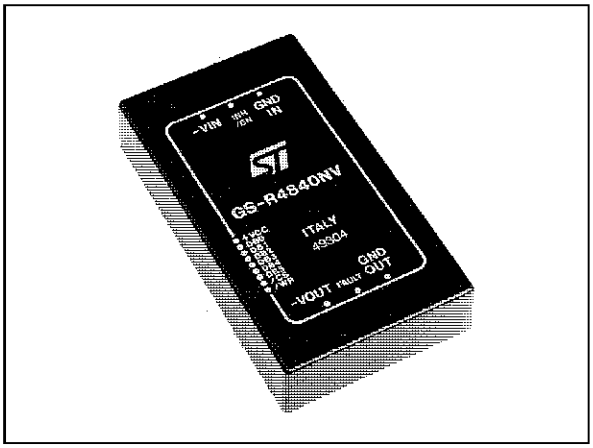
SGS-THOMSON MICROELECTRONICS

GS-R4840NV

36 W NEGATIVE SWITCHING REGULATOR

Type	V_{in}	V_{out}	I_{out}
GS-R4840NV	-40 to -60 V	-22 to -60 V	-600 mA



FEATURES

- Digital input for voltage selection
- Short-circuit protection
- Overvoltage protection
- Thermal protection
- Softstart
- Fault signal indication output
- High efficiency (>80%)

DESCRIPTION

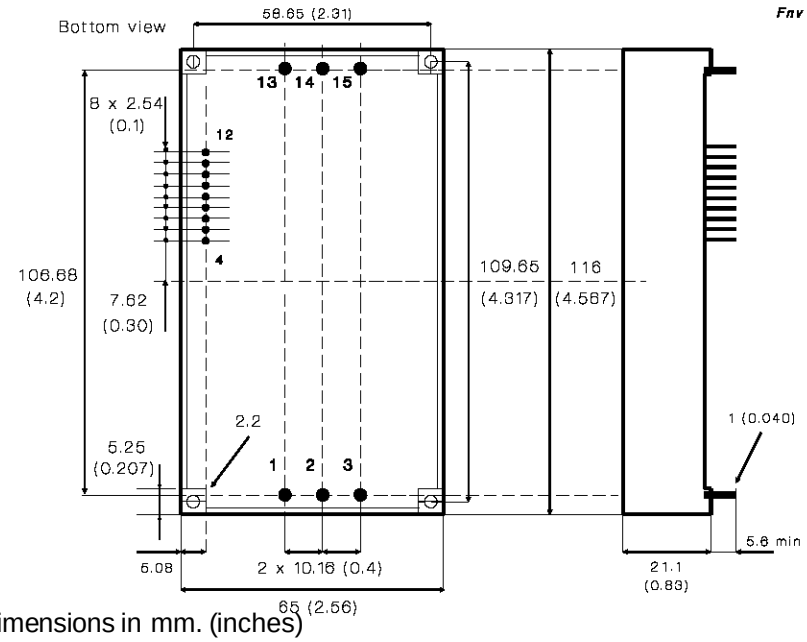
The GS-R4840NV is a negative input, negative output switching voltage regulator that provides up to 36W output power without input-output isolation.

The output voltage is programmable by input logic signals that allow 64 steps (6 bit) of regulated output, from -22 to -60V.

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_i	Input Voltage	V_O = -22 to -60V I_O = -10 to -600mA	-40	-48	-60	V
V_{ir}	Input Ripple Voltage	V_i = -40 to -60V I_O = -600mA			20	mVpp
V_O	Output Voltage	V_i = -40 to -60V I_O = -10 to -600mA	-22		-60	V
V_{or}	Output Ripple Voltage	V_O = -22 to -60V I_O = -600mA		4	10	mVpp
V_{oov}	Output Overvoltage Protection	V_i = -40 to -60V I_O = -10 to -600mA	Vo+5%		Vo+10%	V
I_O	Output Current	V_i = -40 to -60V V_O = -22 to -60V	-10		-600	mA
I_{ol}	Current Limit	V_i = -40 to -60V Overload Condition			-900	mA
I_{osc}	Output Average Short Circ. Current	V_i = -40 to -60V			-80	mA
f_S	Switching Frequency			100		kHz
η	Efficiency	V_i = -48V I_O = -600mA V_O = -48V	80	82		%
R_{th}	Thermal Resistance	Case to Ambient		4		°C/W
T_{cop}	Operating Case Temperature Range		0		+85	°C
T_{stg}	Storage Temperature Range		-20		+105	°C

CONNECTION DIAGRAM AND MECHANICAL DATA



Package F. Dimensions in mm. (inches)

PIN DESCRIPTION

Pin	Function	Description
1	-Vin	Negative input voltage.
2	Inhibit/ $\overline{\text{Enable}}$	Remote Inhibit/Enable logically compatible with CMOS or open collector TTL. The converter is OFF (Inhibit) when this pin is unconnected or the voltage applied is in the range of 2 to 5V (referred to GND). The converter is ON (Enable) for a control voltage in the range of 0 to 0.8V maximum.
3	GND IN	Return for input voltage source and +5V logic supply voltage. Internally connected to pin 15.
4	+5V IN	+5V logic supply voltage. Maximum voltage must not exceed 7V.
5	DB0	Data bit 0 (LSB).
6	DB1	Data bit 1.
7	DB2	Data bit 2.
8	DB3	Data bit 3.
9	DB4	Data bit 4.
10	DB5	Data bit 5 (MSB).
11	$\overline{\text{CS}}$	Chip select. An active low input control which is the device enable input terminal.
12	$\overline{\text{WR}}$	Write control. An active low control which enables the microprocessor to write data to the DAC.
13	-Vout	Negative output voltage.
14	FAULT	FAULT indication output (referred to GND). The FAULT signal is high (TTL compatible level) when: - the INHIBIT is ON (high) - an output overload is present (Vo < 18V typ.) - an overtemperature is present - an overvoltage is present (Vo > Vo+5%)
15	GND OUT	Return for output voltage source. Internally connected to pin 3.

Note: Case internally connected to Ground.

USER NOTES

Digital Information

The GS-R4840NV accepts 6 bit binary at the data inputs DB0 to DB5. Data are transferred when CS is low and during the rising edge of WR signal.

t_{DS} and t_{DH} have to be 100ns and 50ns minimum respectively (see fig. 1).

Figure 1 - Signals Timing.