

10GHz Programmable Divide-by-2 to 31 DV31P

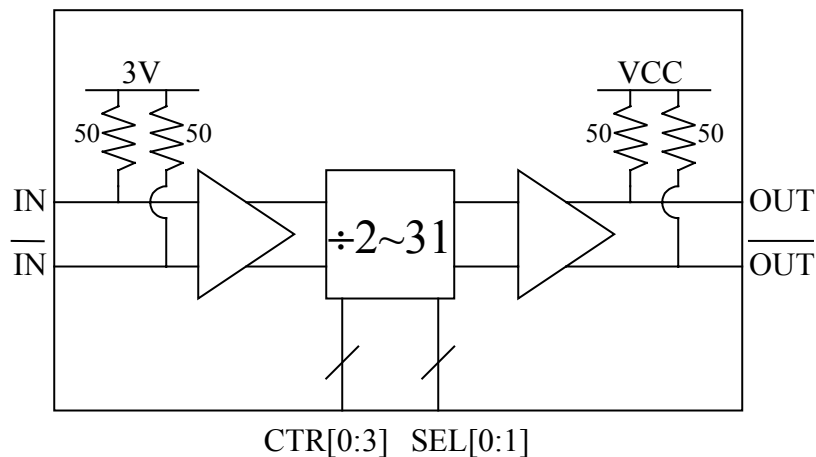
PRODUCT DESCRIPTION

DV31P is a high-speed programmable modulus (2 to 31) static divider in 24-pin 4x4mm plastic QFN package. Due to its high input sensitivity, low output phase noise, and small size, DV31P is well suited for wide-range of applications from communications, instrumentation, radios/radar, to medical etc. It has differential input and output and accepts input frequency from 0.2GHz (sine wave, DC for square wave) to 10GHz. TTL/LVTTL-compatible control pins are provided to select modulus between 2 and 31. A single power supply of +5V is required.

KEY FEATURES

- 0.2-10GHz Bandwidth
- Programmable modulus of 2 to 31
- Low phase noise: -140 dBc/Hz
- High input sensitivity: -22 dBm
- Output amplitude: 800 mVp-p (differential)
- Differential input and output
- 50Ω input/output impedance
- Single power supply: +5V
- Current consumption: 105mA
- 24-pin 4x4mm plastic QFN package

BLOCK DIAGRAM



ELECTRICAL SPECIFICATIONS

Room temperature, $Z_o=50\Omega$, $V_{cc}=+5V$

Parameter	Conditions	Min	Typical	Max	Units
Ambient Temperature		-40	25	85	°C
Max input frequency	Sine wave input		10		GHz
Min input frequency ¹	Sine wave input		0.2		GHz
Input power ²	$f_{in}=0.2-10GHz$, single ended	-22		10	dBm
Output amplitude 1	$f_{in}=10GHz$, single ended		400		mVp-p
Output amplitude 2	$f_{in}=10GHz$, differential		800		mVp-p
Feedthrough	Input frequency at output		-25		dB
Reverse isolation	< 10GHz		30		dB
Phase noise	SSB 100kHz offset		-140		dBc/Hz
Output rise/fall time	20% to 80%		50		ps
Input/output return loss	< 10GHz		12		dB
Output Impedance	DC, output pin to V_{cc}	45	50	55	Ω
Control Low Level ³	DC, control pin to GND	-0.3	0	0.3	V
Control High Level ³	DC, control pin to GND	1.0	2.0	3.5	V
Current Consumption			105		mA

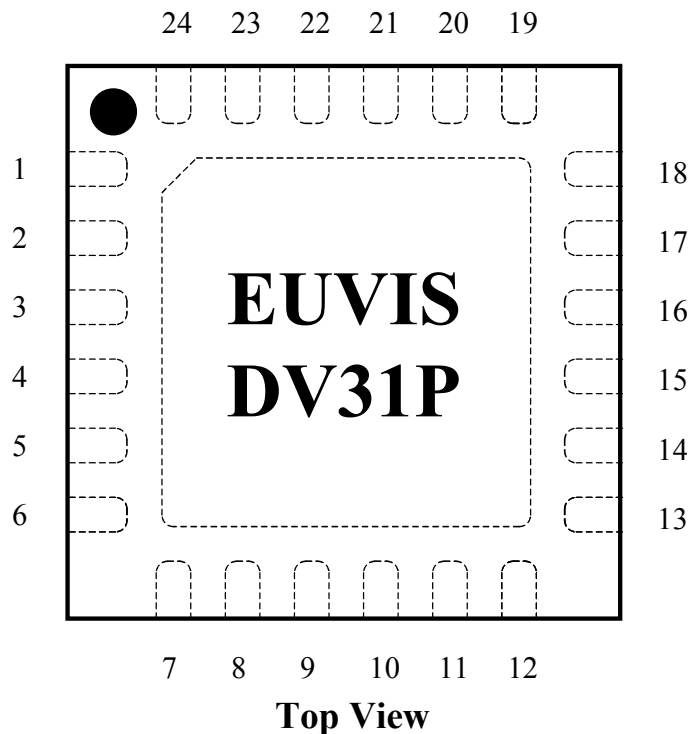
¹ Minimum input frequency is DC with square-wave input signal.² AC coupling is recommended for input signals. Common mode voltage of 3V is required for DC-coupled input signals in order to match internal input bias of 3V.³ SEL[0:1] and CTR[0:3] modulus selection and control pins.

PIN DESCRIPTION

Pin No.	Name	Signal
1, 3, 5, 6, 13, 14, 18	GND	Ground
2	IN	Input
4	IN_	Complimentary input
7, 11, 12, 16, 20, 24	VCC	Positive power supply (+5V)
8	CTR0	TTL/LVTTL-compatible modulus control 0
9	CTR1	TTL/LVTTL-compatible modulus control 1
10	N/C	No connection
15	OUT	Divided output
17	OUT_	Divided complimentary output
19	SEL1	TTL/LVTTL-compatible modulus selection 1
21	SEL0	TTL/LVTTL-compatible modulus selection 0
22	CTR3	TTL/LVTTL-compatible modulus control 3
23	CTR2	TTL/LVTTL-compatible modulus control 2

PIN ASSIGNMENT

- Package type: 24-pin 4mm x 4mm plastic QFN
- Thickness: 1mm



MODULUS TABLE

Modulus	SEL0	SEL1	CTR0	CTR1	CTR2	CTR3
<i>+2</i>	0	0	0	*	*	*
<i>+3</i>	0	0	1	*	*	*
<i>+4</i>	1	0	0	0	*	*
<i>+5</i>	1	0	1	0	*	*
<i>+6</i>	1	0	0	1	*	*
<i>+7</i>	1	0	1	1	*	*
<i>+8</i>	0	1	0	0	0	*
<i>+9</i>	0	1	1	0	0	*
<i>+10</i>	0	1	0	1	0	*
<i>+11</i>	0	1	1	1	0	*
<i>+12</i>	0	1	0	0	1	*
<i>+13</i>	0	1	1	0	1	*
<i>+14</i>	0	1	0	1	1	*
<i>+15</i>	0	1	1	1	1	*
<i>+16</i>	1	1	0	0	0	0
<i>+17</i>	1	1	1	0	0	0
<i>+18</i>	1	1	0	1	0	0
<i>+19</i>	1	1	1	1	0	0
<i>+20</i>	1	1	0	0	1	0
<i>+21</i>	1	1	1	0	1	0
<i>+22</i>	1	1	0	1	1	0
<i>+23</i>	1	1	1	1	1	0
<i>+24</i>	1	1	0	0	0	1
<i>+25</i>	1	1	1	0	0	1
<i>+26</i>	1	1	0	1	0	1
<i>+27</i>	1	1	1	1	0	1
<i>+28</i>	1	1	0	0	1	1
<i>+29</i>	1	1	1	0	1	1
<i>+30</i>	1	1	0	1	1	1
<i>+31</i>	1	1	1	1	1	1

*Don't care

ORDERING INFORMATION

Email: sales@euvis.com

Tel: (805) 583-9888

Fax: (805) 583-9889

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