SIP20C Series

Single output

ARTESYN TECHNOLOGIES

- **Updated version of SIP20**
- **Best-of-class wide output trim range**
- **Industry standard footprint**
- **High power density (60W/in³)**
- **High Efficiency 90%**
- **Fixed frequency (500kHz)**
- **Remote ON/OFF**
- **Undervoltage lockout (UVLO)**
- **Remote sense option**

The SIP20C series are non-isolated DC/DC converters packaged in a single-in-line footprint (2.5 x 0.55 x 0.23 inches) giving designers a cost effective solution for conversion of 5VDC to 3.3VDC and lower voltages. The SIP20C offers a best-of-class wide output trim range which allows maximum design flexibility and a pathway for future upgrades. For example, the 1.5V model can be trimmed as low as 1V. Local voltage conversion by the SIP20C from existing 5V system voltages eliminates the need for redesign of existing power architectures when voltage requirements change. The SIP20C is designed for applications that include distributed power, workstations, computers and file servers. Implementing state of the art surface mount technology and automated manufacturing techniques, the SIP20C offers compact size and efficiencies of 90%. The SIP20C is an updated version of the original SIP20 and is fully compatible with the original model.

2 YEAR WARRANTY

All specifications are typical at nominal input, full load at 25°C unless otherwise stated

SPECIFICATIONS

OUTPUT SPECIFICATIONS

Voltage adjustability	S3V3 S2V5 S1V5	60% to 115% 60% to 110% 87% to 130%
Set point accuracy	(See Note 1)	±2.7%
Line regulation	Vin = 4.5V to 5.5V	±0.3%
Load regulation	Io = 0A to 6A	±0.3%
Minimum load		0A
Overshoot/undershoot		None
Ripple and noise (See Note 8)	0 to 20MHz BW	100mV pk-pk, 30mV rms max.
Temperature coefficient		±0.01%/°C
Transient response (See Note 2)		±2.0% max. deviation 300µs recovery to within ±1.0%
Remote sense	(See Note 6)	0.5VDC compensation

INPUT SPECIFICATIONS

Input voltage range		4.5 to 5.5VDC
Input current	No load	150mA
Input current	@ Io max. and Vin = 0 to 5.5V	5.3A max.
Input reflected ripple	(See Note 3)	200mA
Remote ON/OFF		(See Note 5)
Start-up time		1.0ms
External capacitor	(See Note 4)	100µF

EMC CHARACTERISTICS (4)

Radiated emissions	EN55022/11, FCC part 15	Level A
Electrostatic discharge	EN61000-4-2, IEC801-2	

GENERAL SPECIFICATIONS

Efficiency		See table
Isolation voltage		Non-isolated
Switching frequency	Fixed	500kHz typ.
Approvals and standards (See Note 7)		VDE0805, EN60950, IEC950 UL1950, CSA C22.2 No. 950
Material flammability		UL94V-0
Dimensions	(LxWxH)	63.5 x 13.97 x 5.84 mm 2.5 x 0.55 x 0.23 inches
Pin length		0.135 ±0.02 inches (3.43 ±0.5mm)
Weight		5g (0.18oz)
MTBF	MIL-HDBK-217F	>1,000,000 hours

ENVIRONMENTAL SPECIFICATIONS

Thermal performance	Operating ambient, convection cooled	See curve
	Operating ambient, 300LFM forced air	-25°C to +85°C See Curve
	Non-operating	-55°C to +100°C
Altitude	Operating	10,000 feet max.
	Non-operating	40,000 feet max.
Vibration	5Hz to 500Hz	2.4G rms (approx.)

International Safety Standard Approvals

VDE0805/EN60950/IEC950 pending

UL1950

CSA 22.2 No. 950 pending

SIP20C Series

Single output

For the most current data and application support visit www.artesyn.com/powergroup/products.htm

OUTPUT POWER (MAX.)	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT (MIN.)	OUTPUT CURRENT (MAX.)	EFFICIENCY (TYP.)	REGULATION		MODEL NUMBER (6)
						LINE	LOAD	
20W	4.5-5.5VDC	3.3V	0A	6A	90%	±0.3%	±0.3%	SIP20C-05S3V3
15W	4.5-5.5VDC	2.5V	0A	6A	82%	±0.3%	±0.3%	SIP20C-05S2V5
9W	4.5-5.5VDC	1.5V	0A	6A	75%	±0.3%	±0.3%	SIP20C-05S1V5

Notes

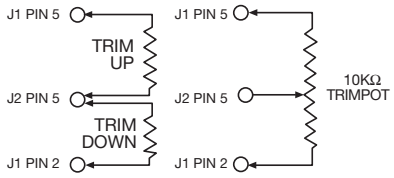
1. Vin = 5.0V, Io = full load, T_A = 25°C. Total error band ±4.5% over all operating conditions and temperatures until end of life.
2. di/dt = 1A/1µs, Vin = 5VDC, Tc = 25°C, load change = 0.5 Io max. to Io max. and Io max. to 0.5 Io max.
3. With simulated source impedance of 500nH. 5Hz to 20MHz.
4. Use a 100µF with ESR = 0.045Ω max. at 100kHz @ 25°C.
5. Referenced to ground for shutdown. If pin 6 is high unit will shut down. If pin 6 is open unit will operate as normal.
6. Single line sense; 0.5VDC compensation. Designate with the suffix 'R' **e.g. SIP20C-05S3V3R**.
7. This product is only for inclusion by professional installers within other equipment and must not be operated as a stand alone product.
8. 0-20MHz BW, 0.1µF ceramic, 1µF tantalum on output.
9. A short from +Vout to ground of less than 100mΩ may cause the unit to enter a non-destructive latch-up mode. If latch-up does occur the power supply to the unit may need to be cycled.

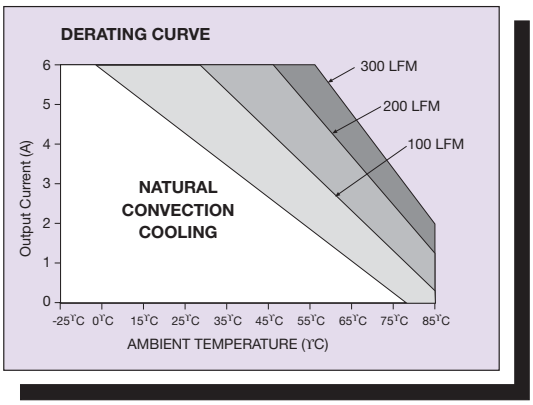
PROTECTION

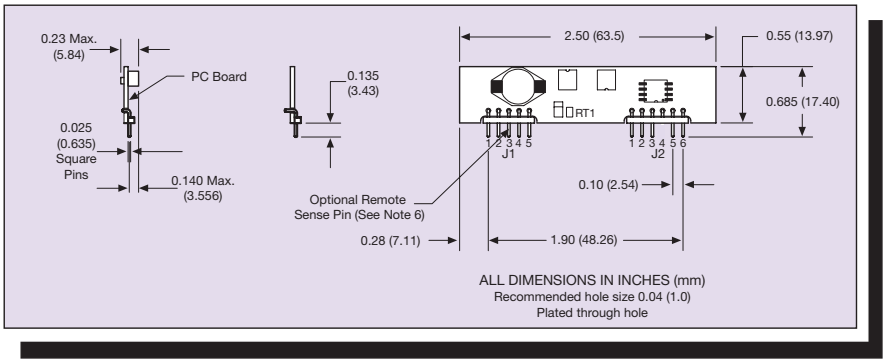
Short circuit protection	Continuous (See Note 9)
Input surge protection	6VDC continuous max.
Undervoltage protection	UVLO Vin <3.8V
Thermal protection	Automatic recovery, unit will shut down if RT1 exceeds 85°C (See diagram below)

EXTERNAL OUTPUT TRIMMING

Output can be externally trimmed by using either method shown below.







J1 PIN CONNECTIONS	
PIN NUMBER	FUNCTION
1	+Vout
2	+Vout
3	Opt. Remote Sense (+)
4	+Vout
5	Ground

J2 PIN CONNECTIONS	
PIN NUMBER	FUNCTION
1	Ground
2	+Vin
3	+Vin
4	No Pin
5	Trim
6	Remote ON/OFF