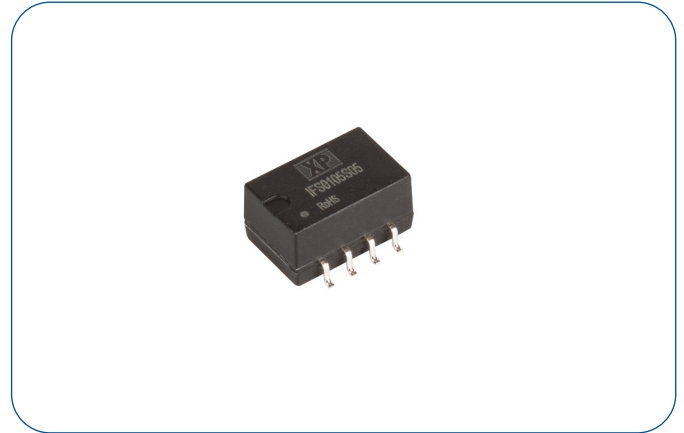


### 1 Watt

- Single unregulated output
- $\pm 10\%$  input range
- SMD DIP package
- 1.5kVDC isolation
- Industry standard pinout
- UL62368-1 safety approvals
- Continuous short circuit protection
- Tape & reel package available
- Operating temperature  $-40^{\circ}\text{C}$  to  $+105^{\circ}\text{C}$
- Full power to  $100^{\circ}\text{C}$
- 3 year warranty



#### Dimensions:

**IFS01 Single Output:**  
0.52 x 0.335 x 0.285" (13.2 x 8.5 x 7.25 mm)

The IFS01 series is an ideal solution for isolating voltage rails in a distributed power supply architecture such as analog, digital, data and relay circuits. This product family offers a compact design with high efficiency, 1.5kV isolation, short circuit protection and high operating temperature.

### Models & Ratings

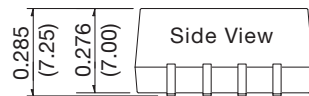
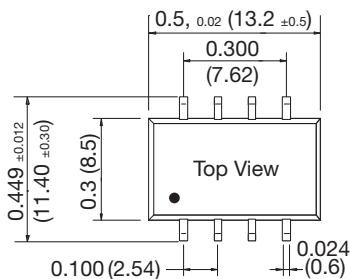
| Input Voltage     | Output Voltage | Output Current |         | Input Current <sup>(1)</sup> |           | Maximum Capacitive Load | Efficiency <sup>(2)</sup> | Model Number <sup>(4)</sup> |
|-------------------|----------------|----------------|---------|------------------------------|-----------|-------------------------|---------------------------|-----------------------------|
|                   |                | Minimum        | Maximum | No Load                      | Full Load |                         |                           |                             |
| 5V<br>(4.5-5.5 V) | 5V             | 20mA           | 200mA   | 5mA                          | 270mA     | 2400 $\mu\text{F}$      | 82%                       | IFS0105S05                  |
|                   | 9V             | 12mA           | 111mA   | 12mA                         | 241mA     | 1000 $\mu\text{F}$      | 83%                       | IFS0105S09                  |
|                   | 12V            | 9mA            | 84mA    | 12mA                         | 241mA     | 560 $\mu\text{F}$       | 83%                       | IFS0105S12                  |

### Notes

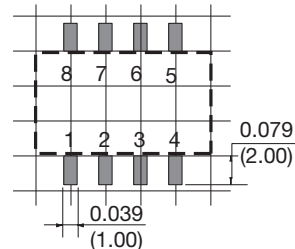
1. Typical input currents measured at nominal input voltage.
2. Typical value at full load.

3. Standard tube quantity = 38
4. For tape & reel option add suffix -TR. Reel quantity = 500

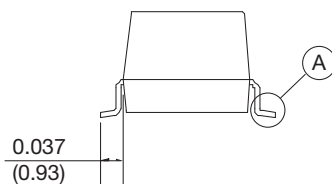
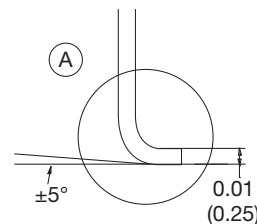
### Mechanical Details



Recommended Footprint  
Top View grid: 0.1 x 0.1 in (2.54 x 2.54 mm)



| Pin Out |          |
|---------|----------|
| Pin     | Function |
| 1       | GND      |
| 2       | Vin      |
| 4       | 0V       |
| 5       | +Vo      |
| 3,6,7,8 | NC       |



### Notes

1. All dimensions are in inches (mm).
2. Weight: single output: 0.0028lbs (1.3g) typical

3. Pin pitch and length tolerance:  $\pm 0.01$  ( $\pm 0.25$ ).
4. Case tolerance:  $\pm 0.02$  ( $\pm 0.5$ ).

### Input

| Characteristic         | Minimum   | Typical | Maximum | Units       | Notes & Conditions                         |
|------------------------|-----------|---------|---------|-------------|--|
| Input Voltage Range    | 4.50      |         | 5.50    | VDC         | 5V nominal                                 |
| Input Current          |           |         |         |             | See Models and Ratings table               |
| Input Reflected Ripple |           | 15      |         | mA pk-pk    | Through 4.7µH inductor and 220µF capacitor |
| Input Surge            |           |         | 9       | VDC for 1 s |  |
| Input Filter           | Capacitor |         |         |             |  |

### Output

| Characteristic           | Minimum                        | Typical | Maximum | Units    | Notes & Conditions                                    |
|--------------------------|--------------------------------|---------|---------|----------|---|
| Output Voltage           | 5                              |         | 12      | VDC      | See Models and Ratings table                          |
| Initial Set Accuracy     |                                |         |         | %        | See Load Regulation Curves                            |
| Minimum Load             | 10                             |         |         | %        |   |
| Line Regulation          |                                |         | ±1.2    | %        | Per 1% change of input voltage (±1.5% for 3V3 output) |
| Load Regulation          |                                |         |         | %        | See load regulation curves                            |
| Ripple and Noise         |                                | 30      | 75      | mV pk-pk | 20MHz bandwidth, measured using 0.1µF capacitor       |
| Short Circuit Protection | Continuous, with auto recovery |         |         |          |   |
| Maximum Capacitive Load  |                                |         |         | µF       | See Models and Ratings table                          |
| Temperature Coefficient  |                                |         | ±0.02   | %/°C     |   |

### General

| Characteristic                   | Minimum   | Typical     | Maximum | Units   | Notes & Conditions  |
|----------------------------------|---|-------------|---------|---|---|
| Efficiency                       |   |             |         |   | See Models and Ratings table                                  |
| Isolation: Input to Output       | 1500  |             |         | VDC   | Functional  |
| Switching Frequency              | 270   |             | 278     | kHz   | Low input voltage 10% load to high input voltage at full load |
| Isolation Resistance             | 10 <sup>9</sup>   |             |         | Ω   | Input to output, tested at 500VDC                             |
| Isolation Capacitance            |   | 20          |         | pF  | Input to output   |
| Power Density                    |   | 20          |         | Win <sup>3</sup>                              |   |
| Mean Time Between Failure        | 3500  |             |         | kHrs  | MIL-HDBK-217F, +25°C GB                                       |
| Weight                           |   | 0.002 (1.3) |         | lb (g)  | Single output   |
| Moisture Sensitivity Level (MSL) | Level 1   |             |         |   |   |
| Case Material                    | Black plastic, flame retardant UL94 V-0                       |             |         |   |   |
| Pin Material                     | Phosphor bronze, solder coated                                |             |         |   |   |
| Recommended Solder Profile       | IPC/JEDEC J-STD-020D.1  |             |         | Peak temp ≤245°C, max duration, ≤60s at 217°C |   |
| Water Washing                    | Non-soaking water wash with de-ionised water. Dry thoroughly. |             |         |   |   |

### Environmental

| Characteristic        | Minimum            | Typical | Maximum | Units | Notes & Conditions                                   |
|-----------------------|--------------------|---------|---------|-------|--|
| Operating Temperature | -40                |         | +105    | °C    | Derate from 100% load at +100°C to 80% load at 105°C |
| Storage Temperature   | -55                |         | +125    | °C    |  |
| Case Temperature      |                    |         | +105    | °C    |  |
| Case Temperature Rise |                    | 15      |         | °C    | Ambient 25°C   |
| Operating Humidity    |                    |         | 95      | % RH  | Non-condensing                                       |
| Cooling               | Natural convection |         |         |       |  |

### Safety Approvals

| Safety Agency | Safety Standard                  | Notes & Conditions |
|---------------|----------------------------------|--------------------|
| UL            | UL62368-1                        |                    |
| CE            | Meets all applicable directives  |                    |
| UKCA          | Meets all applicable legislation |                    |

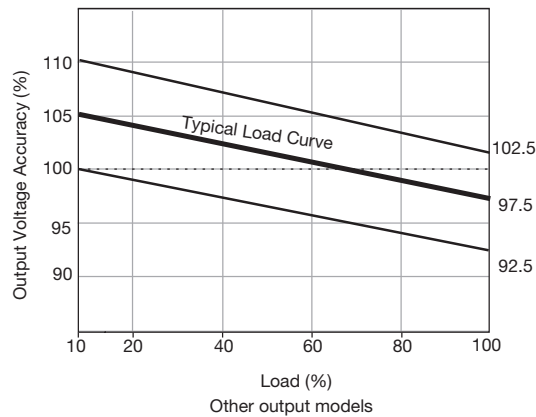
### EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & Conditions                      |
|------------|----------|------------|---|
| Conducted  | EN55032  | Class B    | See Application Note for Class B filter |
| Radiated   | EN55032  | Class B    | See Application Note for Class B filter |

### EMC: Immunity

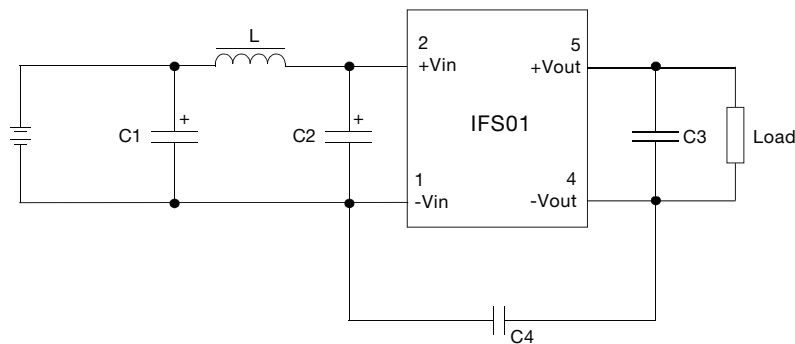
| Phenomenon   | Standard    | Test Level                                      | Criteria | Notes & Conditions |
|--------------|-------------|---|----------|--------------------|
| ESD Immunity | EN61000-4-2 | Air $\pm 8\text{kV}$ , Contact $\pm 4\text{kV}$ | B        |                    |

### Load Regulation



### Application Note

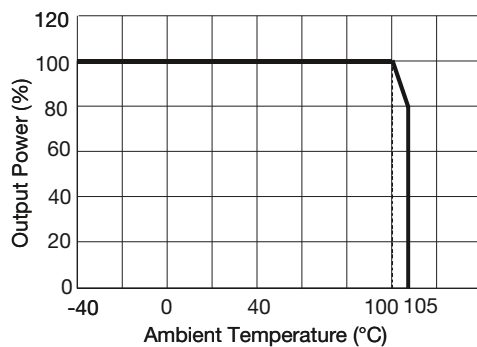
#### EMI Filter for Class B Emissions



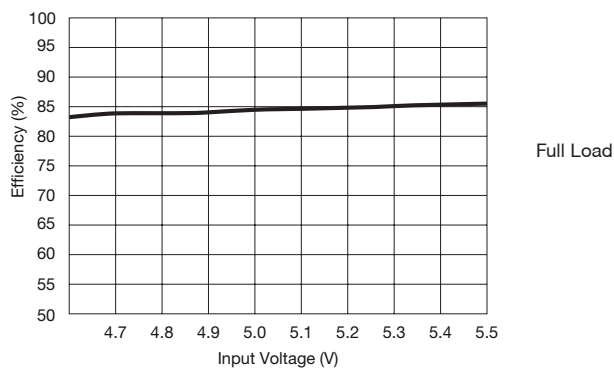
| Component | Output Voltage    |                   |                   | Notes                 |
|-----------|-------------------|-------------------|-------------------|-----------------------|
|           | 5V                | 9V                | 12V               |                       |
| C1, C2    | 4.7 $\mu\text{F}$ | 4.7 $\mu\text{F}$ | 4.7 $\mu\text{F}$ | 25V rated             |
| C3        | 10 $\mu\text{F}$  | 4.7 $\mu\text{F}$ | 2.2 $\mu\text{F}$ | 25V rated             |
| C4        | Not Fitted        |                   |                   | 2kV rated, ML Ceramic |
| L         | 6.8 $\mu\text{H}$ | 6.8 $\mu\text{H}$ | 6.8 $\mu\text{H}$ |                       |

### Application Note

#### Temperature Derating Curve



#### Efficiency vs Input Voltage (example IFS0105S05)



#### Efficiency vs Output Load (example IFS0105S05)

