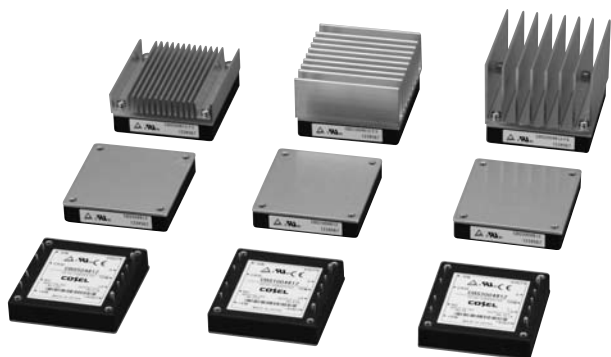


CBS Series



- Compact Design Ideal for Comms Applications
- High Efficiency - Up to 90%
- High Power Density - 141 W/in³
- High Reliability
- Remote On/Off
- Overcurrent, Overvoltage & Thermal Protection
- Heatsinks Available

Specification

Input

- Input Voltage Range • See table
 Input Current • See table

Output

- Output Voltage • See table
 Output Voltage Trim • 60% to 110% V_{nom}
 Minimum Load • No minimum load required
 Line Regulation • See table
 Load Regulation • See table
 Setpoint Accuracy • See table
 Turn-on Time • 200 ms max (nom. V_{in} max load)
 Ripple & Noise • See table
 Overvoltage Protection • See table, recycle input to reset
 Overtemperature Protection • Disables output at a baseplate temperature >100°C
 Overcurrent Protection • Operates at >105%, trip & restart (Hiccup mode), auto recovery
 Short Circuit Protection • Trip & restart (Hiccup mode), auto recovery
 Temperature Coefficient • ±0.03 % /°C max
 Remote Sense • Compensates for 0.3V line drop max, when not used the remote sense terminals must be connected locally
 Remote On/Off • On = Logic LOW or short, Off = Logic HIGH or open. Optional reverse logic control available, add suffix '-R' to part number.

General

- Efficiency • See table
 Isolation • 1500 VDC (1000 VAC) Input to Output
 1500 VDC (1000 VAC) Input to Case
 500 VDC Output to Case
 Isolation Resistance • 50 MOhm
 Switching Frequency • CBS50: 310 kHz
 CBS100-450: 370 kHz
 Power Density • Up to 141 W/in³
 Package Style • Half brick
 MTBF • 380 kHrs min per EIAJ RCR-9102

Environmental

- Operating Temperature • -40 °C to +100 °C on aluminium base plate
 Cooling • Base plate cooled
 Operating Humidity • 20-95% RH, non-condensing
 Storage Temperature • -40 °C to +100 °C
 Storage Humidity • 20-95% RH, non-condensing
 Operating Altitude • 3000 m
 Shock • 20 g 11ms once along each axis
 Vibration • 10-55 Hz, 5 g 3 minute period, 60 minutes along each axis

EMC & Safety

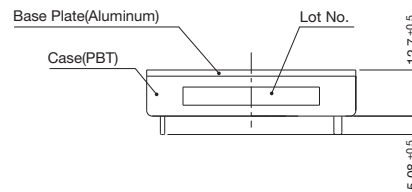
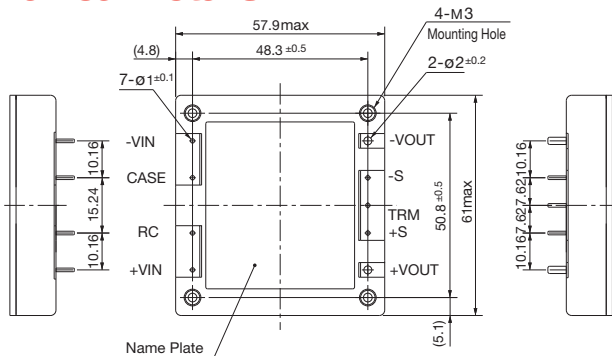
- Emissions • EN55022 level B conducted & radiated, external components required, contact sales for details
 ESD Immunity • EN61000-4-2, level 2 Perf Criteria A
 Radiated Immunity • EN61000-4-3, level 3 Perf Criteria A
 EFT/Burst • EN61000-4-4, level 3 Perf Criteria A
 Safety Approvals • UL60950-1, C-UL, TUV approved

Input Voltage	Output Voltage	Output Current	Setpoint Accuracy	Overvoltage Protection	Input Current (typ)	Ripple & Noise ⁽²⁾	Regulation		Efficiency (Typ) ⁽¹⁾	Model Number
							Load	Line		
18-36 VDC	1.8 V	11.7 A	1.77-1.88 V	2.16-2.88 V	1.24 A	120 mV	10 mV	10 mV	71%	CBS50241R8
18-36 VDC	2.5 V	11.7 A	2.46-2.61 V	3.0-4.0 V	1.58 A	120 mV	10 mV	10 mV	77%	CBS50242R5
18-36 VDC	3.3 V	11.7 A	3.25-3.45 V	4.0-5.5 V	2.04 A	120 mV	10 mV	10 mV	79%	CBS502403
18-36 VDC	5 V	10.0 A	4.9-5.2 V	5.75-7.0 V	2.48 A	120 mV	10 mV	10 mV	84%	CBS502405
18-36 VDC	12 V	4.2 A	11.74-12.46 V	13.8-16.8 V	2.39 A	150 mV	24 mV	24 mV	88%	CBS502412
18-36 VDC	15 V	3.4 A	14.55-15.45 V	17.25-21.0 V	2.44 A	150 mV	30 mV	30 mV	87%	CBS502415
18-36 VDC	24 V	2.1 A	23.28-24.72 V	27.6-33.6 V	2.41 A	150 mV	48 mV	48 mV	87%	CBS502424
18-36 VDC	28 V	1.8 A	27.16-28.84 V	32.2-39.2 V	2.41 A	150 mV	56 mV	56 mV	87%	CBS502428
36-76 VDC	1.8 V	11.7 A	1.77-1.88 V	2.16-2.88 V	0.62 A	120 mV	10 mV	10 mV	71%	CBS50481R8
36-76 VDC	2.5 V	11.7 A	2.46-2.61 V	3.0-4.0 V	0.79 A	120 mV	10 mV	10 mV	77%	CBS50482R5
36-76 VDC	3.3 V	11.7 A	3.25-3.45 V	4.0-5.5 V	1.01 A	120 mV	10 mV	10 mV	80%	CBS504803
36-76 VDC	5 V	10 A	4.9-5.2 V	5.75-7.0 V	1.23 A	120 mV	10 mV	10 mV	85%	CBS504805
36-76 VDC	12 V	4.2 A	11.74-12.46 V	13.8-16.8 V	1.18 A	150 mV	24 mV	24 mV	89%	CBS504812
36-76 VDC	15 V	3.4 A	14.55-15.45 V	17.25-21.0 V	1.21 A	150 mV	30 mV	30 mV	88%	CBS504815
36-76 VDC	24 V	2.1A	23.28-24.72 V	27.6-33.6 V	1.19 A	150 mV	48 mV	48 mV	88%	CBS504824
36-76 VDC	28 V	1.8 A	27.16-28.84 V	32.2-39.2 V	1.19 A	150 mV	56 mV	56 mV	88%	CBS504828
18-36 VDC	1.8 V	23.4 A	1.77-1.88 V	2.16-2.88 V	2.47 A	120 mV	10 mV	10 mV	71%	CBS100241R8
18-36 VDC	2.5 V	23.4 A	2.46-2.61 V	3.0-4.0 V	3.17 A	120 mV	10 mV	10 mV	77%	CBS100242R5
18-36 VDC	3.3 V	23.4 A	3.25-3.45 V	4.0-5.5 V	4.07 A	120 mV	10 mV	10 mV	79%	CBS1002403
18-36 VDC	5 V	20.0 A	4.9-5.2 V	5.75-7.0 V	5.02 A	120 mV	10 mV	10 mV	83%	CBS1002405
18-36 VDC	12 V	8.4 A	11.74-12.46 V	13.8-16.8 V	4.77 A	150 mV	24 mV	24 mV	88%	CBS1002412
18-36 VDC	15 V	6.7 A	14.55-15.45 V	17.25-21.0 V	4.81 A	150 mV	30 mV	30 mV	87%	CBS1002415
18-36 VDC	24 V	4.2 A	23.28-24.72 V	27.6-33.6 V	4.83 A	150 mV	48 mV	48 mV	87%	CBS1002424
18-36 VDC	28 V	3.6 A	27.16-28.84 V	32.2-39.2 V	4.83 A	150 mV	56 mV	56 mV	87%	CBS1002428
36-76 VDC	1.8 V	23.4 A	1.77-1.88 V	2.16-2.88 V	1.24 A	120 mV	10 mV	10 mV	71%	CBS100481R8
36-76 VDC	2.5 V	23.4 A	2.46-2.61 V	3.0-4.0 V	1.58 A	120 mV	10 mV	10 mV	77%	CBS100482R5
36-76 VDC	3.3 V	23.4 A	3.25-3.45 V	4.0-5.5 V	2.01 A	120 mV	10 mV	10 mV	80%	CBS1004803
36-76 VDC	5 V	20.0 A	4.9-5.2 V	5.75-7.0 V	2.48 A	120 mV	10 mV	10 mV	84%	CBS1004805
36-76 VDC	12 V	8.4 A	11.74-12.46 V	13.8-16.8 V	2.36 A	150 mV	24 mV	24 mV	89%	CBS1004812
36-76 VDC	15 V	6.7 A	14.55-15.45 V	17.25-21.0 V	2.38 A	150 mV	30 mV	30 mV	88%	CBS1004815
36-76 VDC	24 V	4.2 A	23.28-24.72 V	27.6-33.6 V	2.39 A	150 mV	48 mV	48 mV	88%	CBS1004824
36-76 VDC	28 V	3.6 A	27.16-28.84 V	32.2-39.2 V	2.39 A	150 mV	56 mV	56 mV	88%	CBS1004828
18-36 VDC	1.8 V	35.0 A	1.77-1.88 V	2.16-2.88 V	3.75 A	120 mV	10 mV	10 mV	70%	CBS200241R8
18-36 VDC	2.5 V	35.0 A	2.46-2.61 V	3.0-4.0 V	4.80 A	120 mV	10 mV	10 mV	76%	CBS200242R5
18-36 VDC	3.3 V	35.0 A	3.25-3.45 V	4.0-5.5 V	6.09 A	120 mV	10 mV	10 mV	79%	CBS2002403
18-36 VDC	5 V	30.0 A	4.9-5.2 V	5.75-7.0 V	7.62 A	120 mV	10 mV	10 mV	82%	CBS2002405
18-36 VDC	12 V	16.7 A	11.74-12.46 V	13.8-16.8 V	9.60 A	150 mV	24 mV	24 mV	87%	CBS2002412
18-36 VDC	15 V	13.4 A	14.55-15.45 V	17.25-21.0 V	9.63 A	150 mV	30 mV	30 mV	87%	CBS2002415
18-36 VDC	24 V	7.4 A	23.28-24.72 V	27.6-33.6 V	9.66 A	150 mV	48 mV	48 mV	87%	CBS2002424
18-36 VDC	28 V	8.2 A	27.16-28.84 V	32.2-39.2 V	9.66 A	150 mV	56 mV	56 mV	87%	CBS2002428
36-76 VDC	1.8 V	35.0 A	1.77-1.88 V	2.16-2.88 V	1.88 A	120 mV	10 mV	10 mV	70%	CBS200481R8
36-76 VDC	2.5 V	35.0 A	2.46-2.61 V	3.0-4.0 V	2.40 A	120 mV	10 mV	10 mV	76%	CBS200482R5
36-76 VDC	3.3 V	35.0 A	3.25-3.45 V	4.0-5.5 V	3.01 A	120 mV	10 mV	10 mV	80%	CBS2004803
36-76 VDC	5 V	30.0 A	4.9-5.2 V	5.75-7.0 V	3.77 A	120 mV	10 mV	10 mV	83%	CBS2004805
36-76 VDC	12 V	16.7 A	11.74-12.46 V	13.8-16.8 V	4.74 A	150 mV	24 mV	24 mV	88%	CBS2004812
36-76 VDC	15 V	13.4 A	14.55-15.45 V	17.25-21.0 V	4.76 A	150 mV	30 mV	30 mV	88%	CBS2004815
36-76 VDC	24 V	8.4 A	23.28-24.72 V	27.6-33.6 V	4.77 A	150 mV	48 mV	48 mV	88%	CBS2004824
36-76 VDC	28 V	7.2 A	27.16-28.84 V	32.2-39.2 V	4.77 A	150 mV	56 mV	56 mV	88%	CBS2004828
36-76 VDC	48 V	4.2 A	46.56-49.44 V	55.2-67.2 V	4.77 A	200 mV	96 mV	96 mV	88%	CBS2004848
20-36 VDC	12 V	25.0 A	11.88-12.12V	13.8-16.8 V	14.50 A	150 mV	24 mV	24 mV	86%	CBS3502412
20-36 VDC	24 V	14.5 A	23.76-24.24 V	27.6-33.6 V	16.70 A	180 mV	48 mV	48 mV	87%	CBS3502424
20-36 VDC	28 V	12.5 A	27.72-28.28 V	32.2-39.2 V	16.40 A	220 mV	56 mV	56 mV	89%	CBS3502428
20-36 VDC	32 V	11.0 A	31.68-32.32 V	36.8-44.8 V	16.50 A	220 mV	64 mV	64 mV	89%	CBS3502432
20-36 VDC	48 V	6.3 A	47.52-48.48 V	57.5-63.0 V	14.00 A	300 mV	96 mV	96 mV	90%	CBS3502448
36-76 VDC	12 V	29.0 A	11.88-12.12V	13.8-16.8 V	8.33 A	150 mV	24 mV	24 mV	87%	CBS3504812
36-76 VDC	24 V	14.5 A	23.76-24.24 V	27.6-33.6 V	8.15 A	180 mV	48 mV	48 mV	89%	CBS3504824
36-76 VDC	28 V	12.5 A	27.72-28.28 V	32.2-39.2 V	8.10 A	220 mV	56 mV	56 mV	90%	CBS3504828
36-76 VDC	32 V	11.0 A	31.68-32.32 V	36.8-44.8 V	8.15 A	220 mV	64 mV	64 mV	90%	CBS3504832
36-60 VDC	48 V	7.3 A	47.52-48.48 V	57.5-63.0 V	8.15 A	300 mV	96 mV	96 mV	91%	CBS3504848
38-60 VDC	24 V	19 A	23.52-24.48 V	27.6-33.6 V	10.60 A	180 mV	48 mV	48 mV	90%	CBS4504824
38-76 VDC	28 V	16 A	27.44-28.56 V	32.2-39.2 V	10.50 A	210 mV	56 mV	56 mV	91%	CBS4504828

Notes

- At rated input (24V, 48V) and rated load.
- Ripple & Noise is measured with a 0.1 μF film capacitor across outputs using a 20 MHz B/W limited oscilloscope.
- Optional heatsink available (CBS50-200 only), add suffix '-F' to part number.
- When the input voltage is in the range of 18 - 20 VDC (24 V nominal input), 36 - 40 VDC (48 V nominal input), output voltage adjustment range is 60 - 105% (except for 1R8/2R5).
- For more detailed information, please contact sales.

Mechanical Details



Notes

- All measurements are in mm. Tolerance: ±0.3 mm
- Weight: <83g.
- Baseplate: Aluminium
- Mounting hole screwing torque: 0.4 Nm
- Heatsinks available, contact sales for details.