

**INFRARED REMOTE CONTROL RECEIVER**

ADVANCE DATA

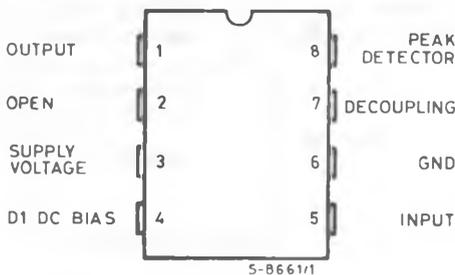
- LOW SUPPLY VOLTAGE ( $V_S = 5V$ )
- LOW CURRENT CONSUMPTION ( $I_S = 6mA$ )
- INTERNAL 5.5 V SHUNT REGULATOR
- PHOTODIODE DIRECTLY COUPLED WITH THE I.C.
- INPUT STAGE WITH GOOD REJECTION AT LOW FREQUENCY
- LARGE INPUT DYNAMIC RANGE
- FEW EXTERNAL COMPONENTS

**DESCRIPTION**

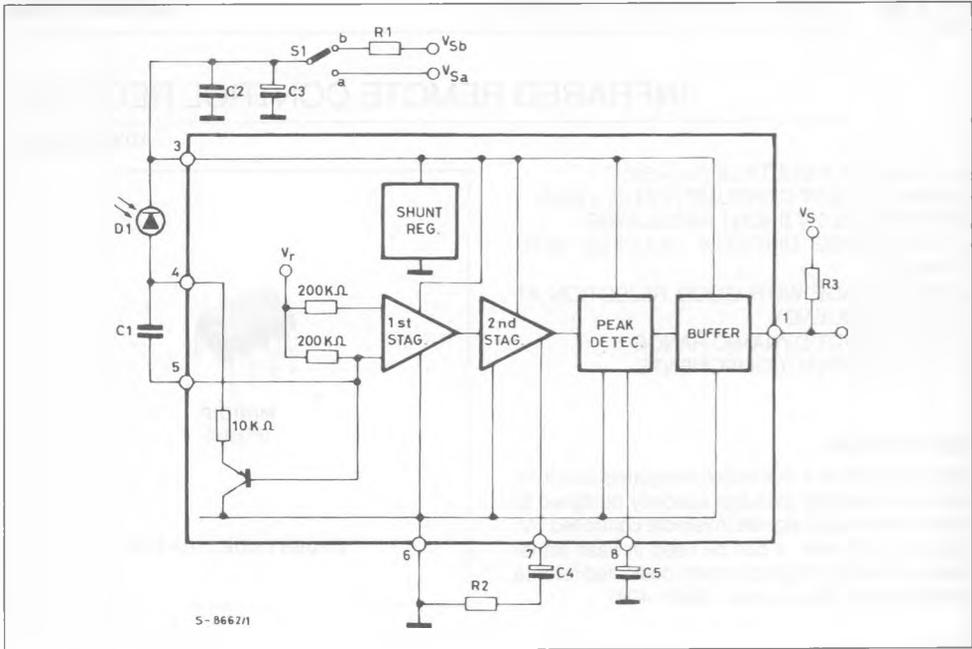
The TDA 8160 is a monolithic integrated circuit in-lead minidip plastic package specially designed to amplify the infrared signals in remote controlled TV, Radio or VCR sets. It can be used in flash transmission mode in conjunction with dedicated remote control circuits (for example : M491-494).



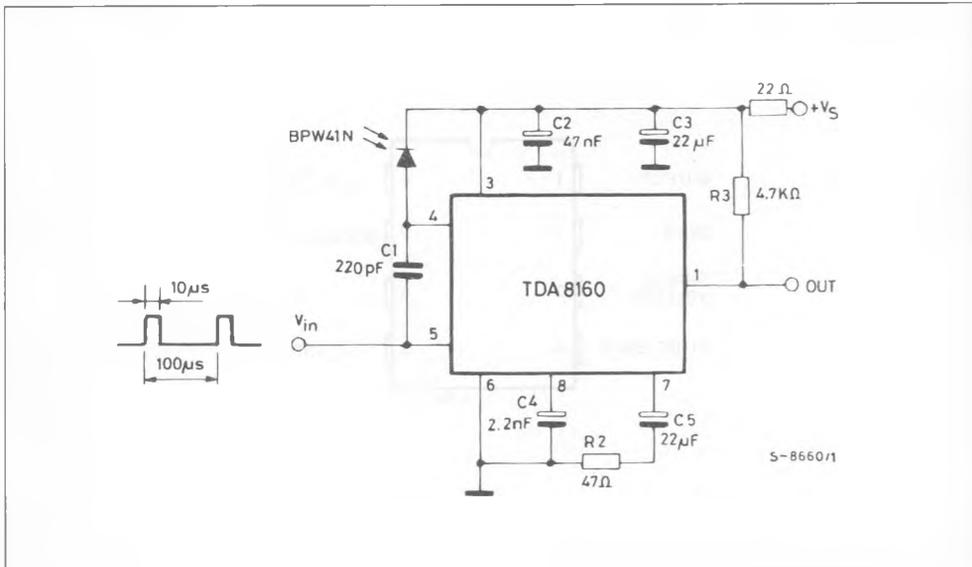
**CONNECTION DIAGRAM (top view)**



BLOCK DIAGRAM



TEST CIRCUIT



## ABSOLUTE MAXIMUM RATINGS

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

## THERMAL DATA

$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	200	°C/W
-----------------	-------------------------------------	-----	-----	------

## ELECTRICAL CHARACTERISTICS

(refer to the test circuits ;  $V_S = 5\text{ V}$ ,  $f_o = 10\text{ kHz}$ ,  $T_{amb} = 25\text{ °C}$ , unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage	Applied between Pin 3 and 6	4	5	5.25	V
$I_S$	Supply Current (pin 3)			6		mA
$V_3$	Stabilized Voltage at Pin 3	$I_3 = 8\text{ mA}$		5.5		V
$G_{v1st}$	Voltage Gain (1st stage)			28		dB
$g_{m2nd}$	Transconductance (2nd stage)			15		mA/V
$V_{in}$	Input Voltage Sensitivity (pin 5)	For Full Swing at the Output Pin 1 $R_{gen} = 600\ \Omega$		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 $\Omega$
$L_{fR}$	Low Frequency Rejection at the Input Stage	$C1 = 100\text{ pF}$ $f = 100\text{ Hz}$		30		dB
N	Noise Signal at Pin 7	C4 missing		200		mV <sub>pp</sub>

## 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.

