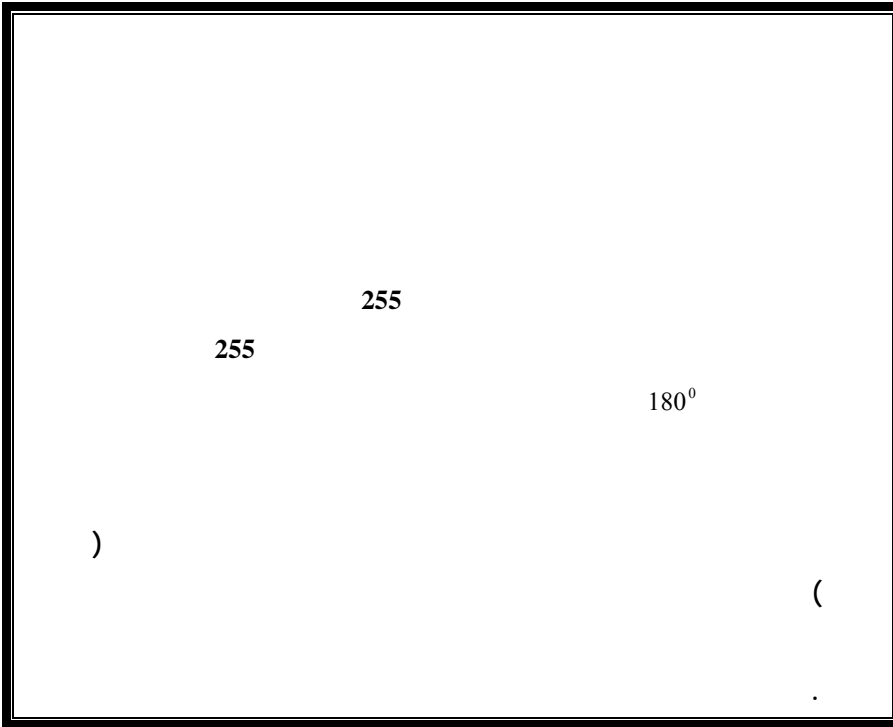


2

1

3



. - . - . 1
. - . - . 2
. - . - . 3

15

256

)

()

(

-

-

:

.

-

-

: -I

Analogue

)

(

()

()



: : -II
 : - 1 -II
 : -1
 : -2
 [1]
 (...)

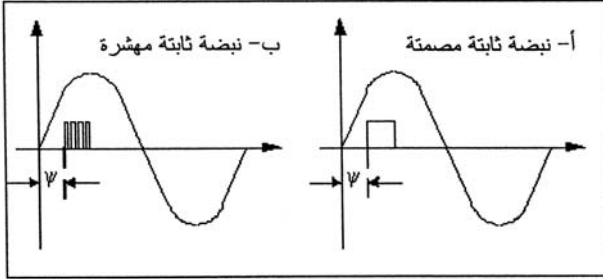
.[1] ()
 : -3

[4]
 (1 ÷ 5)

- 2 - II

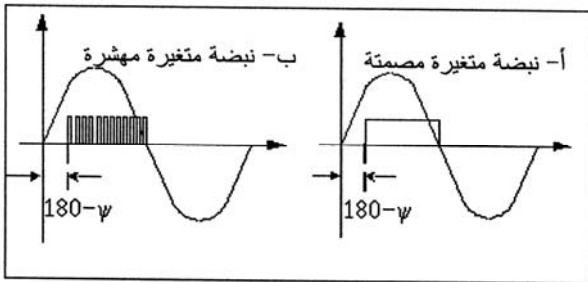
60
()

(1)



(1)

ψ
(180- ψ)
(2) ()



(2)

ψ

: : :

$$\frac{T}{q}$$

Th_1

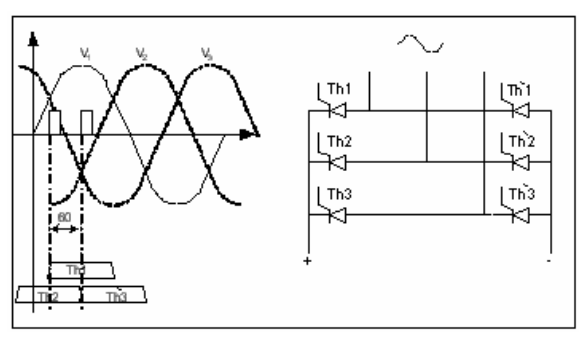
Th'_3

Th'_2

60°

Th'_2

.(3)



(3)

Th_1

Th_1

$Th3'$

60°

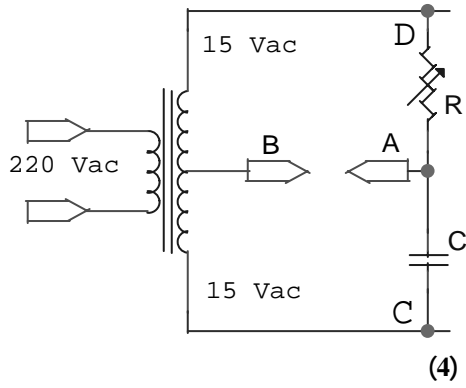
-III

-1 -III

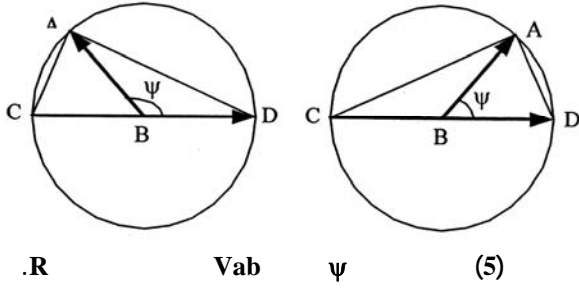
:

:

.(4)



R A
180 0 B A
 ψ (5)



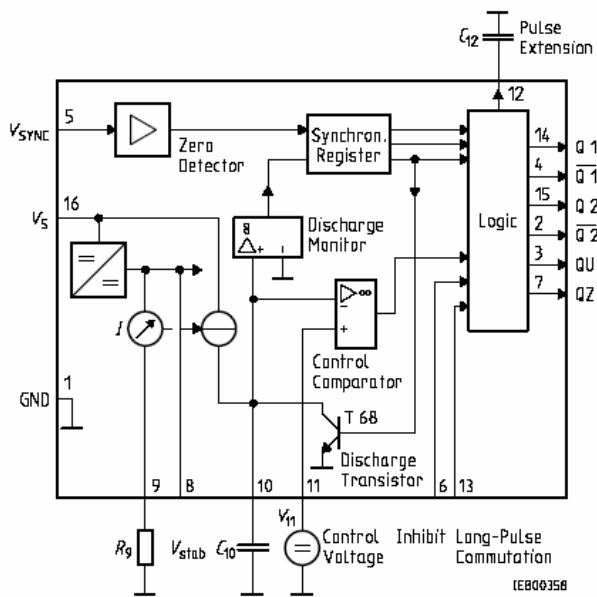
:
:

-2 -III

: [3] TCA785

(6)

: TCA785



TCA-785 (6)

V5

V10

10V

(6)

C10

R9

V11

.180°

10V

: (7)

)

:

-

(

) Q₂

(

V14 () Q_1 V15
. (180 - ψ) 12

) \bar{Q}_2 () : -
) \bar{Q}_1 V2 (

13 V4 (. ψ . (180 - ψ)

:

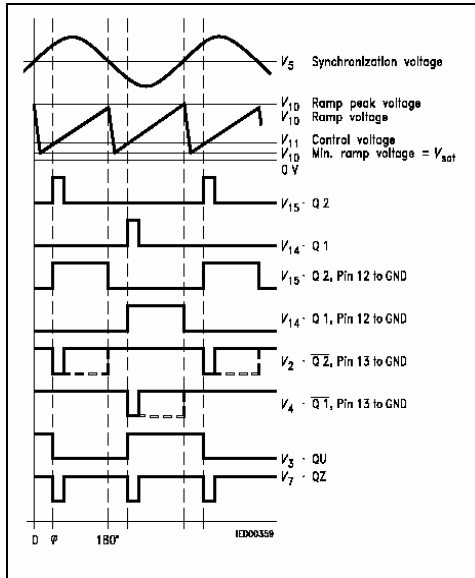
ψ QU -

.V3

\bar{Q}_1 \bar{Q}_2 QZ -

6 .V7

.



TCA-785

(7)

: [5]

- 3 - III

: UAA145

Pin16

Pin9

(10V

) Pin7

C

R

(8)

Pin14

:

-

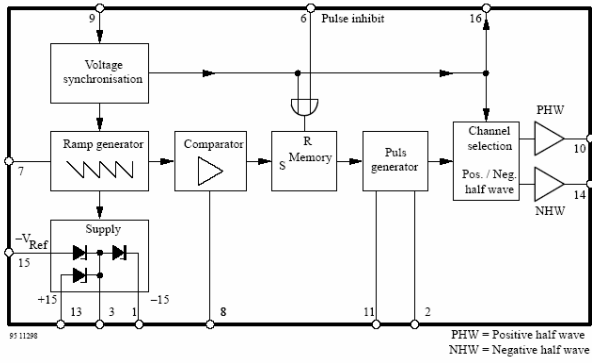
Pin10

Ct

.2,11

Rt

Pin 16 -

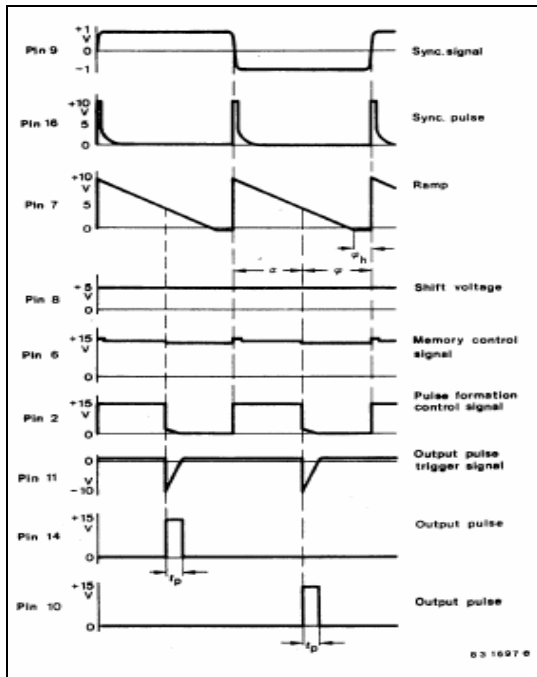


UAA- 145

(8)

Pin6

(9)



UAA- 145

(9)

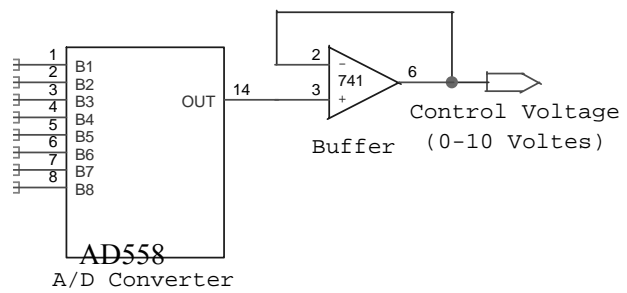
: : -IV
 : -1-IV

(0-10)

) (Digital to Analoge Converter)
 (

Buffer

.(10)



(10)

: -2-IV

:(11)

(50Hz)

() 255
25600 10 m.s

.51.2 KHz

B

255 0

180 0

255

A

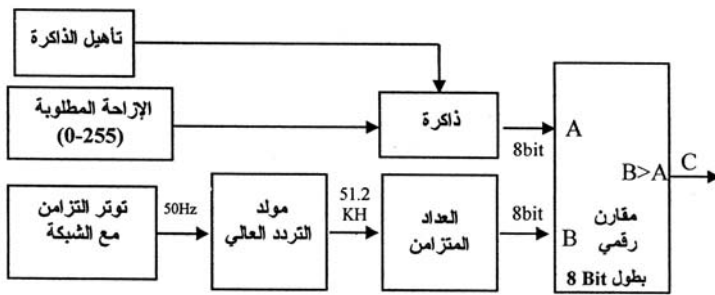
B

(11)

C

25.6KHz

NAND



(11)

High Frequency Generator : -V
 : -1

51.2 KHz

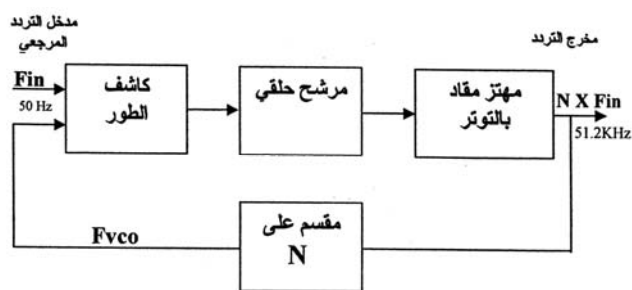
Phase Locked Loop (PLL)

.(50Hz) Fin (12)

) Fin
 (Fin ≠ Fvco) Fvco (N

Fin

Fin



PLL - (12)

LM565

PLL

.(13)

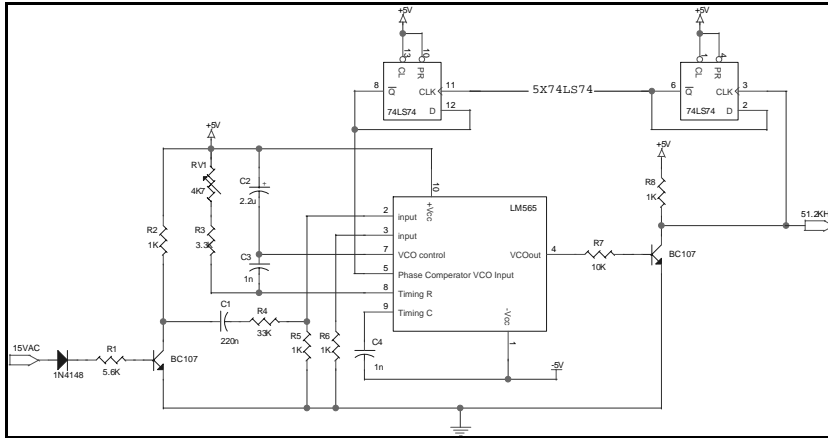
15Vac

51.2KHz

Fin

50Hz

51.2KHz



51.2 KHz

(13)

:Synchronised Counter

:

-2

74LS161

51.2KHz

(C₀ → C₇)

255

.(14)

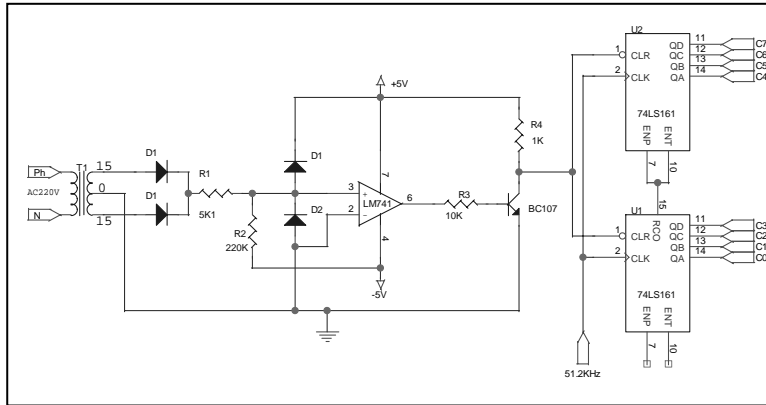
T.T.L.

LM741

(50Hz)

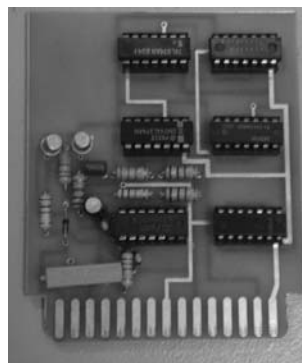
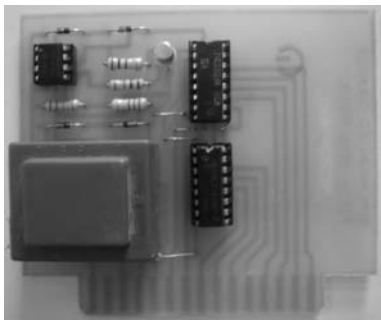
.BC107

. 220/2 x15 V



(14)

(15)



(15)

Comparator And Output Pulses:

: -3

()

180° 0° 255 0

E1,E2

74LS75

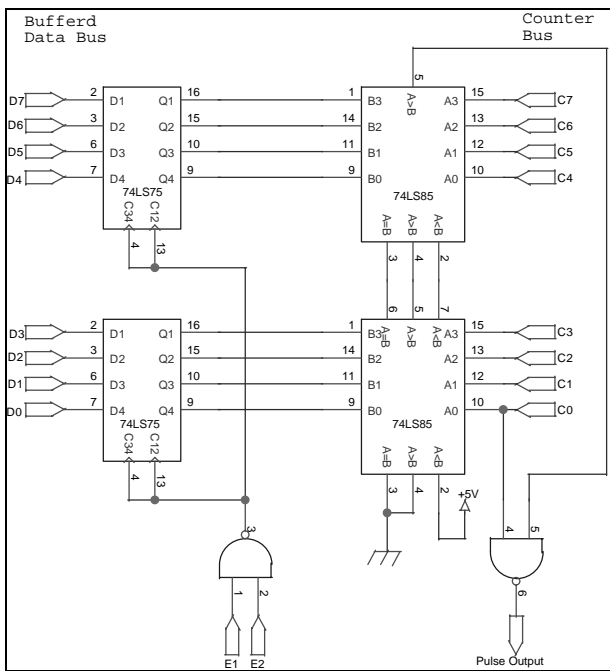
(A0-A3)

(B0- B3)

≤

C0

(NAND)



(15)

: : -4

: (15)

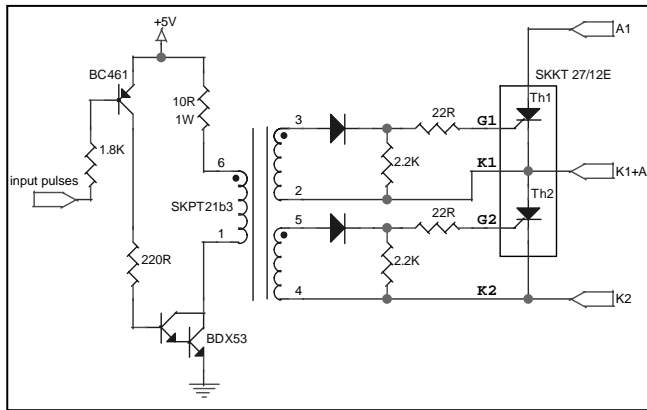
:

(17) [4] (SKKT27/12E)

(15)

(SKPT21b3)

. [4]

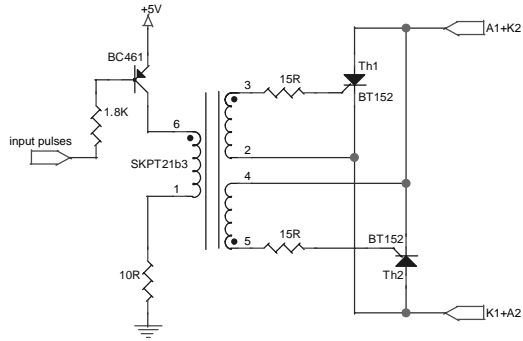


(17)

E1-E2

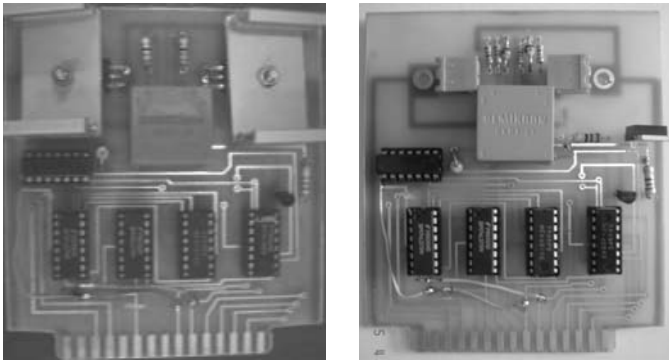
.()

() (BT152) :
(18) Phase Regulator ()
(SKPT21b3)



(18)

(19)



(19)

:Addressing System

:

-5

256

(20)

16

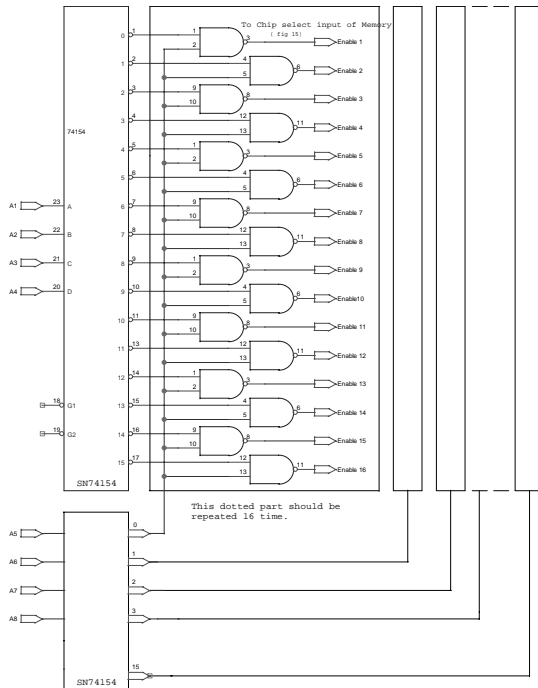
(15)

(NAND)

E1

E2

.16 x 16=256 ()



256

((20)

(15)

NAND

()

(21)

DATA

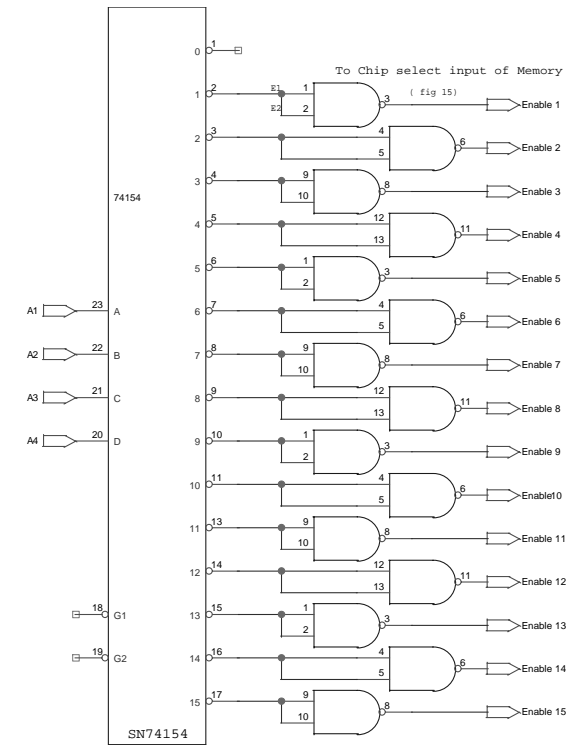
(1-15)

(0-255)

NAND E1,E2

15

16



16

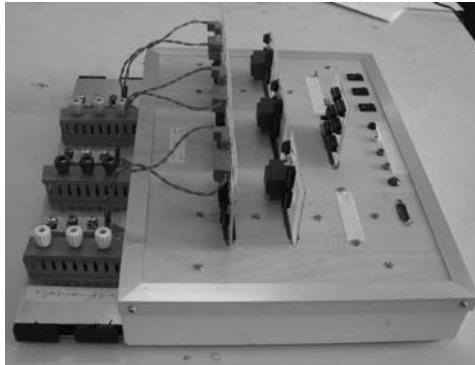
(21)

(15)

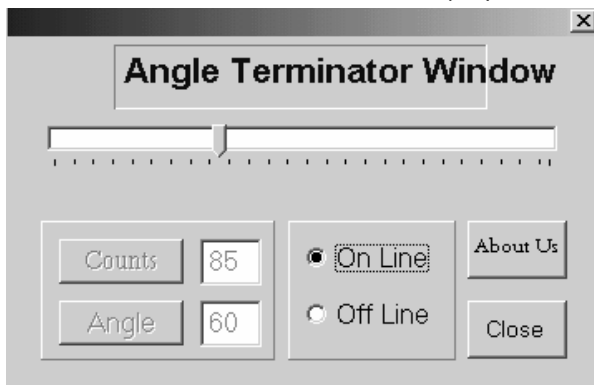
NAND

(22)

(23) C++Builder
(LPT) C++
:
.255 -1
. 180 -2
.(On line) -3
.(Off line) -4



(22)



(23)

(24)

15

()



15

(24)

(25)

C++Builder

:

:

-1

15

(Manual- Single)

.a

(Manual-Group) .b

15

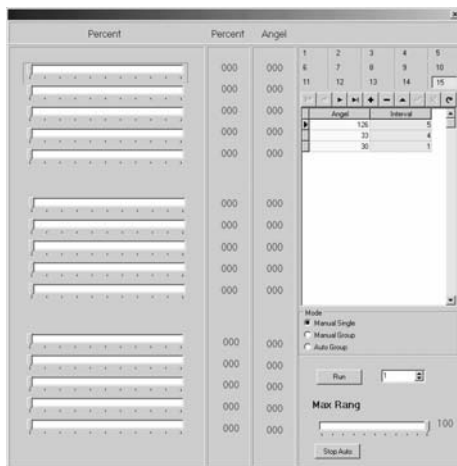
) (Auto-Group) .c

(
-2

) -3

(15 1) : (In files
(255 0)

Out File -4



15

(25)

(26-27-28-29)

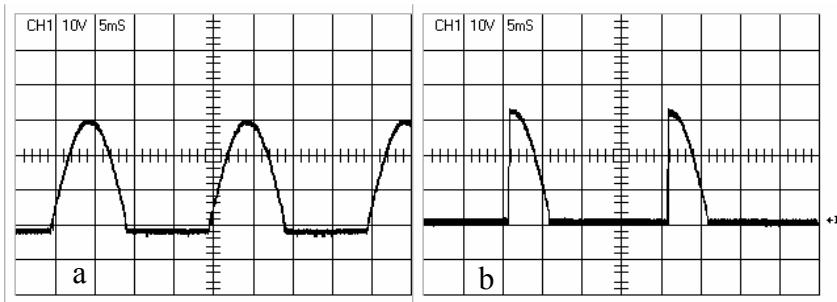
.x10

OX8040

(26-a)

(26-b)

90



(26)

90

-b

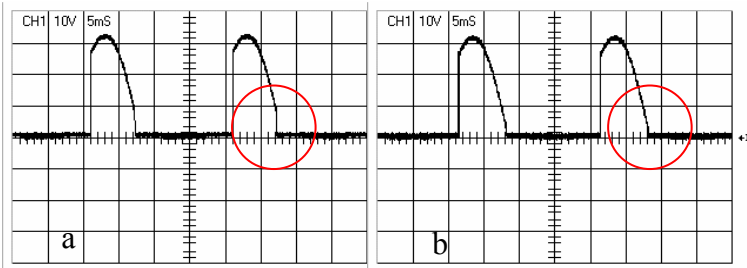
-a

(27-a)

60

(27-b)

.Holding Current



(27)

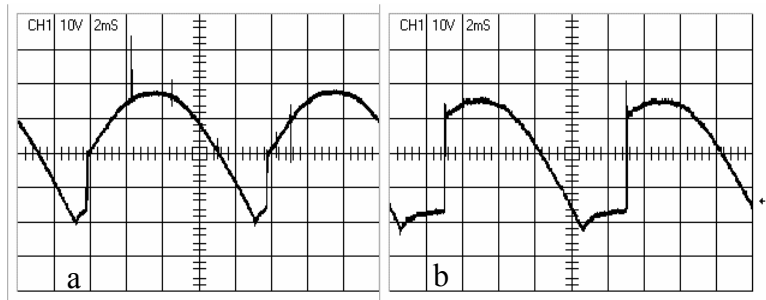
60 -b

60 -a

(28-a)

(28-b) 30

60



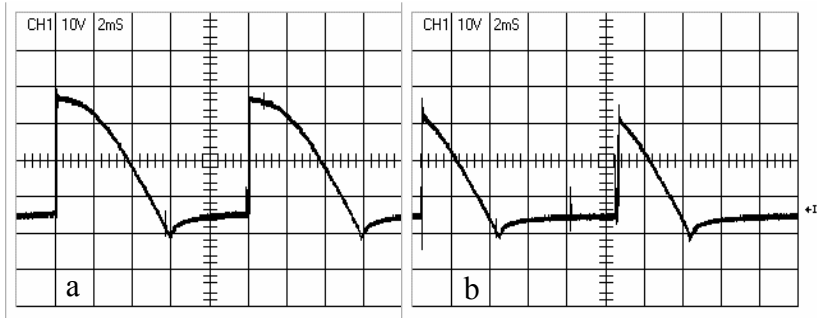
(28)

60 -b

30 -a

(29-a-b)

120 90



(29)

120 -b 90 -a

(30-a-b)

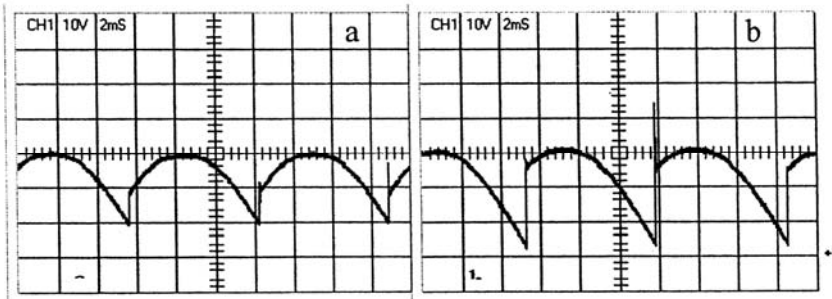
)

(

a .Three Phase Mid Point Bridge

b 30

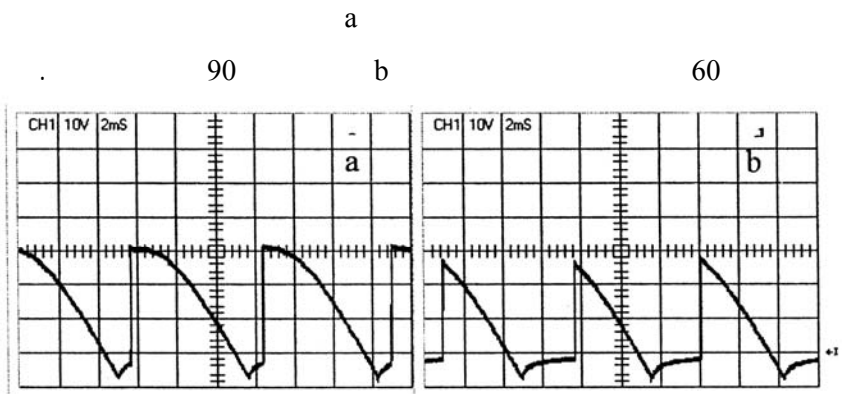
45



(30)

45 -b 30 -a

(31-a-b)



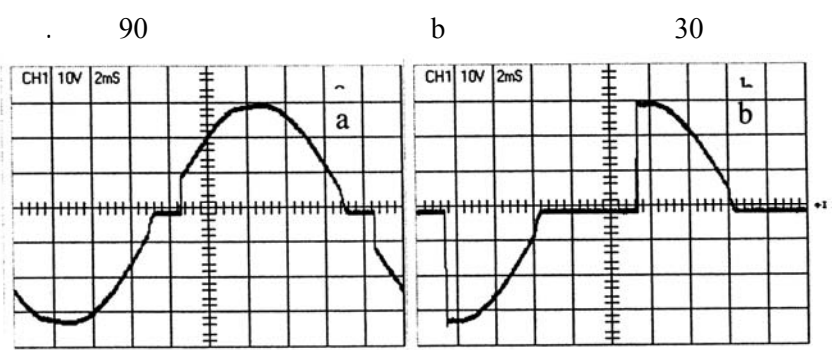
(31)

90 -b 60 -a

(32,33)

a

PhaseRgulator

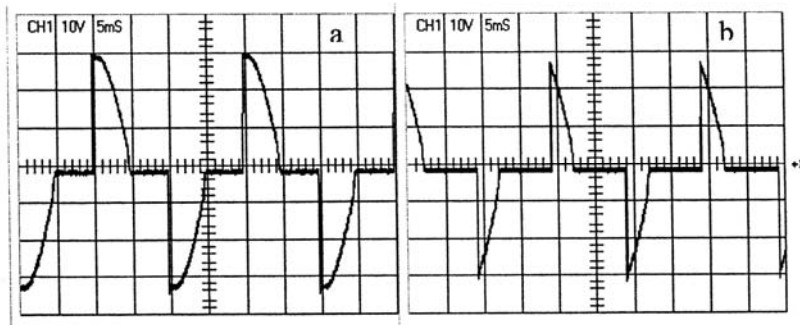


(32)

90 -b 30 -a

33-b

120



(33)

120 -b 90 -a

HM507

(34,35,36)

.50Hz

15

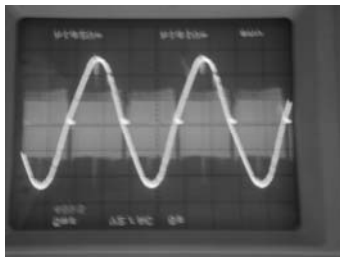
34

90

34

145

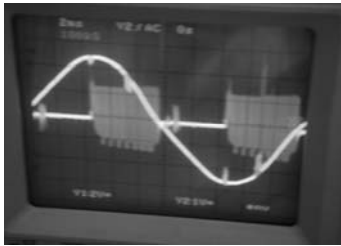
34



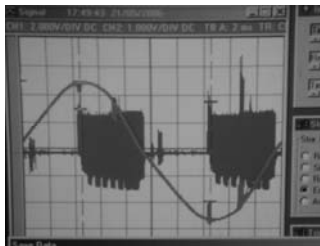
15



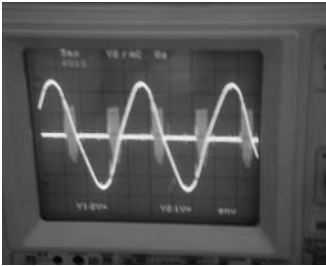
(34)



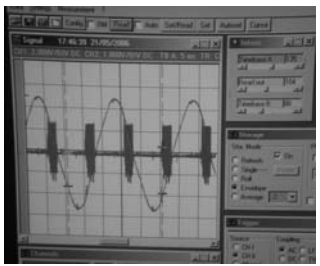
90



(35)



145



(36)

(37)



(37)

(38)



(38)

(39)

(13)

Frequency multiplier

.N (R,S,T)
255 8Bit

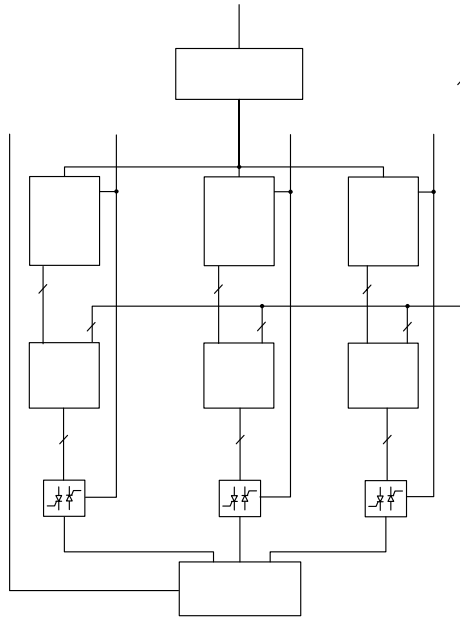
8 Bit Data Bus

Trigger

.(15,17)

). .

(180)
 .()



Line frequency

Frequency multiplier

N (39) R S T
 (40)

Sync counter ()

Sync counter

Sync counter

8

8

8

8

8

8

Trig

Trig

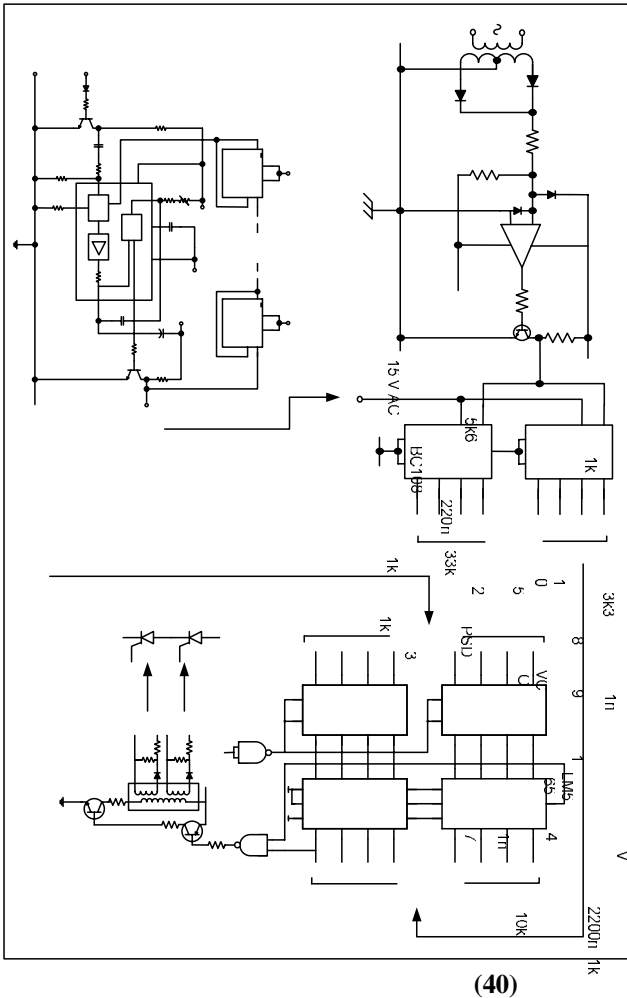
Trig

2

2

2

Load



(40)
 512 KHz
 H-SUD
 512 KHz
 BC-108

VI - 1

Pin	Signal	Value	Pin	Signal	Value
0	5K1	10K	10	QA	14
1	220K	10K	11	QB	13
2	5V	10K	12	QC	12
3	BC 108	10K	13	QD	11
4	1	10K	14	QD	11
5	2	10K	15	EN1	4
6	3	10K	16	EN2	3
7	4	10K			
8	5	10K			
9	6	10K			
10	7	10K			
11	8	10K			
12	9	10K			
13	10	10K			
14	11	10K			
15	12	10K			

From PC

THD

-2

-3

256

-4

Analogue

)

.(

:

- VII

-

.Microcontroller

)

-

(

References

- 1- Mohan,N. &Undeland,T., “ Power Electronics- Converters , Application,and Design - ” , John Willey&Sons INC. , New York, 2ed, edition 1995.
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- 3- Technical documents of “ Simens “ company .
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- 5- Technical documents of “ Temic semiconductor “ company.
- 6- Technical documents of “National semiconductor company.

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