High Output Frequency I/F Conversion Circuit

Introduction

ER-IFC-G10 is a high-precision current/frequency conversion circuit using charge integration. This conversion circuit can continuously convert the current signals output by three accelerometers at the same time. The three channels work independently without mutual influence. It has the characteristics of small volume, high output frequency and high precision.

Specifications

Power supply: VCC=+15V±3%, VEE=-15V±3%, VDD=+5V±3%

Spec.	Test condition	Min	Typical	Max	Unit
Measuring range FS	whole temperature range	±13	–	–	mA
Scale factor SF	whole temperature range	–	15000	–	pulses/s/mA
Maximum output frequency	whole temperature range	–	–	256	kHz
Zero position F0	Room temperature	0	–	10	nA
Zero deviation temperature coefficient	Full temperature range (absolute value)	–	–	0.1	nA/℃
Temperature coefficient (absolute value)	whole temperature range	–	–	5	ppm/℃
Scale factor asymmetry	I=±1mA, TC=25℃	0	50	100	ppm
Synthetic non-linearity	whole temperature range 1mA≤|I|≤FS	–	30	50	ppm
Operating temperature range TC	–	-45	–	70	℃
Size	60*60*13	mm			
Interface form	Welding wire leads				

Power supply requirements

Items	Recommended range	Steady-state current	Internal capacitance value2
+15 Power supply	+15V±3%	≤0.10A	≤50uF
-15V Power supply	-15V±3%	≤0.10A	≤50uF
+5V Power supply	+5V±3%	≤0.20A	≤50uF

Connector pin definition

No.	Name	Type	Details	To
1	Fclk	Output	256kHz Synchronized square wave clock	Pulse acquisition board
2	F1A	Output	X channel pulse output A	Pulse acquisition circuit
3	F2A	Output	Y channel pulse output A	Pulse acquisition circuit
4	F1B	Output	X channel pulse output B	Pulse acquisition circuit
5	F2B	Output	Y channel pulse output B	Pulse acquisition circuit
6	F3A	Output	Z channel pulse output A	Pulse acquisition circuit
7	DGND	GND	+5V power supply, output pulse ground	DC/DC power panel
8	F3B	Output	Z channel pulse output B	Pulse acquisition circuit
9	AGND	GND	±15V Power supply, input current ground	DC/DC power panel
10	VDD	Power supply	5V power supply	DC/DC power panel
11	IZ	Input	Z-channel accelerometer input high end	Acceleromter
12	VEE	Power supply	-15V power supply	DC/DC power panel
13	IY	Input	Y-channel accelerometer input high end	Accelerometer
14	AGND	GND	±15V Power supply ground	DC/DC power panel
15	I^X	Input	X -channel accelerometer input high end	Accelerometer
16	VCC	Power supply	+15V power supply	DC/DC power panel