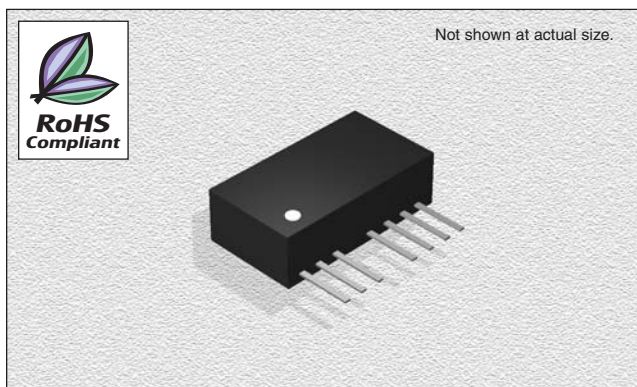


## CTDD2210SF-S1.5K-1 Series

### Wide Input Isolated & Regulated 1W Output, Single Output



### FEATURES

- Efficiency:** To 83%
- Temperature Range:** -40°C to +85°C
- Package:** UL94-V0
- Isolation:** 1.5KVDC
- Miscellaneous:** Wide (2:1) Input Range. No heat sink required. Industry standard pinout. Single Output. Remote ON/OFF.
- Samples available.**

### CHARACTERISTICS

- Output Short Circuit Protection:** Continuous
- Temperature Rise at Full Load:** 30°C (Typ.)
- Cooling:** Free air convection
- No Load, Power Consumption:** 150mW (typical)
- Operating Temperature Range:** -40°C to +85°C
- Storage Temperature Range:** -55°C to +125°C
- Lead Temperature:** 300°C (1.5mm from case for 10 seconds)
- Storage Humidity Range:** ≤ 95%
- Case Material:** Plastic (UL94-V0)
- MTBF:** >1,000,000 hours
- Miscellaneous:** RoHS Compliant.

### SPECIFICATIONS

Part Number	Vin Nom. (VDC)	Input Range (VDC)	Vin Max.* (VDC)	Vout (VDC)	Iout Max. (mA)	Iout Min. (mA)	Effi. Typ. (%)
CTDD2210SF-0505-S1.5K-1	5	4.5-9	11	5	200	20	71
CTDD2210SF-0509-S1.5K-1	5	4.5-9	11	9	110	11	73
CTDD2210SF-0512-S1.5K-1	5	4.5-9	11	12	84	8	77
CTDD2210SF-0515-S1.5K-1	5	4.5-9	11	15	66	6	78
CTDD2210SF-1205-S1.5K-1	12	9-18	22	5	200	20	75
CTDD2210SF-1209-S1.5K-1	12	9-18	22	9	110	11	78
CTDD2210SF-1212-S1.5K-1	12	9-18	22	12	84	8	77
CTDD2210SF-1215-S1.5K-1	12	9-18	22	15	66	6	80
CTDD2210SF-1505-S1.5K-1	15	12-24	30	5	200	20	75
CTDD2210SF-1509-S1.5K-1	15	12-24	30	9	110	11	79
CTDD2210SF-1512-S1.5K-1	15	12-24	30	12	84	8	80
CTDD2210SF-1515-S1.5K-1	15	12-24	30	15	66	6	81
CTDD2210SF-2405-S1.5K-1	24	18-36	40	5	200	20	75
CTDD2210SF-2409-S1.5K-1	24	18-36	40	9	110	11	80
CTDD2210SF-2412-S1.5K-1	24	18-36	40	12	84	8	81
CTDD2210SF-2415-S1.5K-1	24	18-36	40	15	66	6	81
CTDD2210SF-4805-S1.5K-1	48	36-72	80	5	200	20	76
CTDD2210SF-4809-S1.5K-1	48	36-72	80	9	110	11	81
CTDD2210SF-4812-S1.5K-1	48	36-72	80	12	84	8	82
CTDD2210SF-4815-S1.5K-1	48	36-72	80	15	66	6	83

\*If Input voltage above specified may cause permanent damage to the device.

### ISOLATION SPECIFICATIONS

Item	Test Condition	MIN	TYP	MAX	Units
Isolation Voltage	Tested for 1 minute	1500			VDC
Isolation Resistance	Test at 500VDC	1000			MΩ

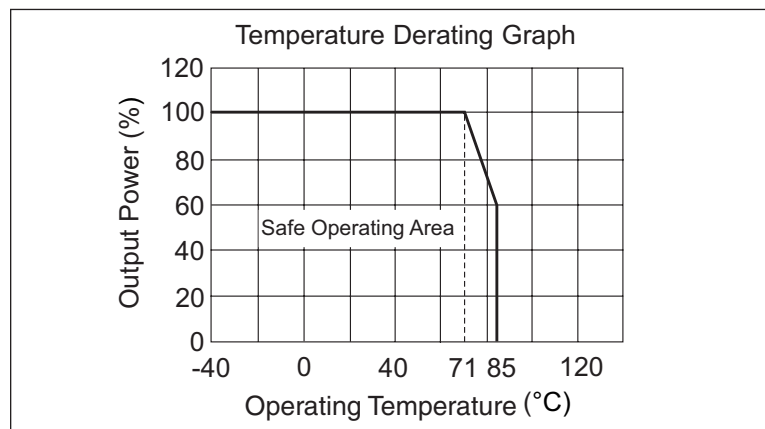
### OUTPUT SPECIFICATIONS

Item	Test Condition	MIN	TYP	MAX	Units
1W Output Power		0.1		1	W
Output voltage accuracy	Refer to Recommended Circuit		±1	±3	%
Load regulation	From 10% to 100% load		±0.5	±0.75	%
Line regulation	Input Voltage from low to high		±0.2	±0.5	%
Temperature drift (Vout)	See tolerance envelope graph			0.03	%/°C
Ripple	20Hz to 300kHz Bandwidth		40	60	mVp-p
Noise	DC-20MHz Bandwidth		80	150	mVp-p
Switching frequency	100% load, nominal input voltage	200		400	KHz
Switching frequency	10% load, nominal input voltage	700		1000	KHz

Note:

1. All specifications measured at TA=25°C, humidity<75%, nominal input voltage and rated output unless otherwise specified.

### TYPICAL CHARACTERISTICS



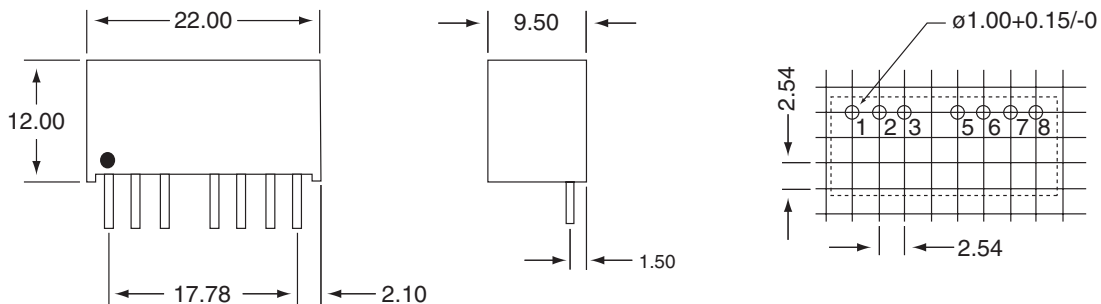
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## CTDD2210SF-S1.5K-1 Series

Wide Input Isolated & Regulated  
1W Output, Single Output

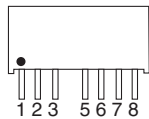
### OUTLINE DIMENSIONS & RECOMMENDED FOOTPRINT DETAILS

#### CTDD2210SF-S1.5K-1 Package



Note: All Pins on a 2.54mm pitch; All Pin diameters are 0.50mm (Tolerance:  $\pm 0.10$ ); all dimensions in mm..

### PIN CONNECTIONS



Pin	Function
1	GND
2	Vin
3	CTRL
5	NC
6	+Vo
7	OV
8	CS

#### CS Pin

By connecting a low ESR capacitor between this terminal and the pin-7 (connection to the anode of the capacitor), the output ripple and noise may be further improved. Generally, the capacitance is no greater than 100 $\mu$ F.

#### CTRL

When open or high impedance, converter work well. When control pin positive referenced to the negative input (equal to import to earth), converter shutdown. Please note that the input current should be between 5-10mA, exceeding the maximum 20mA will cause permanent damage to converter.

### RECOMMENDED CIRCUIT

All the CTDD2210SF-S1.5K-1 Series have been tested according to the following recommended testing circuit before leaving factory. This series should be tested under load. Never be tested under no load (See figure 1). If you want to further decrease the input/output ripple, you can increase capacitance properly or choose capacitors with low ESR. However, the capacitance should not be too high (See table 1). If you want to use the products in high EMI, please choose our metal packaged products.

External Capacitor Table (table 1)

Vin	C <sub>in</sub>	C <sub>out</sub> (0+70°C)	C <sub>out</sub> (-40+85°C)
5V & 12V	100 $\mu$ F	100 $\mu$ F (electrolytic capacitor)	47 $\mu$ F (tantalum capacitor)
24V & 48V	10 $\mu$ F		

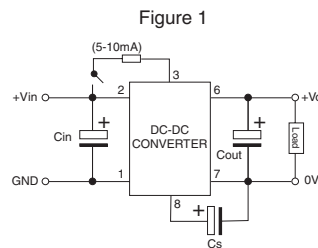
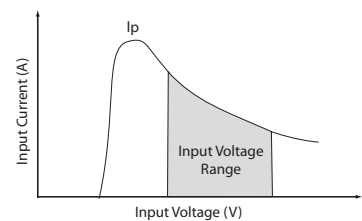


Figure 2



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