### <u>SENSITRON</u> SEMICONDUCTOR

SCP-5259 PRELIMINARY

TECHNICAL DATA DATA SHEET, REV. ENG-

# DC-DC Converter 50W, Isolated, 4- Regulated Outputs



Description:

The SCP-5259 Series DC-DC converters are high-density self-contained multioutput power supplies. They incorporate Sensitron's proprietary technology which enables 4 independently regulated outputs and extremely low input ripple current. These power supplies will operate at a base plate temperature of -55 - 125 °C over the DC input range of 15V to 50V. The outputs can be inhibited by a logic level signal. One of the four outputs can be user programmed via a voltage source or a resistor value to ground.

### Features:

- 15V to 50V Input Voltage Range
- 80V Input Transient for 1 Sec.
- -55 to +125°C operating range
- Four Fully Regulated Outputs
- One programmable Output
- Fixed Frequency Switching
- Synchronous Rectification

- High Efficiency
- Very Low Input Ripple Current (100ma)
- Self contained, No external components
- Logic Control
- Fast Response
- Thermal Shutdown (optional)

### Packaging

- Low Profile Aluminum Case 0.6" x 2.4" x 4.2"
- Cold plate mounting
- PCB mounting
- Near-Hermetic (Moisture and Contamination Resistant, Gross Leak Tested)

• 221 West Industry Court □ Deer Park, NY 11729-4681 □ Phone (631) 586 7600 Fax (631) 242 9798 •
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lectrical Characteristics Tc = 25°C, unless specified otherwise.					
PARAMETER	TEST CONDITIONS		VALUE		UNITS
		Min.	Тур.	Max.	
Input Voltage	Tc = -55 – 125 degC Continuous, Transient, 1 s Other Transients	15 M	28 IL-STD-70	50 80 4E	V
Startup Threshold Voltage	Tc = -55 – 125 degC Inhibit = H			15	V
Input Under voltage Turn OFF	Tc = -55 – 125 degC Inhibit = H		12	14	V
Input DC Current	Vin = 28V Nominal Load No Load Inhibited		2000 300 5		mA
Input Ripple Current	Vin = 28V Nominal Load		100		mA
Input Reverse Current	Peak ValueNote 1I² tValue			150	A A <sup>2</sup> s
Hipot Voltage	Sea Level Input to Chassis Output to Chassis Input to Output		1000 500 1000		VDC
Total Output Power	Nominal, Tcase = 85 degC Tcase = 125 degC Overload, 1 s ,Tcase = 85 degC		50 40 75		W
Output 1 Nominal Voltage Ripple Voltage Nominal Current Overload Current Transient Response Time	Tc = -55 - 125  degC $B = 10kHz - 10MHz$ $Tc = 85  degC$ $Tc = 125  degC$ $0 - 30  second$ $Step  Load  50%  to  100%$		5.00 .1 2.0 1.5 120 1		V Vp-p A A % ms

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Output 2 Nominal Voltage Ripple Voltage Nominal Current Overload Current Transient Response Time	Tc = -55 - 125  degC B = 10kHz - 10MHz Tc = 85 degC Tc = 125degC 0 - 30 second Note2 Step Load 50% to 100%		3.30 .07 7.5 6.1 120 1		V Vp-p A % ms
Output 3 Nominal Voltage Ripple Voltage Nominal Current Overload Current Transient Response Time	Tc = -55 - 125  degC $B = 10 kHz - 10 MHz$ $Tc = 85  degC$ $Tc = 125  degC$ $0 - 30  second$ $Step  Load  50%  to  100%$ $Step  Input  28V  to  50V$		2.50 .05 3.0 2.0 120		V Vp-p A A %
Output 4 Nominal Voltage Ripple Voltage Nominal Current Overload Current Transient Response Time	Tc = -55 - 125  degC B = 10kHz - 10MHz Tc = 85 degC Tc = 125degC 0 - 30 second Note2 Step Load 50% to 100% Step Input 28V to 50V	.90 4.40	.05 120	2.20 2.00	V Vp-p A %
Cross Regulation	Load Change 20% to 100%		1		%
Inhibit Voltage	L = Power OFF H = Power ON	0 2.6		.5	V
Startup Delay	Vin = 28V		.2		S
Soft Start Ramp-	Vin = 28V		4		ms
	Note 3		1		V/V
Efficiency	VIII = 28V, POUI = 50VV, I Case =		70		%
	1 85 deg $C$ , Output 4 = 2.2V				

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#### **Physical Characteristics**

Temperature	
Operating	Tc = -55C to +125C
Storage	Tc = -65C to +150C
Altitude	
Operating	-2,000 ft to 60,000ft
Cooling	
Power Dissipation	< 25 W Continuous
Thermal Impedance	TBD
Case to Ambient	
Mechanical	
Case Outline	4.20"L, 2.40"W, 0.60"H
Mass	TBD

#### NOTES

- 1. Input protected by diode connected between pins 2 (anode) and 1(cathode). Fast acting disconnect device is recommended.
- 2. Followed by 300s operation at reduced power (80% load)
- 3. Output 4 will follow the Trim Voltage. Internal setting = 2.2V, can be lowered by connecting the Trim Resistor to the Common Ground.
- 4. Total power will be gradually reduced for temperatures exceeding the threshold level.
- 5. Vertical orientation in free air.

### **Electrical Connections**

Pin #	Function
1	Input Voltage, Positive
2	Input Voltage, return
3	N/A
4	N/A
5	Inhibit
6	Chassis
7	Output 5.0V, Positive
8	Output 3.3V, Positive
9	Common Return
10	Common Return
11	Output 2.5V, Positive
12	Output 0.9 – 2.2V, Positive
13	Trim Input
14	N/C

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### **Typical Connection Diagram**



**Case Outline (Inches)** 



**PCB Mounting - Example** 



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