POWER FOR CONTROL BOARD **BUCK CONVERTER(+15V)** C6007 PHOTO COUPLER(GATE SIGNAL) : DSP TO IPM : Isolate ground plane of control board from ground plane of inverter and power PACC INV 15V VCC_CTRL_BR0.3V3.1 SCIB_RX.2 GPI032/SCIB_RX SCIB_TX.3 GPI019/SCIB_TX A GPI018 SVF0.3Y) GPI067 GPI067 € (ND + | | SPIA_CS/GPI061 134 SD1_CLK1/GPI0123 134 SD1_D1/GPI0122 134 RST 134 SMAZ22-TP VF0_3V 5 SPIA_SINO/GPI05 SPIA_SOMI/GPI05 SD1_D2/GPI012 SD1_CLK2/GPI012 #U 7 GPI051/ HU 7 GPI050/SPIA_CLK HV 8 GPI022 HW 9 GPI0105/I2CA_SCL AD GPI0104/I2CA_SDL VR 100 VCC_INV_15W PHOTO COUPLER(VFO) : IPM TO DSP SPIB_CS/GPI066 62 SD2_CLK1/GPI0131 53 SD2_D1/GPI0130 53 RST 55 66 R20 100 GND_PWR #25/2KV 1000 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1 C42 100uF/100V D3 C43 100nF SMAZ22-TP SD2_D2/GPI026 SD2_CLK2/GPI027 0.88 (VFO_5V) 5 PWM4A/GPI06 PWM4B/GPI07 PWM5A/CPI08 PWM5B/GPI09 PWM6B/GPI010 PWM6B/GPI011 OPXBAR3/GPI014 OPXBAR4/GPI015 DACK VCC_CTRL_BRD_5V A GND_PWR **CURRENT SENSOR & VFO** HALL SENSOR & THROTTLE CONNECTOR Vout S C GND CTRL BRD VDD VCC_CTRL_BRD_3V3_1 VCC_SENSOR 2 VCC_CTRL_BRD_5V_3 GND_CTRL_BRD PORTS FOR EXTERNAL CONTROL BOARD GND_CTRL BRD Vout GND 2 GND CTRL BRD VDD W 1 0 18

GND_CTRL_BRD

1 0 19 SW

CTRL_UVW_PULLUP

lout <= 5A Yout = 15V (=VDD_GATE_DRIVER) Designed using TI's WEBENCH Powe

determines Vout(=VDD_GATE_DRIVER)
RHS = RLS × (Vout - 0.8)/0.8 RHS=215k, RLS = 12.1k for Vout=15V

RELAY SWITCH FOR IPM

MOTOR OUTPUT PORT(UVW)