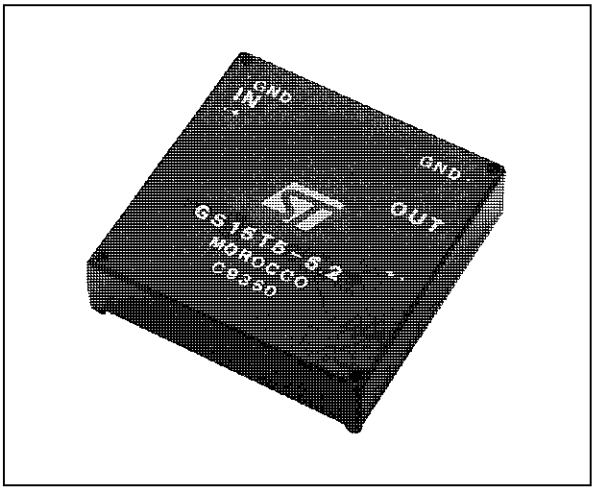
SGS-THOMSON MICROELECTRONICS

GS15T5-5.2

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.

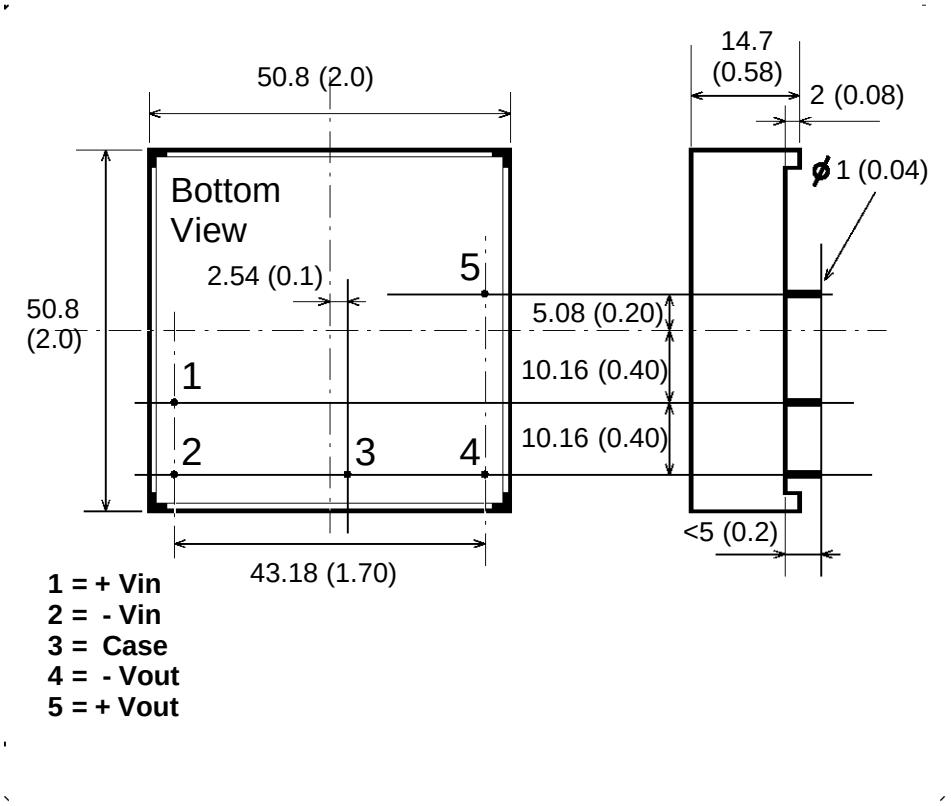
The device can operate with an output current in the range of 0.0 to 3.0A without any intermittent operation (packet switching).

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



Package G. Dimensions in mm (inches)

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.