

High Precision V/F Conversion Circuit

Introduction

ER-VFC-G30M is a high-precision voltage/frequency conversion circuit with charge integration, which can simultaneously convert the current signals output by three accelerometers continuously. The product has the characteristics of small volume, low power consumption and high precision.

Specification

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

Spec.	Test condition	Min	Typical	Max	Unit
Measuring range FS	whole temperature range	± 30	—	—	mA
Scale factor SF	whole temperature range	—	3500	—	pulses/s/mA
Maximum output frequency	whole temperature range	—	—	128	kHz
Zero position F0	room temperature	0	—	100	nA
Temperature coefficient (absolute value)	whole temperature range	—	—	20	ppm/ $^{\circ}\text{C}$
Scale factor asymmetry	$I=\pm 1\text{mA}$, $T^{\circ}\text{C}=25^{\circ}\text{C}$	—	—	2	pulse/s/mA
Scale factor asymmetry	whole temperature range $1\text{mA}\leq I \leq \text{FS}$	—	50	100	ppm
Single power stability (1σ)	$I=\pm 1\text{mA}$, $T^{\circ}\text{C}=25^{\circ}\text{C}$	—	30	50	ppm
Operating temperature range TC	—	-45	—	70	$^{\circ}\text{C}$
Size	76*50*9.0	mm	—	—	—
Interface form	double line pin extraction	—	—	—	—

Power supply requirements

Item	Recommended range	Steady-state current	Internal capacitance value 2
+15V Power supply	$+15V\pm 3\%$	$\leq 0.02\text{A}$	$\leq 50\mu\text{F}$
-15V Power supply	$-15V\pm 3\%$	$\leq 0.02\text{A}$	$\leq 50\mu\text{F}$
+5V Power supply	$+5V\pm 3\%$	$\leq 0.03\text{A}$	$\leq 50\mu\text{F}$

Connector pin definition

No.	Name	Type	Details	To
1	DGND	digital ground	digital ground	Pulse acquisition board
2	TB	input	clock input	Pulse acquisition board
3	F3B	output	Z channel negative pulse output	Pulse acquisition board

4	F3A	output	Z channel negative pulse output	Pulse acquisition board
5	F2B	output	Y channel negative pulse output	Pulse acquisition board
6	F2A	output	Y channel negative pulse output	Pulse acquisition board
7	F1B	output	X channel negative pulse output	Pulse acquisition board
8	F1A	output	X channel negative pulse output	Pulse acquisition board
9	GND	Power ground	power ground	DC/DC power panel
10	+5V	Power supply	+5V power supply	DC/DC power panel
11	-15V	Power supply	-15V power supply	DC/DC power panel
12	+15V	Power supply	+15V power supply	DC/DC power panel
13	SGND	signal ground	X channel accelerometer input low end	accelerometer
15	SGND	input	Y channel accelerometer input low end	accelerometer
16	IY	input	Y way accelerometer input high end	accelerometer
17	SGND	Power ground	Z-channel accelerometer input low end	accelerometer
18	IZ	Power ground	Z-channel accelerometer input high end	accelerometer