HIP5600EVAL1

High Voltage DC to DC Evaluation Board for HIP5600

June 1994

Features

- **Operates from 50VDC to 400VDC**
- **Output Voltage Adjustable (Preset to 15VDC)**
- **Output Current to 10mA at 400VDC Input**
- **HIP5600IS UL Recognized**
- **Adjustable DC Output Voltage 1.2VDC to V_{IN} - 50V**
- **Internal Thermal Shutdown Protection**
- **Internal Over Current Protection**
- **Fused to Protect Board when Improperly Connected**

Applications

- **Switch Mode Power Supply Start-Up**
- **Electronically Commutated Motor Housekeeping Supply**
- **Power Supply for Simple Industrial/Commercial/ Consumer Equipment Controls**
- **Battery Bank Voltage Conversion**

CAUTION: This product does not provide isolation from AC line.

Ordering Information

PART NUMBER	TEMPERATURE RANGE
HIP5600EVAL1	-40°C to +100°C

Description

The HIP5600IS used on the evaluation board is an adjustable 3-terminal positive linear voltage regulator capable of operating up to 400VDC. The Evaluation Board output voltage is adjustable from 1.2VDC to within 50V of the input voltage with two external resistors, RF1 and RF2. The Eval1 Board is configured to provide 15VDC output from a high voltage DC input (such as rectified AC). A zener diode can be used to replace RF2 if improved accuracy is required. The HIP5600 high voltage linear regulator is capable of sourcing 1mA to 10mA. For short periods of time, it can also provide 40mA peak (typical).

Protection within the HIP5600 is provided by the on chip thermal shutdown and output current limiting circuitry. The HIP5600 has a unique advantage over other high voltage linear regulators due to its ability to withstand input to output voltages as high as 400V(peak), a condition that could exist under output short circuit conditions.

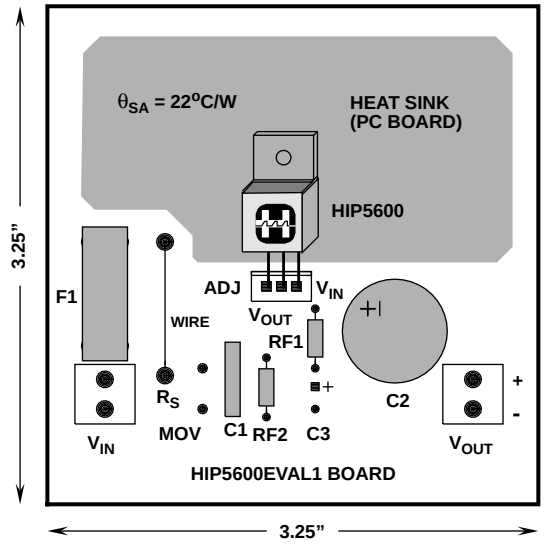
The HIP5600 Electrical specifications are found in Datasheet File Number 3270, immediately available via AnswerFAX (407) 724-3818.

All protection circuitry remains fully functional even if the adjustment terminal is disconnected. However, if this happens the output voltage will approach the input voltage.

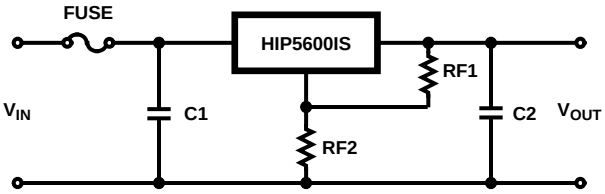
For applications requiring AC input operation, HIP5600EVAL2 and HIP5600EVAL3 evaluation boards are available.

All HIP5600 Evaluation Boards can be reconfigured to operate with DC (50VDC to 400VDC) or AC ($80V_{RMS}$ to $280V_{RMS}$) input voltages. See the appropriate datasheet parts list for component configuration and usage.

Board Layout



Schematic Diagram



CAUTION: These devices are sensitive to electrostatic discharge. Users should follow proper I.C. Handling Procedures.

File Number **3747**

Evaluation Boards

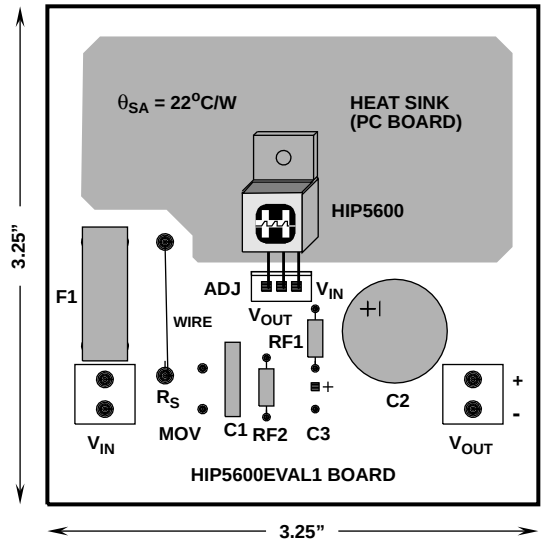


FIGURE 1. EVALUATION BOARD (TOP)

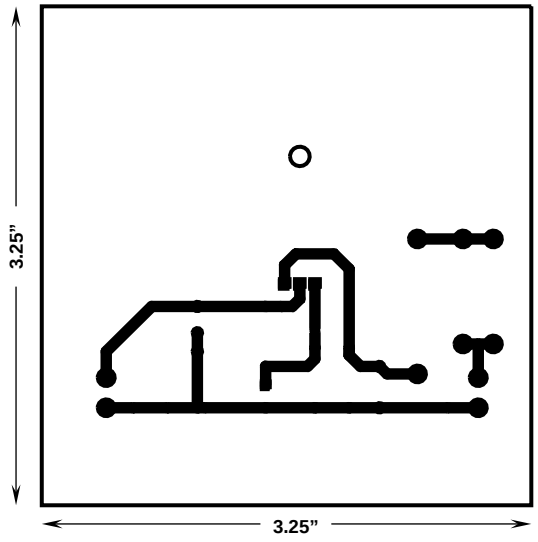


FIGURE 2. EVALUATION BOARD METAL MASK (BOTTOM)

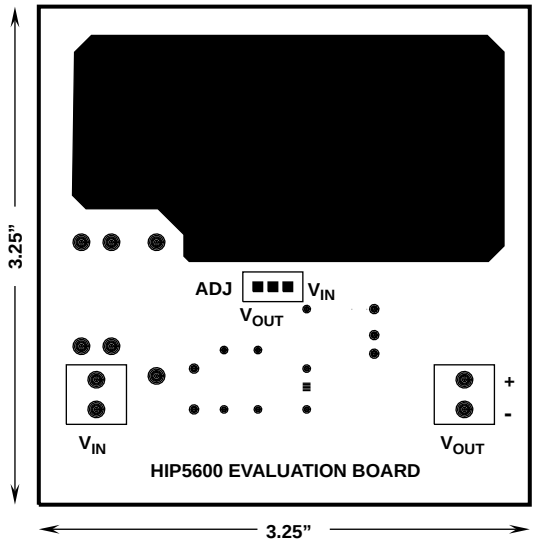


FIGURE 3. EVALUATION BOARD METAL MASK (TOP)

PARTS LIST

SYMBOL	DESCRIPTION
F1	Fuse
Wire	Jumper across R_S holes.
C1	Input decoupling capacitor. Required if the power source impedance is not sufficiently low for the 1MHz - 10MHz band.
RF1 and RF2	Used to set the output voltage $V_{OUT} = (V_{REF})\frac{RF1 + RF2}{RF1} + I_{ADJ}(RF2)$
C2	10µF capacitor required for stability of the output.
OPTIONAL PARTS	
C3	Improves ripple rejection by preventing the ripple from being amplified.
Z1	Could replace RF_2: $V_{OUT} = V_{REF} + V_Z$

PARTS SOURCES

DESCRIPTION	PART NUMBER	SOURCE
3 Term Reg.	HIP5600IS	Harris
Fuse Clip	46F1532	Newark
Mini Fuse	87F5338	Digikey
Rubber Feet	SJ-5508-1	Digikey
Terminal 2 Lug	89F1495	Newark
C1 = 0.02µF, 600V	9960001-00136	Digikey
C2 = 10µF, 50V	P937	Digikey
RF1 = 1.1k, 1/4W	10F305-1100	Newark
RF2 = 12k, 1/4W	10f305-12k	Newark