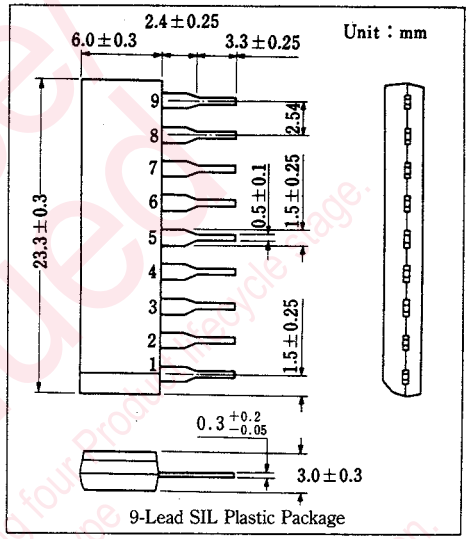
AN5837, AN5838

TV Sound MPX Remote Control Circuits

■ Outline

The AN5837 and the AN5838 are integrated circuits designed for which the mode for receiving TV sound multiplex broadcast is switched through remote control or by using soft touch switches. They are used together with sound multiplex demodulator IC's the AN5825 and the AN5826N.



■ Features

- Soft touch switches for switching four kinds of mode···Main, Sub, Main+Sub and Mono
- LED drive circuit is included;each mode switches on one of four LEDs
- Main mode is selected when power is switched on
- Supply of signal pulse from remote control circuit switching mode

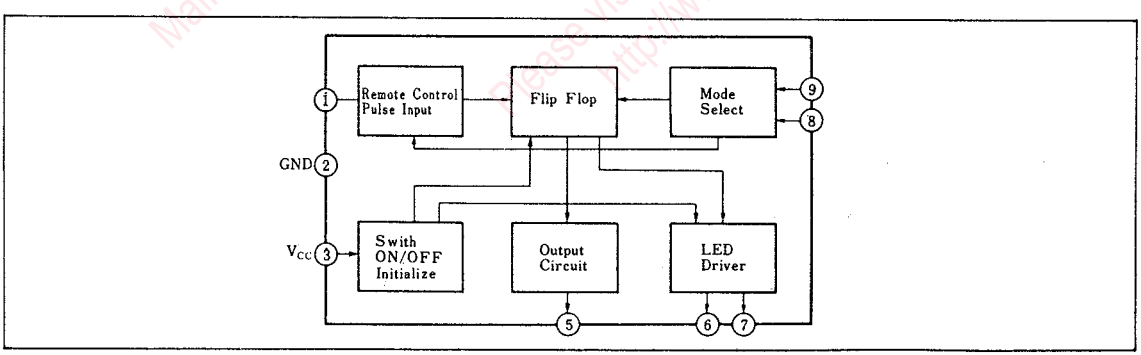
AN5837···Main⇄Sub

AN5838···→Main→Sub→Main+Sub→Mono→

■ Pin

Pin No.	Pin Name
1	Remote Control Pulse Input
2	GND
3	V_{cc}
4	NC
5	Output
6	LED (1)
7	LED (2)
8	Mode Select (1)
9	Mode Select (2)

■ Block Diagram



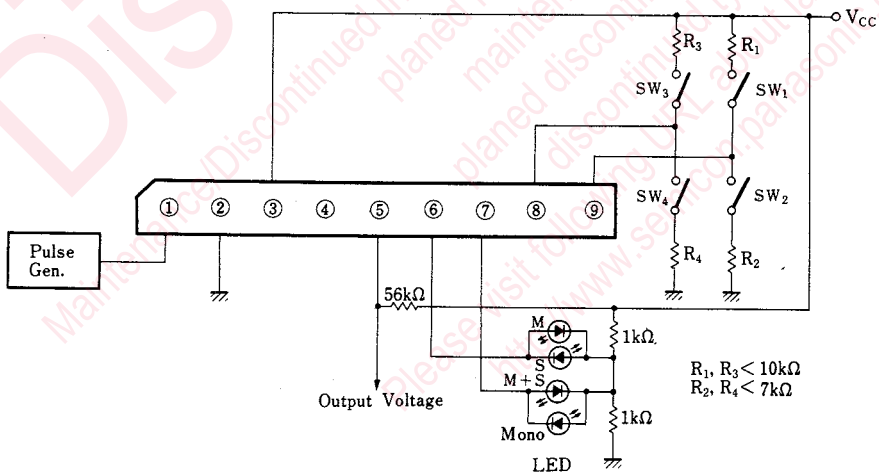
■ Absolute Maximum Ratings(Ta=25℃)

Item		Symbol	Rating	Unit
Supply Voltage		$V_{CC}(V_{3-2})$	14.4	V
Circuit Current		$I_{6,7}$	−11～+12	mA
Power Dissipation (Ta=70℃)		P_D	690	mW
Temperature	Operating Ambient Temperature	T_{opr}	−20～+70	℃
	Storage Temperature	T_{stg}	−55～+150	℃

■ Electrical Characteristics(Vcc=12V, Ta=25℃)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Total Circuit Current	I_{tot}	1	V_{cc}= 12V for main mode	17	27	40	mA
Circuit Voltage	V_{8-2}	1	V_{CC}=12V	4.7	5.5	6.7	V
Circuit Voltage	V_{9-2}	1	V_{CC}=12V	4.7	5.5	6.7	V
LED Muting Voltage	V_{CCmin}	1	V_{cc} when LED are turned from OFF to ON.	7.0	8.3	9.6	V
Main Mode Output Voltage	$V_{5(Main)}$	1		6.5	7.1	7.7	V
Sub Mode Output Voltage	$V_{5(Sub)}$	1		2.7	3.3	3.9	V
Main/Sub Mode Output Voltage	V_{5M+S}	1		11.1	11.7	12.0	V
Monaural Mode Output Voltage	$V_{5\,Mono}$	1			1.05	1.35	V
Remote Control Input Resistance	R_I	1		10.8	15.6	20.4	kΩ

Test Circuit 1



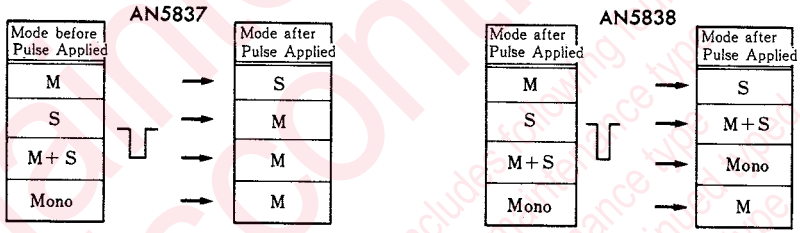
● Mode Switching Pin(Switching Characteristics by Pins ⑧ and ⑨ : common to the AN5837 and the AN5838)

Pin⑧ \ Pin⑨	High (SW1 ON)	Low (SW2 ON)	High-Low at the same time (SW1, 2 ON)	Open
High (SW_3 ON)	Main	Sub	Main	M + S
Low (SW_4 ON)	Main	Sub	Main	Mono
High-Low at the same time ($SW_{3,4}$ ON)	Main	Sub	Main	M + S
Open	Main	Sub	Main	Previous mode

● Output Condition for each Mode(Common to the AN5837 and the AN5838)

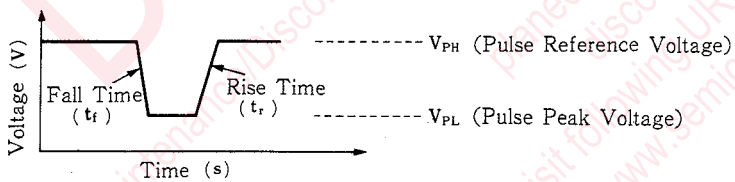
Mode	LED Drive		Output Voltage
	Pin⑥	Pin⑦	Vo Pin⑤
Main	High	OFF	$V_{5\,Main}$ (7.1V)
Sub	Low	OFF	$V_{5\,Sub}$ (3.3V)
M + S	OFF	High	$V_{5\,M+S}$ (11.7V)
Mono	OFF	Low	V_{Mono} (1.05V)

● Switching Characteristics through Remote Control Pulse



● Conditions for Remote Control Pulse(Common to the AN5837 and the AN5838)

(1) Name of Sections

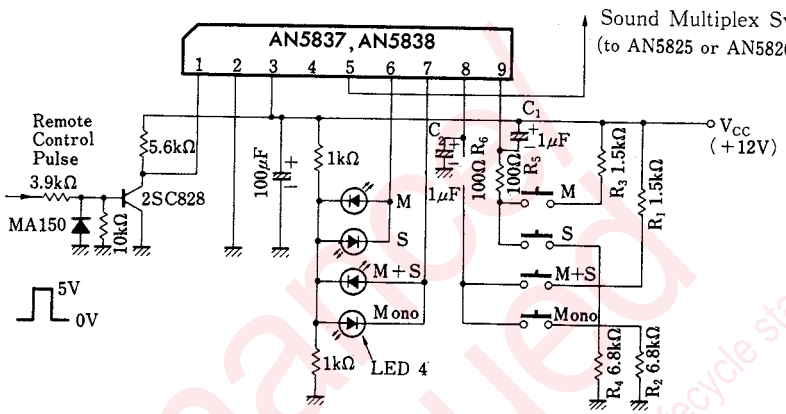


The rise time and fall time are ones required for change of voltage 1.5V~2.5V.

(2) Conditions

$V_{PH} > 3.0V$
$V_{PL} < 1.2V$
$t_f < 40\,\mu s/V$
$t_r < 40\,\mu s/V$

■ Application Circuit



Typical Condition

$R_1, R_3 < 10k\Omega$
$R_2, R_4 < 7k\Omega$
$R_2/R_1, R_4/R_3 > 3.3$

Priority

1. Main=M
2. Sub=S
3. Main+Sub=M+S
5. Monaural=Mono

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