

## INFRARED REMOTE CONTROL RECEIVER

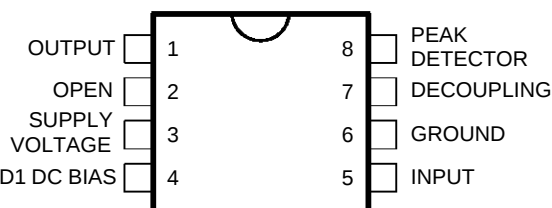
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**DIP8**  
(Plastic Package)

**ORDER CODE : TDA 8160**

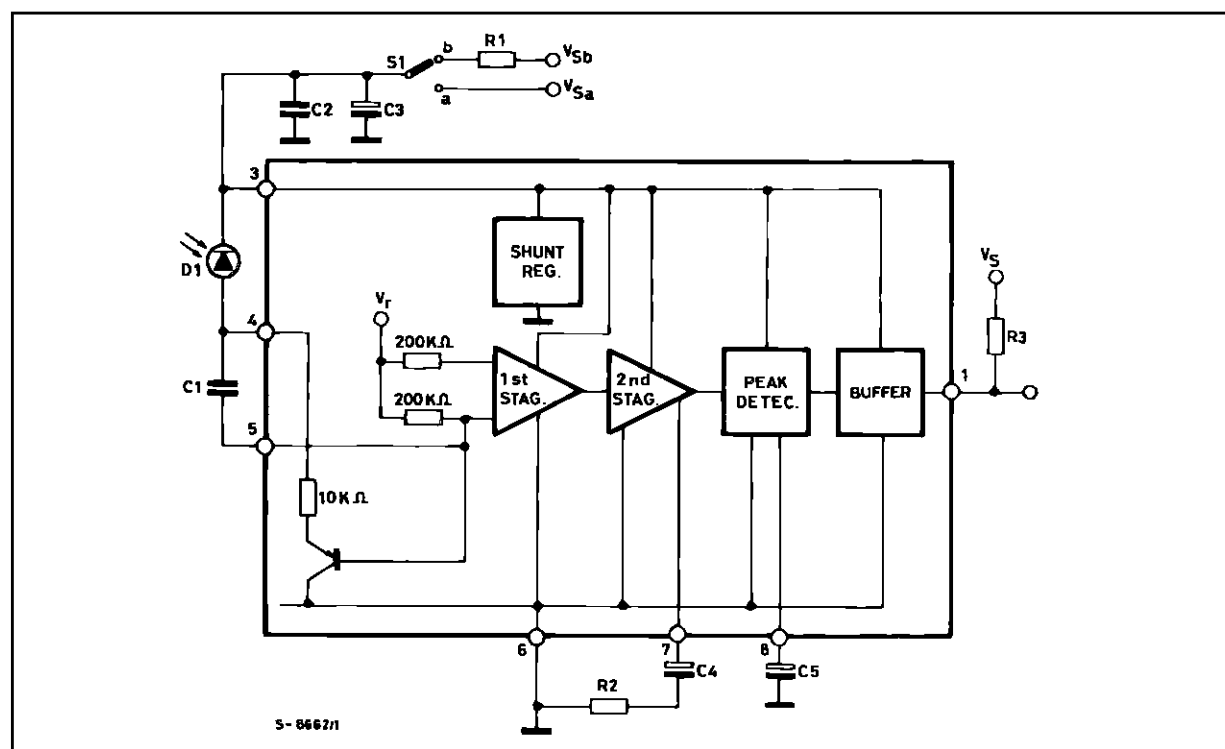
## PIN CONNECTIONS

The TDA8160 is a monolithic integrated circuit in-lead minidip plastic package specially designed to amplify the infrared signals in remote controlled TV, Radio or VCR sets. It can be used in flash transmission mode in conjunction with dedicated remote control circuits (for example : M491-494).



0160 01 END

### BLOCK DIAGRAM



0160 03 EDC

## ABSOLUTE MAXIMUM RATINGS

| Symbol      | Parameter                                           | Value      | Unit |
|-------------|-----------------------------------------------------|------------|------|
| $V_S$       | Supply Voltage                                      | 16         | V    |
| $T_{stg-j}$ | Storage and Junction Temperature                    | - 40, +150 | °C   |
| $P_{tot}$   | Total Power Dissipation at $T_{amb} = 70\text{ °C}$ | 400        | mW   |

8160-01.TBL

## THERMAL DATA

| Symbol        | Parameter                           | Value   | Unit |
|---------------|-------------------------------------|---------|------|
| $R_{th(j-a)}$ | Thermal Resistance Junction-ambient | Max 200 | °C/W |

8160-02.TBL

## ELECTRICAL CHARACTERISTICS

(Refer to the test circuit ;  $V_S = 5V$ ,  $f_O = 10kHz$ ,  $T_{amb} = 25^\circ C$ , unless otherwise specified)

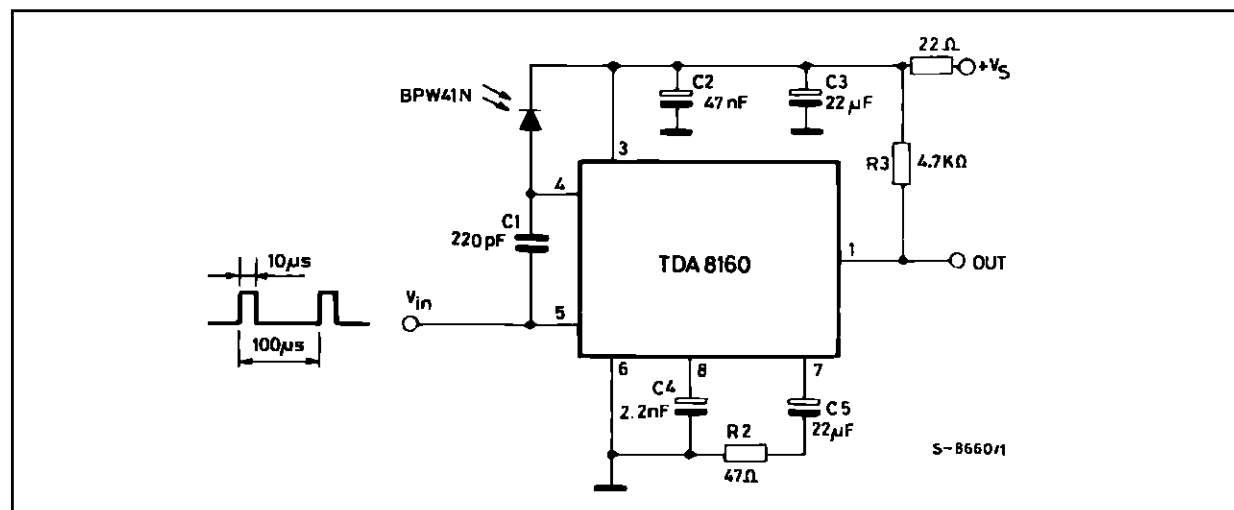
| Symbol    | Parameter                                  | Test Conditions                                             | Min. | Typ. | Max. | Unit             |
|-----------|--------------------------------------------|-------------------------------------------------------------|------|------|------|------------------|
| $V_S$     | Supply Voltage                             | Applied between Pins 3 and 6                                | 4    | 5    | 5.25 | V                |
| $I_S$     | Supply Current (Pin 3)                     |                                                             |      | 6    |      | mA               |
| $V_3$     | Stabilized Voltage at Pin 3                | $I_3 = 8mA$                                                 |      | 5.5  |      | V                |
| $G_V$ 1st | Voltage Gain (1st stage)                   |                                                             |      | 28   |      | dB               |
| $g_m$ 2nd | Transconductance (2nd stage)               |                                                             |      | 15   |      | mA/V             |
| $V_{IN}$  | Input Voltage Sensitivity (Pin 5)          | For Full Swing at the Output Pin 1<br>$R_{gen} = 600\Omega$ |      | 2    |      | mV <sub>P</sub>  |
| $I_{IN}$  | Input Current Sensitivity (Pin 5)          | For Full Swing at the Output Pin 1                          |      | 10   |      | nA <sub>P</sub>  |
| $R_{IN}$  | Input Impedance                            |                                                             |      | 200  |      | k $\Omega$       |
| $L_f R$   | Low Frequency Rejection at the Input Stage | $C1 = 100pF$ , $f = 100Hz$                                  |      |      | 30   | dB               |
| N         | Noise Signal at Pin 7                      | C4 Missing                                                  |      |      | 200  | mV <sub>PP</sub> |

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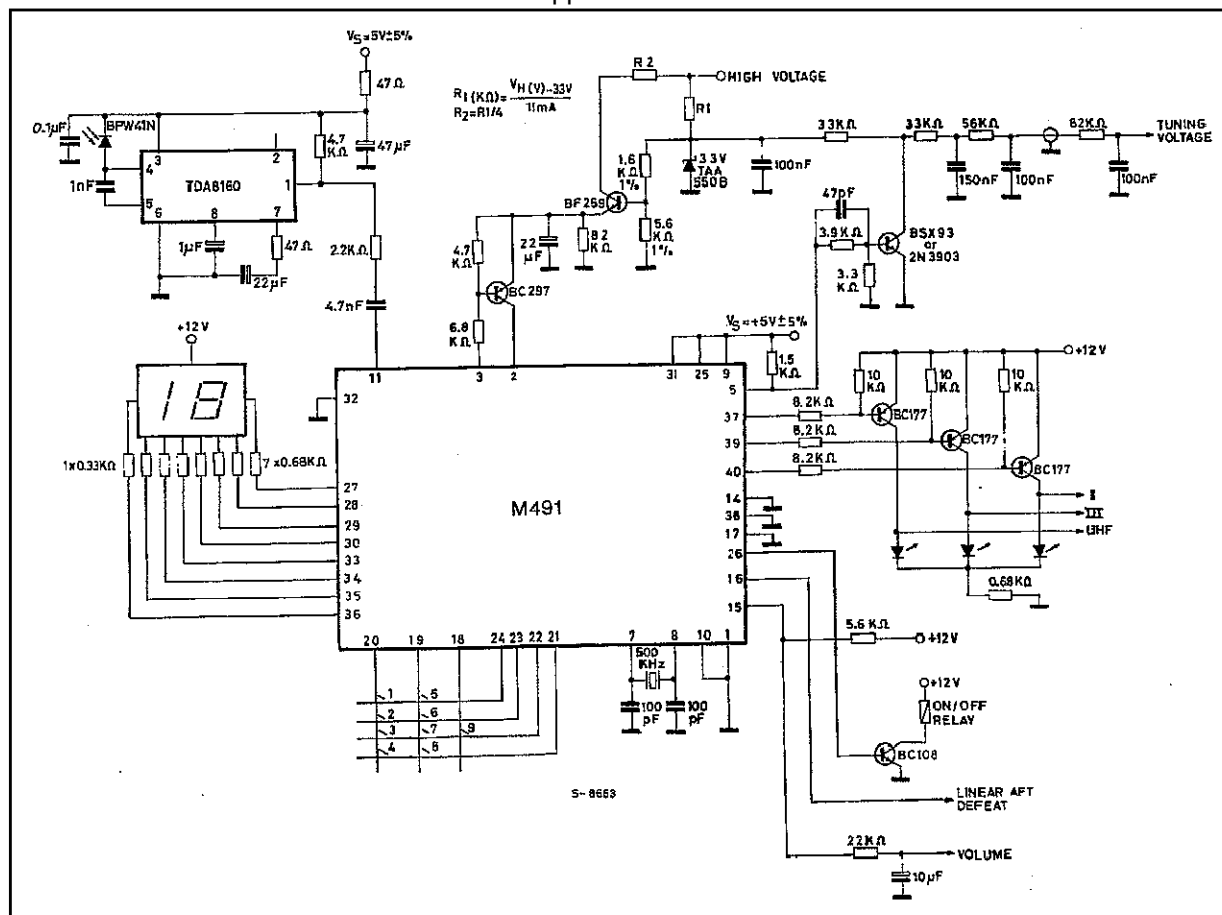
**CIRCUIT DESCRIPTION** (see the block diagram)  
The infrared light received from D1 generates an AC signal that comes in to the device at pin 5. The capacitor C1 and the integrated 10k $\Omega$  resistor (pin 4) filter out the low frequency noise.

The first stage shows a voltage gain of about 28dB ; the second stage is a voltage to current converter of 50mA/V ( $R_2 = \text{Zero}$ ). A sensitive peak detector detects the amplifier signal ; one open collector output (pin 1) gives out the recovered pulses.

## TEST CIRCUIT

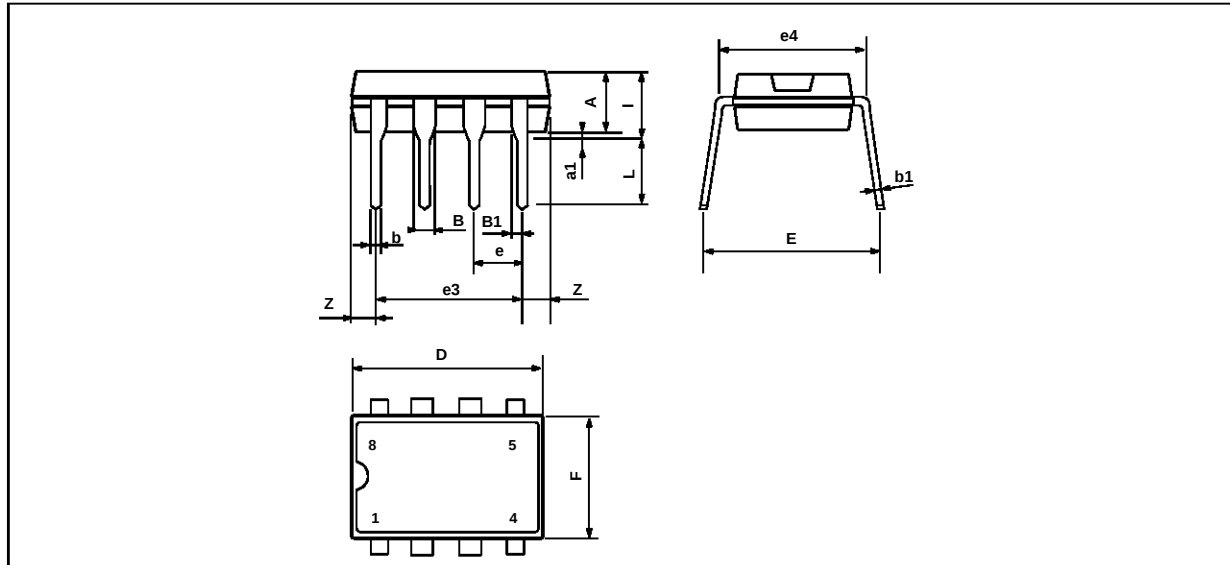


8160-03.EPS



## PACKAGE MECHANICAL DATA

8 PINS - PLASTIC DIP



PM-DIP8.EPS

| Dimensions | Millimeters |      |       | Inches |       |       |
|------------|-------------|------|-------|--------|-------|-------|
|            | Min.        | Typ. | Max.  | Min.   | Typ.  | Max.  |
| A          |             | 3.32 |       |        | 0.131 |       |
| a1         | 0.51        |      |       | 0.020  |       |       |
| B          | 1.15        |      | 1.65  | 0.045  |       | 0.065 |
| b          | 0.356       |      | 0.55  | 0.014  |       | 0.022 |
| b1         | 0.204       |      | 0.304 | 0.008  |       | 0.012 |
| D          |             |      | 10.92 |        |       | 0.430 |
| E          | 7.95        |      | 9.75  | 0.313  |       | 0.384 |
| e          |             | 2.54 |       |        | 0.100 |       |
| e3         |             | 7.62 |       |        | 0.300 |       |
| e4         |             | 7.62 |       |        | 0.300 |       |
| F          |             |      | 6.6   |        |       | 0.260 |
| i          |             |      | 5.08  |        |       | 0.200 |
| L          | 3.18        |      | 3.81  | 0.125  |       | 0.150 |
| Z          |             |      | 1.52  |        |       | 0.060 |

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