

DESCRIPTION

The M54460 is a semiconductor integrated circuit consisting of a built-in 1/10 and 1/100 high speed frequency divider featuring an ECL circuit configuration.

FEATURES

- High-speed operation ($f_{max} = 130\text{MHz}$)
- Operation at low input amplitudes (200mV_{P-P} minimum input amplitude)
- Open collector type of output

APPLICATION

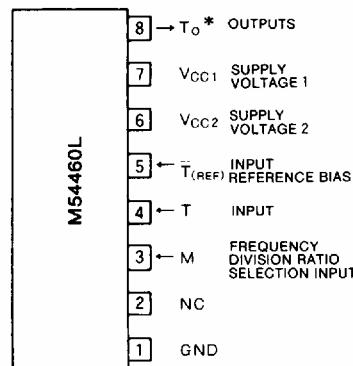
FM radio prescalers

Digital equipment for consumer and industrial applications.

FUNCTION

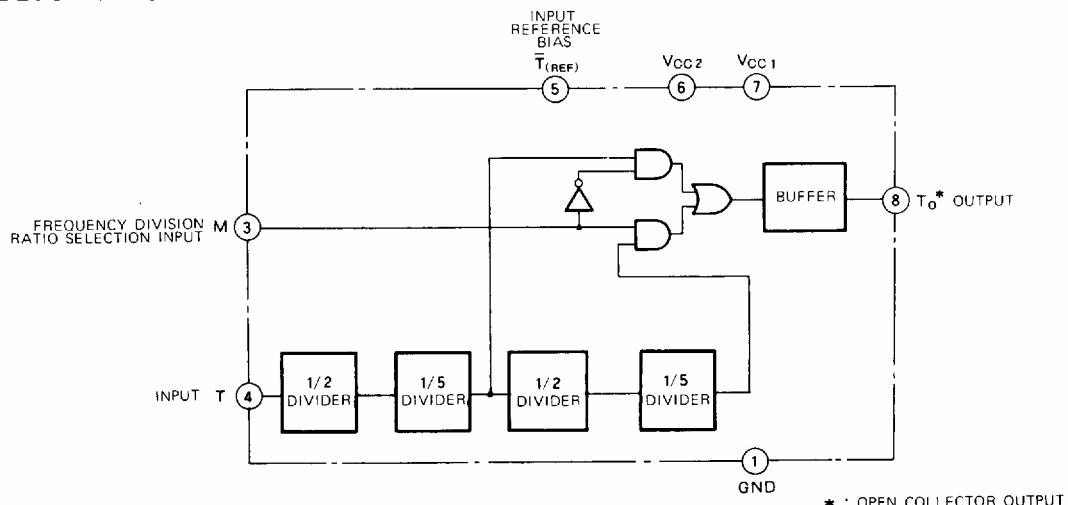
This driver is based on an ECL circuit configuration. When a frequency up to a maximum of 130MHz is applied to the T input pin, a 1/10-divded output is produced when the division ratio selection input pin (M) is low-level or a 1/100-divded output is produced when the division ratio selection input pin (M) is high-level. The output (T_0) is an open collector output.

When you use the V_{CC1} (7pin), the V_{CC2} (6pin) must be opened. And you use the V_{CC2} (6pin), the V_{CC1} (7pin) must be opened.

PIN CONFIGURATION (TOP VIEW)

* : Open connector output
NC : No connection

Outline 8P5

BLOCK DIAGRAM

ABSOLUTE MAXIMUM RATINGS ($T_a = -10 \sim +75^\circ\text{C}$, unless otherwise noted)

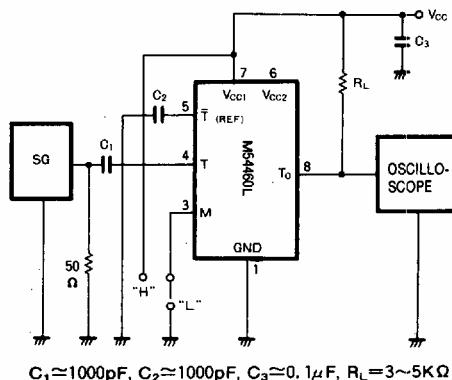
Symbol	Parameter	Conditions	Ratings	Unit
V_{CC1}	Supply voltage 1		5	V
V_{CC2}	Supply voltage 2		7	V
V_i	Input voltage		2.5	V
V_o	Output applied voltage		5.5	V
P_d	Power dissipation	$T_a = 75^\circ\text{C}$	650	mW
T_{opr}	Operating temperature		-10 ~ +75	°C
T_{stg}	Storage temperature		-55 ~ +125	°C

RECOMMENDED OPERATING CONDITIONS ($T_a = -10 \sim +75^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Limits			Unit
			Min	Typ	Max	
V_{CC1}	Supply voltage 1		2.7	3	3.3	V
V_{CC2}	Supply voltage 2		4.5	5	5.5	V
f_{IN}	Input frequency		30		130	MHz
V_{IN}	Input amplitude	$V_{CC1} = 3V, f_{IN} = 30 \sim 130\text{MHz}$	200		800	mV _{p-p}
$V_{IH(M)}$	High-level M input voltage	$V_{CC1} = 3V, V_{CC2} : \text{Open}$	2.6		3	V
$V_{IL(M)}$	Low-level M input voltage	$V_{CC1} : \text{Open}, V_{CC2} = 5V$			0.4	V

ELECTRICAL CHARACTERISTICS ($T_a = -10 \sim +75^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{CC1}	Supply current 1	$V_{CC1} = 3V$		6	9	mA
I_{CC2}	Supply current 2	$V_{CC2} = 5V$		8		mA
V_{IN}	Input frequency	$V_{CC1} = 3V, f_{IN} = 30 \sim 130\text{MHz}, T_a = 25^\circ\text{C}$			150	mV _{p-p}
$I_{IH(M)}$	High-level M input current	$V_{CC} = 3V, V_{IH(M)} = 2.6V$		2		μA
$I_{IL(M)}$	Low-level M input current	$V_{CC} = 3V, V_{IL(M)} = 0.4V$		0.1		μA
$I_{O(\text{leak})}$	Output leak current	$V_{CC} = 3V, V_o = 5.5V$			100	μA
V_{OL}	Low-level output voltage	$V_{CC} = 3V, I_{OL} = 5mA$			0.5	V

 f_{max} TEST CIRCUIT

Notes : The "H" level of the frequency divider ratio change input M should be 2.6V (min) and 3V (max) when V_{CC1} is used as the power supply, M input can be connected directly to V_{CC1} . When V_{CC2} is used, "H" level should be seen to with in the range of values given above.

TYPICAL CHARACTERISTICS

