

The HVIC high voltage integrated circuit is designed to drive n-channel IGBTs or MOSFETs in a half-bridge configuration up to 500V_{DC}. Power supply and motor control inverters can be configured for voltages up to 230V_{AC} using the HVIC, IGBTs and a few other components.

A few precautions should be taken in using the circuit. Lead lengths between the external power circuit (including gate and pilot leads), the 15V bypass capacitor (C_{DD}), the bootstrap diode (D_F) and capacitor (C_F) and the HVIC should be minimized.

The basic components required to evaluate the features of the SP601 are shown in the simplified schematic. The recommended load is largely resistive so that the largest current component will flow through the IGBTs, IGT1 and IGT2.

The flyback diodes, D1 and D2, rated 8A, will carry a much smaller flyback current component. A small amount of load

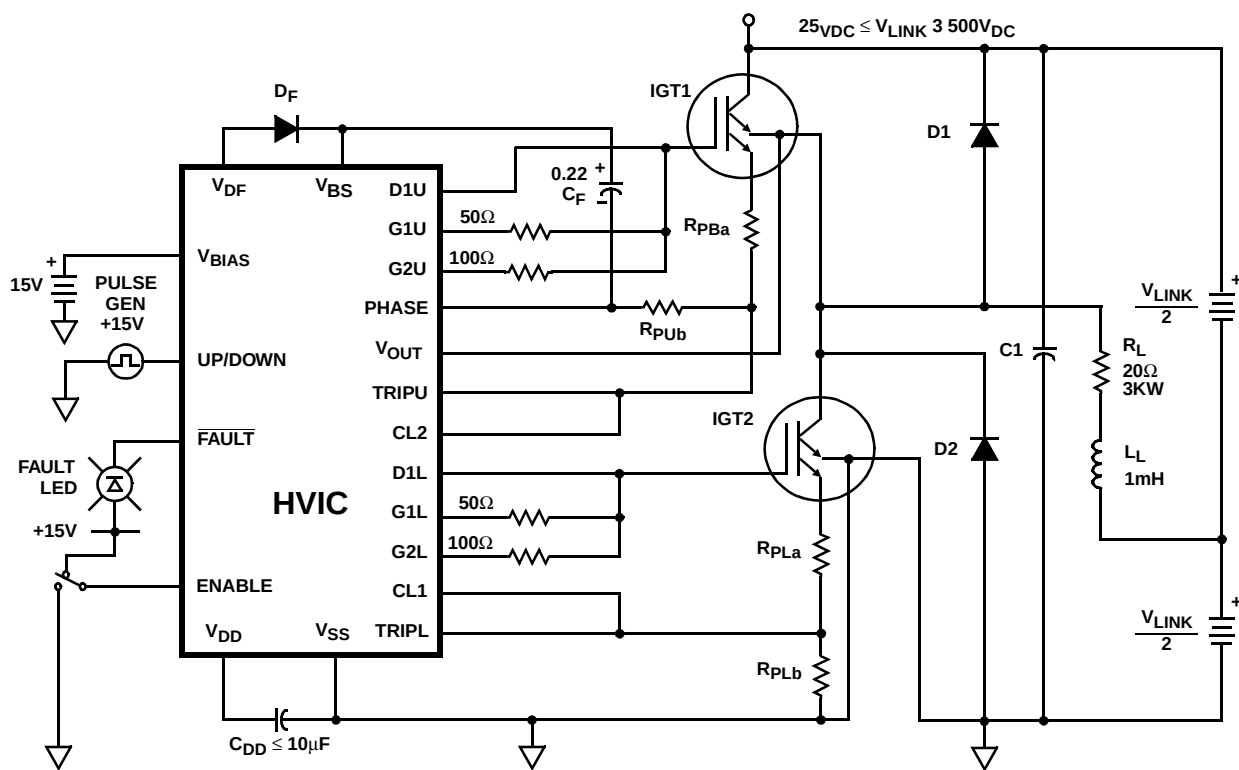
inductance will cause the switching waveforms to simulate the conditions which would normally be observed with motor or transformer loads, while limiting the current carried by the lower rated flyback diodes in this circuit.

The values for R_{PUa}, R_{PUb}, etc., have been chosen to result in overcurrent trip at approximately 25Apk. At this level of current, heat sinking for the IGTs and flyback diodes is required. The series resistance of the upper and lower pilot resistor dividers would be approximately 1KΩ; the divider ratio should cause 0.1V at the tap at the desired trip current.

When first energizing your evaluation circuit, begin with a reduced bus voltage of about 20V_{DC} to 30V_{DC} to verify proper circuit operation before proceeding to higher voltages.

More specific information can be found in File Number 2428 and File Number 2429 Half-Bridge 500V_{DC} Driver data sheets and in the Application Note, AN-8829.1.

Simplified Schematic



HVIC - Fairchild Part # SP601 (Formerly GS601)

IGT1, 2 - Fairchild Part # HGTA24N60D1C

D1, 2 - Fairchild Part # RUR860

D_F - Fairchild Part # A114M

R_{PUa}, R_{PLa} - 910Ω, 1.8W

R_{PUb}, R_{PLb} - 68Ω, 1.8W

C1 - 0.1μF, 600V_{DC}

R_L - 20Ω, 3KW 13 -50

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