

## 36 W NEGATIVE SWITCHING REGULATOR

Type	V <sub>in</sub>	V <sub>out</sub>	I <sub>out</sub>
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

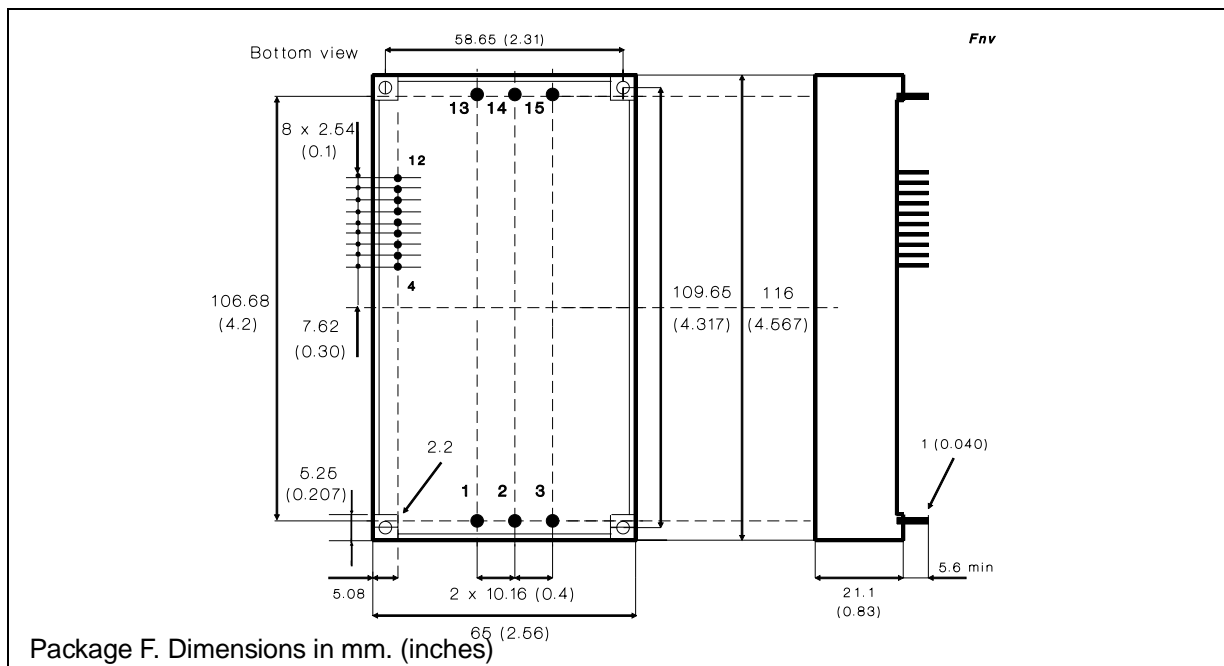
The GS-R4840NV is a negative input, negative output switching voltage regulator that provides up to 36W output power without input-output isolation.

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<sub>amb</sub> = 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 $-600mA$	$V_O+5\%$		$V_O+10\%$	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
$\eta$	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



## PIN DESCRIPTION

Pin	Function	Description
1	-Vin	Negative input voltage.
2	Inhibit/ 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	$\overline{CS}$	Chip select. An active low input control which is the device enable input terminal.
12	$\overline{WR}$	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: <ul style="list-style-type: none"> <li>- the INHIBIT is ON (high)</li> <li>- an output overload is present (<math>V_o &lt; 18V</math> typ.)</li> <li>- an overtemperature is present</li> <li>- an overvoltage is present (<math>V_o &gt; V_o + 5\%</math>)</li> </ul>
15	GND OUT	Return for output voltage source. Internally connected to pin 3.

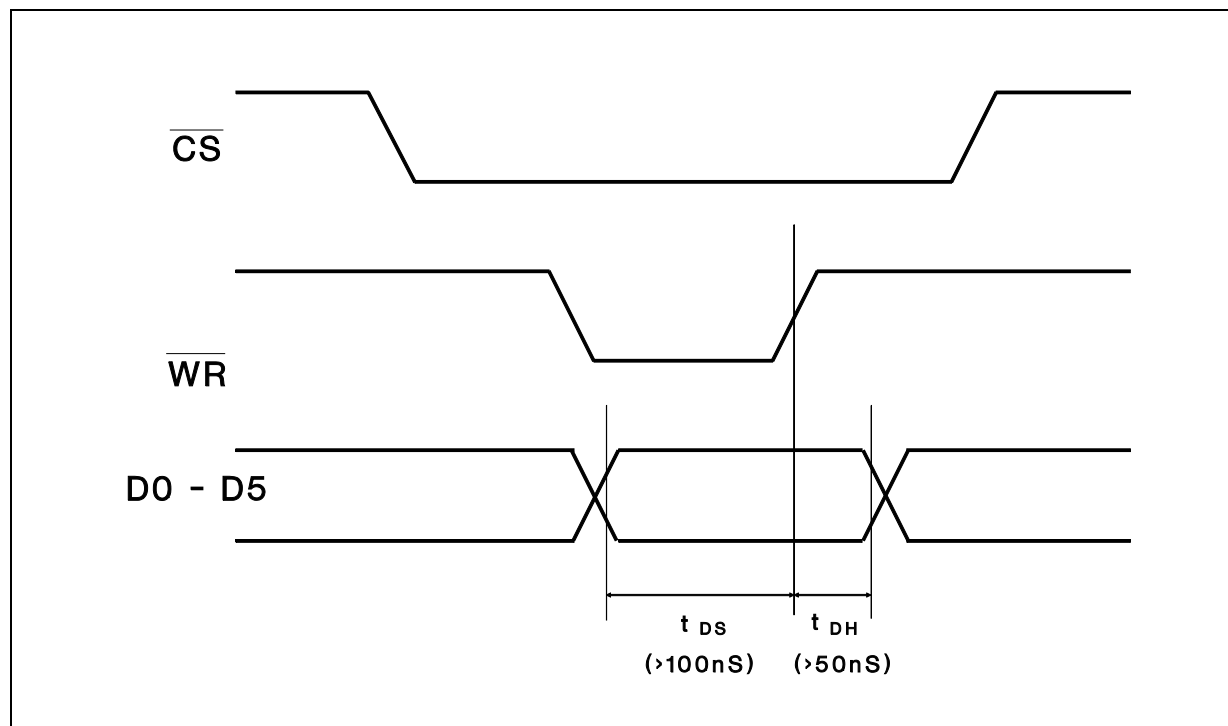
Note: Case internally connected to Ground.

**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.**



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