

15 W DC-DC CONVERTER FOR ECL

Type	V _{in}	V _{out}	I _{out}
GS15T5-5.2	5 V	5,2 V	3 A

DESCRIPTION

The GS15T5-5.2 is a 15W DC-DC converter designed to provide a 5.2V isolated output from a 5V input.

The device can operate with an output current in the range of 0.0 to 3.0A without any intermittent operation (packet switching).

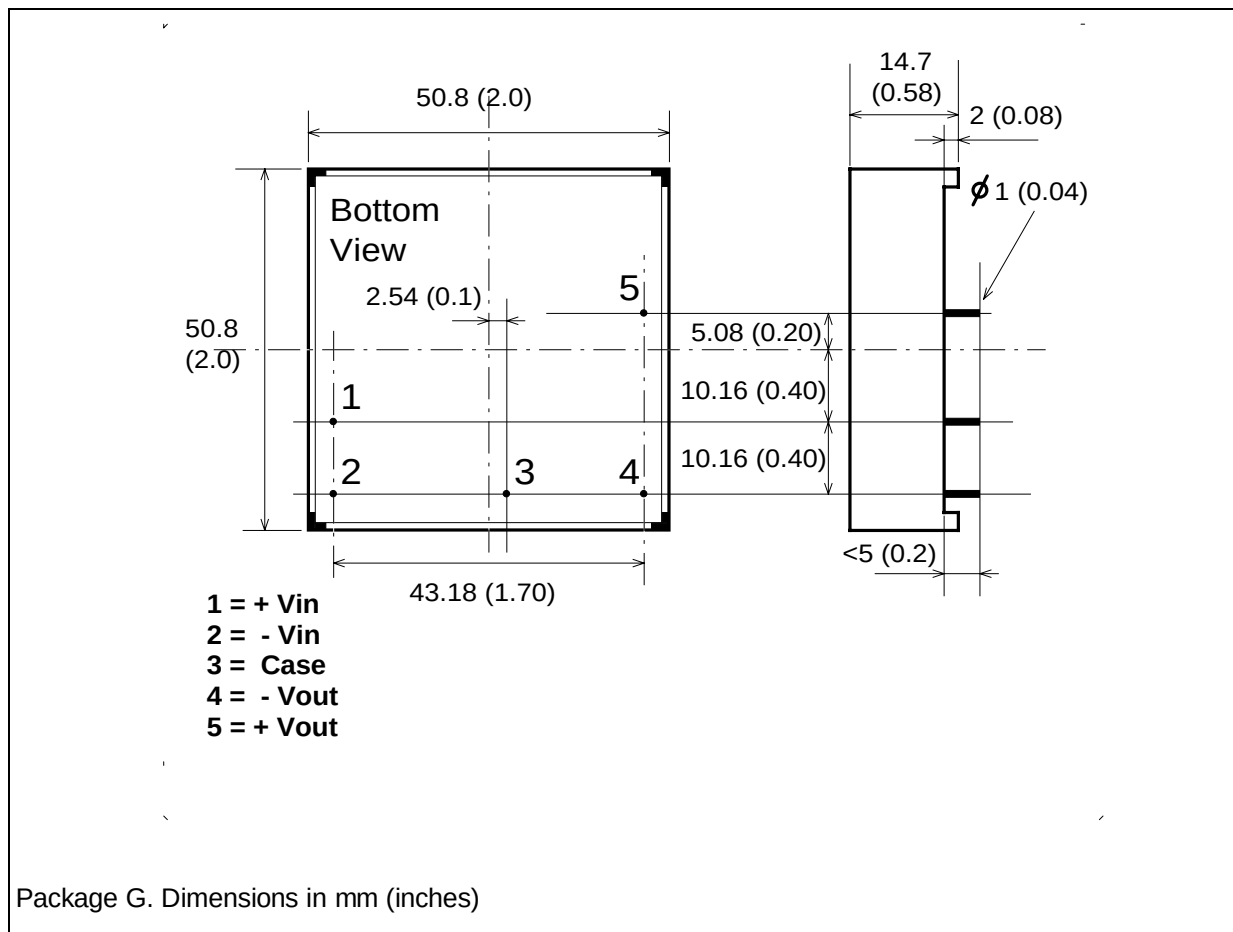
It offers short-circuit protection and input-output isolation of 750V_{DC} minimum. The integral heatsink allows a large power handling capability and it provides also an effective shielding to minimize EMI.



ELECTRICAL CHARACTERISTICS (T_{amb.} = 25° C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _i	Input Voltage	V _o = 5.2V I _o = 0.0 to 3.0A	4.75	5.0	5.35	V
I _{ir}	Input Reflected Current	V _i = 5.0V V _o = 5.2V I _o = 3.0A		40	50	mApp
I _{iq}	Input Quiescent Current	V _i = 5.0V V _o = 5.2V I _o = 0.0A		87	95	mA
V _o	Output Voltage	V _i = 4.75 to 5.25V I _o = 0.0 to 3.0A	5.04	5.2	5.36	V
I _o	Output Current	V _i = 4.75 to 5.25V	0.0		3.0	A
δV _{OL}	Line Regulation	V _i = 4.75 to 5.25V I _o = 3.0A		1	10	mV
δV _{OO}	Load Regulation	V _i = 5.0V I _o = 0.0 to 3.0A		10	15	mV
V _{or}	Output Ripple Voltage	V _i = 5.0V I _o = 3.0A		20	30	mVpp
V _{or}	Output Ripple Voltage	V _i = 5.0V I _o = 3.0A		8		mV _{RMS}
I _{osc}	Output Short-circuit Current	V _i = 5.0V			4.75	A
V _{is}	Isolation Voltage		750			V _{DC}
f _s	Switching Frequency	V _i = 4.75 to 5.25V I _o = 0.0 to 3.0A		100		kHz
η	Efficiency	V _i = 5.0V I _o = 3.0A	77	79		%
R _{thc}	Thermal Resistance Case to Ambient	T _{amb.} = 25°C V _i = 5.0V I _o = 3.0A		8		°C/W
T _c	Maximum Case Temperature				90	°C
T _{stg}	Storage Temperature Range		- 40		+105	°C

CONNECTION DIAGRAM AND MECHANICAL DATA



USER NOTES

Thermal Characteristics

Worst case power dissipation at full load is less than 5W.

To operate the device at an ambient temperature of 60 °C the thermal resistance case-to-ambient must be lower than 6.5 °C/W.

This can be accomplished by adding an external heatsink or by forced ventilation with air speed of about 100 linear feet/minute.

MTBF Calculations

The MTBF according to MIL HDBK-217E calculation for a ground benign environment is:

- 216k hours for a case temperature of 91 °C.
- 379k hours for a case temperature of 60 °C.

This last condition can be obtained at $T_{amb} = 40$ °C and forced ventilation of 100 feet/minute.

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