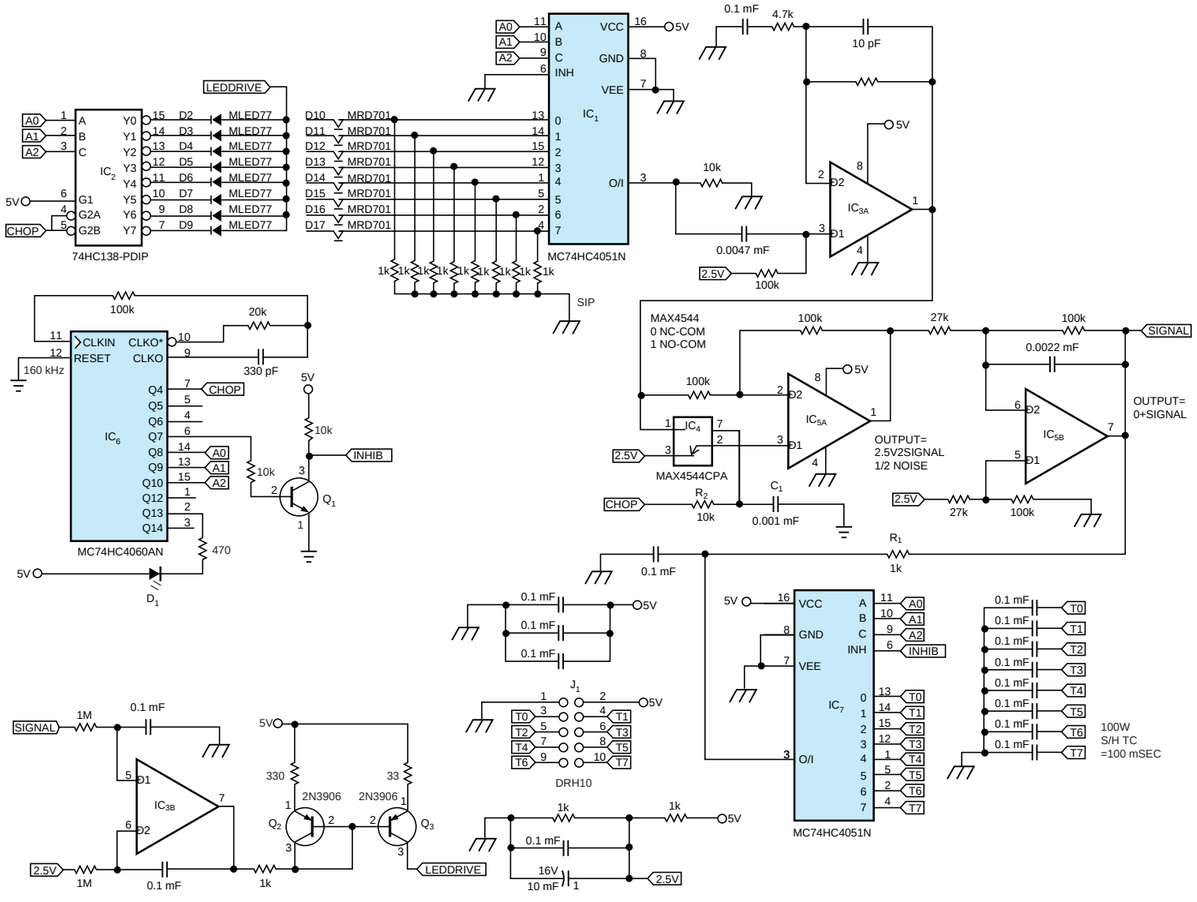
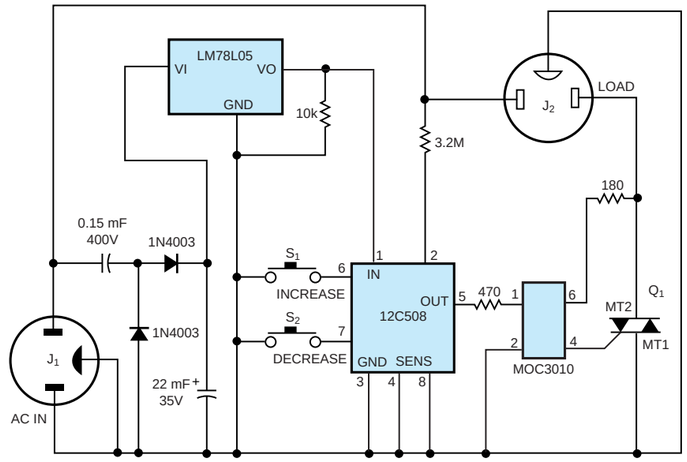
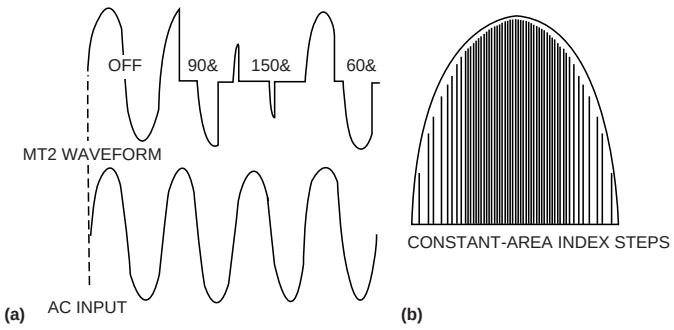
11DI-2211

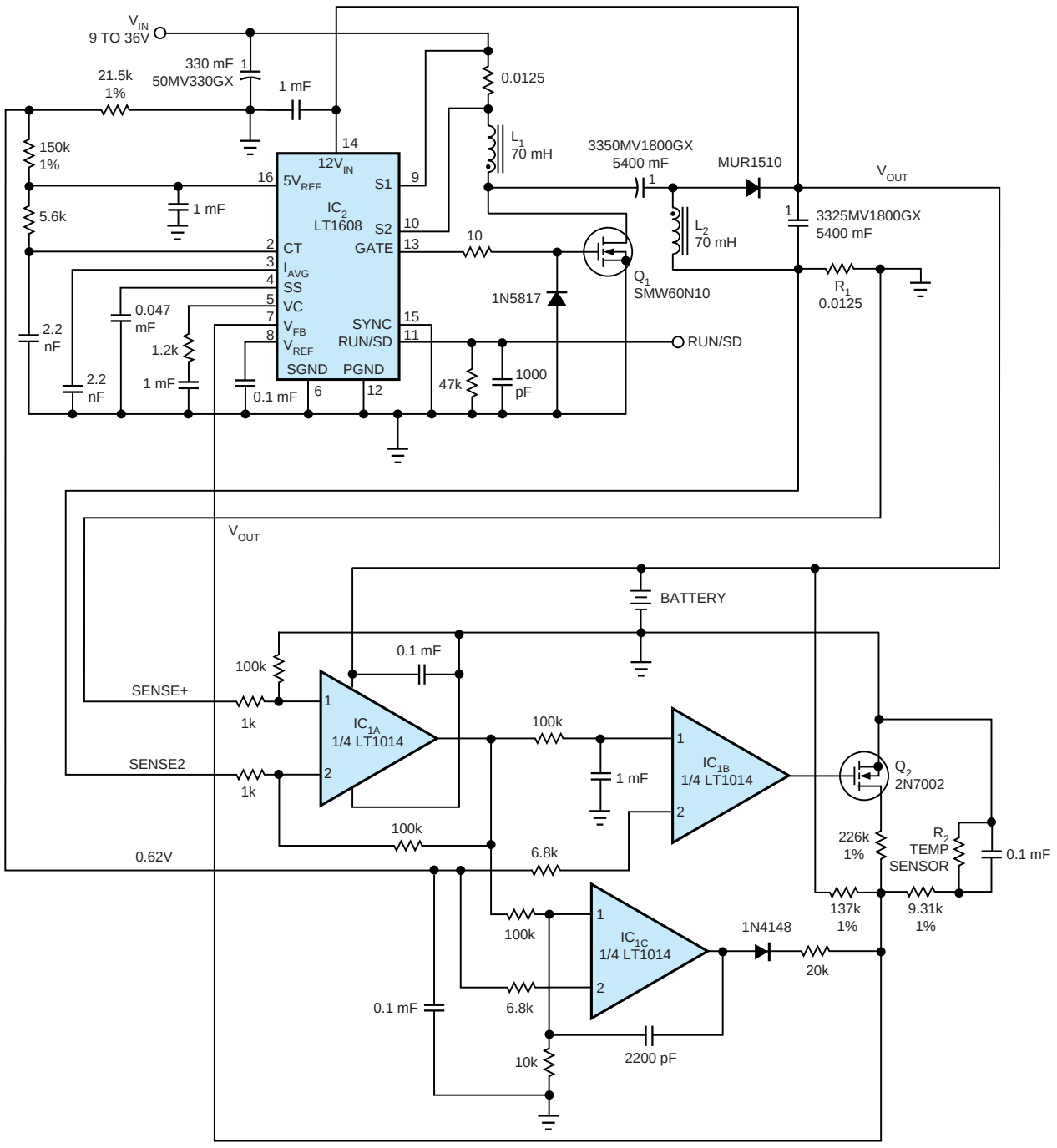

LEDDRIVE
A0
A1
A2
5V
CHOP
IC2
74HC138-PDIP
MLED77
D10
D11
D12
D13
D14
D15
D16
D17
MRD701
1k
SIP
IC1
MC74HC4051N
0.1 mF
4.7k
10 pF
10k
0.0047 mF
2.5V
100k
IC3A
100k
20k
330 pF
160 kHz
IC6
MC74HC4060AN
470
D1
10k
Q1
INHIB
MAX4544
0 NC-COM
1 NC-COM
27k
SIGNAL
0.0022 mF
IC5A
IC5B
IC4
MAX4544CPA
OUTPUT=
2.5V2SIGNAL
1/2 NOISE
OUTPUT=
0+SIGNAL
R2
C1
0.001 mF
R1
1M
IC3B
2N3906
Q2
Q3
330
33
J1
DRH10
16V
10 mF
IC7
MC74HC4051N
100W
S/H TC
=100 mSEC

```
REM Follow line - program demonstrates line tracker
REM print sensor number that line is currently under
REM ss 2/9/98

CONST CRLF AS STRING = "\013\010"
DECLARE baseline      AS LONG ARRAY
DECLARE sensor_output AS LONG ARRAY
DECLARE deviation     AS LONG ARRAY
GLOBAL index AS INTEGER, channel AS INTEGER, n AS INTEGER, lost AS
INTEGER

REM sensor array calibration must be done while not over a line
SUBROUTINE calibrate_sensor_array()
        n = 100
        FOR channel = 0 TO 7
                baseline[channel] = 0
                FOR index=1 TO n

baseline[channel]=baseline[channel]+AIN(channel)
                NEXT
                baseline[channel] = baseline[channel] / n
        NEXT
END

REM read all input channels into array, calc deviation of each channel
from baseline
SUBROUTINE read_sensor_array()
        n = 10
        FOR channel = 0 to 7
                sensor_output[channel] = 0
                FOR index = 1 to n
                        sensor_output[channel] =
sensor_output[channel] + AIN(channel)
                NEXT
                sensor_output[channel] = sensor_output[channel]/n -
baseline[channel]
                REM deviation will be expressed as percent
                deviation[channel] = ABS((sensor_output[channel] *
100) / baseline[channel])
        NEXT
END

REM find the channel with maximum deviation from baseline
FUNCTION find_line() AS INTEGER
        LOCAL max_deviation AS LONG, best_guess AS INTEGER
        find_line = -1
        FOR channel = 0 TO 7
                IF deviation[channel] > max_deviation
                        max_deviation = deviation[channel]
                        best_guess = channel
                ENDIF
```

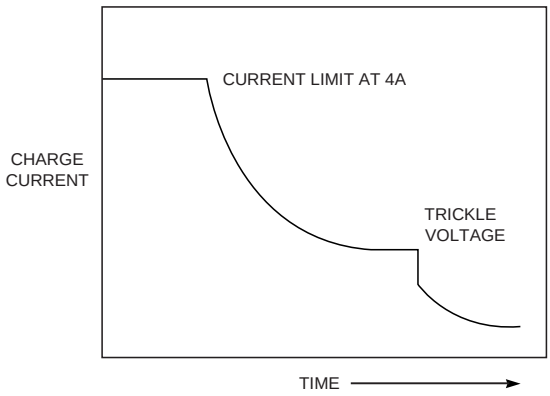


11D22121 DIANE

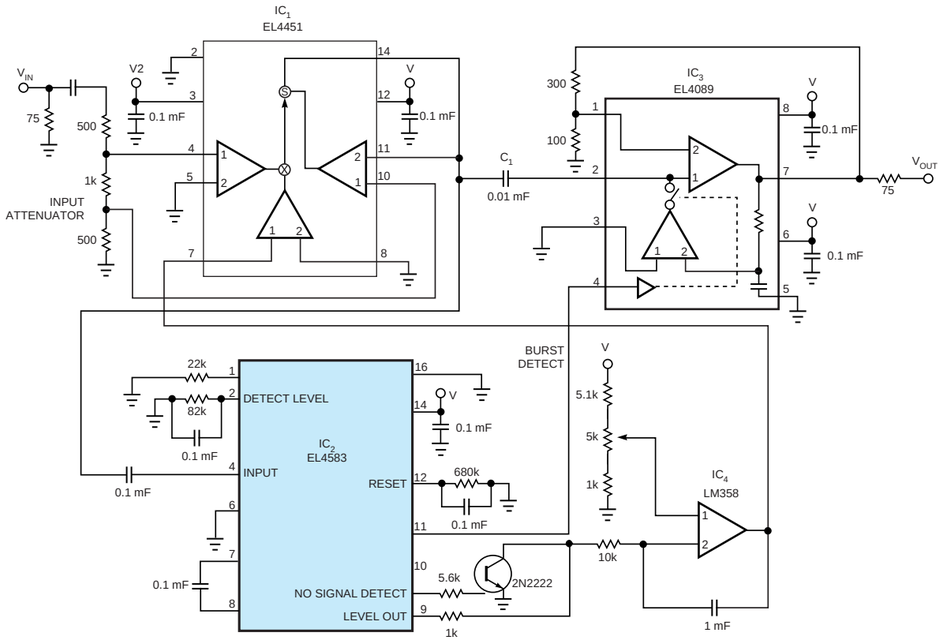

OFF
90&
150&
60&
MT2 WAVEFORM
AC INPUT
(a)
CONSTANT-AREA INDEX STEPS
(b)



NOTES:
Q_1 AND D_1 NEED HEAT SINKS.
L_1 AND L_2 = COILTRONICS CTX01-14002.

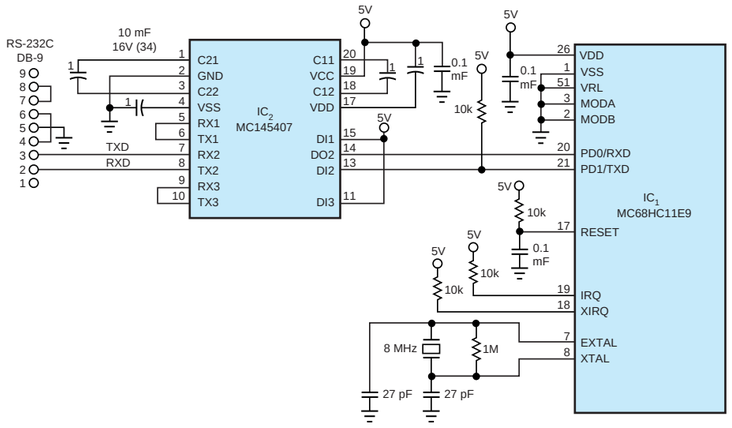

CURRENT LIMIT AT 4A
CHARGE
CURRENT
TRICKLE
VOLTAGE
TIME

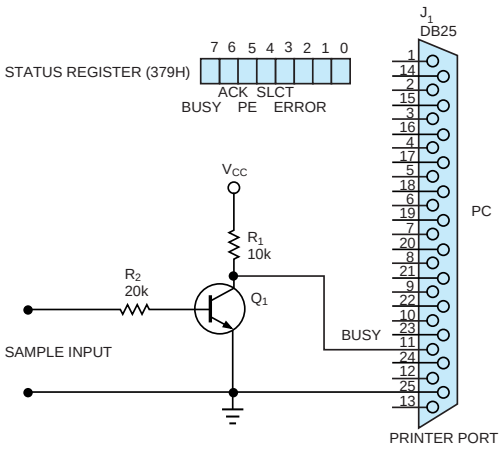
```
'72 is Up Scan Code
KEY 20, CHR$(0) + CHR$(72)
'73 is UpPg Scan Code
KEY 15, CHR$(0) + CHR$(73)
'80 is Down Scan Code
KEY 21, CHR$(0) + CHR$(80)
'81 is DnPg Scan Code
KEY 16, CHR$(0) + CHR$(81)
'75 is Left Scan Code
KEY 22, CHR$(0) + CHR$(75)
'77 is Right Scan Code
KEY 23, CHR$(0) + CHR$(77)
'1 is ESC Scan Code
KEY 17, CHR$(0) + CHR$(1)

ON KEY(15) GOSUB UpPage
ON KEY(16) GOSUB DownPage
ON KEY(20) GOSUB UpLine
ON KEY(21) GOSUB DownLine
ON KEY(22) GOSUB Left
ON KEY(23) GOSUB Right
ON KEY(17) GOSUB Finish

SCREEN 12
DEF SEG = &H40
DEF SEG = PEEK(&HFE) + 256 * PEEK(&HFF)
LINE (0, 4)-(639, 4)
FOR i% = 0 TO 32
 j% = i% * 19.5
 LINE (j%, 4)-(j%, 0)
NEXT i%

h% = 20
addr0% = &H180
fl% = 0
KEY(17) ON
WHILE fl% = 0

KEY(15) ON
KEY(16) ON
KEY(20) ON
KEY(21) ON
KEY(22) ON
KEY(23) ON

LOCATE 1, 40
PRINT (addr0% - &H180) / 80;
FOR i% = 0 TO 255
 FOR j% = 0 TO 128
 NEXT j%
NEXT i%
```



13DI-2221 - GINA

```
    CASE &HF8
       LINE (x%, y%)-(x% + 4, y%)
       LINE -(x% + 4, y% + h%)
       LINE -(x% + 7, y% + h%)
    CASE &HFC
       LINE (x%, y%)-(x% + 5, y%)
       LINE -(x% + 5, y% + h%)
       LINE -(x% + 7, y% + h%)
    CASE &HFE
       LINE (x%, y%)-(x% + 6, y%)
       LINE -(x% + 6, y% + h%)
       LINE -(x% + 7, y% + h%)
    CASE ELSE
       LINE (x%, y%)-(x% + 7, y% + h%)
   PRINT addr0%
   END SELECT
  NEXT j%
 NEXT i%
WEND

KEY(15) OFF
KEY(16) OFF
KEY(20) OFF
KEY(21) OFF
KEY(22) OFF
KEY(23) OFF
KEY(17) OFF

DEF SEG
END

UpLine:
 IF addr0% <= (&H3CE0 * 2) THEN
  CLS 1
  addr0% = addr0% + &H50
 END IF
RETURN

DownLine:
 IF addr0% > &H180 THEN
  CLS 1
  addr0% = addr0% - &H50
 END IF
RETURN

UpPage:
 IF addr0% <= (&H3CE0 * 2) THEN
  CLS 1
  addr0% = addr0% + &H460
 END IF
RETURN
```


RS-232C
DB-9
9
8
7
6
5
4
3
2
1
10 mF
16V (34)
TXD
RXD
C21
GND
C22
VSS
RX1
TX1
RX2
TX2
RX3
TX3
IC2
MC145407
C11
VCC
C12
VDD
DI1
DO2
DI2
DI3
5V
0.1
mF
10k
VDD
VSS
VRL
MODA
MODB
PD0/RXD
PD1/TXD
IC1
MC68HC11E9
RESET
IRQ
XIRQ
EXTAL
XTAL
8 MHz
1M
27 pF


J1
DB25
7 6 5 4 3 2 1 0
STATUS REGISTER (379H)
ACK SLCT
BUSY PE ERROR
VCC
R1
10k
R2
20k
Q1
SAMPLE INPUT
BUSY
PC
PRINTER PORT
1
14
2
15
3
16
4
17
5
18
6
19
7
20
8
21
9
22
10
23
11
24
12
25
13