

LAMPIRAN

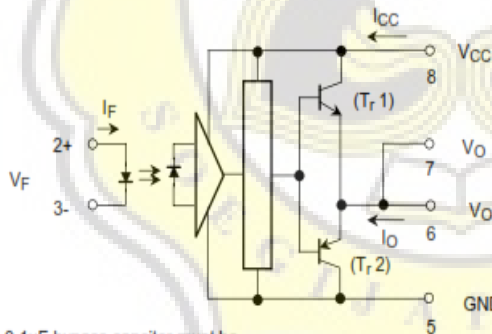
1. Lampiran Data Sheet IC *TLP250*

Transistor Inverter
 Inverter For Air Conditionor
 IGBT Gate Drive
 Power MOS FET Gate Drive

The TOSHIBA TLP250 consists of a GaAlAs light emitting diode and a integrated photodetector.
 This unit is 8-lead DIP package.
 TLP250 is suitable for gate driving circuit of IGBT or power MOS FET.

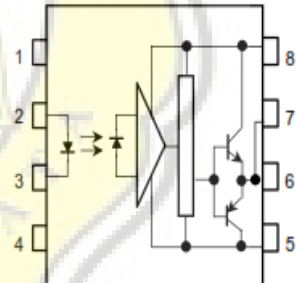
- Input threshold current: $I_F=5\text{mA}(\text{max.})$
- Supply current (I_{CC}): $11\text{mA}(\text{max.})$
- Supply voltage (V_{CC}): $10\text{--}35\text{V}$
- Output current (I_O): $\pm 1.5\text{A}(\text{max.})$
- Switching time (t_{pLH}/t_{pHL}): $1.5\mu\text{s}(\text{max.})$
- Isolation voltage: $2500V_{\text{rms}}(\text{min.})$
- UL recognized: UL1577, file No.E67349
- Option (D4) type

Schematic



A $0.1\mu\text{F}$ bypass capacitor must be connected between pin 8 and 5 (See Note 5).

Pin Configuration (top view)



- 1 : N.C.
- 2 : Anode
- 3 : Cathode
- 4 : N.C.
- 5 : GND
- 6 : V_O (Output)
- 7 : V_O
- 8 : V_{CC}

Truth Table

		Tr1	Tr2
Input LED	On	On	Off
	Off	Off	On

2. Lampiran Data Sheet dsPIC30F2020

Analog Features:

ADC

- 10-bit resolution
- 2000 Ksps conversion rate
- Up to 12 input channels
- "Conversion pairing" allows simultaneous conversion of two inputs (i.e., current and voltage) with a single trigger
- PWM control loop:
 - Up to six conversion pairs available
 - Each conversion pair has up to four PWM and seven other selectable trigger sources
- Interrupt hardware supports up to 1M interrupts per second

COMPARATOR

- Four Analog Comparators:
 - 20 ns response time
 - 10-bit DAC reference generator
 - Programmable output polarity
 - Selectable input source
 - ADC sample and convert capable
- PWM module interface
 - PWM Duty Cycle Control
 - PWM Period Control
 - PWM Fault Detect
- Special Event Trigger
- PWM-generated ADC Trigger

Special Microcontroller Features:

- Enhanced Flash program memory:
 - 10,000 erase/write cycle (min.) for industrial temperature range, 100k (typical)
- Self-reprogrammable under software control
- Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Flexible Watchdog Timer (WDT) with on-chip low power RC oscillator for reliable operation
- Fail-Safe clock monitor operation
- Detects clock failure and switches to on-chip low power RC oscillator
- Programmable code protection
- In-Circuit Serial Programming™ (ICSP™)
- Selectable Power Management modes
 - Sleep, Idle and Alternate Clock modes

CMOS Technology:

- Low-power, high-speed Flash technology
- 3.3V and 5.0V operation ($\pm 10\%$)
- Industrial and Extended temperature ranges
- Low power consumption

28-Pin SDIP and SOIC

MCLR	1	28	AVDD
AN0/CMP1A/CN2/RB0	2	27	AVSS
AN1/CMP1B/CN3/RB1	3	26	PWM1L/RE0
AN2/CMP1C/CMP2A/CN4/RB2	4	25	PWM1H/RE1
AN3/CMP1D/CMP2B/CN5/RB3	5	24	PWM2L/RE2
AN4/CMP2C/CMP3A/CN6/RB4	6	23	PWM2H/RE3
AN5/CMP2D/CMP3B/CN7/RB5	7	22	PWM3L/RE4
VSS	8	21	PWM3H/RE5
AN6/CMP3C/CMP4A/OSC1/CLKI/RB6	9	20	VDD
AN7/CMP3D/CMP4B/OSC2/CLKO/RB7	10	19	VSS
PGD1/EMUD1/PWM4H/T2CK/U1ATX/CN1/RE7	11	18	PGC/EMUC/SDI1/SDA/U1RX/RF7
PGC1/EMUC1/EXTREF/PWM4L/T1CK/U1ARX/CN0/RE6	12	17	PGD/EMUD/SDO1/SCL/U1TX/RF8
VDD	13	16	SFLT2/INT0/OCFLTA/RA9
PGD2/EMUD2/SCK1/SFLT3/OC2/INT2/RF6	14	15	PGC2/EMUC2/OC1/SFLT1/IC1/INT1/RD0

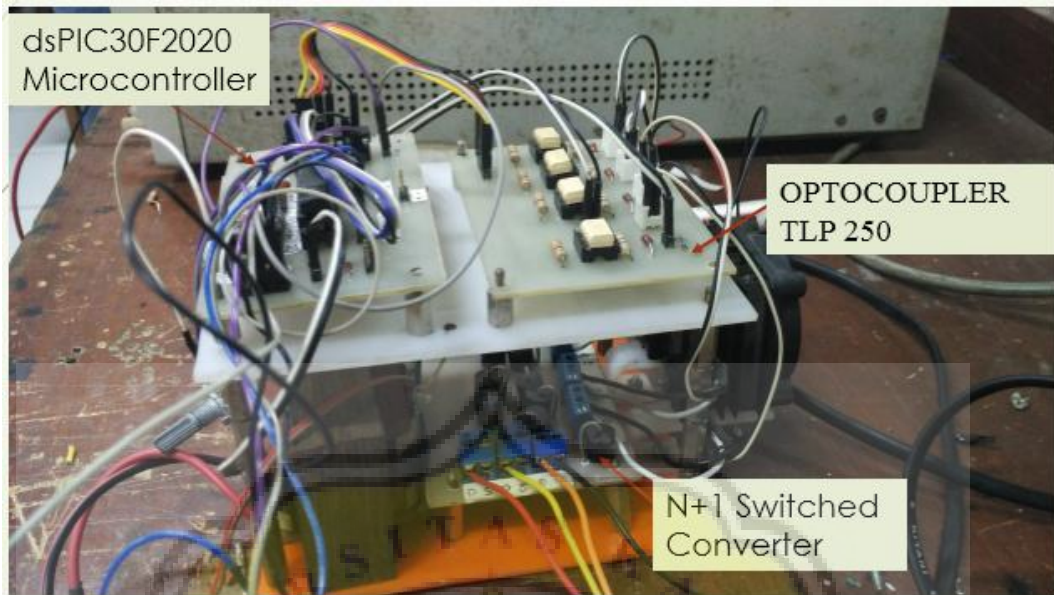
3. Lampiran Gambar



Gambar 1. Konstruksi Rotor 4 Kutub



Gambar 2. Konstruksi Stator 6 Kutub



Gambar 3. Rangkaian Dontrol dan Daya



Gambar 4. Motor tampak samping

4. Lampiran Sertifikat Mengikuti Seminar CITEE 2016 di Universitas Gajah Mada Yogyakarta



Gambar 5. Sertifikat Telah Mengikuti Seminar CITEE 2016