Input Ranges:
9-75 VDC

Output Voltage:
3.3V,
5.0V,
12V,
15V,
24V

Output Power:
2-3 W

The **CS** series of single output DC-DC converters feature high efficiency and excellent line & load regulation. Using innovative design technique, state-of-the art Current Mode PWM control, and Surface Mount packaging & manufacturing technology, the CS series provides up to 3 watts of well regulated power in an encapsulated 0.80" x 1.25" x 0.42" phenolic case. Automatic feed forward compensation, pulse-by-pulse current limiting, and output short circuit protection are standard for all models.

These converters are designed for wide input range telecommunications, industrial and instrument applications. The wide input voltage range (2:1 & 4:1) is ideal for battery or unregulated input applications.

No external components are needed for normal operation. Low ESR capacitors are used to minimize the conductive noise. This package is ideal for all I/O board system and distributed DC power configurations.

FEATURES

General:

- Small footprint : 0.80" x 1.25"
- Current Mode Control
- Output power : 2-3 watts
- Input Voltage from 9 to 75V
- 2:1 & 4:1 Input Voltage Range
- High conversion efficiency: 80%
- Line Regulation: ±0.2%
- Load Regulation to ±1.0%
- Fixed operating frequency

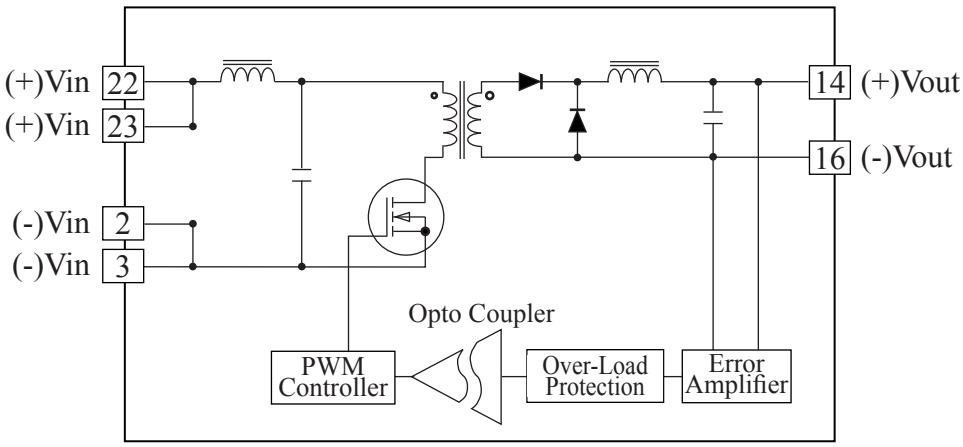
Isolation:

- Isolation Voltage >500V

APPLICATIONS

- Distributed Power Systems
- Workstations
- Computer Equipment
- Communications Equipment

BLOCK DIAGRAM



1. Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause performance degradation, adversely effect longterm reliability, and cause permanent damage to the device.

Parameter	Conditions / Description	Min	Max	Units
Input Voltage				
Continuous	12	-0.3	20	Vdc
	24	-0.3	38	Vdc
	48	-0.3	78	Vdc
	W-24	-0.3	38	Vdc
	W-48	-0.3	78	Vdc
Transient (100mSec.)	12	-0.3	22	Vdc
	24	-0.3	40	Vdc
	48	-0.3	80	Vdc
	W-24	-0.3	40	Vdc
	W-48	-0.3	80	Vdc
Operating Temperature	All models, base plate temperature	-40	+100	°C
Storage Temperature	**Ambient**	-55	+105	°C
Isolation Voltage	Input to Output		+700	Vdc

2. Input Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Input Voltage					
Voltage Range (Continuous)	12	9	12	18	Vdc
	24	18	24	36	Vdc
	48	36	48	75	Vdc
	W-24	10	24	36	Vdc
	W-48	20	48	75	Vdc

3. Output Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Voltage Accuracy				±1.0	%
Output Current	Please see table				Adc
Output Trim	Not Available				%Vout
Over Voltage Protection	Not available				Vdc
Line Regulation				±1.0	%Vout
Load Regulation				±1.0	%Vout
Transient Respoonse	50% ± 25% step load change		400		µSec.
Ripple & Noise	Please see table				mVp-p
Switching Frequency			200		KHz

4. Environmental and Mechanical Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Operating Temperature	Case Temperature	-25		+95	°C
Storage Temperature		-44		+105	°C
Temperature Coefficient				±0.02	%/°C
Shock	Halfsine wave, 3 axes	50			g
Sinusoidal Vibration	GR-63-CORE, Section 5.4.2	1			g
Humidity	Relative Humidity, Non-Condensing			95	%R.H.
Weight			1.0 (28)		Oz (g)
MTBF (calculated)	Bellcore TR-NWT-000332 method 1 - parts count	0.5			MHrs

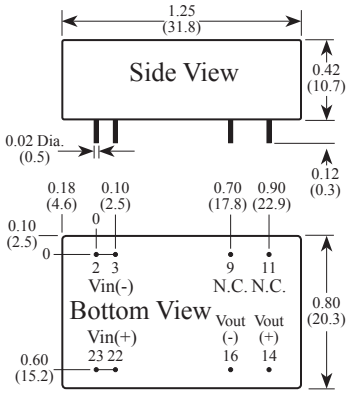
5. Isolation Specifications

Parameter	Conditions / Description	Min	Nom	Max	Units
Isolation Voltage	Input to Output	500			Vdc
Isolation Resistance	Input to Output	10			MΩ
Isolation Capacitance	Input to Output		3		nF

INPUT	OUTPUT										
Nominal (Range)	Max. Output Power	Voltage (V)			Current (A)		Ripple & Noise		Over Load Protection	EFF. (typ.)	MODEL NO.
		Set Point	Min.*	Max.*	Min.	Max.	Peak-Peak	R.M.S.			
12 (9 - 18)	2W	**3.30**	3.20	3.40	60mA	600mA	75mV	10mV	Pulse by Pulse	70%	**C3S1203**
	3W	**5.00**	4.90	5.10	60mA	600mA	75mV	15mV		75%	**C3S1205**
	3W	**12.0**	11.88	12.12	25mA	250mA	100mV	20mV		76%	**C3S1212**
	3W	**15.0**	14.85	15.15	20mA	200mA	120mV	20mV		77%	**C3S1215**
	3W	**24.0**	23.76	24.24	12mA	125mA	200mV	30mV		79%	**C3S1224**
24 (18 - 36)	2W	**3.30**	3.20	3.40	60mA	600mA	75mV	10mV		72%	**C3S2403**
	3W	**5.00**	4.90	5.10	60mA	600mA	75mV	15mV		76%	**C3S2405**
	3W	**12.0**	11.88	12.12	25mA	250mA	100mV	20mV		78%	**C3S2412**
	3W	**15.0**	14.85	15.15	20mA	200mA	120mV	20mV		78%	**C3S2415**
	3W	**24.0**	23.76	24.24	12mA	125mA	200mV	30mV		80%	**C3S2424**
48 (36 - 75)	2W	**3.30**	3.20	3.40	60mA	600mA	75mV	10mV		73%	**C3S4803**
	3W	**5.00**	4.90	5.10	60mA	600mA	75mV	15mV		76%	**C3S4805**
	3W	**12.0**	11.88	12.12	25mA	250mA	100mV	20mV		77%	**C3S4812**
	3W	**15.0**	14.85	15.15	20mA	200mA	120mV	20mV		78%	**C3S4815**
	3W	**24.0**	23.76	24.24	12mA	125mA	200mV	30mV		80%	**C3S4824**
W-24 (10 - 36)	2W	**3.30**	3.20	3.40	60mA	600mA	75mV	10mV		70%	**CW3S2403**
	3W	**5.00**	4.90	5.10	60mA	600mA	75mV	15mV		73%	**CW3S2405**
	3W	**12.0**	11.88	12.12	25mA	250mA	100mV	20mV		75%	**CW3S2412**
	3W	**15.0**	14.85	15.15	20mA	200mA	120mV	20mV		75%	**CW3S2415**
	3W	**24.0**	23.76	24.24	12mA	125mA	200mV	30mV		75%	**CW3S2424**
W-48 (20 - 75)	2W	**3.30**	3.20	3.40	60mA	600mA	75mV	10mV		70%	**CW3S4803**
	3W	**5.00**	4.90	5.10	60mA	600mA	75mV	15mV		73%	**CW3S4805**
	3W	**12.0**	11.88	12.12	25mA	250mA	100mV	20mV		75%	**CW3S4812**
	3W	**15.0**	14.85	15.15	20mA	200mA	120mV	20mV		75%	**CW3S4815**
	3W	**24.0**	23.76	24.24	12mA	125mA	200mV	30mV		75%	**CW3S4824**

* Combined Line & Load Regulation.

Encapsulated (Phenolic Case)



Product Numbering System & Selection Guide

C	13	S	24	03
Series No.	Output Power	No Output	Input Voltage	Output Voltage
C	**2** : 2W	**S** : Single	**12** : 9-18V	**03** : 3.3V
	3 : 3W		**24** : 18-36V	**05** : 5.0V
			48 : 36-75V	**12** : 12V
CW			**24** : 10-36V	**15** : 15V
CW			**48** : 20-75V	**24** : 24V