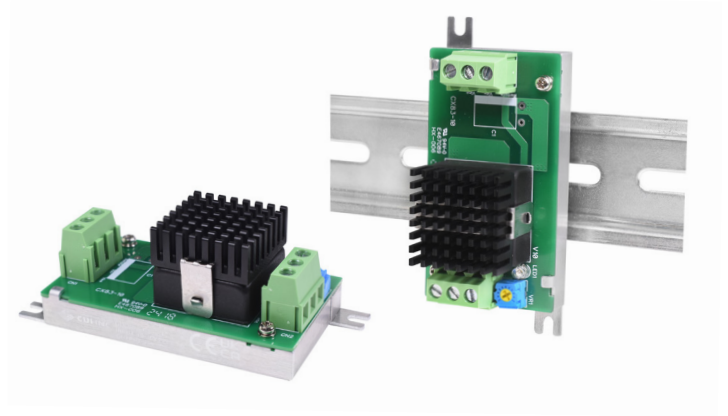


SERIES: DQC30 | DESCRIPTION: DC-DC CONVERTER

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

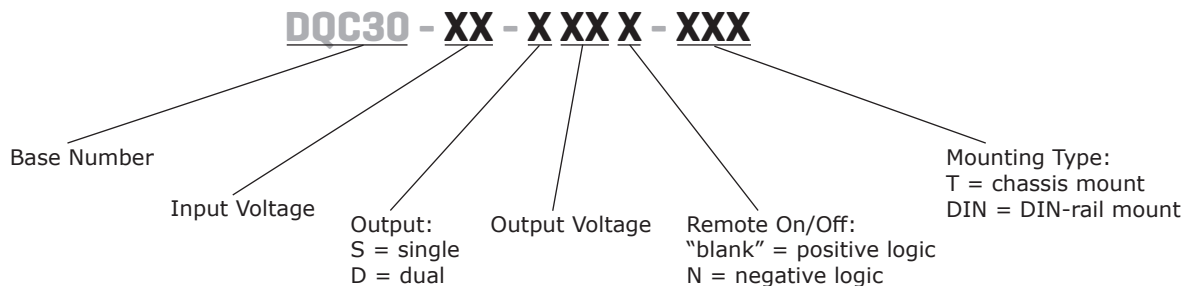


MODEL

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	10	24	36	Vdc
	48 Vdc input models	19	48	74	Vdc
input current (full load/no load)	24 Vdc input / 3.3 Vdc output model		1185/10		mA
	24 Vdc input / 5, 15 Vdc output model		1397/10		mA
	24 Vdc input / 12 Vdc output models		1420/10		mA
	24 Vdc input / ± 12 , ± 15 Vdc output model		1412/10		mA
	48 Vdc input / 3.3 Vdc output model		586/8		mA
	48 Vdc input / 5 Vdc output model		698/8		mA
	48 Vdc input / 12, 15, ± 12 Vdc output model		702/8		mA
	48 Vdc input / ± 15 Vdc output model		694/8		mA
surge voltage	100 ms max				
	24 Vdc input models		50		Vdc
	48 Vdc input models		100		Vdc
turn-on voltage threshold	at full load				
	24 Vdc input models	8.8	9	9.2	Vdc
	48 Vdc input models	16.5	17.5	18	Vdc
turn-off voltage threshold	at full load				
	24 Vdc input models	8.2	8.4	8.6	Vdc
	48 Vdc input models	16	16.2	16.5	Vdc
lockout hysteresis voltage	at full load				
	24 Vdc input models		0.5		Vdc
	48 Vdc input models		1		Vdc
maximum input current	at 10 Vdc input, full load 24 Vdc input models		4		A
	at 19 Vdc input, full load 48 Vdc input models		2		A
filter	EMI filter				
remote on/off	module on module off	CTRL pin open or pulled high (3.5~74 Vdc) CTRL pin pulled low (0~1.2 Vdc)			
	module on module off	CTRL pin pulled low (0~1.2 Vdc) 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	μ A
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			7,500	μ F
	5 Vdc output models			6,000	μ F
	12 Vdc output models			2,500	μ F
	15 Vdc output models			2,000	μ F
	± 12 Vdc output models			1,250	μ F
	± 15 Vdc output models			1,000	μ F
voltage accuracy	single output			± 1.5	%
	dual output			-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	μ s
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			± 1	%
	all other output models			± 0.5	%
line regulation	measured from low to high line, full load				
	single output models			± 0.3	%
	dual output models			± 0.5	%

OUTPUT

parameter	conditions/description	min	typ	max	units
temperature coefficient				±0.03	%/°C
switching frequency	3.3, 5 Vdc output model	240	270	300	kHz
	all other output models	300	330	360	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		3.9		Vdc
	5 Vdc output model		6.2		Vdc
	12 Vdc output model		15		Vdc
	15 Vdc output model		18		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		848,000		hours
	24 Vdc input / 5 Vdc output model		741,000		hours
	24 Vdc input / 12 Vdc output models		994,000		hours
	24 Vdc input / 15 Vdc output models		1,121,000		hours
	24 Vdc input / ±12 Vdc output model		1,015,000		hours
	24 Vdc input / ±15 Vdc output model		1,092,000		hours
	48 Vdc input / 3.3 Vdc output model		868,000		hours
	48 Vdc input / 5 Vdc output model		754,000		hours
	48 Vdc input / 12 Vdc output model		1,015,000		hours
	48 Vdc input / 15 Vdc output model		1,115,000		hours
	48 Vdc input / ±12 Vdc output model		1,021,000		hours
	48 Vdc input / ±15 Vdc output model		1,113,000		hours
RoHS	yes				

ENVIRONMENTAL

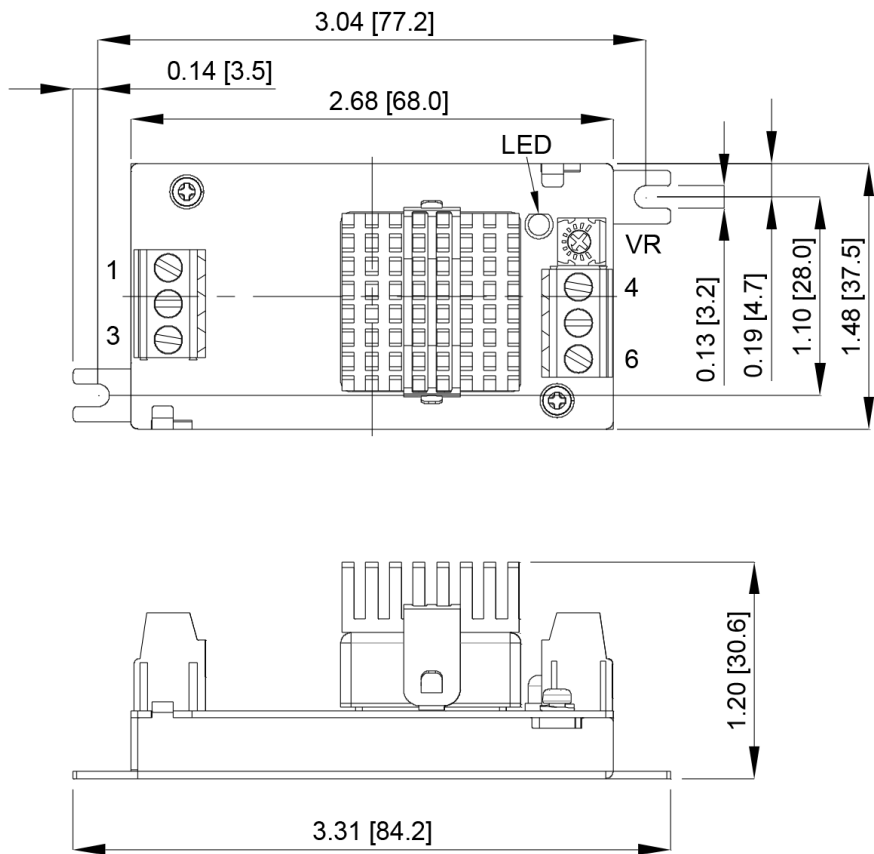
parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		100	°C
operating case temperature	at the center	-40		105	°C
storage temperature		-55		125	°C
operating humidity	non condensing	-		95	%

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

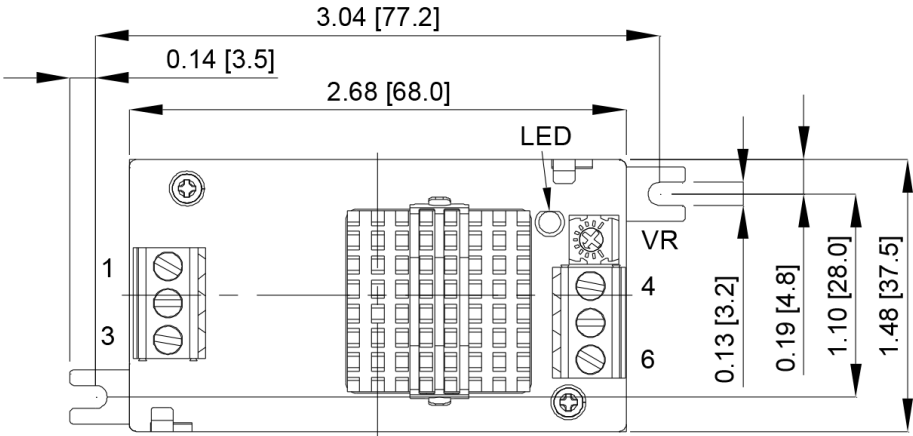
Chassis mount
units: inch [mm]
tolerance: inches: x.xx = ±0.02, x.xxx = ±0.010
mm: x.x = ±0.002, x.xx = ±0.25



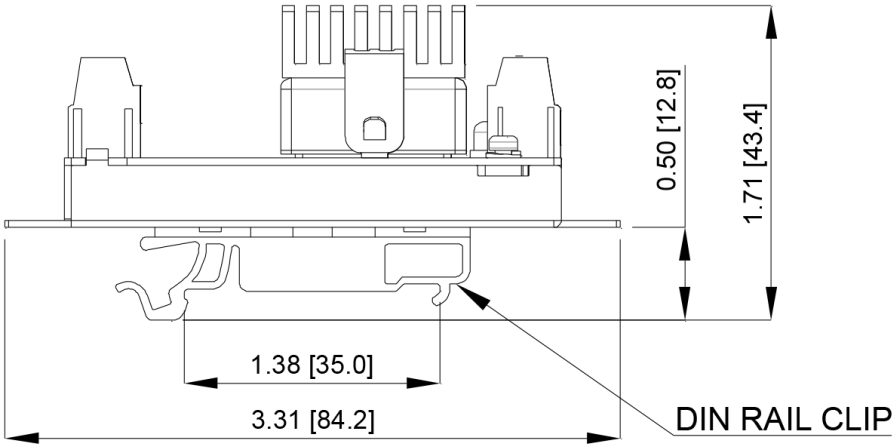
PIN CONNECTIONS		
PIN	Single	Dual
1	remote	remote
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout
VR	yes	no

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

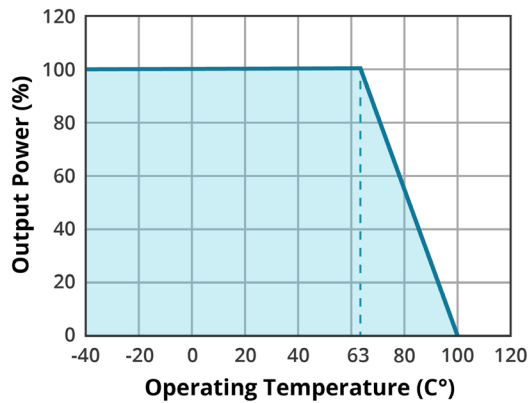


PIN CONNECTIONS		
PIN	Single	Dual
1	remote	remote
2	-Vin	-Vin
3	+Vin	+Vin
4	-Vout	-Vout
5	Trim	Common
6	+Vout	+Vout
VR	yes	no

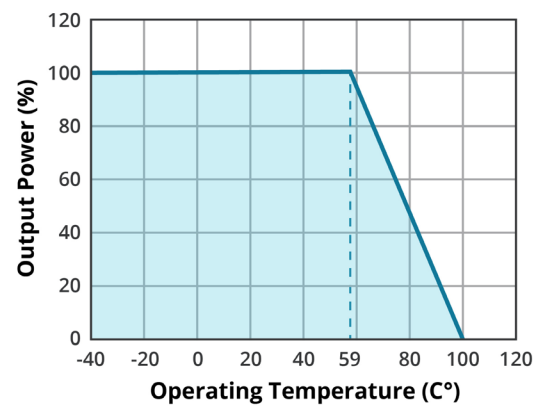


DERATING CURVES

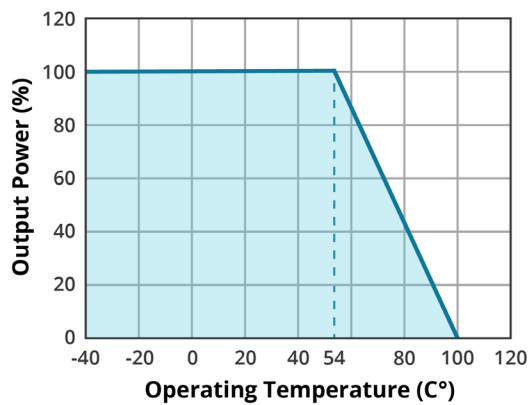
TEMPERATURE DERATING CURVE
(DQC30-24-S3, DQC30-24-S5)



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

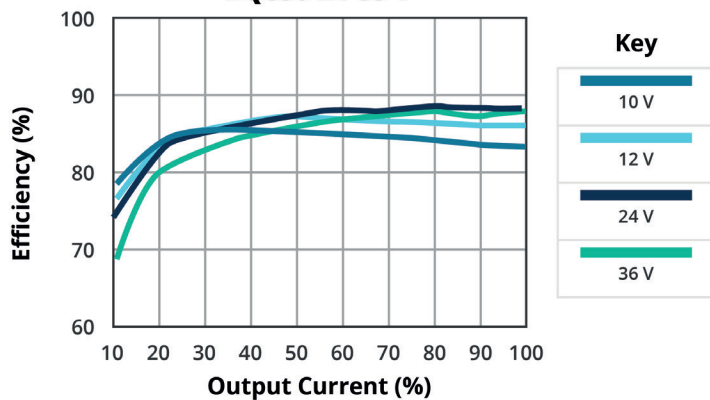


TEMPERATURE DERATING CURVE
(DQC30-24-D12, DQC30-24-D15)

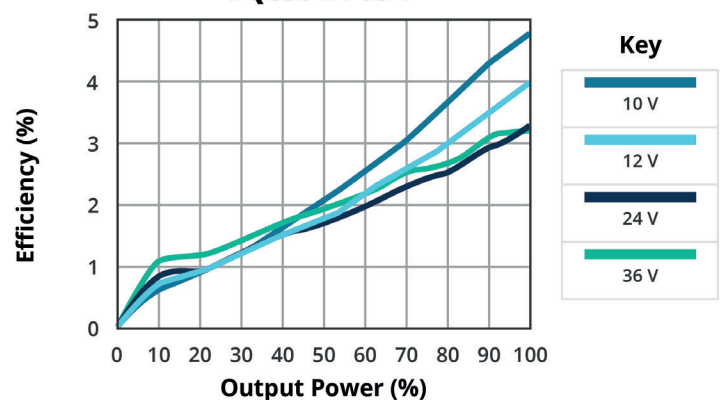


EFFICIENCY CURVES

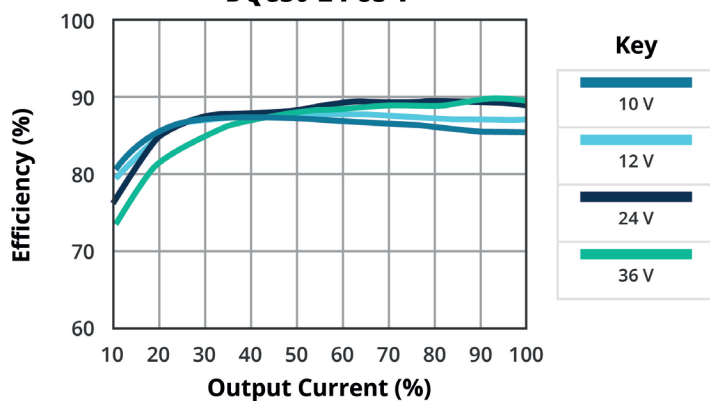
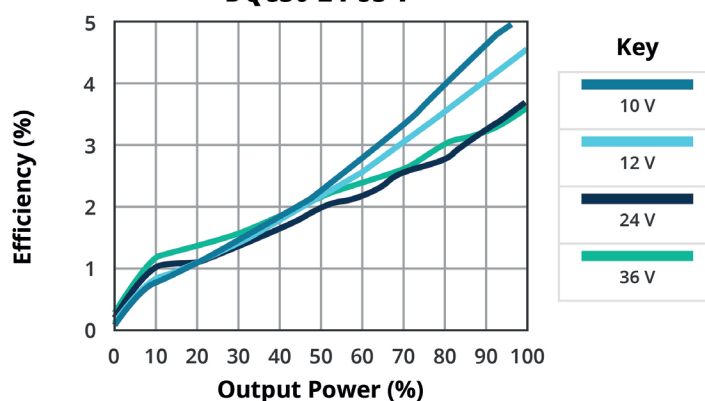
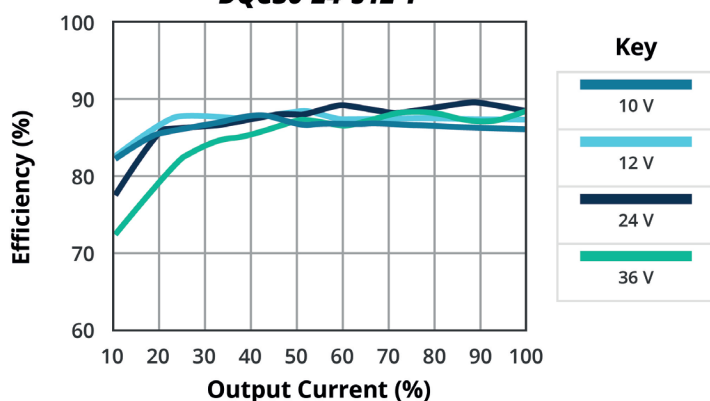
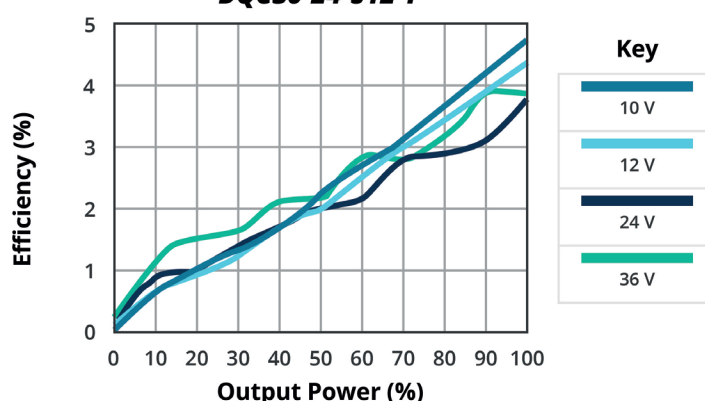
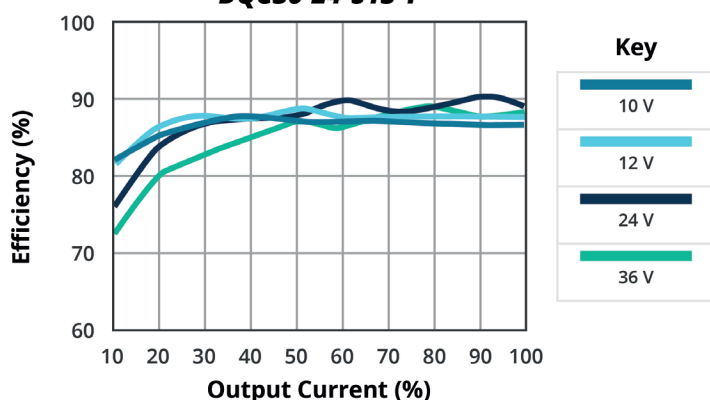
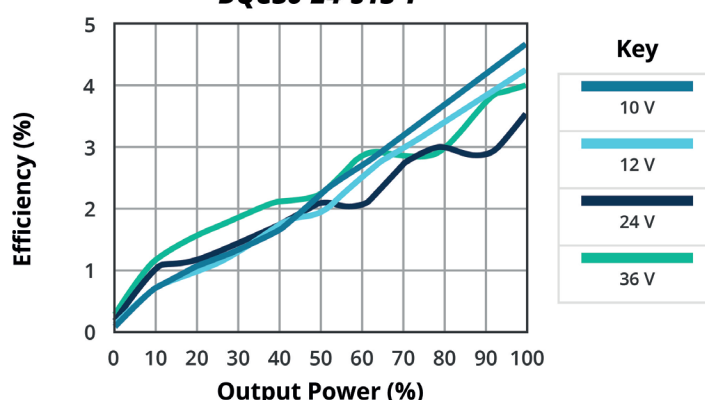
EFFICIENCY VS OUTPUT LOAD
DQC30-24-S3-T



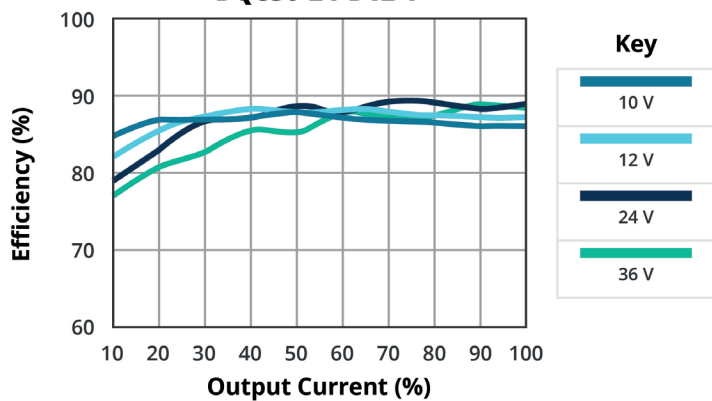
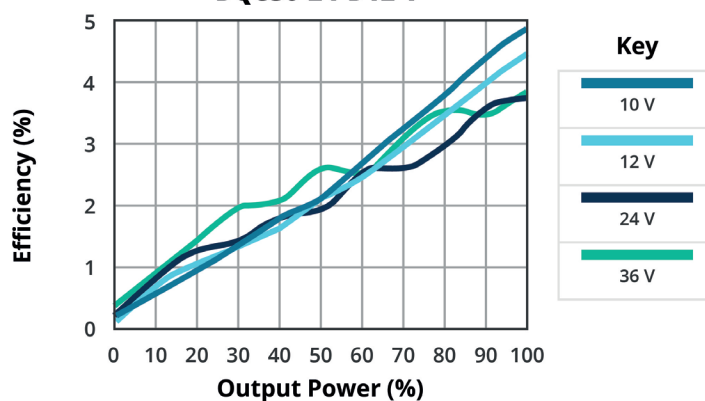
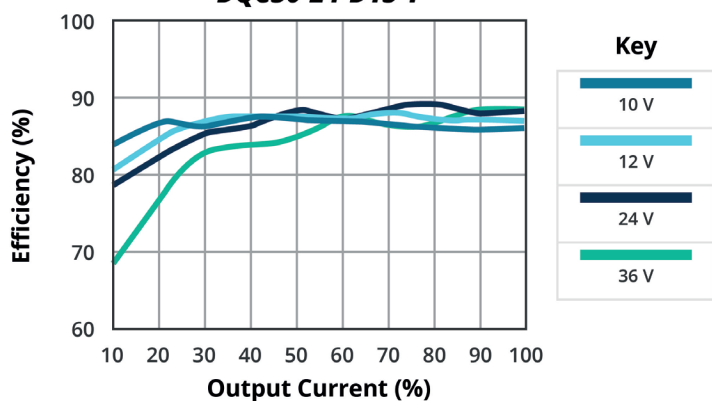
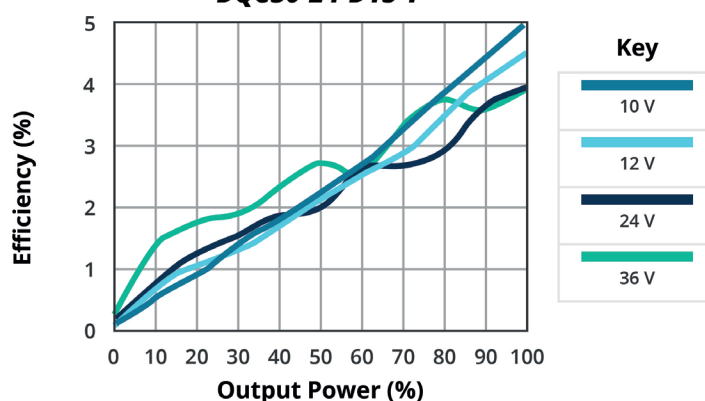
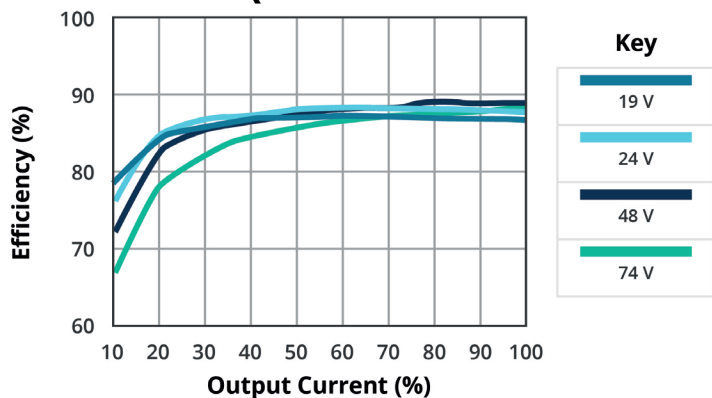
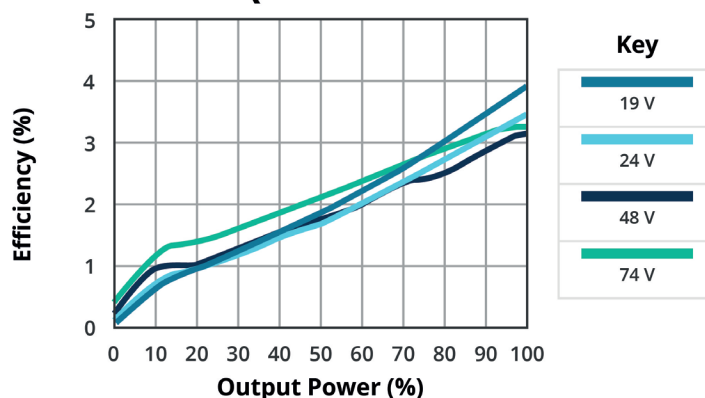
POWER DISSIPATION VS OUTPUT POWER
DQC30-24-S3-T



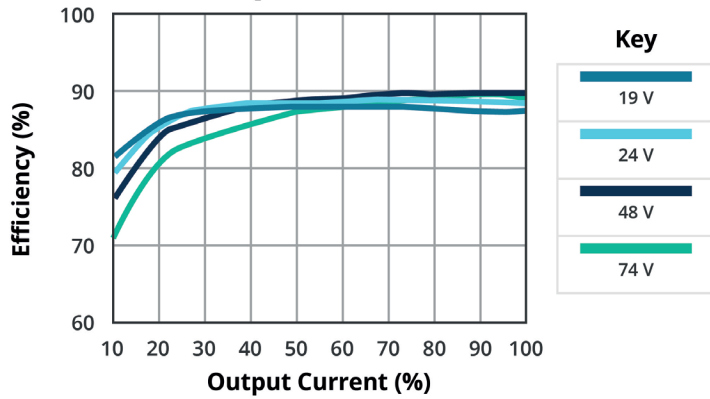
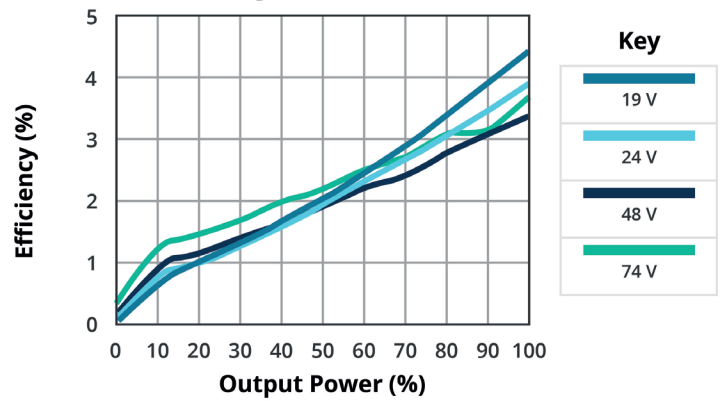
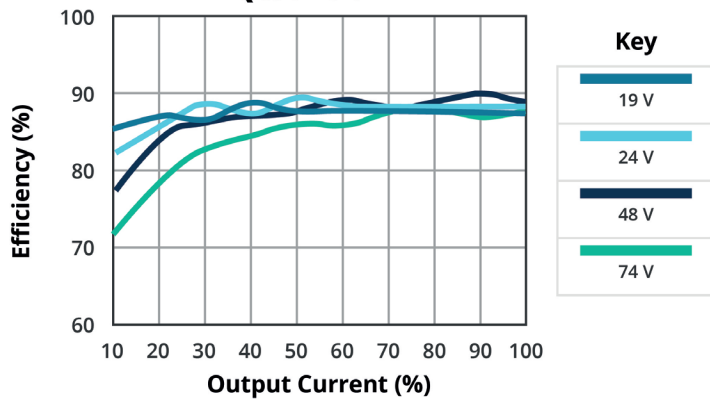
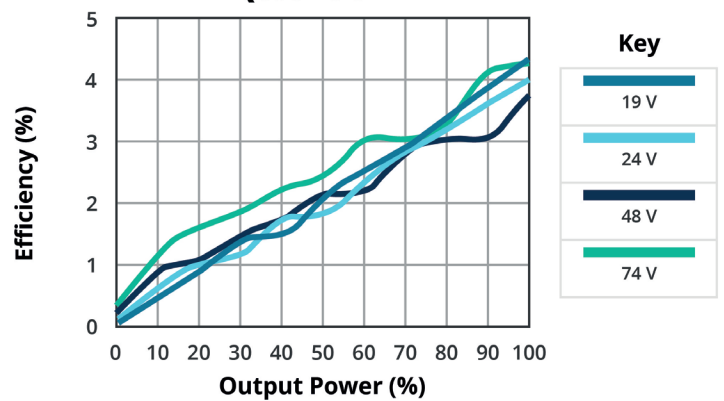
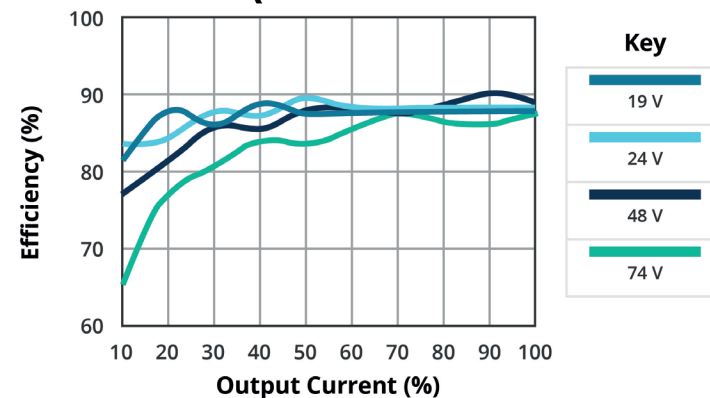
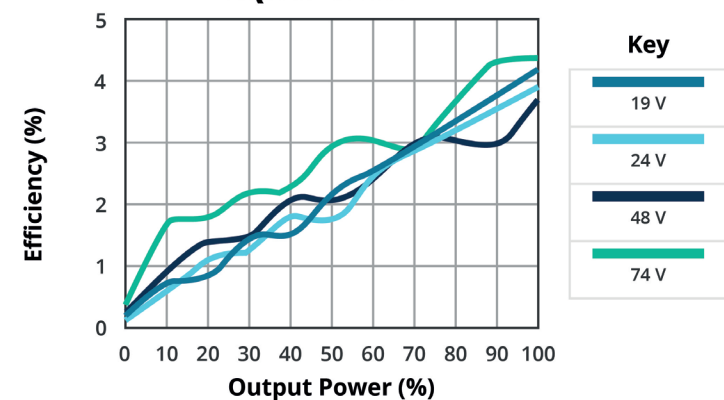
EFFICIENCY CURVES (CONTINUED)

**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**

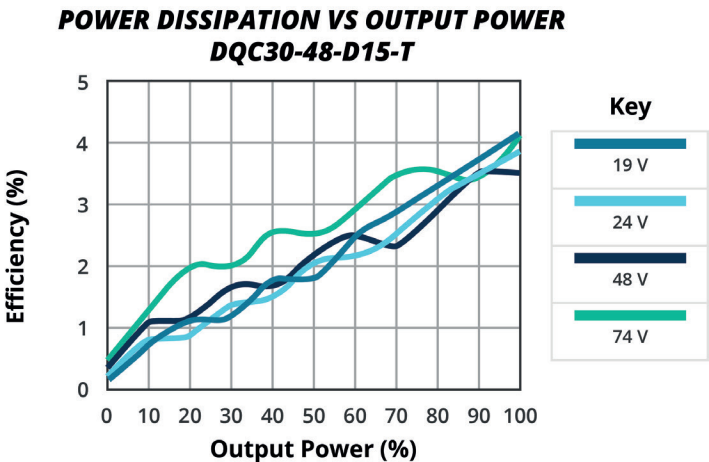
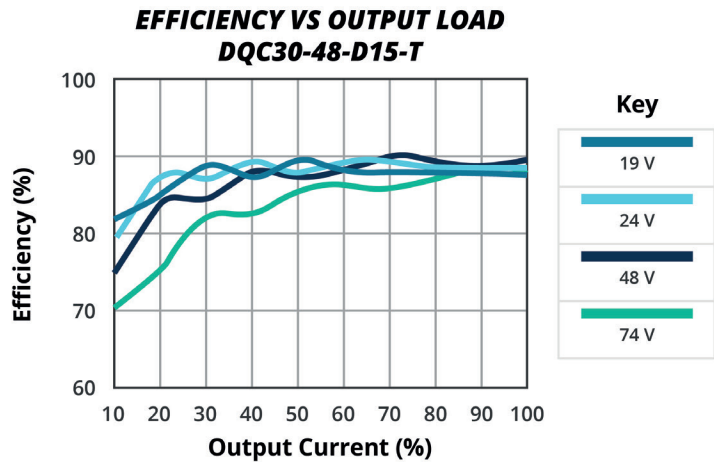
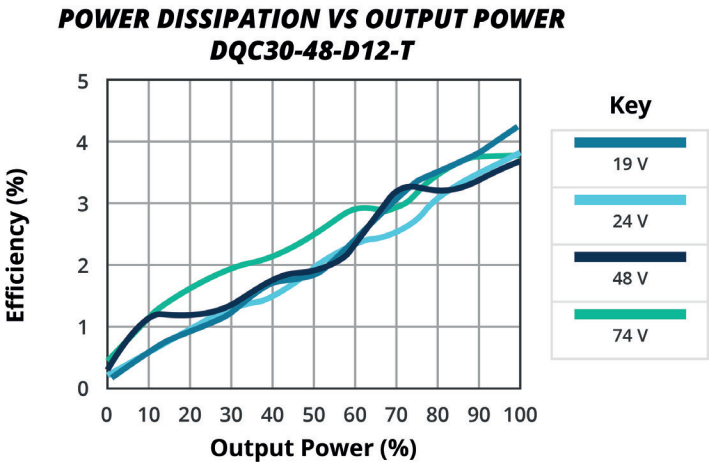
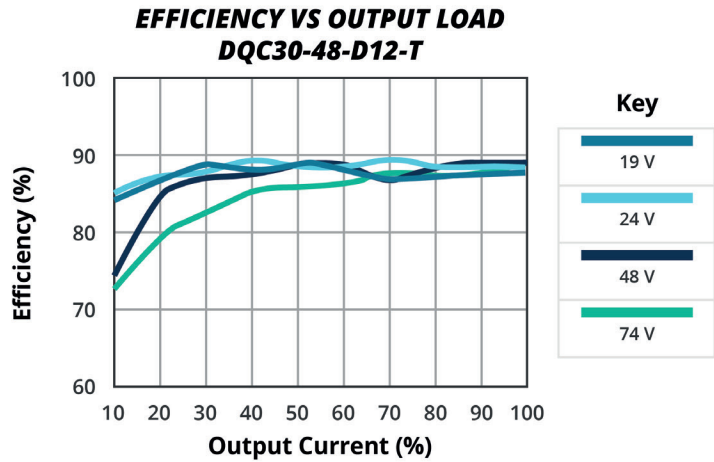
EFFICIENCY CURVES (CONTINUED)

**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)



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

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