TECHNICAL DATA
DATA SHEET 1102, REV. B

DC-DC Converters

Fixed Input, 3000V Isolation, Unregulated, Dual Output

FEATURES:

- **Isolation Voltage:** **3000Vdc**
- **Isolation Resistance (1):** **1000MΩ**
- **Short-Circuit Duration:** **1 second**
- **Case Temperature Rise:** **Max. 25°C, Typ. 15°C**
- **Cooling Method:** **Free-Air Cooling**
- **Standby Power Dissipation:** **1W (100mW), 2W (200mW)**
- **Operating Temp.:** **-40°C ~ + 85°C**
- **Storage Temp.:** **-55°C ~ + 125°C**
- **Humidity:** **≤ 95%**
- **Soldering Temp. (2):** **300°C**
- **Case Material:** **Non-Flammable Material (UL94-V0)**
- **Mean Time Before Failure:** **> 1,000,000 hours (Operating Temp. 25°C)**

B Dual Output-1W/2W Series Input Characteristics

Part Number	Nominal Input Voltage	Input Voltage Range	Maximum Input Voltage*
B05XXGS/D1/2U	5Vdc	4.5~5.5Vdc	7Vdc
B12XXGS/D1/2U	12Vdc	10.8~13.2Vdc	15Vdc
B24XXGS/D1/2U	24Vdc	21.6~26.4Vdc	28Vdc

* Voltage above this value may cause permanent damage to the device.

B Dual Output-1W/2W Series Output Characteristics

Parameter	MIN	TYP	MAX	Units
1W Output Power	0.25		1	W
2W Output Power	0.5		2	W
Line Regulation			± 1.2	%
Efficiency at 100% Load	65	75	85	%
Temperature Coefficient			0.03	%/°C
1W Ripple and Noise		75	150	mVp-p
2W Ripple and Noise		100	200	
Switching Frequency	80	100	200	kHz

1. All specifications at TA=25°C, 75% of the humidity, Nominal input voltage, full output load unless otherwise specified.
2. Soldering for 10 seconds at 1.5mm away from the edge.

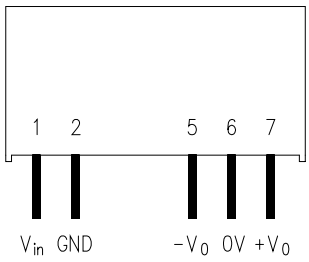
TECHNICAL DATA
DATA SHEET 1102, REV. B

B Dual Output-1W/2W Series Part Number List

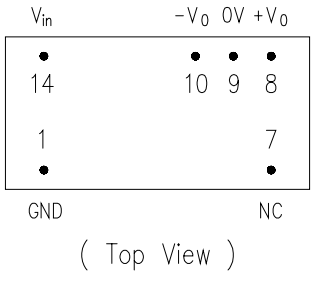
Input	Output	Power	SIP-1W	SIP-2W	DIP-1W	DIP-2W
3.3Vdc	±3.3V/150m A	1.00W	B0303HS1U	-	-	-
5Vdc	±3.3V/150m A	1.00W	B0503GS1U	B0503GS2U	B0503GD1U	B0503GD2U
	±5V/100m A	1.00W	B0505GS1U	B0505GS2U	B0505GD1U	B0505GD2U
	±9V/56m A	1.00W	B0509GS1U	B0509GS2U	B0509GD1U	B0509GD2U
	±12V/42m A	1.00W	B0512GS1U	B0512GS2U	B0512GD1U	B0512GD2U
	±15V/33m A	1.00W	B0515GS1U	B0515GS2U	B0515GD1U	B0515GD2U
12Vdc	±3.3V/250m A	1.60W	B1203GS1U	B1203GS2U	B1203GD1U	B1203GD2U
	±5V/200m A	2.00W	B1205GS1U	B1205GS2U	B1205GD1U	B1205GD2U
	±9V/111m A	2.00W	B1209GS1U	B1209GS2U	B1209GD1U	B1209GD2U
	±12V/84m A	2.00W	B1212GS1U	B1212GS2U	B1212GD1U	B1212GD2U
	±15V/67m A	2.00W	B1215GS1U	B1215GS2U	B1215GD1U	B1215GD2U
24Vdc	±12V/84m A	2.00W	B2403GS1U	B2403GS2U	B2403GD1U	B2403GD2U
	±15V/67m A	2.00W	B2405GS1U	B2405GS2U	B2405GD1U	B2405GD2U
			B2409GS1U	B2409GS2U	B2409GD1U	B2409GD2U
			B2412GS1U	B2412GS2U	B2412GD1U	B2412GD2U
			B2415GS1U	B2415GS2U	B2415GD1U	B2415GD2U

PIN CONFIGURATION

BxxyyGS1/2U PACKAGE DIMENSIONS



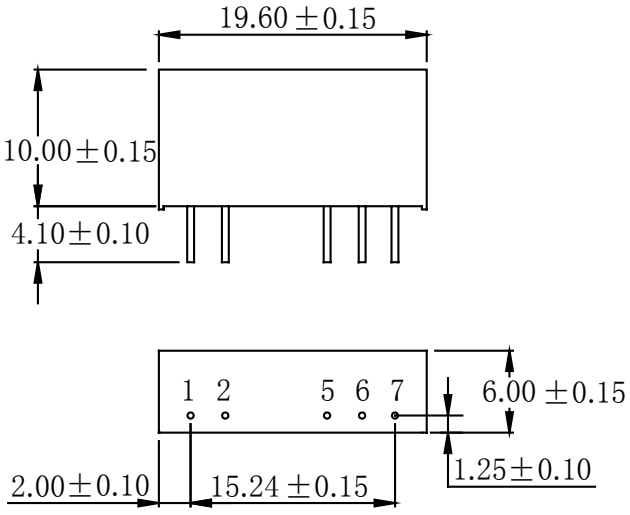
BxxyyGD1/2U PACKAGE DIMENSIONS



TECHNICAL DATA
DATA SHEET 1102, REV. B

Mechanical Dimension: in mm

BxxyyGS1U PACKAGE DIMENSIONS



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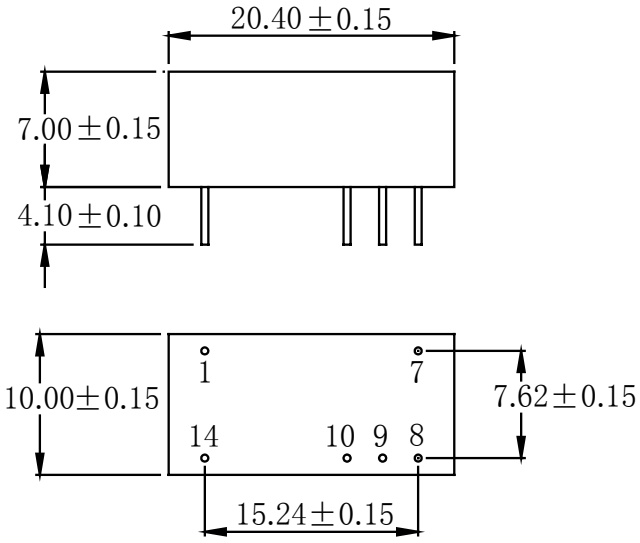
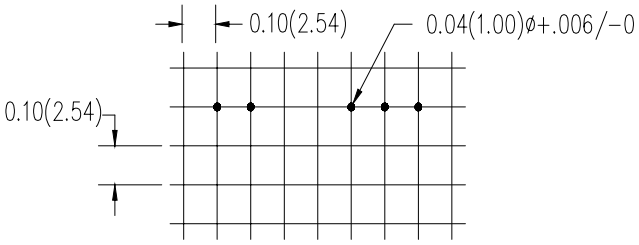
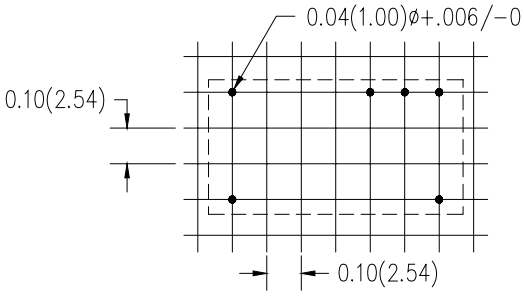


DIMENSIONAL RECOMMENDATIONS FOR PCB LAYOUT



SIP PACKAGE DIMENSIONS

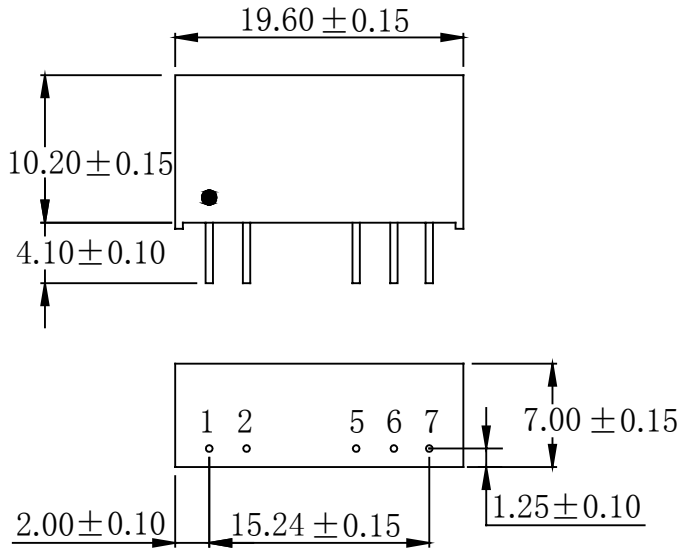


DIP PACKAGE DIMENSIONS

TECHNICAL DATA
DATA SHEET 1102, REV. B

Mechanical Dimension: in mm

BxxyyGS2U PACKAGE DIMENSIONS



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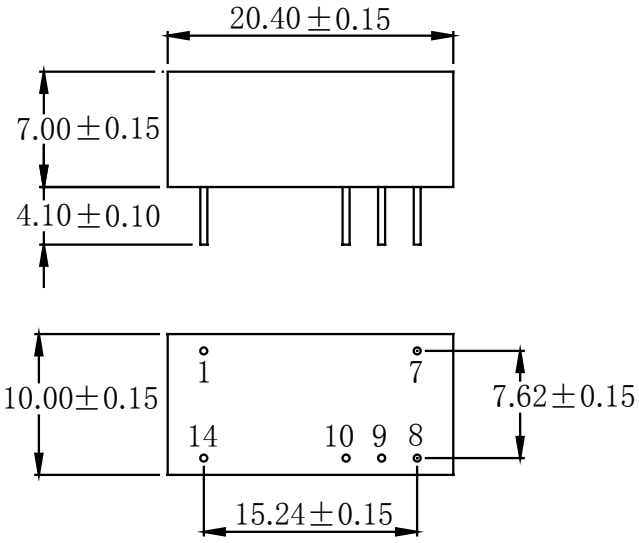
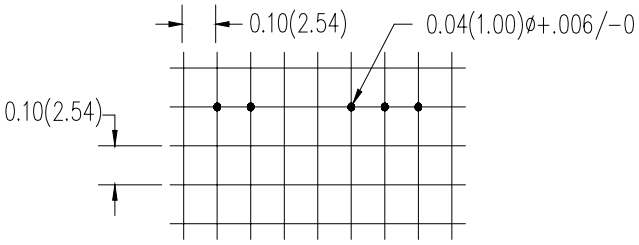


DIMENSIONAL RECOMMENDATIONS FOR PCB LAYOUT



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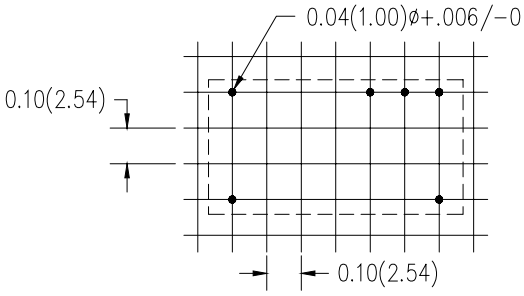


DIP PACKAGE DIMENSIONS

TECHNICAL DATA
DATA SHEET 1102, REV. B

APPLICATION NOTE

Filtering

In some circuits which are sensitive to noise and ripple, a filtering capacitor may be added to the DC/DC output end and input end to reduce the noise and ripple. However, the capacitance of the output filter capacitor must be proper. If the capacitance is too big, a startup problem might arise. For every channel of output, provided the safe and reliable operation is ensured, the greatest capacitance of its filter capacitor sees the external capacitor table. To get an extremely low ripple, an "LC" filtering network may be connected to the input and output ends of the DC/DC converter, which may produce a more significant filtering effect. It should also be noted that the inductance and the frequency of the "LC" filtering network should be staggered with the DC/DC frequency to avoid mutual interference (see figure 1).

Requirement On Output Load

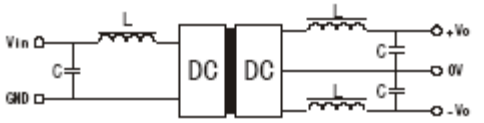
To ensure this module can operate efficiently and reliably, a minimum load is specified for this kind of DC/DC converter in addition to a maximum load (namely full load). During operation, make sure the specified range of input voltage is not exceeded, the minimum output load is **not less than 10%** of the full load, and that this product should never be operated under no load! If the actual output power is very small, please connect a resistor with proper resistance at the output end in parallel to increase the load, or use our company's products with a lower rated output power.

Overload Protection

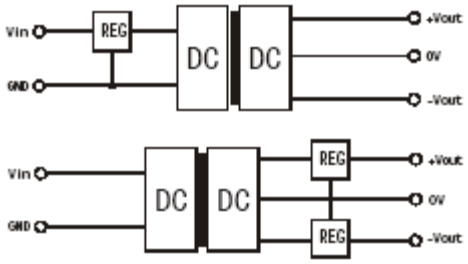
Under normal operating conditions, the output circuit of these products has no protection against over-current and short-circuits. The simplest method is to connect a self-recovery fuse in series at the input end or add a circuit breaker to the circuit.

Output Voltage Regulation and Over-voltage Protection Circuit

The simplest device for output voltage regulation, over-voltage and over-current protection is a linear voltage regulator with overheat protection that is connected to the input or output end in series (see Figure 2).



<Figure 1>



<Figure 2>

External Capacitor Table

V_{in}	External capaticor	V_{out}	External capaticor
5VDC	4.7 uF	5 VDC	4.7 uF
12VDC	2.2 uF	9 VDC	2.2 uF
24 VDC	1 uF	12 VDC	1 uF
-	-	15 VDC	0.47 uF

TECHNICAL DATA
DATA SHEET 1102, REV. B

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