

DESCRIPTION

The M54819L is an I^2L semiconductor integrated circuit consisting of a divider circuit which provides seven types of frequency divide ratios.

FEATURES

- Built-in regulated power supply
- Maximum operating frequency $f_{max} = 3.0\text{MHz}$
- Reset function
- Selectable divide ratio
1/2, 1/4, 1/6, 1/8, 1/10, 1/12, or 1/16
- Wide supply voltage range ($V_{CC} = 4.0 \sim 14.5\text{V}$)
- Low power consumption ($I_{CC} = 3\text{mA}$ for $V_{CC} = 14.5\text{V}$)

APPLICATION

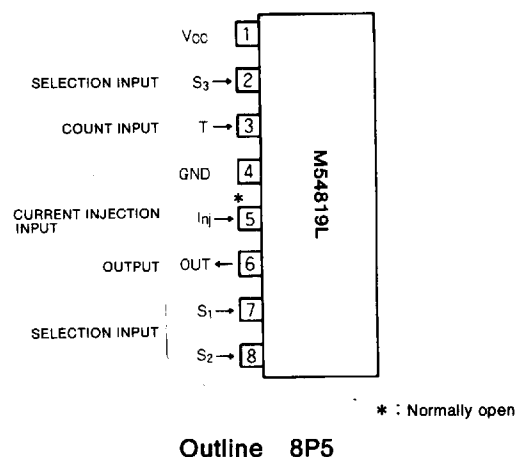
General consumer equipment, frequency dividers

FUNCTION

The M54819L is designed for use as a general purpose frequency divider and consists of a regulated power supply, and dividers with divide ratios of 1/3, 1/5, and 1/16.

The output frequency division ratio is selectable and determined by a 3-input binary coded division ratio input. This allows the selection of one out of seven division ratios (1/2, 1/4, 1/6, 1/8, 1/10, 1/12, or 1/16). The output is a current source/sink type output capable of sourcing $100\mu\text{A}$ and sinking 1.6mA .

The built-in regulated power supply operates over a wide voltage range from 4.0 to 14.5V. A current injection input is provided to increase operating speed. By supplying this

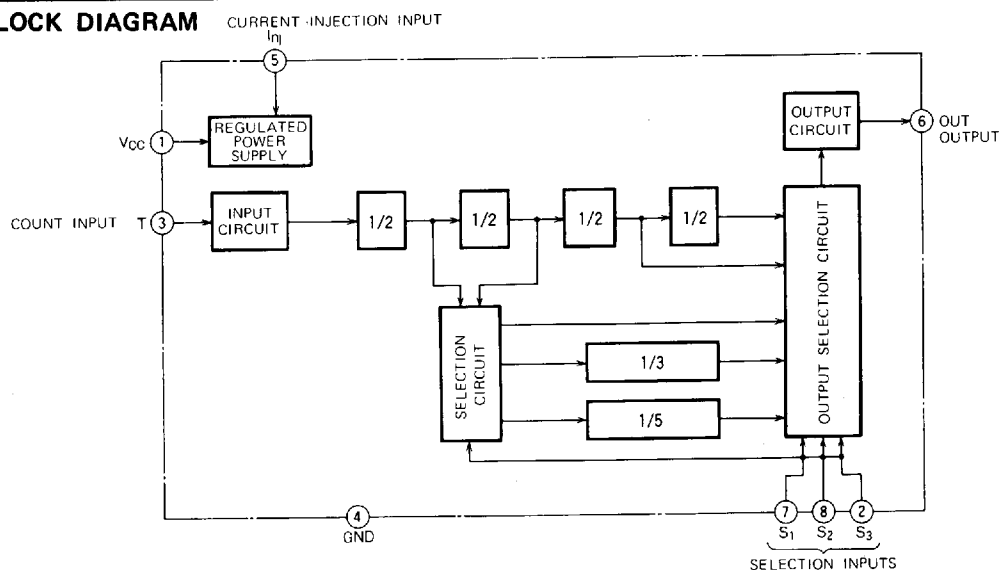
PIN CONFIGURATION (TOP VIEW)

pin with current, the input count frequency can be raised to a maximum of 2MHz.

Resetting is accomplished by setting all the division ratio inputs to high-level, whereupon the internal divider circuits are cleared, the output going to low-level.

PRESETTABLE FUNCTION TABLE

Selection inputs	S ₁	H	H	H	L	L	L	H	L
	S ₂	H	L	H	H	L	L	L	L
	S ₃	H	H	L	H	L	H	L	L
Output divide ratio	Reset	1/2	1/4	1/6	1/8	1/10	1/12	1/16	

BLOCK DIAGRAM

PRESETTABLE DIVIDER

ABSOLUTE MAXIMUM RATINGS (Ta = -20 ~ +75 °C, unless otherwise noted)

Symbol	Parameter		Conditions	Ratings	Unit
VCC	Supply voltage			15	V
VI	Input voltage	Count input T		4	V
		Selection inputs S1, S2, S3		15	
VO	Output voltage			6	V
Topr	Operating temperature			-20 ~ +75	°C
Tstg	Storage temperature			-55 ~ +125	°C

RECOMMENDED OPERATING CONDITIONS (Ta = -20 ~ +75 °C, unless otherwise noted)

Symbol	Parameter	Limits			Unit
		Min	Typ	Max	
VCC	Supply voltage	4		14.5	V
IOL	Low-level output current			1.6	mA

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

Symbol	Parameter		Test conditions	Limits			Unit
				Min	Typ*	Max	
VIH	High-level input voltage	Count input T		0.9			V
		Selection inputs S1, S2, S3		2			
VIL	Low-level input voltage	Count input T				0.3	V
		Selection inputs S1, S2, S3				0.6	
VOH	High-level output voltage		VCC = 7V, IOH = -0.1 mA	2.4			V
			VCC = 4V, IOH = -0.1 mA	0.8			
VOL	Low-level output voltage		VCC = 7V, IOL = 1.6 mA			0.4	V
IIH	High-level input current	Count input T	VCC = 14.5V, VI = 1V			1.5	mA
		Selection inputs S1, S2, S3	VCC = 14.5V, VI = 14.5V			100	
IIL	Low-level input current	Count input T	VCC = 14.5V, VI = 0.2V			-10	μA
		Selection inputs S1, S2, S3	VCC = 14.5V, VI = 0V			-100	
Ios	Output short-circuit current		VCC = 14.5V, VO = 0V	-0.1		-1	mA
Icc	Circuit current		VCC = 14.5V, VI = VCC (pins 2, 7, 8)		3	5	mA

* : A typical value is at Ta=25°C.

APPLICATION EXAMPLE

Capstan motor control application (1/128 divider)

