

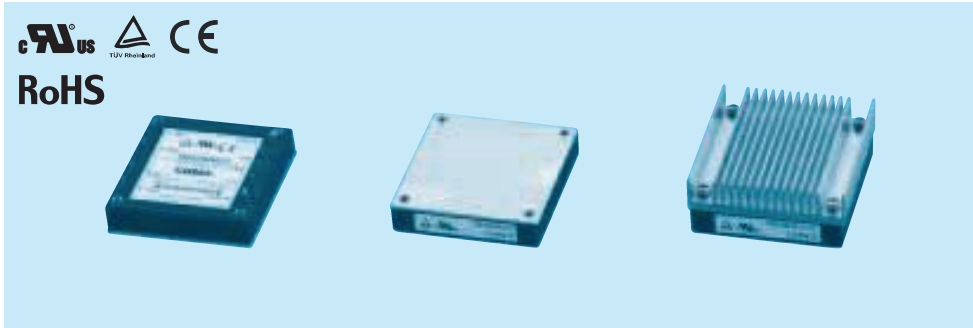
**COSEL DC-DC Converters Power Module type**

# CBS200

**Ordering information**

CB
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200
48
12
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**RoHS**

- ① Series name
  - ② Single output
  - ③ Output wattage
  - ④ Input voltage  
24:DC18 - 36V  
48:DC36 - 76V
  - ⑤ Output voltage
  - ⑥ Optional
- R :with Remote ON/OFF  
 Positive logic control  
 T :with Mounting hole  
 φ3.4 thru  
 F□:with Addition of a  
 Heat sink

MODEL	CBS200241R8	CBS200242R5	CBS2002403	CBS2002405	CBS2002412	CBS2002415	CBS2002424	CBS2002428
<b>MAX OUTPUT WATTAGE[W]</b>	<b>63.00</b>	<b>87.50</b>	<b>115.5</b>	<b>150.0</b>	<b>200.4</b>	<b>201.0</b>	<b>201.6</b>	<b>201.6</b>
<b>DC OUTPUT</b>	<b>1.8V 35A</b>	<b>2.5V 35A</b>	<b>3.3V 35A</b>	<b>5V 30A</b>	<b>12V 16.7A</b>	<b>15V 13.4A</b>	<b>24V 8.4A</b>	<b>28V 7.2A</b>

**SPECIFICATIONS**

	MODEL	CBS200241R8	CBS200242R5	CBS2002403	CBS2002405	CBS2002412	CBS2002415	CBS2002424	CBS2002428	
<b>INPUT</b>	<b>VOLTAGE[V]</b>	DC18 - 36								
	<b>CURRENT[A]</b> *	3.75typ	4.80typ	6.09typ	7.62typ	9.60typ	9.63typ	9.66typ	9.66typ	
	<b>EFFICIENCY[%]</b> *	70typ	76typ	79typ	82typ	87typ	87typ	87typ	87typ	
	<b>VOLTAGE[V]</b>	1.8	2.5	3.3	5	12	15	24	28	
<b>OUTPUT</b>	<b>CURRENT[A]</b>	35	35	35	30	16.7	13.4	8.4	7.2	
	<b>LINE REGULATION[mV]</b>	10max	10max	10max	10max	24max	30max	48max	56max	
	<b>LOAD REGULATION[mV]</b>	10max	10max	10max	10max	24max	30max	48max	56max	
	<b>RIPPLE[mVp-p]</b>	-20 to +100°C *2 -40 to -20°C *3	80max 120max	80max 120max	80max 120max	80max 120max	120max 150max	120max 150max	120max 150max	120max 150max
	<b>RIPPLE NOISE[mVp-p]</b>	-20 to +100°C *2 -40 to -20°C *3	120max 200max	120max 200max	120max 200max	120max 200max	150max 200max	150max 200max	150max 200max	150max 200max
	<b>TEMPERATURE REGULATION[mV]</b>	0 to +65°C -40 to +100°C	35max 66max	35max 66max	35max 66max	50max 100max	120max 240max	150max 300max	240max 480max	280max 560max
	<b>DRIFT[mV]</b> *3	16max	16max	16max	20max	40max	60max	90max	90max	
	<b>START-UP TIME[ms]</b>	200max (DCIN 24V, Io=100%)								
	<b>OUTPUT VOLTAGE ADJUSTMENT RANGE[V]</b> *4	Fixed (TRM pin open), adjustable by external resistor								
	<b>OUTPUT VOLTAGE SETTING[V]</b>	1.70 - 1.98	1.98 - 2.75	1.98 - 3.63	3.0 - 5.5	7.2 - 13.2	9.0 - 16.5	14.4 - 26.4	16.8 - 30.8	
	1.77 - 1.88	2.46 - 2.61	3.25 - 3.45	4.90 - 5.20	11.74 - 12.46	14.55 - 15.45	23.28 - 24.72	27.16 - 28.84		
<b>PROTECTION CIRCUIT AND OTHERS</b>	<b>OVERCURRENT PROTECTION</b>	Works over 105% of rating and recovers automatically								
	<b>OVERVOLTAGE PROTECTION[V]</b>	2.16 - 2.88	3.00 - 4.00	4.00 - 5.50	5.75 - 7.00	13.80 - 16.80	17.25 - 21.00	27.60 - 33.60	32.20 - 39.20	
	<b>REMOTE SENSING</b>	Provided								
	<b>REMOTE ON/OFF</b>	Provided (Negative logic L : ON, H : OFF)								

MODEL	CBS200481R8	CBS200482R5	CBS2004803	CBS2004805	CBS2004812	CBS2004815	CBS2004824	CBS2004828	CBS2004848
<b>MAX OUTPUT WATTAGE[W]</b>	<b>63.00</b>	<b>87.50</b>	<b>115.5</b>	<b>150.0</b>	<b>200.4</b>	<b>201.0</b>	<b>201.6</b>	<b>201.6</b>	<b>201.6</b>
<b>DC OUTPUT</b>	<b>1.8V 35A</b>	<b>2.5V 35A</b>	<b>3.3V 35A</b>	<b>5V 30A</b>	<b>12V 16.7A</b>	<b>15V 13.4A</b>	<b>24V 8.4A</b>	<b>28V 7.2A</b>	<b>48V 4.2A</b>

**SPECIFICATIONS**

	MODEL	CBS200481R8	CBS200482R5	CBS2004803	CBS2004805	CBS2004812	CBS2004815	CBS2004824	CBS2004828	CBS2004848	
<b>INPUT</b>	<b>VOLTAGE[V]</b>	DC36 - 76									
	<b>CURRENT[A]</b> *	1.88typ	2.40typ	3.01typ	3.77typ	4.74typ	4.76typ	4.77typ	4.77typ	4.77typ	
	<b>EFFICIENCY[%]</b> *	70typ	76typ	80typ	83typ	88typ	88typ	88typ	88typ	88typ	
	<b>VOLTAGE[V]</b>	1.8	2.5	3.3	5	12	15	24	28	48	
<b>OUTPUT</b>	<b>CURRENT[A]</b>	35	35	35	30	16.7	13.4	8.4	7.2	4.2	
	<b>LINE REGULATION[mV]</b>	10max	10max	10max	10max	24max	30max	48max	56max	96max	
	<b>LOAD REGULATION[mV]</b>	10max	10max	10max	10max	24max	30max	48max	56max	96max	
	<b>RIPPLE[mVp-p]</b>	-20 to +100°C *2 -40 to -20°C *3	80max 120max	80max 120max	80max 120max	80max 120max	120max 150max	120max 150max	120max 150max	120max 150max	200max 250max
	<b>RIPPLE NOISE[mVp-p]</b>	-20 to +100°C *2 -40 to -20°C *3	120max 200max	120max 200max	120max 200max	120max 200max	150max 200max	150max 200max	150max 200max	150max 200max	250max 400max
	<b>TEMPERATURE REGULATION[mV]</b>	0 to +65°C -40 to +100°C	35max 66max	35max 66max	35max 66max	50max 100max	120max 240max	150max 300max	240max 480max	280max 560max	480max 960max
	<b>DRIFT[mV]</b> *3	16max	16max	16max	20max	40max	60max	90max	90max	180max	
	<b>START-UP TIME[ms]</b>	200max (DCIN 48V, Io=100%)									
	<b>OUTPUT VOLTAGE ADJUSTMENT RANGE[V]</b> *4	Fixed (TRM pin open), adjustable by external resistor									
	<b>OUTPUT VOLTAGE SETTING[V]</b>	1.70 - 1.98	1.98 - 2.75	1.98 - 3.63	3.0 - 5.5	7.2 - 13.2	9.0 - 16.5	14.4 - 26.4	16.8 - 30.8	43.2 - 52.8	
	1.77 - 1.88	2.46 - 2.61	3.25 - 3.45	4.90 - 5.20	11.74 - 12.46	14.55 - 15.45	23.28 - 24.72	27.16 - 28.84	46.56 - 49.44		
<b>PROTECTION CIRCUIT AND OTHERS</b>	<b>OVERCURRENT PROTECTION</b>	Works over 105% of rating and recovers automatically									
	<b>OVERVOLTAGE PROTECTION[V]</b>	2.16 - 2.88	3.00 - 4.00	4.00 - 5.50	5.75 - 7.00	13.80 - 16.80	17.25 - 21.00	27.60 - 33.60	32.20 - 39.20	55.20 - 67.20	
	<b>REMOTE SENSING</b>	Provided									
	<b>REMOTE ON/OFF</b>	Provided (Negative logic L : ON, H : OFF)									

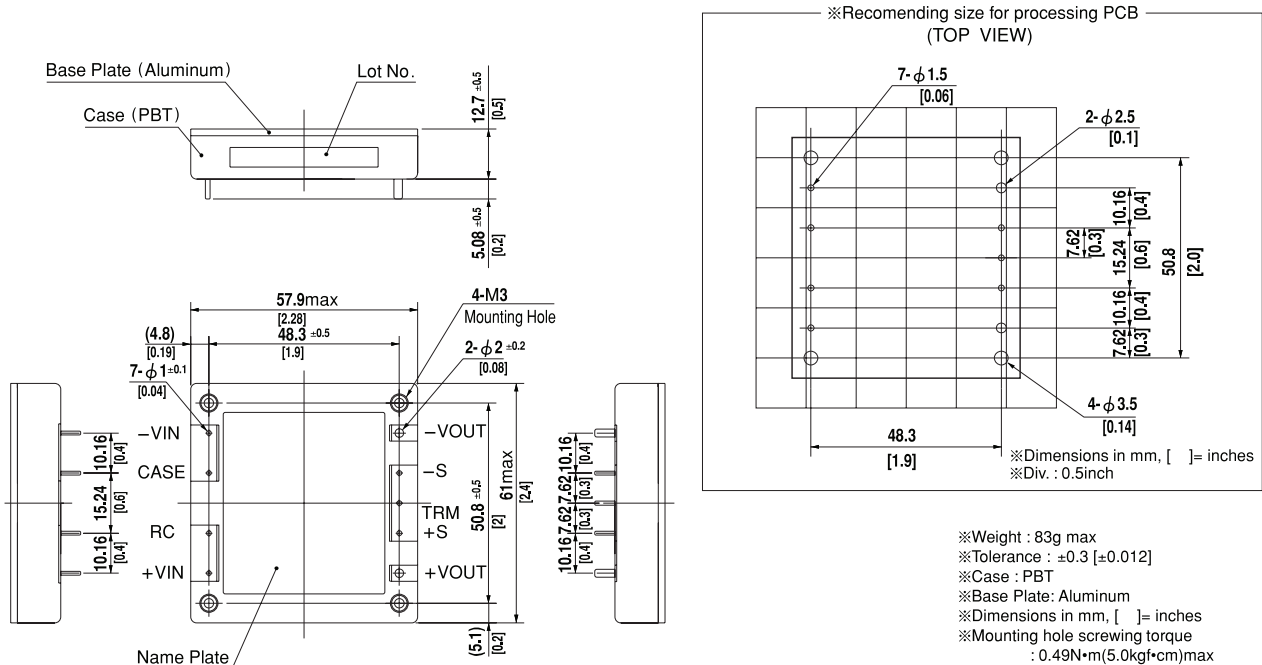
Specifications are subject to change without notice. It is responsibility of each customer to thoroughly test each product and part number under their unique parameters and environments to ensure a product will work properly and reliably.

### GENERAL SPECIFICATIONS

<b>ISOLATION</b>	<b>INPUT-OUTPUT</b>	DC1,500V or AC1,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min(20 $\pm$ 15 $^{\circ}$ C)
	<b>INPUT-CASE PIN, BASE PLATE</b>	DC1,500V or AC1,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min(20 $\pm$ 15 $^{\circ}$ C)
	<b>OUTPUT-CASE PIN, BASE PLATE</b>	AC500V 1minute, Cutoff current = 100mA, DC500V 50M $\Omega$ min (20 $\pm$ 15 $^{\circ}$ C)
<b>ENVIRONMENT</b>	<b>OPERATING TEMP., HUMID. AND ALTITUDE</b>	-40 to +100 $^{\circ}$ C (On aluminum base plate), 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000feet) max
	<b>STORAGE TEMP., HUMID. AND ALTITUDE</b>	-40 to +100 $^{\circ}$ C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max
	<b>VIBRATION</b>	10 - 55Hz, 49.0m/s $^2$ (5G), 3minutes period, 60minutes each along X, Y and Z axis
	<b>IMPACT</b>	196.1m/s $^2$ (20G), 11ms, once each along X, Y and Z axis
<b>SAFETY</b>	<b>AGENCY APPROVALS</b>	UL60950-1, C-UL, EN60950-1
<b>OTHERS</b>	<b>CASE SIZE/WEIGHT</b>	57.9 $\times$ 12.7 $\times$ 61.0mm [2.28 $\times$ 0.5 $\times$ 2.4 inches] (W $\times$ H $\times$ D) / 83g max
	<b>COOLING METHOD</b>	Conduction cooling (e.g. heat radiation from the aluminum base plate to the attached heat sink)

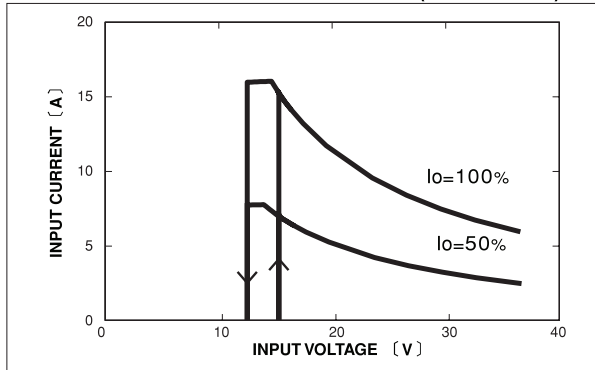
- \*1 At rated input(DC24V, DC48V) and rated load.
- \*2 Ripple and ripple noise is measured by using measuring board with recommended capacitor Co & the film capacitor 0.1 $\mu$ F. Measured by 20MHz oscilloscope or Ripple-Noise meter (Equivalent to KEISOKU-GIKEN:RM101).
- \*3 Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25 $^{\circ}$ C, with the input voltage held constant at the rated input/output.
- \*4 When the input voltage is in the range of DC18 - 20V, DC36 - 40V, output voltage adjustment range is 60 - 105% (except for 1R8/2R5/48).

### External view

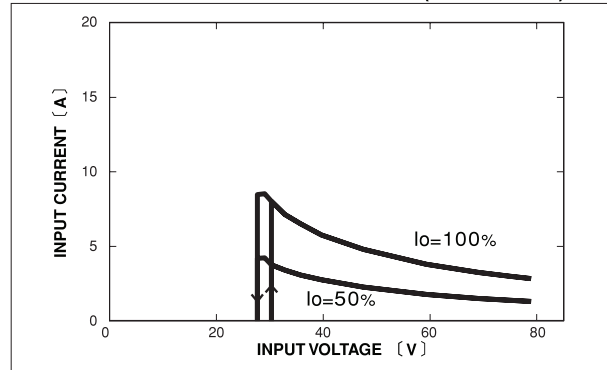


### Performance data

INPUT CURRENT CHARACTERISTICS (CBS2002428)



INPUT CURRENT CHARACTERISTICS (CBS2004828)



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