DC/DC CONVERTERS 5 OR 28 VOLT INPUT

Features

- -55°C to 100°C
- 5 or 28 VDC input
- Fully isolated
- Output regulated from input side
- 100 kHz typical switching frequency
- Topology Push-Pull DC/DC Converter
- Up to 75% efficiency
- No minimum load
- Output capacitor suggested

NOT RECOMMENDED FOR NEW DESIGNS



MODELS VDC OUTPUT				
SINGLES 5 12	DUALS ±12 ±15			

0.975 x 0.800 x 0.350 inches (24.77 x 20.32 x 8.89 mm) See case A3 for dimensions. 20 grams typical Standard or ES. See "100°C Non-QML Products - Environmental Screening (Standard & ES)" screening table for screening options.

DESCRIPTION

The DCH Series[™] offers isolated, unregulated DC/DC converters with up to 3 watts of output power in a low profile (0.350 max.) metal package. Single and dual output models are available with input voltages of 5 or 28 VDC. DCH Series converters operate over a -55°C to +100°C temperature range.

Size (max.):

Weight:

Screening:

DCH Series converters use a non-saturating core circuit operating at a frequency of approximately 100 kHz, which reduces reflected input ripple and minimizes EMI/RFI problems. For applications requiring MIL-STD-461C, CEO3, reflected input ripple levels, refer to Section B5 or contact your Interpoint representative for matching EMI filters.

Figure 1 shows a standard connection scheme for a dual output model. Users may also elect to use a dual output device to provide a single output at double the rated output voltage. The double voltage connection is achieved by leaving the normal output common pin (Pin 15) unconnected and using either the positive or negative Vout pin for the output common connection.

On all DCH Series models, a tantalum capacitor with a minimum value of 22 μ F and an appropriate voltage rating should be connected between the output common and the output line(s) to minimize output ripple.





DCH2805S FIGURE 2





DC/DC CONVERTERS

ABSOLUTE MAXIMUM RATING

• 3 watts

- Lead Soldering Temperature (10 sec per lead) • 300°C
- Storage Temperature Range (Case)
- -- 55°C to +125°C

RECOMMENDED OPERATING CONDITION

Input Voltage Range (VDC)

- 5 volt input models 4.0 to 6.5
- 28 volt input models 20.0 to 32.0
- **Case Operating Temperature (Tc)**
 - -55°C to +100°C full power

TYPICAL CHARACTERISTICS

Output Voltage Tolerance (Full Load)

- 5 volt output models ±0.25
- 15 volt output models ±0.5

Line Regulation

• Output is directly proportional to input voltage.

- **Output Voltage Temperature Coefficient**
 - 0.02%/°C maximum

Converter Frequency

• 100 kHz typical

- Isolation
 - 100 megohm minimum at 500 V

Electrical Characteristics: 25°C Tc, 28 VDC Vin, 100% load, unless otherwise specified.

	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT NOMINAL VDC TC = -55°C TO	OUTPUT CURRENT NOMINAL VDC TC = -55°C TO	EFFICIENCY FULL LOAD	LOAD REGULATION 50% TO FULL LOAD	INPUT CURRENT ² 10% LOAD	OUTPUT RIPPLE
NUMBER	VDC	NOMINAL VDC	mA	W	MIN %	mV	MAX mA	MAX mV-pp
DCH0505S	5	5	400	2.0	67	470	220	300
DCH0512S	5	12	208	2.5	72	830	250	200
DCH0512D	5	±12	±104	2.5	72	830	250	100
DCH0515D	5	±15	±83	2.5	72	830	250	100
DCH2805S	28	5	500	2.5	68	450	50	300
DCH2812S	28	12	250	3.0	75	375	50	200
DCH2812D	28	±12	±125	3.0	75	375	50	100
DCH2815D	28	±15	±100	3.0	75	375	50	100

Notes

1.Nominal output voltage is correct only for nominal input voltage. Output voltage changes in proportion to input voltage.

2. Output ripple results require the connection of a tantalum capacitor (22 µF minimum) across each output.





DC/DC CONVERTERS

BOTTOM VIEW CASE A3



Case dimensions in inches (mm)

Tolerance ± 0.005 (0.13) for three decimal places ± 0.01 (0.3) for two decimal places unless otherwise specified

Materials

Header	Kovar/Nickel
Cover	Kovar/Nickel
Pins	Kovar/Nickel/Gold, matched glass seal

Case dimensions in inches (mm)

Tolerance ± 0.005 (0.13) for three decimal places ± 0.01 (0.3) for two decimal places unless otherwise specified

CAUTION

Heat from reflow or wave soldering may damage the device. Solder pins individually with heat application not exceeding 300°C for 10 seconds per pin.

Case A3, Rev C, 20060731

Please refer to the numerical dimensions for accuracy. All information is believed to be accurate, but no responsibility is assumed for errors or omissions. Interpoint reserves the right to make changes in products or specifications without notice. Copyright © 1999-2006 Interpoint Corp. All rights reserved.

FIGURE 7: CASE A3



DC/DC CONVERTERS

100°C NON-QML PRODUCTS— ENVIRONMENTAL SCREENING (STANDARD & ES)

TEST	100°C STANDARD non QML ¹	100°C /ES non QML ¹
Pre-cap Inspection		
Method 2017, 2032	yes	yes
Temperature Cycle (10 times)		
Method 1010, Cond. B, -55°C to 125°C ambient	no	yes
Constant Acceleration		
Method 2001, 500 g	no	yes
Burn-In		
<u>96 hours, typical case temperature 100°C case²</u>	no	yes
Final Electrical Test MIL-PRF-38534, Group A		
Subgroups 1 and 4: +25°C case	yes	yes
Hermeticity Test		
Fine Leak, Method 1014, Cond. A	no	yes
Gross Leak, Method 1014, Cond. C	no	yes
Gross Leak, Dip (1 x 10 ⁻³)	yes	no
Final Visual Inspection		
Method 2009	yes	yes

Test methods are referenced to MIL-STD-883 as determined by MIL-PRF-38534.

Notes:

- 1. Non-QML products do not meet all of the requirements of MIL-PRF-38534
- 2. Burn-in is still air with an ambient temperature designed to bring the case temperature to 100°C

