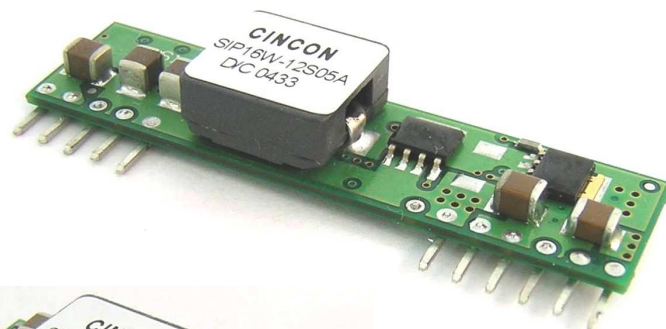




- * Non-isolated POL Converter
- * SIP / SMT Package
- * Output Current 16AMP
- * Input Voltage Range 6.0 –14VDC
- * Output Voltage Range 0.7525–5.0VDC
- * 300KHz Switching Frequency
- * High Efficiency to 94%
- * Over Temperature Protection
- * Continuous Short Circuit Protection
- * Remote ON/OFF Control
- * Output Voltage Sequencing
- * Power Good Signal
- * UL/C-UL60950 Certified



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	INPUT CURRENT		Efficiency (%)
				NO LOAD	FULL LOAD	
SIP16W-12S05A SMT16W-12S05A	6.0 – 14VDC	0.7525VDC	16A	40mA	1250mA	80
		1.2VDC	16A	40mA	1882mA	85
		1.5VDC	16A	50mA	2273mA	88
		1.8VDC	16A	60mA	2697mA	89
		2.0VDC	16A	60mA	2963mA	90
		2.5VDC	16A	65mA	3663mA	91
		3.3VDC	16A	75mA	4731mA	93
	6.5 – 14VDC	5.0VDC	16A	95mA	7092mA	94

The schematic diagram illustrates a buck converter circuit. The input is labeled +VIN, which is connected to a capacitor C1 and the gate of a MOSFET Q1. The source of Q1 is connected to the common ground line, labeled COM. The drain of Q1 is connected to an inductor L1. The other end of L1 is connected to a node that branches into the gate of a second MOSFET Q2 and a diode D1. The source of Q2 is also connected to the COM line. The diode D1 is oriented with its cathode towards the switching node and its anode towards the COM line. The output of the converter is taken from the node after the inductor L1, which is connected to a capacitor C2 and a sense resistor R sense. The output voltage is labeled +VO. The sense resistor R sense is connected between the output node and a sense input labeled +SENSE. The COM line is also connected to a feedback network consisting of resistors R1, R2, and a trimmer Rt. The feedback network is connected to the TRIM input of the PWM IC. The PWM IC is represented by a block with inputs for PGGood, ON/OFF, and SEQ, and an output for ERR AMP. The ERR AMP output is connected to the TRIM input of the feedback network.

Vo,set (V)	Rtrim (K Ω)
0.7525	Open
1.2	22.46
1.5	13.05
1.8	9.024
2.0	7.417
2.5	5.009
3.3	3.122
5.0	1.472

Table 1. External Resistor Values for programming output voltage

Figure 1. Simplified Schematic

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25°C Unless Otherwise Noted

INPUT SPECIFICATIONS:

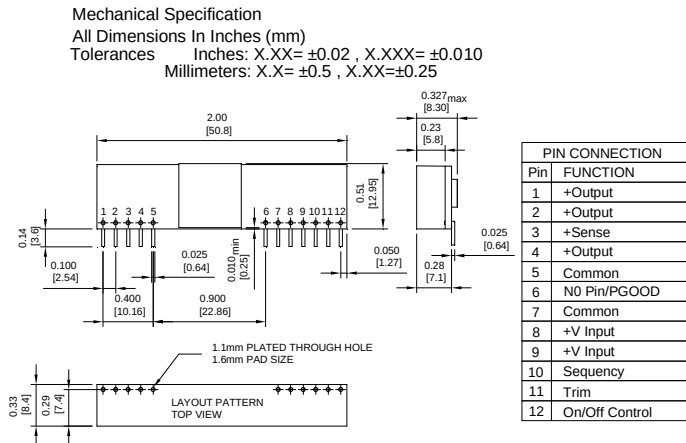
Input Voltage Range.....	12V	6.0 – 14.0V
	12V	6.5 – 14.0V
Under Voltage Lock-out	Power up	5.0V typ.
	Power down	4.0V typ.
Input Filter Type		Capacitive
Positive Remote on/off Control :		
Module ON	Open Circuit or = Vin	
Module OFF	< 0.4 Vdc	

OUTPUT SPECIFICATIONS:

Voltage Accuracy	$\pm 1.5\%$ max.
Transient Response: 25% Step Load Change	<200u
Ripple and Noise, 20MHz BW (note 3)	30mV rms max.
	75mV pk-pk max.
Temperature Coefficient	$\pm 0.03\%/^{\circ}\text{C}$ max.
Short Circuit Protection	Continuous
Line Regulation (note 1)	$\pm 0.2\%$ max.
Load Regulation (note 2)	$\pm 0.5\%$ max.
External Trim Adj. Range (see Table1)	$V_o = 0.75 - 5.0\text{Vdc}$
Sequencing Slew Rate Capability (dV _{SEQ} /dt)	0.1 – 1.0V/msec
Sequencing Delay Time	10msec min.
Tracking Accuracy .. Power up:200mV max., Power down:400mV max.	
Capacitive Load Low ESR	8000uF max.
Power Good Signal Asserted Logic High	$V_o = 90\% - 110\% V_o$, nom.
Start up time	7ms typ.

Dimensions:

SIP Packages



GENERAL SPECIFICATIONS:

Efficiency	See Table
Isolation Voltage	Non-isolation
Switching Frequency	300KHz typ.
Over Temperature Protection	130°C typ.
Operating Ambient Temperature Range	-40°C to +85°C
Power Derating Curve	see Figure2, 3
Storage Temperature Range	-55°C to +125°C
MTBF	MIL-STD-217F, GB, 25°C, Full Load
	0.92Mhrs typ.
Dimensions:	

SIP Package: 2 x 0.51 x 0.327 inches (50.8 x 12.95 x 8.3 mm)

SMT Package: 1.3 x 0.53 x 0.346 inches (33.0 x 13.46x 8.8 mm)

Structure	Non-potted With Open Frame Type
Weight	8.5g

NOTE :

1. Measured From High Line to Low Line, V_o ,set=3.3Vdc
2. Measured From Full Load to Zero Load, V_o ,set=3.3Vdc
3. The output noise is measured with 10uf tantalum capacitor and 1uf ceramic capacitor across output.
4. The Input Terminal Recommend to Parallel With 100uF Capacitor ESR<100mΩ to Reduce The Input Ripple Voltage
5. Suffix "N" to the Model Number with Negative Logic Remote on/off
Model ON

SMT Packages

Bottom View of Board

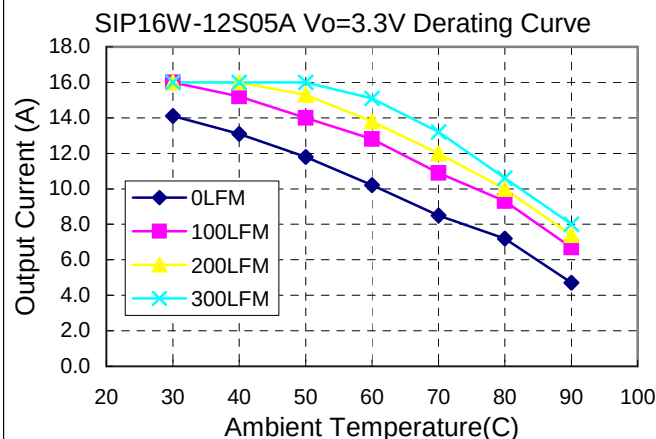
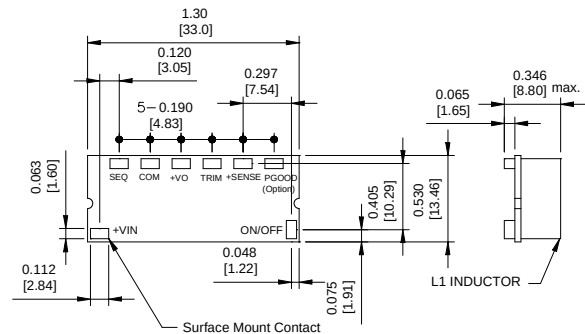


Figure2. Typical Power De-rating for 12V IN

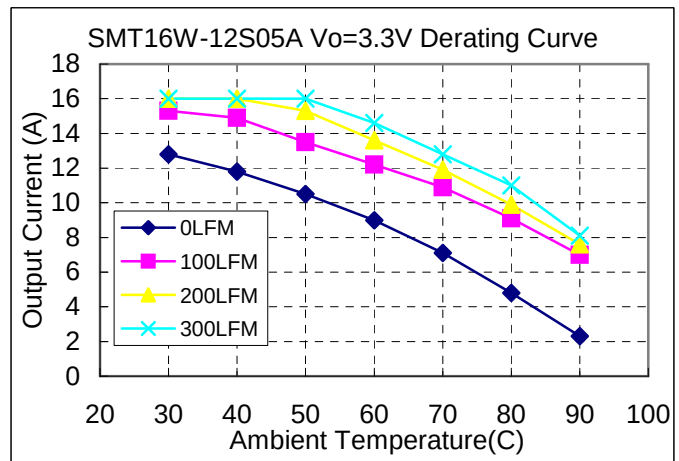


Figure3. Typical Power De-rating for 12V IN