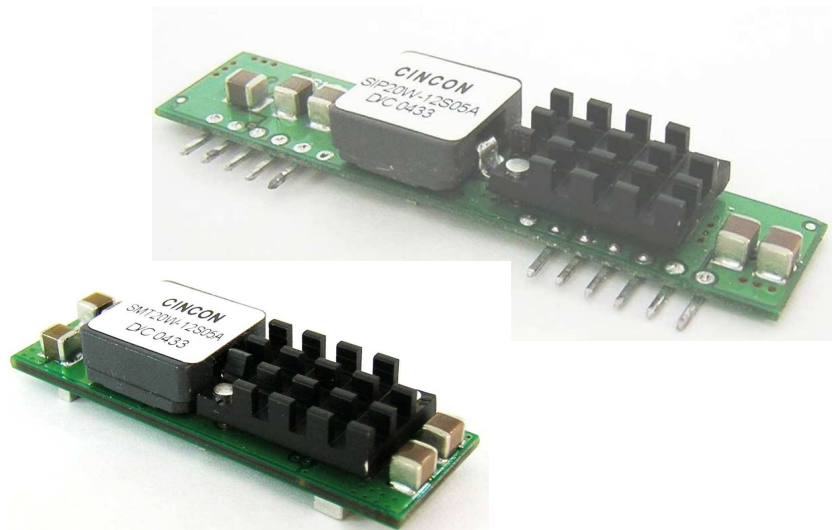


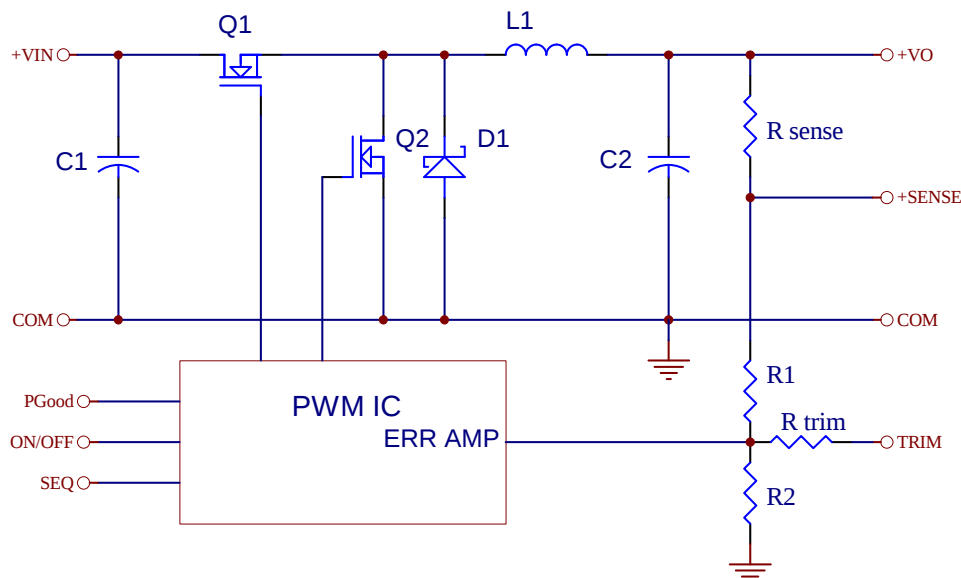
## Features

- \* Industry Standard Pin out
- \* High Efficiency to 94%
- \* 300KHz Switching Frequency
- \* 6.0 –14VDC Wide Input Range
- \* 0.75 – 5.0VDC Wide Output Range
- \* Over Temperature Protection
- \* Continuous Short Circuit Protection
- \* Remote ON/OFF
- \* Cost Efficient Open Frame Design
- \* UL/C-UL60950 Certified
- \* Output Voltage Sequencing (Tracking)
- \* Power Good Signal



| MODEL NUMBER                   | INPUT VOLTAGE | OUTPUT VOLTAGE | OUTPUT CURRENT | INPUT CURRENT |           | Efficiency (%) |
|--------------------------------|---------------|----------------|----------------|---------------|-----------|----------------|
|                                |               |                |                | NO LOAD       | FULL LOAD |                |
| SIP20W-12S05A<br>SMT20W-12S05A | 6.0 – 14VDC   | 0.75VDC        | 20A            | 40mA          | 1603mA    | 78             |
|                                |               | 1.2VDC         | 20A            | 50mA          | 2381mA    | 84             |
|                                |               | 1.5VDC         | 20A            | 50mA          | 2874mA    | 87             |
|                                |               | 1.8VDC         | 20A            | 50mA          | 3409mA    | 88             |
|                                |               | 2.0VDC         | 20A            | 60mA          | 3745mA    | 89             |
|                                |               | 2.5VDC         | 20A            | 65mA          | 4630mA    | 90             |
|                                |               | 3.3VDC         | 20A            | 75mA          | 5978mA    | 92             |
|                                | 6.5 – 14VDC   | 5.0VDC         | 20A            | 95mA          | 8865mA    | 94             |

NOTE : Nominal Input Voltage 12 VDC



| Vo,set (V) | Rtrim (KΩ) |
|------------|------------|
| 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.....                                        | ±1.5% max.                |
| Transient Response: 25% Step Load Change.....                | <200u sec.                |
| Ripple and Noise, 20MHz BW Note3.....                        | 30mV rms max.             |
|                                                              | 75mV pk-pk max.           |
| Temperature Coefficient.....                                 | ±0.03%/C max.             |
| Short Circuit Protection.....                                | Continuous                |
| Line Regulation, Note1.....                                  | ±0.2% max.                |
| Load Regulation, Note2.....                                  | ±0.5% max.                |
| External Trim Adj. Range (see Table1).....                   | Vo=0.75 – 5.0Vdc          |
| Sequencing Slew Rate Capability (dV <sub>SEQ</sub> /dt)..... | 0.1 – 1.0V/msec           |
| Sequencing Delay Time.....                                   | 20msec max.               |
| Tracking Accuracy.....                                       | Power up.....200mV max.   |
|                                                              | Power down.....400mV max. |
| Capacitive Load, Low ESR .....                               | 8000uF max.               |
| Power Good Signal Asserted Logic High.....                   | Vo=90%-110%Vo,nom         |

## 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 |
| Dimensions:                              |                 |

SIP Package: 2.4 x 0.51 x 0.327 inches (61.0 x 12.95 x 8.3 mm)

SMT Package: 1.7 x 0.53 x 0.366 inches (43.2 x 13.46 x 9.30 mm)

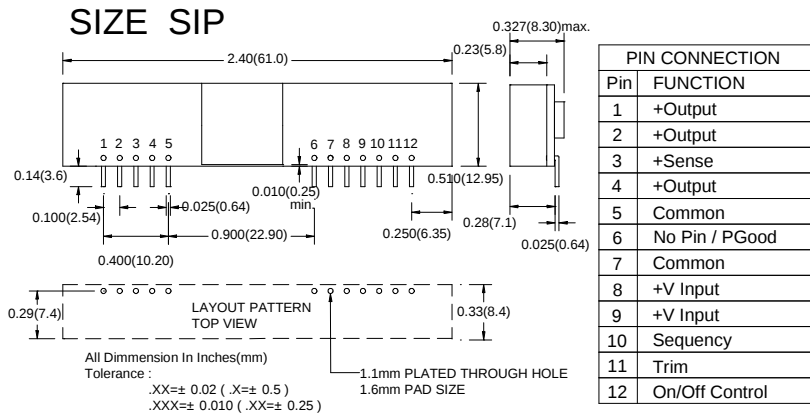
Structure.....Non-potted With Open Frame Type

## NOTE :

1. Measured From High Line to Low Line, Vo,set=3.3Vdc
2. Measured From Full Load to Zero Load, Vo,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 200uF Capacitor ESR<25mΩ to Reduce The Input Ripple Voltage
5. Suffix "N" to the Model Number with Negative Logic Remote on/off Model ON.....Open Circuit or < 0.4VDC  
Module OFF.....>+2.8VDC to Vin
6. Suffix "P" to the Model Number with Power Good function.

## Dimensions:

### SIP Packages



### SMT Packages

#### BOTTOM VIEW OF BOARD

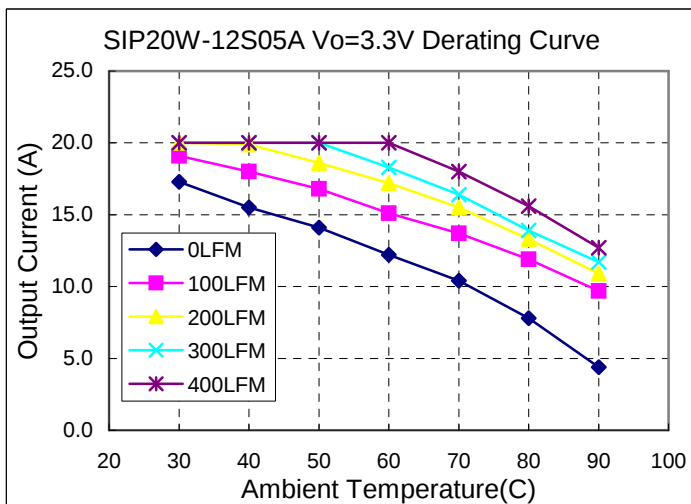
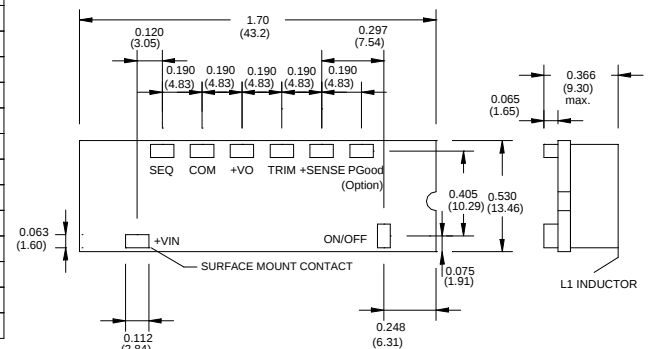


Figure2. Typical Power De-rating for 12V IN

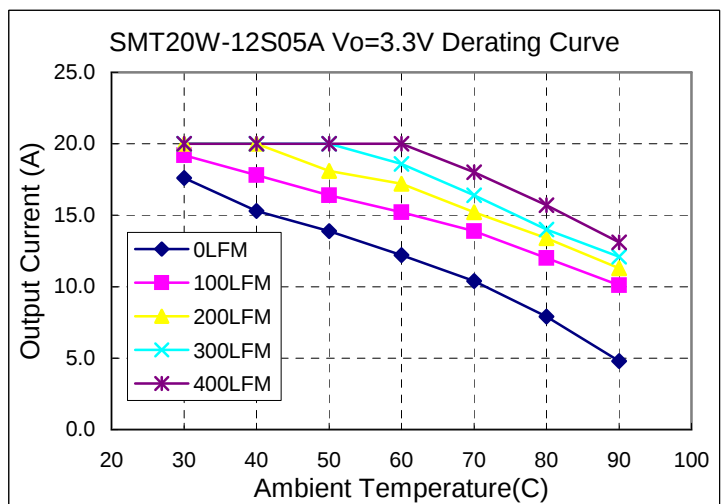


Figure3. Typical Power De-rating for 12V IN