

MITSUBISHI (DGTL LOGIC)

M54572L**TUNER BAND DECODER/DRIVER****DESCRIPTION**

The M54572L is a semiconductor integrated circuit capable of switching four bands in TV and VTR tuners.

FEATURES

- Low output saturation voltage ($V_{CE(sat)} \leq 0.5V$ at $I_O = -30mA$).
- High output sustaining voltage ($BV_{CEO} \geq 28V$)
- Four-bands switching

APPLICATION

Switching bands in TV and VTR tuners

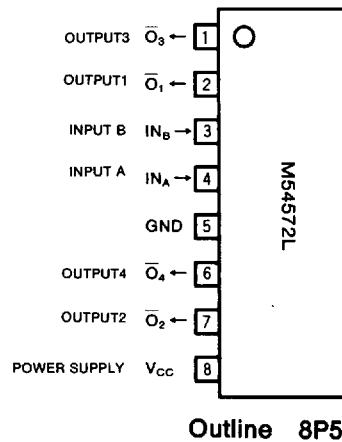
FUNCTION

The M54572L is an IC suitable for four-band switching in TV and VTR tuners. Since the output (outputs 1~3) 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.

Output 4 can be used for changing modes with the same power supply as the NPN transistor has an open collector output.

The input mode can be switched between four modes as shown in the truth table.

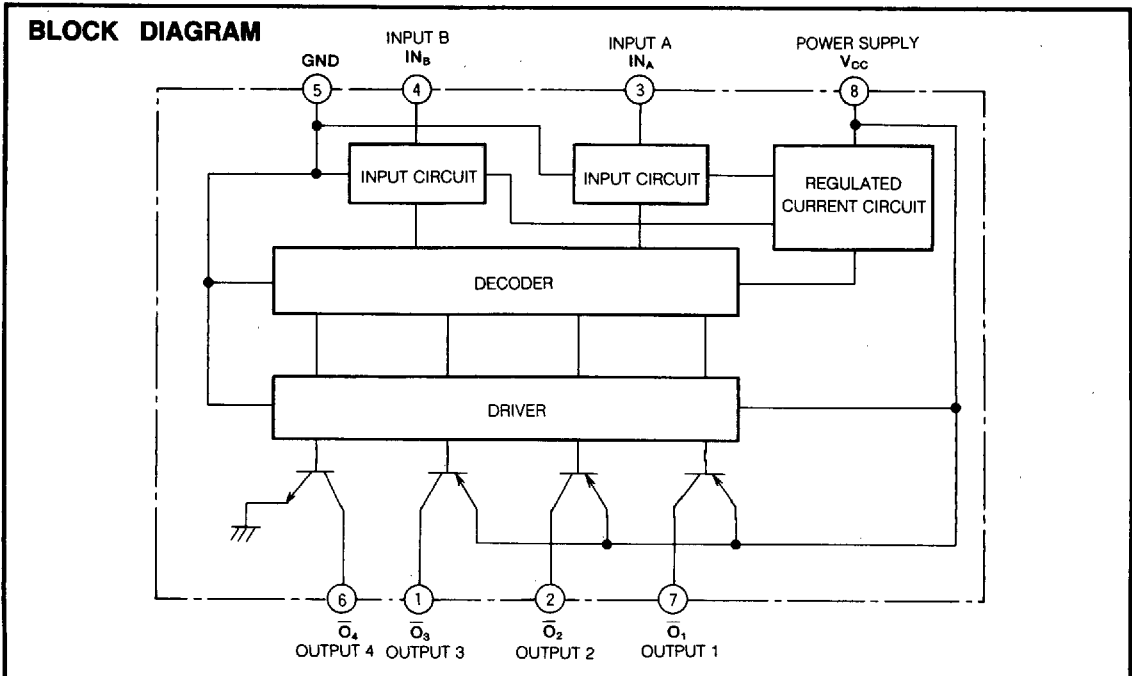
The selection mode can be altered by making a wired OR connection to outputs 1~3 when used as a three-band device.

PIN CONFIGURATIONS (TOP VIEW)**TRUTH TABLE**

Input		Output			
IN_A	IN_B	\bar{O}_1	\bar{O}_2	\bar{O}_3	\bar{O}_4
0	0	1	Z	Z	Z
0	1	Z	Z	1	Z
1	0	Z	1	Z	Z
1	1	Z	Z	1	0

Input "0" = 1V (max.)
"1" = 3V (min.)

Output "0" = current sink
"1" = current source
"Z" = high impedance

BLOCK DIAGRAM

TUNER BAND DECODER/DRIVER

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Ratings	Unit
V_{CC}	Supply voltage		18	V
V_{CEO}	Output sustaining voltage		-0.5~+28	V
V_i	Input voltage		18	V
I_{SO}	Output source current	$\bar{O}1 \sim \bar{O}3$	-40	mA
I_{SI}	Output sink current	$\bar{O}4$	40	mA
T_{opr}	Operating temperature		-10~+60	$^\circ\text{C}$
T_{stg}	Storage temperature		-55~+125	$^\circ\text{C}$

RECOMMENDED OPERATING CONDITIONS ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
V_{CC}	Supply voltage	12		15	V
V_{CEO}	Output sustaining voltage	0		25	V
I_{SO}	Output source current	$\bar{O}1 \sim \bar{O}3$	0	-30	mA
I_{SI}	Output sink current	$\bar{O}4$	0	30	mA
V_{IH}	High-level input voltage	3		V_{CC}	V
V_{IL}	Low-level input voltage	0		1	V

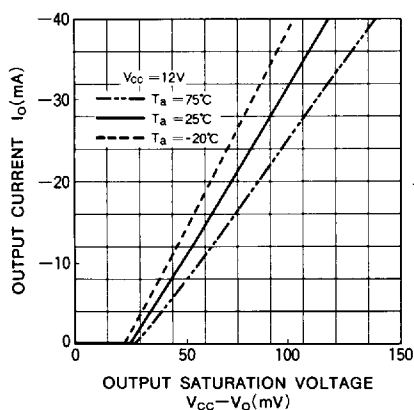
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{V}$, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ*	Max	
$I_{SO(\text{leak})}$	Source output leakage current	$V_{SO} = -12\text{V}$			-100	μA
$I_{SI(\text{leak})}$	Sink output leakage current	$V_{SI} = 25\text{V}$			100	μA
V_{SOH}	Source output High-level voltage	$I_{SO} = -30\text{mA}$	11.5	11.8		V
V_{SIL}	Sink output Low-level voltage	$I_{SI} = 30\text{mA}$		0.2	0.5	V
I_{IH}	High-level input current	$V_i = 3\text{V}$			10	μA
I_{IL}	Low-level input current	$V_i = 1\text{V}$			-100	μA
I_{CC}	Supply current	$V_{CC} = 13\text{V}$, $V_{IA} = 3\text{V}$, $V_{IE} = 0\text{V}$, output opened			28	mA

* : A typical value at $T_a = 25^\circ\text{C}$.

TYPICAL CHARACTERISTICS

SOURCE OUTPUT SATURATION CHARACTERISTICS



SINK OUTPUT SATURATION CHARACTERISTICS

