

Voltage to Frequency Converter Module

Introduction

The ER-VFC-30 voltage-to-frequency converter (VFC) is a powerful building block for precision analog-to-digital conversion, offering typical non-linearity of 0.005% (0.01% maximum) at a 200 kHz output frequency. The module does not need to connect any additional components and can continuously convert three current signals at the same time.

Features

Ultra-low offset

Minimal nonlinear error

Adjustable current measurement range

No critical external components required

Low power consumption

Voltage or current input

Electrical Characteristics

$V_{CC}=+15V\pm3\%$, $V_{EE}=-15V\pm3\%$, $V_{DD}=+5V\pm3\%$

Parameters	Test conditions	Min	Typ	Max	Unit
Input current scale	TA= −40°C to 85°C	–	±30	–	mA
Scale factor	TA= −40°C to 85°C		7000	–	pulses/s/mA
Scale factor linearity error	I _{in} = 0±30mA		50	100	ppm
	TA= −40°C to 85°C				
Scale factor VS temperature	TA= −40°C to 85°C		20	50	ppm/°C
Scale factor asymmetry	I _{in} = ±1mA, TA= 25°C		100		ppm
Max output frequency	TA= −40°C to 85°C	–	–	256	kHz
Offset current	TA= −40°C to 85°C		60	100	nA
Single power-on stability	I _{in} = ±1mA, TA= 25°C		30	50	ppm
Temperature range		−40		85	°C
Dimension	48*40*10.5	mm			
Interface	J30JZLN21ZKWA000				

Power Supply

Parameters	Range	Current
V _{CC}	+15V±3%	≤0.02A
V _{EE}	-15V±3%	≤0.02A
V _{DD}	+5V±3%	≤0.03A

Pin Configuration and Functions

Pin	Name	I/O	Description
1	V _{DD}	—	5V power supply
2	V _Z	I	Z channel input
3	AGND	—	±15V analog GND
4	NC	—	NC
5	NC	—	NC
6	NC	—	NC
7	NC	—	NC
8	AGND	—	±15V analog GND
9	V _X	I	X channel input
10	AGND	—	±15V analog GND
11	V _{EE}	—	-15V power supply
12	DGND	—	+5V digital GND
13	F1A	O	X channel output A
14	F1B	O	X channel output B
15	F2A	O	Y channel output A
16	F2B	O	Y channel output B
17	F3A	O	Z channel output A
18	F3B	O	Z channel output B
19	AGND	—	±15V analog GND
20	V _Y	I	Y channel input
21	V _{CC}	—	15V power supply