

M54477L/AP

1/128, 1/136 2-MODULUS HIGH SPEED DIVIDER WITH ECL OUTPUT

DESCRIPTION

The M54477L/AP is a semiconductor integrated circuit consisting of a 1/128, 1/136 2-modulus divider using emitter-coupled logic(ECL).

FEATURES

- High-speed operation($f_{max}=1.0\text{GHz}$)
- Operates at low input amplitudes (-20dBm min)
- ECL level output

APPLICATION

Prescalers for PLL synthesized TV tuners, and general use in consumer and industrial digital equipment.

RECOMMENDED OPERATING CONDITION

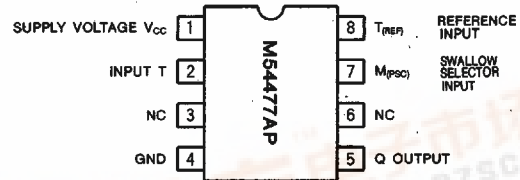
Supply voltage.....4.5~5.5V
Input amplitude..... $-20\sim-4\text{dBm}(f_{in}=80\sim 1000\text{MHz})$

FUNCTION

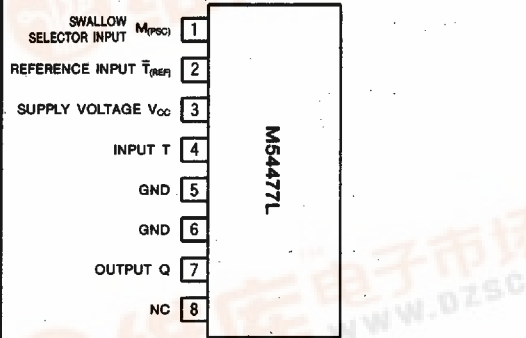
The M54477L/AP, 1/128 or 1/136 prescaler, consists of a high speed frequency divider using an ECL circuit configuration. When the clocks are applied to the pulse swallow control input terminal M, the dividing ratio is 1/136, and when M is stable "H" or "L", it is 1/128. This prescaler operates in the frequency range 80MHz~1000MHz.

The output is the ECL level (1.30Vp-p typ).

PIN CONFIGURATION (TOP VIEW)



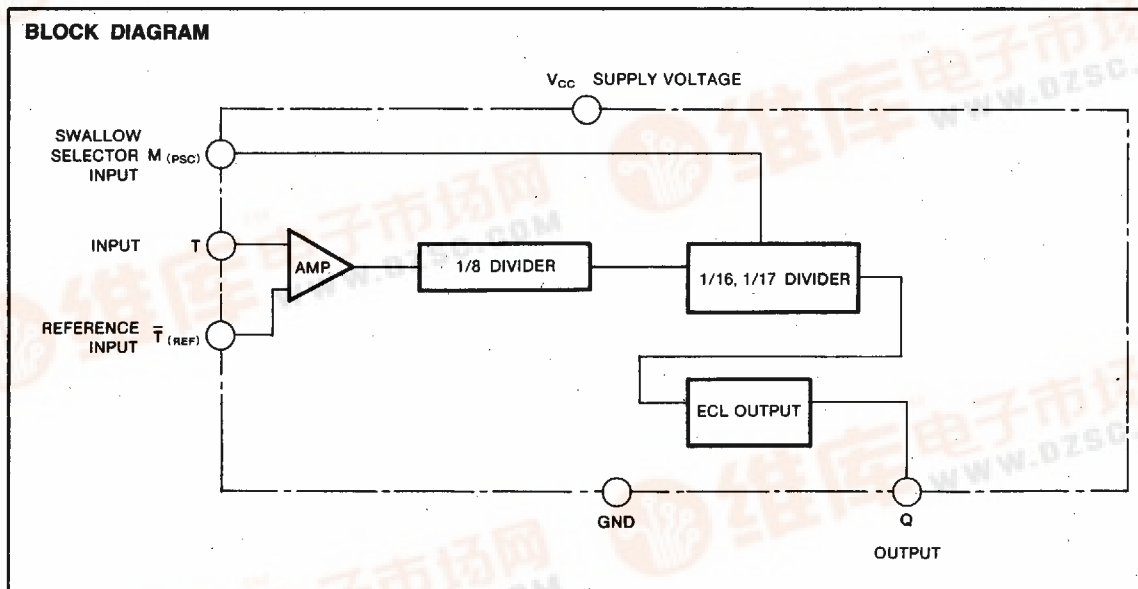
Outline 8P4



Outline 8P5

NC: No Connection

BLOCK DIAGRAM



MITSUBISHI ICs (TV)
M54477L/AP

1/128, 1/136 2-MODULUS HIGH SPEED DIVIDER WITH ECL OUTPUT

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Ratings	Unit
V _{CC}	Supply voltage	-0.4~7	V
V _I	Input voltage	0~V _{CC}	V
P _d	Power dissipation	1.15	W
T _{opr}	Operating temperature	-20~75	°C
T _{stg}	Storage temperature	-55~125	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C, V_{CC}=5.0V, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I _{CC}	Supply current	V _{CC} =5.5V, T _a =25°C		33	50	mA
V _{IN}	Input sensitivity	f _{IN} =80~1000MHz	-20		4	dBm
V _O	Output amplitude	f _{IN} =80~1000MHz, V _{CC} =4.5V	0.9	1.3	1.7	V _{P-P}
V _{IH}	High-level input voltage	M terminal * Note	0.7V _{CC}			V
V _{IL}		M terminal * Note			0.3V _{CC}	V
I _{IH}	When the dividing ratio is 1/136 High-level input current	M terminal * Note V _{CC} =5.0V, V _{IL} =3.5V			50	μA
I _{IL}		M terminal * Note V _{CC} =5.0V, V _{IL} =1.5V			-150	μA

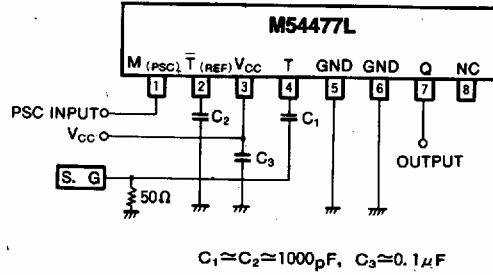
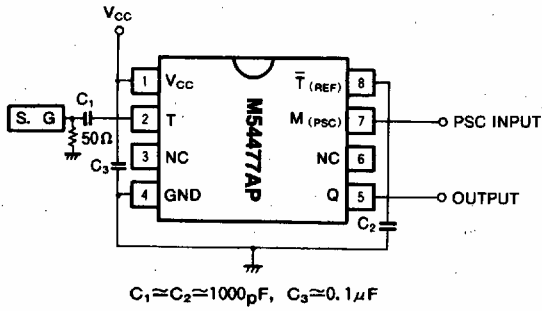
The typical values are at V_{CC}=5.0V, T_a=25°C.

* Note : Input conditions of pulse swallow control input terminal M

Dividing ratio	Input conditions	Description
1/136		When the clocks are applied to the M terminal as shown in the left figure, the dividing ratio changes from 1/128 to 1/136.
1/128	V _{IL} =0V, V _{IH} =V _{CC} or V _{IH} =OPEN	M terminal is stable at GND or V _{CC} or is opened.

1/128, 1/136 2-MODULUS HIGH SPEED DIVIDER WITH ECL OUTPUT

TEST CIRCUIT



TYPICAL CHARACTERISTICS

INPUT AMPLITUDE VS INPUT FREQUENCY

