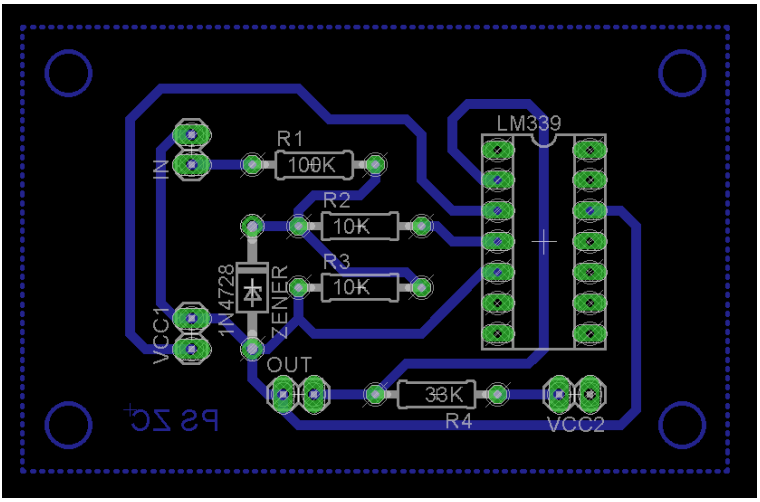
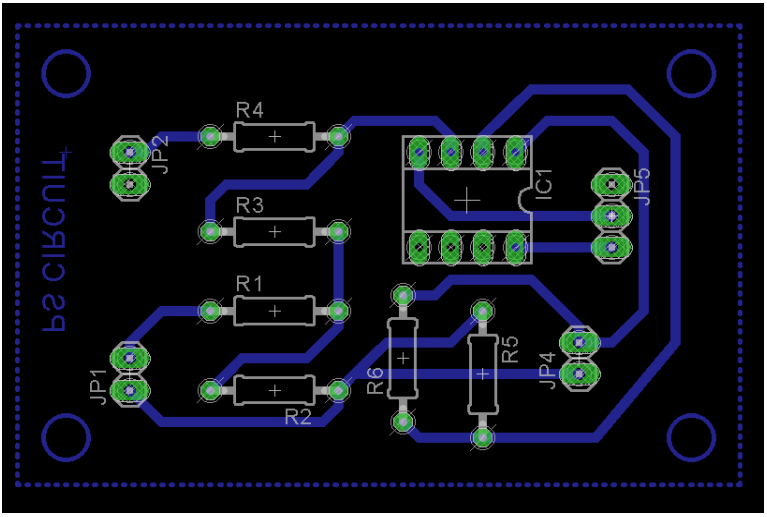
LAMPIRAN

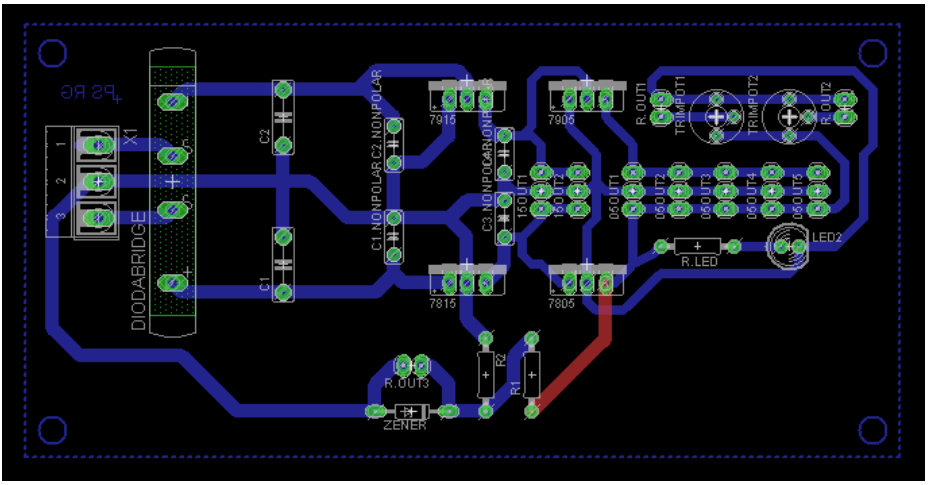
Gambar Lampiran A.1 *Board* dari Rangkaian Zero Crossing



Gambar Lampiran A.2 *Board* dari Rangkaian Offset



Gambar Lampiran A.3 Board dari Rangkaian Power Supply



Gambar Lampiran B.1 *Datasheet* IC LM339

LM139,A
LM239,A - LM339,A

LOW POWER QUAD VOLTAGE COMPARATORS

- WIDE SINGLE SUPPLY VOLTAGE RANGE OR DUAL SUPPLIES FOR ALL DEVICES : +2V TO +36V OR ±1V TO ±18V
- VERY LOW SUPPLY CURRENT (1.1mA) INDEPENDENT OF SUPPLY VOLTAGE (1.4mW/comparator at +5V)
- LOW INPUT BIAS CURRENT : 25nA TYP
- LOW INPUT OFFSET CURRENT : ±5nA TYP
- LOW INPUT OFFSET VOLTAGE : ±1mV TYP
- INPUT COMMON-MODE VOLTAGE RANGE INCLUDES GROUND
- LOW OUTPUT SATURATION VOLTAGE : 250mV TYP; (Io = 4mA)
- DIFFERENTIAL INPUT VOLTAGE RANGE EQUAL TO THE SUPPLY VOLTAGE
- TTL, DTL, ECL, MOS, CMOS COMPATIBLE OUTPUTS

N
DIP14
(Plastic Package)

D
SO14
(Plastic Micropackage)

P
TSSOP14
(Thin Shrink Small Outline Package)

DESCRIPTION

These devices consist of four independent precision voltage comparators with an offset voltage specifications as low as 2mV max for LM339A, LM239A and LM139A. All these comparators were designed specifically to operate from a single power supply aver a wide range of voltages. Operation from split power supplies is also possible.

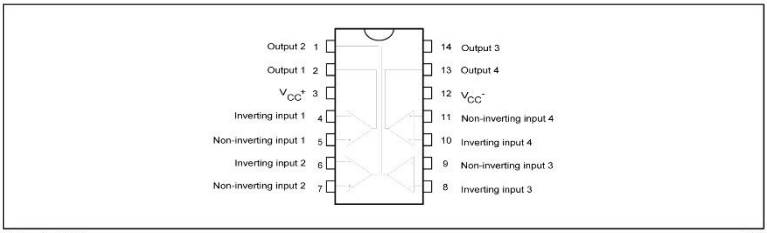
These comparators also have a unique characteristic in that the input common-mode voltage range includes ground even though operated from a single power supply voltage.

ORDER CODE

Part Number	Temperature Range	Package		
		N	D	P
LM139,A	-55°C, +125°C	•	•	•
LM239,A	-40°C, +105°C	•	•	•
LM339,A	0°C, +70°C	•	•	•
Example : LM139AN				

N = Dual in Line Package (DIP)
D = Small Outline Package (SO) - also available in Tape & Reel (DT)
P = Thin Shrink Small Outline Package (TSSOP) - only available in Tape &Reel (PT)

PIN CONNECTIONS (top view)



Gambar Lampiran B.2 *Datasheet* IC LM358N

LM158-LM258-LM358
LM158A-LM258A-LM358A

Low Power Dual Operational Amplifiers

- Internally frequency compensated
- Large DC voltage gain: 100dB
- Wide bandwidth (unity gain): 1.1mHz (temperature compensated)
- Very low supply current/op (500µA) essentially independent of supply voltage
- Low input bias current: 20nA (temperature compensated)
- Low input offset voltage: 2mV
- Low input offset current: 2nA
- Input common-mode voltage range includes ground
- Differential input voltage range equal to the power supply voltage
- Large output voltage swing 0V to (Vcc - 1.5V)

N
DIP-8
(Plastic Package)

D & S
SO-8 & miniSO-8
(Plastic Micropackage)

P
TSSOP8
(Thin Shrink Small Outline Package)

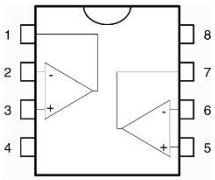
Description

These circuits consist of two independent, high-gain, internally frequency-compensated which were designed specifically to operate from a single power supply over a wide range of voltages. The low power supply drain is independent of the magnitude of the power supply voltage.

Application areas include transducer amplifiers, DC gain blocks and all the conventional op-amp circuits which now can be more easily implemented in single power supply systems. For example, these circuits can be directly supplied with the standard +5V which is used in logic systems and will easily provide the required interface electronics without requiring any additional power supply.

In the linear mode the input common-mode voltage range includes ground and the output voltage can also swing to ground, even though operated from only a single power supply voltage.

Pin Connections (top view)



1 - Output 1
2 - Inverting input
3 - Non-inverting input
4 - V_{CC}^-
5 - Non-inverting input 2
6 - Inverting input 2
7 - Output 2
8 - V_{CC}^+