

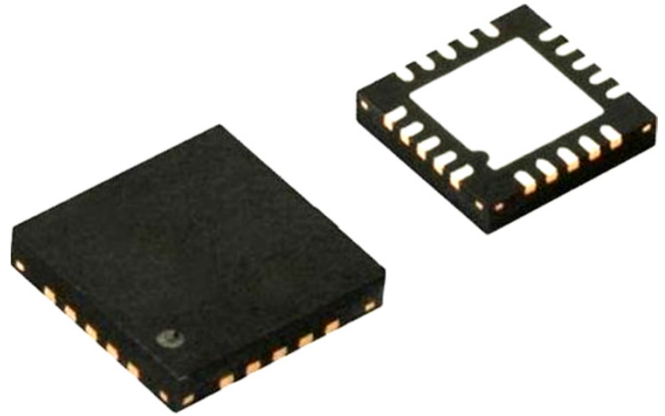


Applications

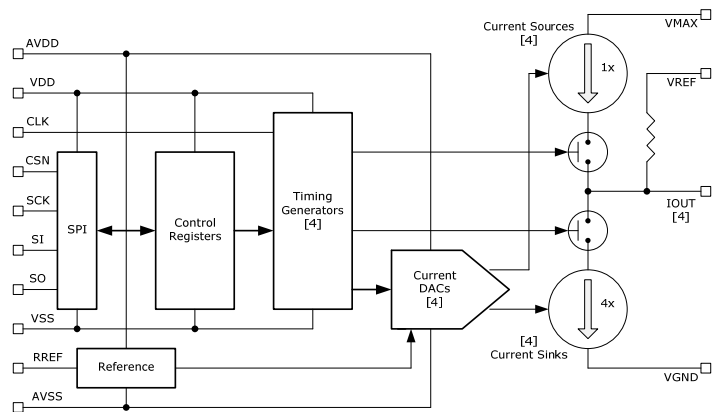
- Neurostimulation/Neuromodulation
- Battery Powered Applications
- MEMS and Sensor Applications
- Implantable Pulse Generators

Features

- 4 Output Channels per IC
- Unlimited Expansion Capability
- Fully Programmable Pulse Timing
- 8-Bit Programmable Amplitude
- Integrated Charge Balancing
- SPI Programmable Output Current Range
- High Output Current [up to 6mA]
- High Output Voltage [up to 18V]
- Low Voltage SPI Interface [2.5V]
- Low Overhead Power [< 10mW]
- Ultra-Low Standby Power [< 25uW]
- Real-Time Status for All Channels
- SPI-Writable Trigger Register to Synchronize Multiple Channels & ICs
- Small 4mm x 4mm QFN20 Package



Functional Block Diagram



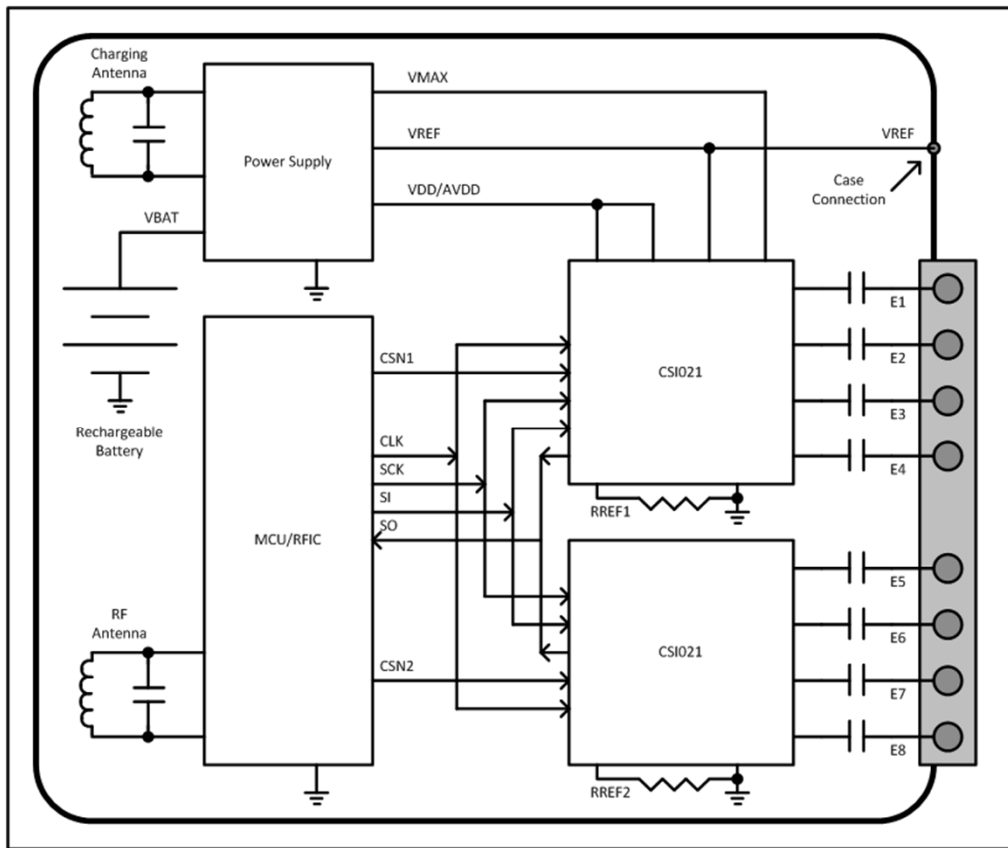
General Description

The CSI021 features 4 independent DAC-programmable current sink/source outputs with up to 6mA/1.5mA full-scale currents. An 18V supply voltage allows for 6mA output currents into 1.5KΩ loads. The CSI021 pulse timing is fully programmable via a 10MHz, 2.5V SPI. Programmable parameters include sink/source pulse widths, pulse frequencies, stimulation on/off periods, and amplitude ramp rates. Internal timing generators in the CSI021 use the programmed parameters to create waveform profiles with only minimal intervention from a host processor, and a 4:1 sink to source current ratio provides for easy stimulation charge balancing.

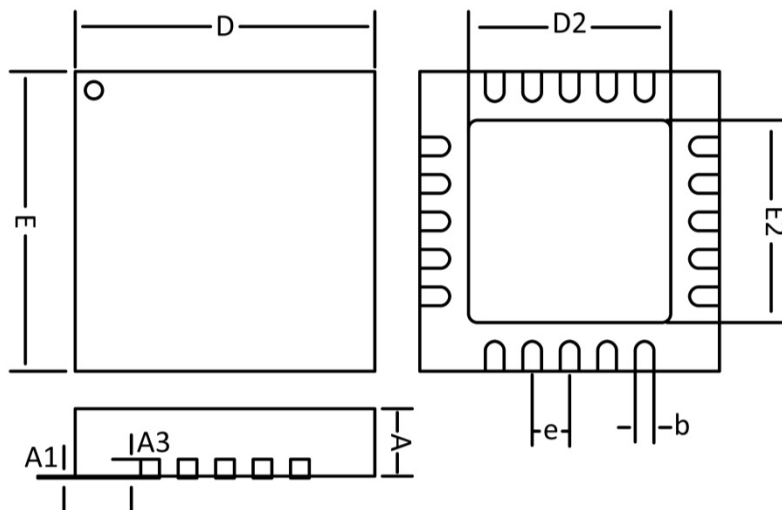
Pin Configuration

Pin	Name	Pin	Name
1	CSN	11	IOUT3
2	SCK	12	IOUT2
3	SI	13	IOUT1
4	SO	14	IOUT0
5	CLK	15	VREF
6	VSS	16	VMAX
7	AVSS	17	TESTEN
8	RREF	18	ITEST
9	AVDD	19	NRESET
10	VGND	20	VDD

Typical Application Diagram



Packaging



Dim	Min	Typ	Max
A	0.80		1.00
A1	0.00		0.05
A3		0.20	
b	0.18		0.30
D		4.00	
E		4.00	
e		0.50	
D2	2.65		2.75
E2	2.65		2.75

All dimensions in mm
Final dimensions subject to change

Ordering Information

Part Number	Description
CSI021-020	Packaged Part – QFN20