PLESSEY
Semiconductors

T-77-11

ML922

REMOTE CONTROL RECEIVER

Plessey Semiconductors have developed and produced a range of monolithic integrated circuits which give a wide variety of remote control facilities. As well as ultrasonic or infra red transmission, cable, radio or telephone links may also be utilised. Pulse position modulation (PPM) is used with or without carrier and automatic error detection is also incorporated. Although initially designed with TV remote control in mind the devices may equally easily be applied for use in radios, tuners, tape and record decks, lamps and lighting, toys and models, industrial control and monitoring.

The ML922 decodes the PPM signal received from the SL490 transmitter. After error checking the received code may condition a 10 programme memory or one of three D/A converters.

The receiver timing may be set by adjusting the oscillator time constant to give 40 periods at pin 6 equal to a 0 interval on the received PPM input.

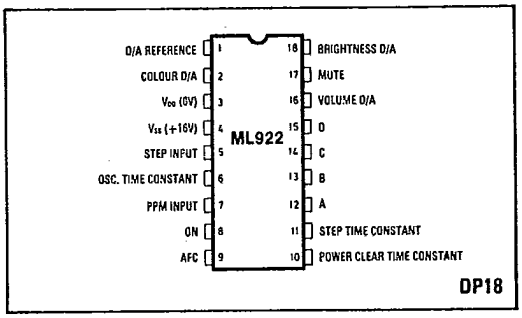

Fig.1 Pin connections - top view

FEATURES

- Accepts 5 Bit PPM
- All Timing From On-Chip Oscillator
- Incorporates Error Protection
- Easily Used With Ultrasonic or Infra-red System
- Up to 10 Programmes With Latched Binary Output
- 3 D/A Outputs With Normalise Level At $\frac{3}{8}$ of Max.
- Automatic Power-On Reset and Normalise
- Many Other Facilities, AFC, Mute, Etc.

QUICK REFERENCE DATA

- Power supply: 16V 14mA
- Demodulation: Pulse position with time window checking by on-chip oscillator
- Decoder: 5 bit with successive codeword comparison
- Programme: Latched 4 bit binary, 10 programmes
- Other outputs: On, AFC, Mute
- Local inputs: Programme step

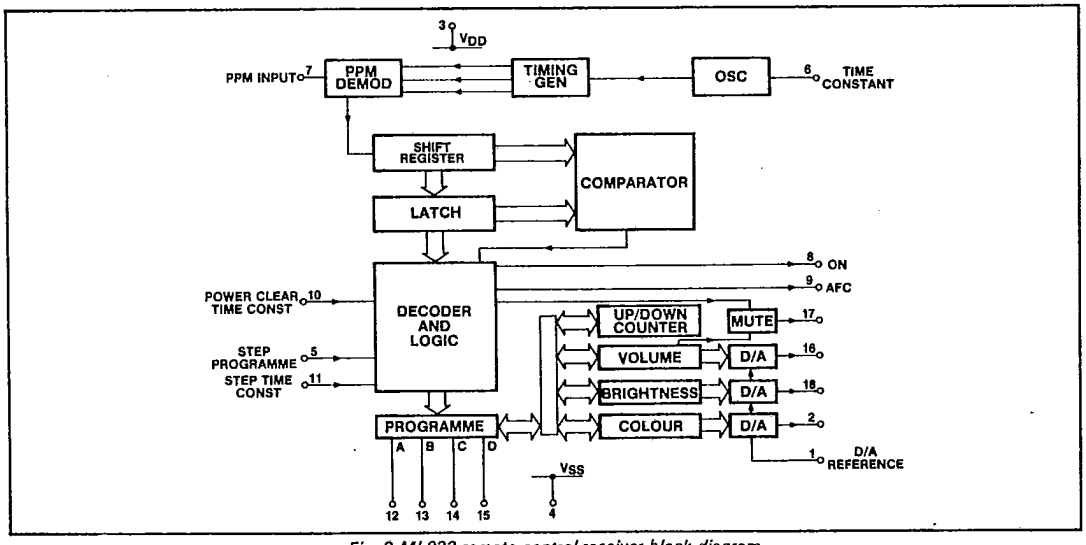

Fig. 2 ML922 remote control receiver block diagram

Obsolescence Notice

ZARLINK SEMICONDUCTOR

This product is obsolete.

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http://products.zarlink.com/obsolete_products/

ELECTRICAL CHARACTERISTICS (see Fig. 3)

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Test conditions (unless otherwise stated):
$V_{SS} = 0V$
$V_{DD} = -16V$
$T_{amb} = 25°C$

Characteristic	Pin	Value Min.	Value Typ.	Value Max.	Unit	Conditions
Supply voltage	3	14		18	V	
Supply current	3		8	14	mA	
Input logic level high	5	−1		0	V	
low		V_{DD}		$V_{DD}+3.5$	V	
Output logic level high	8, 9, 12-15, 17	−1		0	V	50k to V_{DD}
low		V_{DD}		$V_{DD}+0.5$	V	50k to V_{DD}
Analogue output current range	2, 16, 18	0		$\frac{31}{8}$	I_{ref}	3.9k to V_{DD}
Analogue step size	2, 16, 18	0	$\frac{1}{8}$	$\frac{1}{4}$	I_{ref}	$V_{out} < V_{DD}+5V$
D/A reference, I_{REF}	1	−250	−345	−455	μA	33k to V_{DD}
Oscillator timing	6		3		kHz	C = 22n, R = 100k See note 1
Power clear time constant	10		400		ms	C = 4.7μ R = 100k
Step time constant	11		2		s	C = 470n R = 3.3M
PPM input level high	7	-1		0	V	
PPM input level low	7	V_{DD}		-6	V	
PPM input pulse width	7	1		$22T_{OSC}$	μs	

Note 1. $R_{osc.}$ (pin 6) is 56k-156kΩ. $f_{osc.} \simeq \frac{1}{0.15CR}$ ±20%

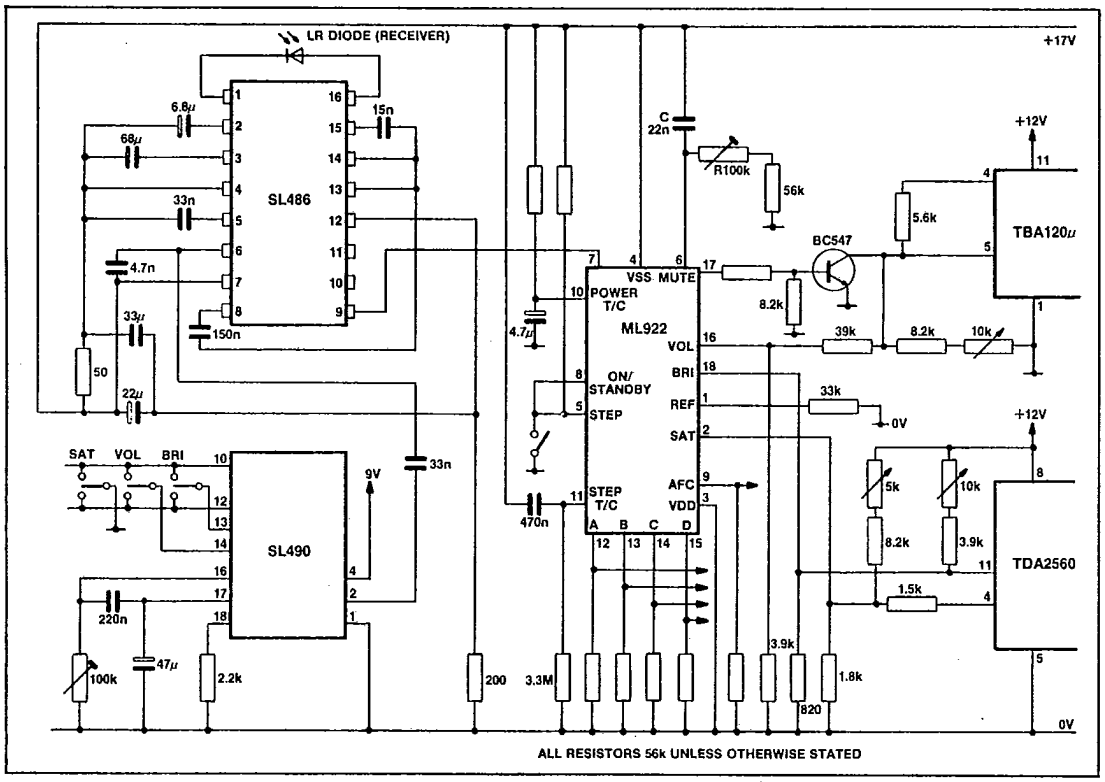

Fig.3 PPM infra-red receiver application with local up/down controls using a directly connected SL490

Note: Pin descriptions same as ML920.

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Transmitter code	Function
EDCBA	
0000X	Programme 1
0001X	Programme 2
0010X	Programme 3
0011X	Programme 4
0100X	Programme 5
0101X	Programme 6
0110X	Programme 7
0111X	Programme 8
1000X	Programme 9
1001X	Programme 10
10100	Colour +
10101	Programme Step +
10110	Volume +
10111	Brightness +
11000	Standby
11001	Mute (Analogue 2)
11011	Normalise
11100	Colour —
11101	Programme Step —
11110	Volume —
11111	Brightness —

Table 1 Basic 21 command set for ML922

ABSOLUTE MAXIMUM RATINGS (V_{SS} = 0V).

Supply Voltage V_{DD}	+0.3V to −25V
Voltage at any input	+0.3V to −25V
Maximum power dissipation	600mW
Operating temperature range	−10°C to +65°C
Storage temperature range	−55°C to +125°C