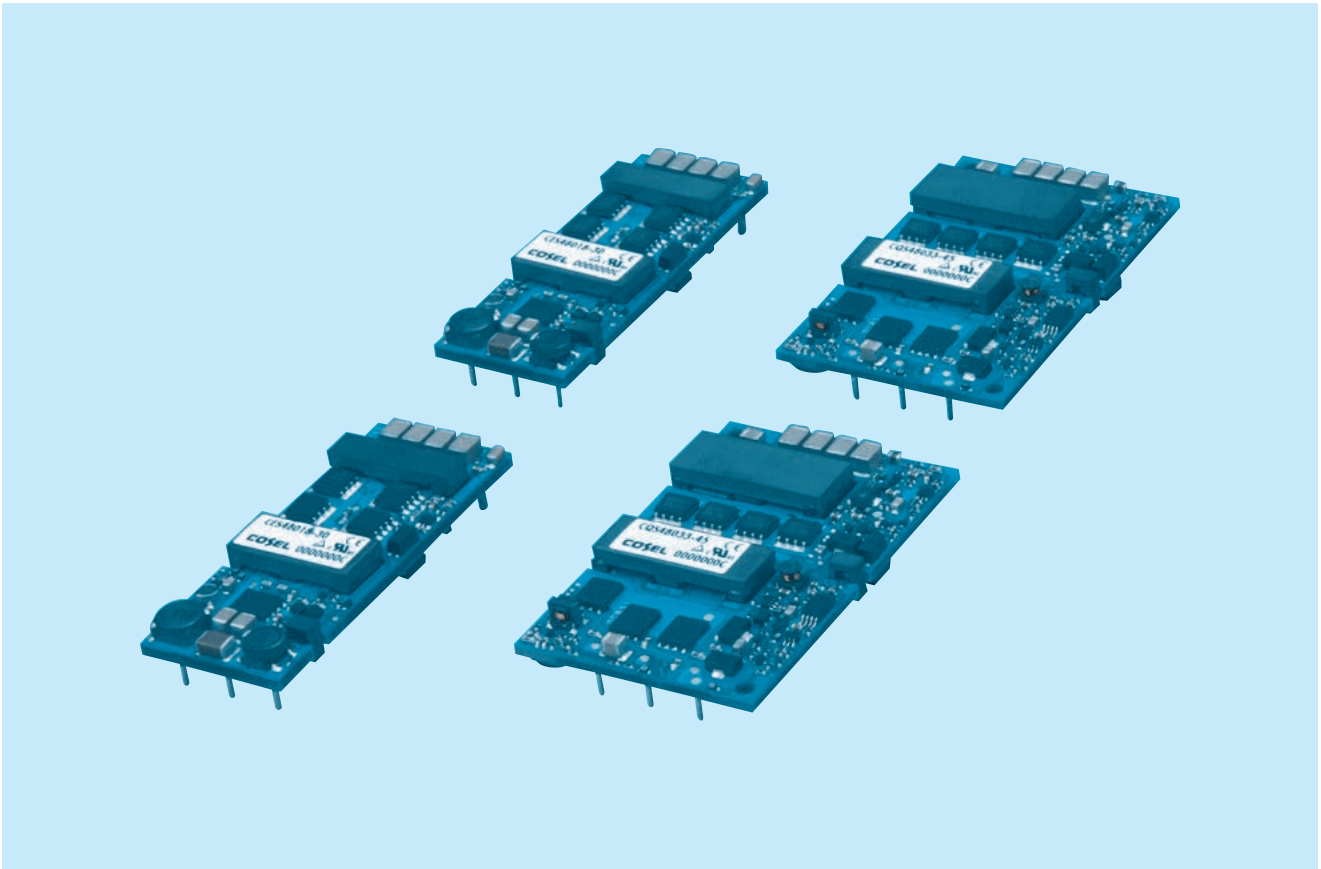




# CES/CQS-series



## ■ Feature

- Compact DC - DC Converter, "BRICK SIZE" which has been standard size for Telecommunication Market
- High efficiency
- High density
- High reliability : not built-in aluminum and tantalum electrolytic capacitor
- Built-in overcurrent, overvoltage and thermal protection circuits
- Built-in remote ON/OFF

## ■ CE marking

- Low Voltage Directive
- RoHS Directive

## ■ Safety agency approvals

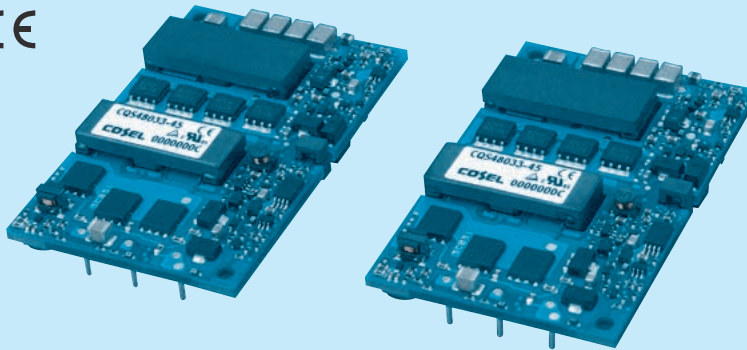
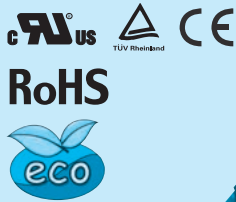
- UL60950-1, C-UL recognized, TÜV approved

## ■ 5-year warranty

CQS

CQ S 48 018 -50 -□

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Input voltage  
24:DC18 - 36V  
48:DC36 - 76V
- ④ Output voltage  
015:1.5V  
018:1.8V  
025:2.5V  
033:3.3V  
050:5V  
120:12V  
150:15V
- ⑤ Output current
- ⑥ Optional  
R :with Remote ON/OFF  
Positive logic control  
V :Output voltage setting ±1%  
N :Auto restart from thermal protection

MODEL	CQS24033-40	CQS24050-28	CQS24120-12	CQS24150-8
MAX OUTPUT WATTAGE[W]	132.0	140.0	144.0	120.0
DC OUTPUT	3.3V 40A	5V 28A	12V 12A	15V 8A

**SPECIFICATIONS**

	MODEL	CQS24033-40	CQS24050-28	CQS24120-12	CQS24150-8	
INPUT	VOLTAGE[V]	DC18 - 36			DC20 - 33	
	CURRENT[A]	6.05typ	6.45typ	6.59typ	5.44typ	
	EFFICIENCY[%]	91typ	91typ	92typ	92typ	
	START-UP VOLTAGE[V]	DC16 - 18			DC18 - 20	
	HYSTERESIS VOLTAGE[V]	DC1 min				
OUTPUT	VOLTAGE[V]	3.3	5	12	15	
	CURRENT[A]	40	28	12	8	
	LINE REGULATION[mV]	10max	10max	24max	30max	
	LOAD REGULATION[mV]	10max	10max	24max	30max	
	RIPPLE	[mVrms]	20max	25max	40max	40max
		[mVp-p]	60max	80max	120max	120max
	RIPPLE NOISE[mVp-p]	100max	120max	150max	150max	
	TEMPERATURE REGULATION[mV]	66max	100max	240max	300max	
	DRIFT[mV]	16max	20max	40max	50max	
	START-UP TIME[ms]	200max (DCIN 24V, Io=100%)				
OUTPUT VOLTAGE ADJUSTMENT RANGE	Fixed (TRM pin open), adjustable by external resistor					
OUTPUT VOLTAGE SETTING	-15% / +15%	-20% / +20%	-20% / +10%	-20% / +5%		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating, low voltage protection (shut down) function is built-in.				
	OVERVOLTAGE PROTECTION	125% - 135%	125% - 135%	117% - 127%		
	REMOTE SENSING	Provided				
	REMOTE ON/OFF	Provided (Negative logic L : ON, H : OFF)				

MODEL	CQS48015-50	CQS48018-50	CQS48025-45	CQS48033-45	CQS48050-28	CQS48120-14	CQS48150-8
MAX OUTPUT WATTAGE[W]	75.0	90.0	112.5	148.5	140.0	168.0	120.0
DC OUTPUT	1.5V 50A	1.8V 50A	2.5V 45A	3.3V 45A	5V 28A	12V 14A	15V 8A

**SPECIFICATIONS**

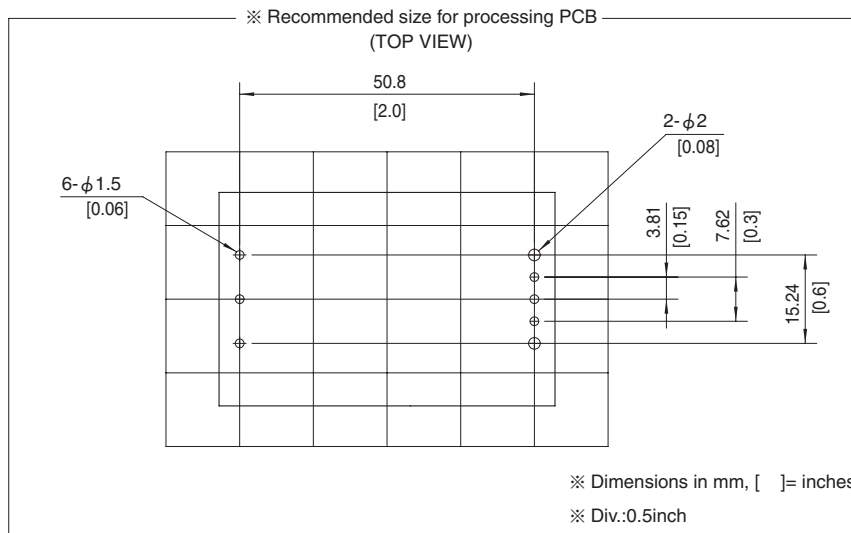
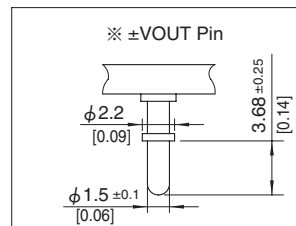
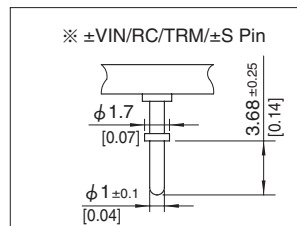
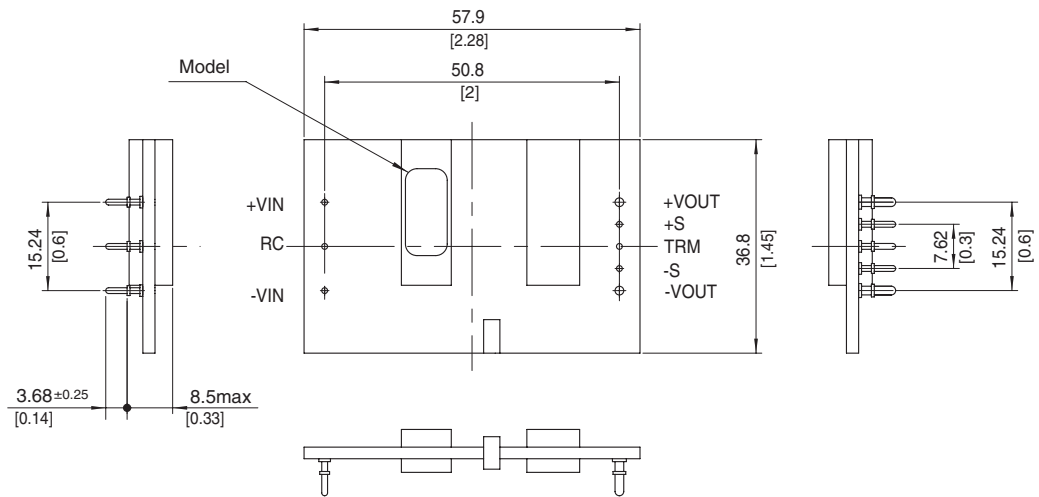
	MODEL	CQS48015-50	CQS48018-50	CQS48025-45	CQS48033-45	CQS48050-28	CQS48120-14	CQS48150-8	
INPUT	VOLTAGE[V]	DC36 - 76						DC40 - 60	
	CURRENT[A]	1.80typ	2.13typ	2.58typ	3.36typ	3.17typ	3.80typ	2.72typ	
	EFFICIENCY[%]	87typ	88typ	91typ	92typ	92typ	92typ	92typ	
	START-UP VOLTAGE[V]	DC32 - 36						DC36 - 40	
	HYSTERESIS VOLTAGE[V]	DC2 min							
OUTPUT	VOLTAGE[V]	1.5	1.8	2.5	3.3	5	12	15	
	CURRENT[A]	50	50	45	45	28	14	8	
	LINE REGULATION[mV]	10max	10max	10max	10max	10max	24max	30max	
	LOAD REGULATION[mV]	10max	10max	10max	10max	10max	24max	30max	
	RIPPLE	[mVrms]	20max	20max	20max	20max	25max	40max	40max
		[mVp-p]	60max	60max	60max	60max	80max	120max	120max
	RIPPLE NOISE[mVp-p]	100max	100max	100max	100max	120max	150max	150max	
	TEMPERATURE REGULATION[mV]	66max	66max	66max	66max	100max	240max	300max	
	DRIFT[mV]	16max	16max	16max	16max	20max	40max	50max	
	START-UP TIME[ms]	200max (DCIN 48V, Io=100%)							
OUTPUT VOLTAGE ADJUSTMENT RANGE	Fixed (TRM pin open), adjustable by external resistor								
OUTPUT VOLTAGE SETTING	-20% / +10%		-15% / +15%		-20% / +10%		-20% / +5%		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating, low voltage protection (shut down) function is built-in.							
	OVERVOLTAGE PROTECTION	117% - 127%		125% - 135%		117% - 127%			
	REMOTE SENSING	Provided							
	REMOTE ON/OFF	Provided (Negative logic L : ON, H : OFF)							

### GENERAL SPECIFICATIONS

<b>ISOLATION</b>	<b>INPUT-OUTPUT</b>	DC1,500V or AC1,000V 1minute, Cutoff current = 10mA, DC500V 50MΩ min (20 ± 15°C)
<b>ENVIRONMENT</b>	<b>OPERATING TEMP.,HUMID.AND ALTITUDE</b>	-40 to +85°C , 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max
	<b>STORAGE TEMP.,HUMID.AND ALTITUDE</b>	-40 to +100°C , 20 - 95%RH (Non condensing), 9,000m (30,000feet) max
	<b>VIBRATION</b>	10 - 55Hz, 49.0m/s <sup>2</sup> (5G), 3minutes period, 60minutes each along X, Y and Z axis
<b>SAFETY</b>	<b>IMPACT</b>	196.1m/s <sup>2</sup> (20G), 11ms, once each along X, Y and Z axis
	<b>AGENCY APPROVALS</b>	UL60950-1, C-UL (CSA60950-1), EN62368-1
<b>OTHERS</b>	<b>CASE SIZE/WEIGHT</b>	57.9 × 8.5 × 36.8mm [2.28 × 0.33 × 1.45 inches] (W×H×D) / 40g max
	<b>COOLING METHOD</b>	Convection / Forced air

- \*1 At rated input(DC24V,DC48V) and rated load and 25°C, 2m/s.
- \*2 Ripple and ripple noise is measured by using measuring board with ceramic capacitor 22 μF. Refer to the Instruction Manual.
- \*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.
- \*4 Refer to the instruction manual for input voltage derating.

### External view



※ Dimensions in mm, [ ] = inches  
 ※ Div.:0.5inch

※ Tolerance:±0.5 [±0.02]  
 ※ Weight:40g max  
 ※ Dimensions in mm, [ ] = inches