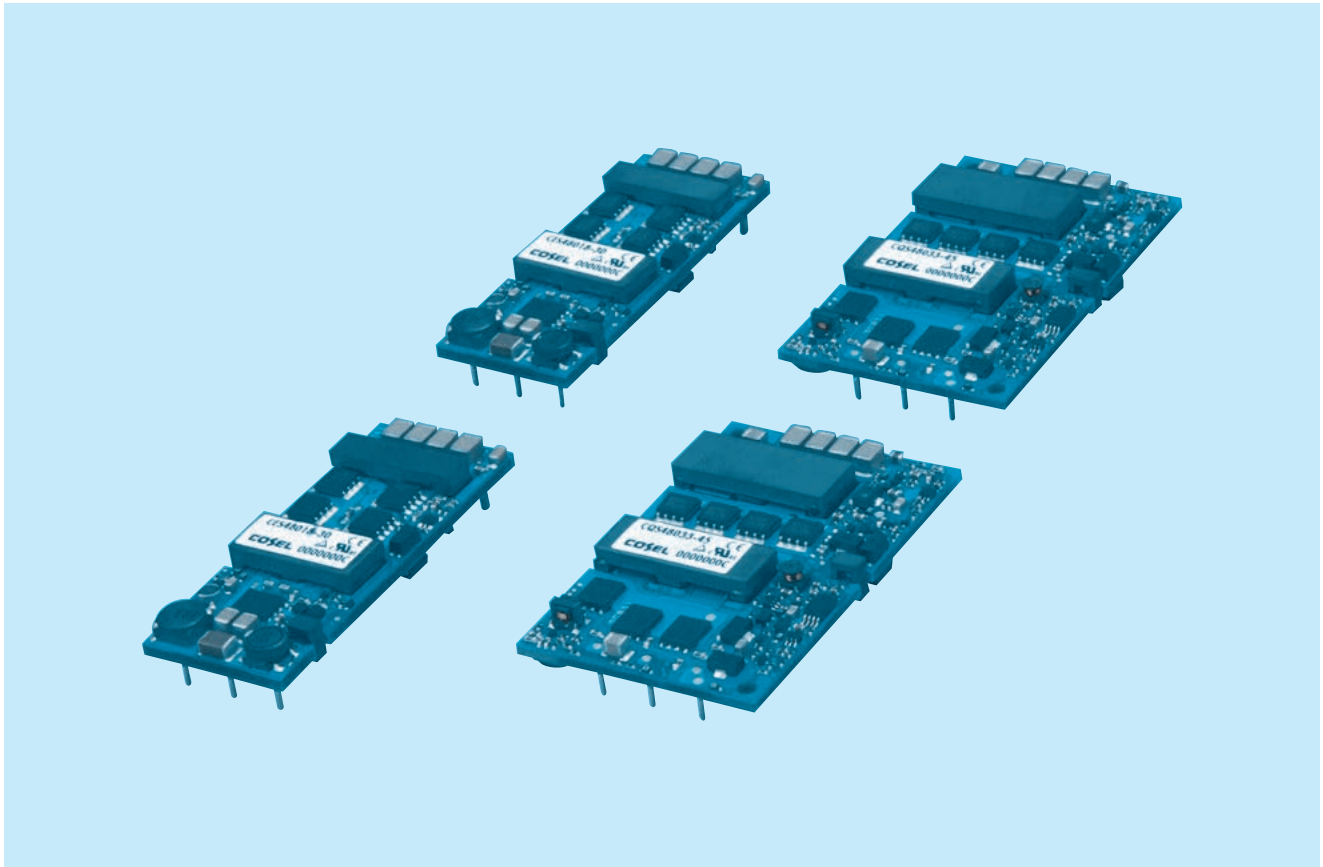




CES/CQS-series



■ 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

■ UKCA marking

- Electrical Equipment Safety Regulations
- RoHS Regulations

■ Safety agency approvals

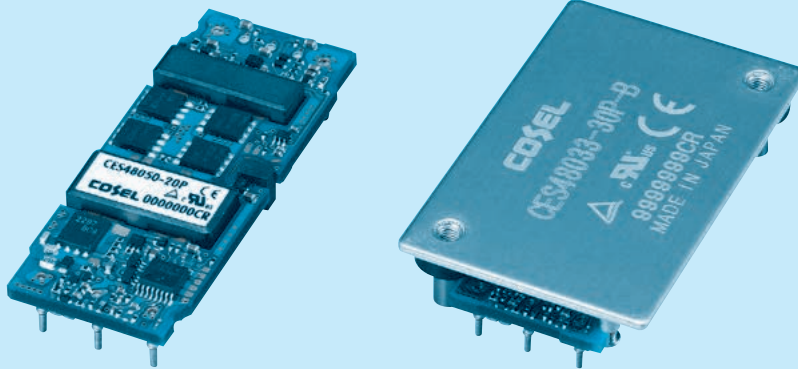
- UL60950-1, C-UL recognized, TÜV approved

■ 5-year warranty

CES Type-P

CE S 48 033 -30 P -□

① ② ③ ④ ⑤ ⑥ ⑦



- ① Series name
- ② Single output
- ③ Input voltage
48:DC36 - 76V
- ④ Output voltage
033:3.3V
050:5.0V
120:12V
- ⑤ Output current
- ⑥ Type
P :Conduction Cooling
- ⑦ Optional
R :with Remote ON/OFF
Positive logic control
N :Auto restart from thermal protection
B :BasePlate option
(Mounting hole M3)
BT :BasePlate option
(Mounting hole φ 3.4 thru)

* The size of the Base plate option is 1/4Brick size(57.9 X 36.8mm).

MODEL	CES48033-30P	CES48050-20P	CES48120-7P
MAX OUTPUT WATTAGE[W]	99.0	100.0	84.0
DC OUTPUT	3.3V 30A	5.0V 20A	12V 7A

SPECIFICATIONS

	MODEL	CES48033-30P	CES48050-20P	CES48120-7P	
INPUT	VOLTAGE[V]	DC36 - 76			
	CURRENT[A]	*1 2.29typ	2.32typ	1.93typ	
	EFFICIENCY[%]	*1 90typ	90typ	91typ	
	START-UP VOLTAGE[V]	DC32 - 36			
	HYSTERESIS VOLTAGE[V]	DC2 min			
OUTPUT	VOLTAGE[V]	3.3	5	12	
	CURRENT[A]	30	20	7	
	LINE REGULATION[mV]	10max			
	LOAD REGULATION[mV]	10max			
	RIPPLE	[mVrms] *2	20max	20max	40max
		[mVp-p] *2	60max	80max	120max
	RIPPLE NOISE[mVp-p]	*2 100max	120max	150max	
	TEMPERATURE REGULATION[mV]	66max	100max	240max	
	DRIFT[mV]	*3 16max	20max	40max	
	START-UP TIME[ms]	200max (DCIN 48V, Io=100%)			
OUTPUT VOLTAGE ADJUSTMENT RANGE	Fixed (TRM pin open), adjustable by external resistor				
	-15% / +15%	-20% / +20% *4	-20% / +10%		
OUTPUT VOLTAGE SETTING	± 1.6%				
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 105% of rating, low voltage protection (shut down) function is built-in			
	OVERVOLTAGE PROTECTION	120% - 140%	125% - 145%	115% - 135%	
	REMOTE SENSING	Provided			
	REMOTE ON/OFF	Provided (Negative logic L:ON, H:OFF)			
ISOLATION	INPUT-OUTPUT	DC1,500V or AC1,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15°C)			
	INPUT-BASEPLATE	*5 DC1,500V or AC1,000V 1minute, Cutoff current = 10mA, DC500V 50M Ω min (20±15°C)			
	OUTPUT-BASEPLATE	*5 AC500V 1minute, Cutoff current = 100mA, DC500V 50M Ω min (20±15°C)			
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max			
	STORAGE TEMP.,HUMID.AND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max			
	VIBRATION	10 - 55Hz, 49.0m/s ² (5G), 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT	196.1m/s ² (20G), 11ms, once each along X, Y and Z axis			
SAFETY	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN62368-1			
OTHERS	CASE SIZE/WEIGHT	57.9 x 8.5 x 22.76mm [2.28 x 0.33 x 0.9 inches] (W x H x D) / 26g max			
		57.9 x 12.7 x 36.8mm [2.28 x 0.5 x 1.45 inches] (W x H x D) / 50g max *5			
	COOLING METHOD	Convection / Forced air / Conduction			

*1 At rated input(DC48V) and rated load. Ta=25°C, 2m/s.

*2 Ripple and ripple noise is measured by using measuring board with ceramic capacitor 22 μF.

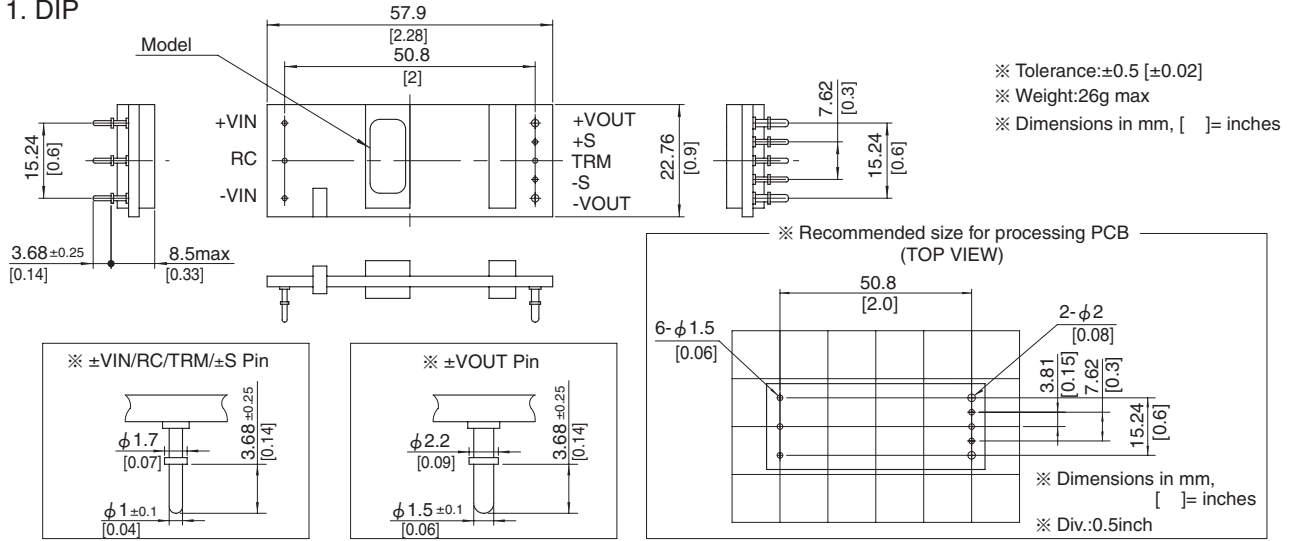
*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated input/output.

*4 DC40V or more input voltage is required to trim the output voltage up more than rated output +10%.

*5 BasePlate Option.

External view

1. DIP



2. BasePlate (optionB)

