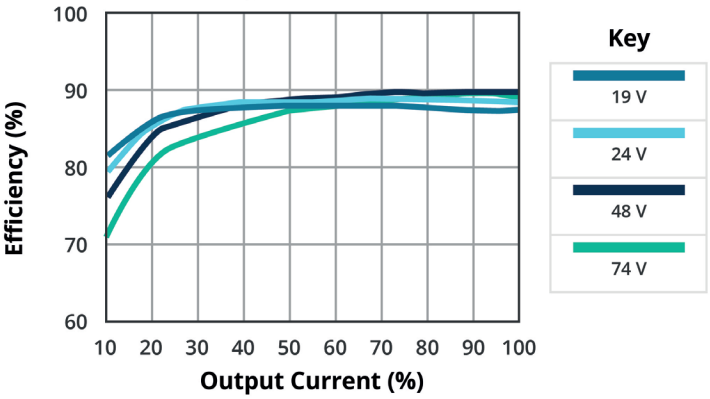


POWER DISSIPATION VS OUTPUT POWER
DQC30-48-S3-T

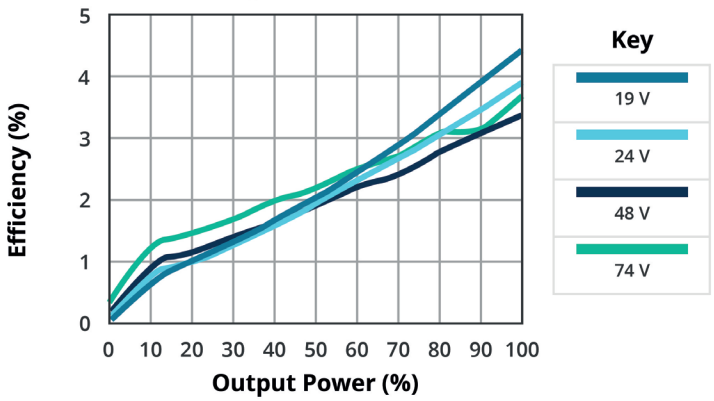


EFFICIENCY CURVES (CONTINUED)

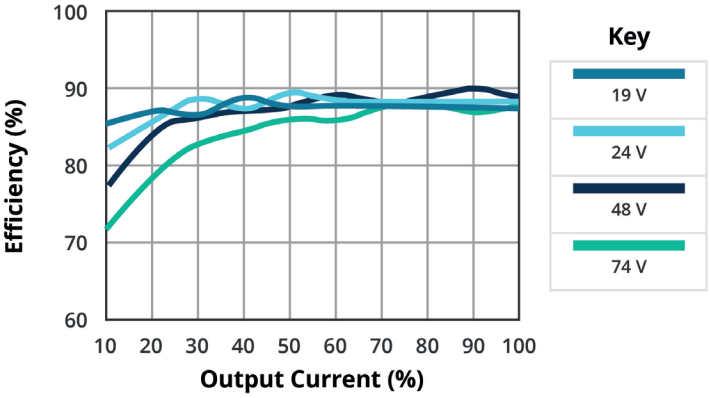
EFFICIENCY VS OUTPUT LOAD
DQC30-48-S5-T



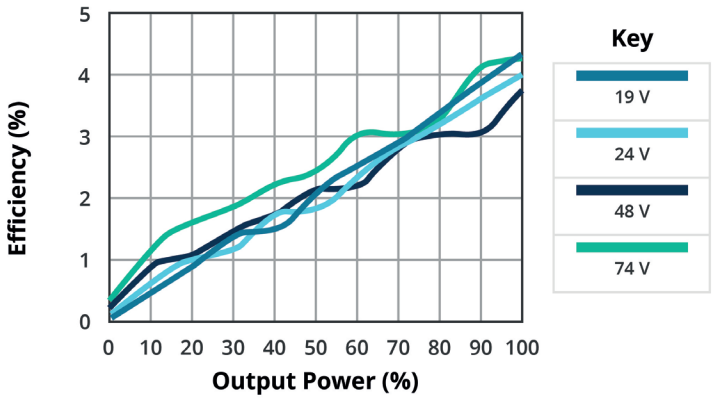
POWER DISSIPATION VS OUTPUT POWER
DQC30-48-S5-T



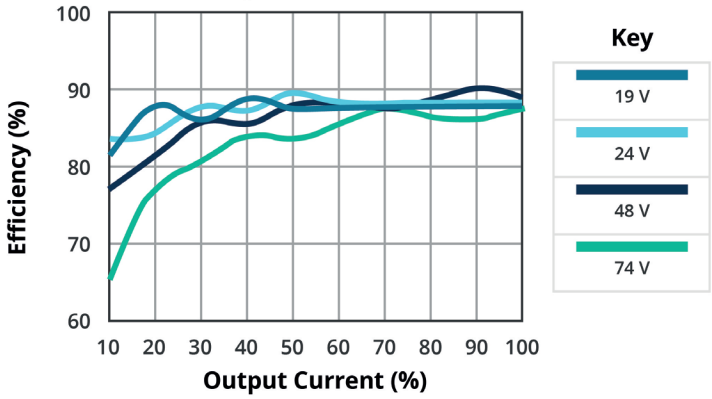
EFFICIENCY VS OUTPUT LOAD
DQC30-48-S12-T



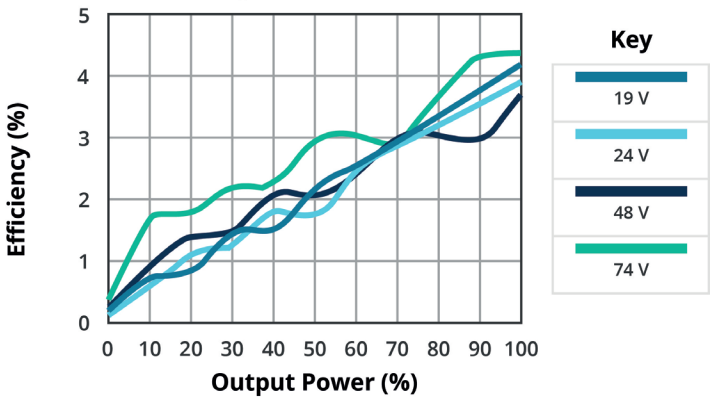
POWER DISSIPATION VS OUTPUT POWER
DQC30-48-S12-T



EFFICIENCY VS OUTPUT LOAD
DQC30-48-S15-T

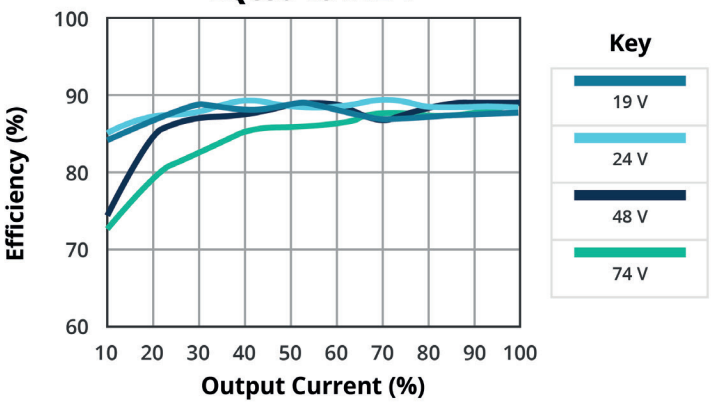


POWER DISSIPATION VS OUTPUT POWER
DQC30-48-S15-T

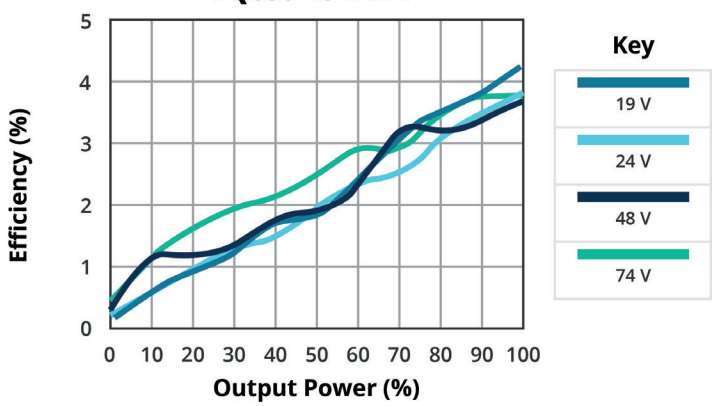


EFFICIENCY CURVES (CONTINUED)

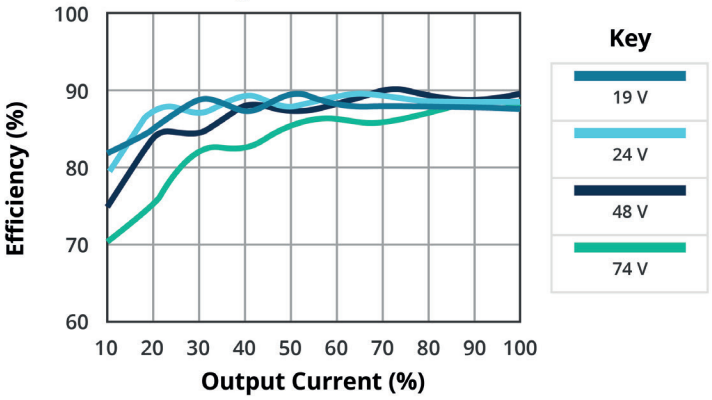
EFFICIENCY VS OUTPUT LOAD
DQC30-48-D12-T



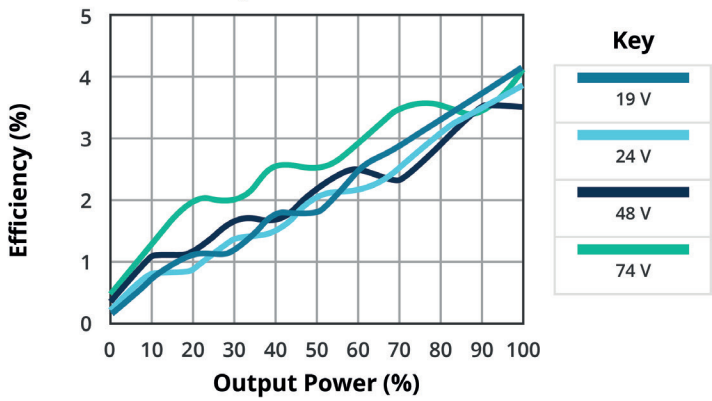
POWER DISSIPATION VS OUTPUT POWER
DQC30-48-D12-T



EFFICIENCY VS OUTPUT LOAD
DQC30-48-D15-T



POWER DISSIPATION VS OUTPUT POWER
DQC30-48-D15-T



REVISION HISTORY

rev.	description	date
1.0	initial release	12/05/2024

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

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techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

CUI reserves the right to make changes to the product at any time without notice. Information provided by CUI is believed to be accurate and reliable. However, no responsibility is assumed by CUI for its use, nor for any infringements of patents or other rights of third parties which may result from its use.

CUI products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.