M54570L

TUNER BAND DECODER/DRIVER

DESCRIPTION

The M54570L is a semiconductor integrated circuit capable of switching four bands in TV and VTR tuners.

FEATURES

- Low output saturation voltage ($V_{CE(sat)} \leqq 0.5V$ at $I_O = -35mA$).
- High output sustaining voltage ($BV_{CEO} \geqq 26V$)
- Four-bands switching

APPLICATION

Switching bands in TV and VTR tuners

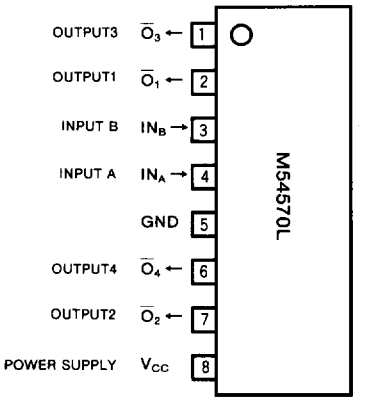
FUNCTION

The M54570L is an IC suitable for four-band switching in TV and VTR tuners. Since the output drives the power supply of each tuner band, a low saturation voltage (V_{CC}-V_O) becomes necessary. This need is satisfied through a first stage configured of PNP transistors.

The input, being three-valued logic input, can be switched into 6 output modes as shown in the truth table.

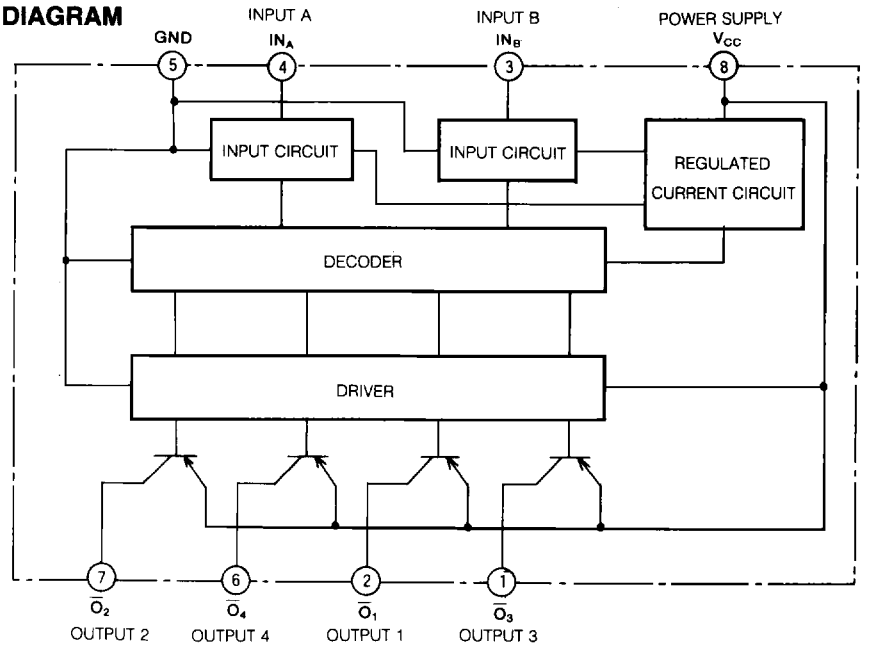
The selection mode can be altered by making a wired OR connection on the outputs when used as a three-band device.

PIN CONFIGURATIONS (TOP VIEW)



Outline 8P5

BLOCK DIAGRAM



MITSUBISHI ELECTRIC

TRUTH TABLE

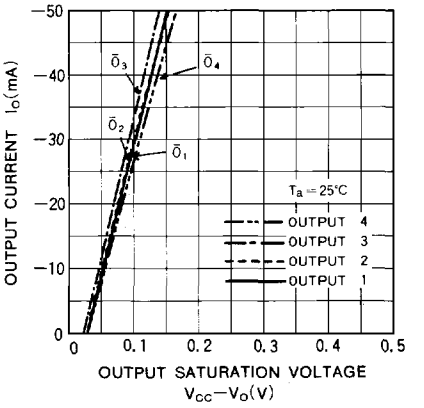
Input		Output			
IN_A	IN_B	$\overline{O}_1$	$\overline{O}_2$	$\overline{O}_3$	$\overline{O}_4$
0	0	1	1	0	1
0	1	0	0	1	0
1	0	1	1	0	0
1	1	1	0	0	0
1 *	1 *	1	0	0	1
1 *	0	1	1	0	0

Input "0" = 0.4V (max.)
"1" = 4V (min.), 6V (max.)
"1*" = 10V (min.), V_{CC} (max.)

Output "0" = output transistor off-state
"1" = output transistor on-state

TYPICAL CHARACTERISTICS

SOURCE OUTPUT SATURATION CHARACTERISTICS



ABSOLUTE MAXIMUM RATINGS (T_a = 25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		15	V
V_{CEO}	Output sustaining voltage		−0.5∼+26	V
V_I	Input voltage		15	V
I_O	Output current		−40	mA
Topr	Operating temperature		−10∼+60	°C
Tstg	Storage temperature		−55∼+125	°C

RECOMMENDED OPERATING CONDITIONS (T_a = 25°C, unless otherwise noted)

Symbol	Parameter		Limits			Unit
			Min	Typ	Max	
V_{CEO}	Output sustaining voltage		0		24	V
I_O	Output current	Outputs 1 and 3	0	−35	−40	mA
		Outputs 2 and 4	0	−20	−25	
V_{IH}	High-level input voltage		4		6	V
V_{IL}	Low-level input voltage		0		0.4	V
V_{IH}*	High-level* input voltage		10		V_{CC}	V

ELECTRICAL CHARACTERISTICS (T_a = 25°C, unless otherwise noted)

Symbol	Parameter	Test conditions		Limits			Unit
				Min	Typ*	Max	
$I_{O(leak)}$	Output leakage current	V_{CC}=12V, V_O=−12V, output opened				−100	μA
V_{OH}	High-level output voltage	V_{CC}=12V	I_O=−20mA	11.7	11.9		V
			I_O=−35mA (output 1, 3)	11.5	11.9		
I_{IH}	High-level input current	V_{CC}=12V, V_I=4V				10	μA
I_{IH}*$_A$	High-level* input current (input A)	V_{CC}=12V, V_I*=10V			0.63	1.3	mA
I_{IH}*$_B$	High-level* input current (input B)	V_{CC}=12V, V_I*=10V				20	μA
I_{IL}	Low-level input current	V_{CC}=12V, V_I=0.4V				−100	μA
I_{CC}	Supply current	V_{CC}=13V, V_{IA}=0V, V_{IB}=4V, output opened			17	28	mA

* : A typical value at T_a=25°C.