

GW4236

High efficient PV constant voltage boost PMIC with DCDC output

Description

The GW4236 is a fully integrated, compact power management circuit designed to extract DC power from a harvesting source, store it in a rechargeable battery, and supply an application circuit. It also allows for battery charging via a 5V input, useful when the battery is depleted. This ultra-efficient battery charger extends battery life and removes the need for primary energy storage in a wide range of applications.

The GW4236 uses constant voltage regulation to optimize power extraction from the source for charging the storage element. Its unique cold-start circuit enables operation with input voltages as low as 275mV and a minimum power of 5μW. Configurable protection levels set voltage thresholds to prevent overcharging and over-discharging, protecting the storage element from damage.

A shipping mode is available to prevent charging and discharging during transport or storage. Additionally, a buck regulator with selectable output voltage provides high-efficiency power to the application circuit.

Features

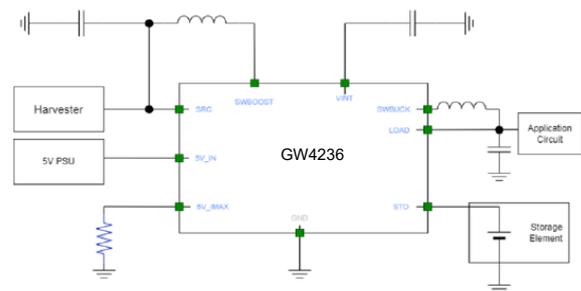
- Ultra-Low Power Startup
 - Cold start capability from 275mV/5μW input
 - Initiates at ultra-low power from energy harvesting sources
- Constant Input Voltage Mode
 - Optimized for constant voltage photovoltaic (PV) cells
 - Selectable input regulation voltage
 - Extracts up to 110 mA current from the harvester
- Overdischarge and Overcharge Protection
 - Supports various types of rechargeable batteries (LiC, Li-ion, LiPo, etc.)
- Regulated Output for Application Circuit
 - Buck regulator with efficiency above 90%
 - Selectable output voltage (2.2V, 2.5V or 2.8V)
 - Output current up to 135mA

- System Configuration via GPIO
 - All settings are dynamically configurable through Control Pins
- Shipping Mode
 - Disables charging and discharging of the battery during shipment
- External 5 V Charging Capability
 - Additional charging input for 5V power supplies
 - CC/CV charging with configurable current limit in CC mode (max. 135mA)
 - Provides a fast charging alternative when no source is available for an extended period
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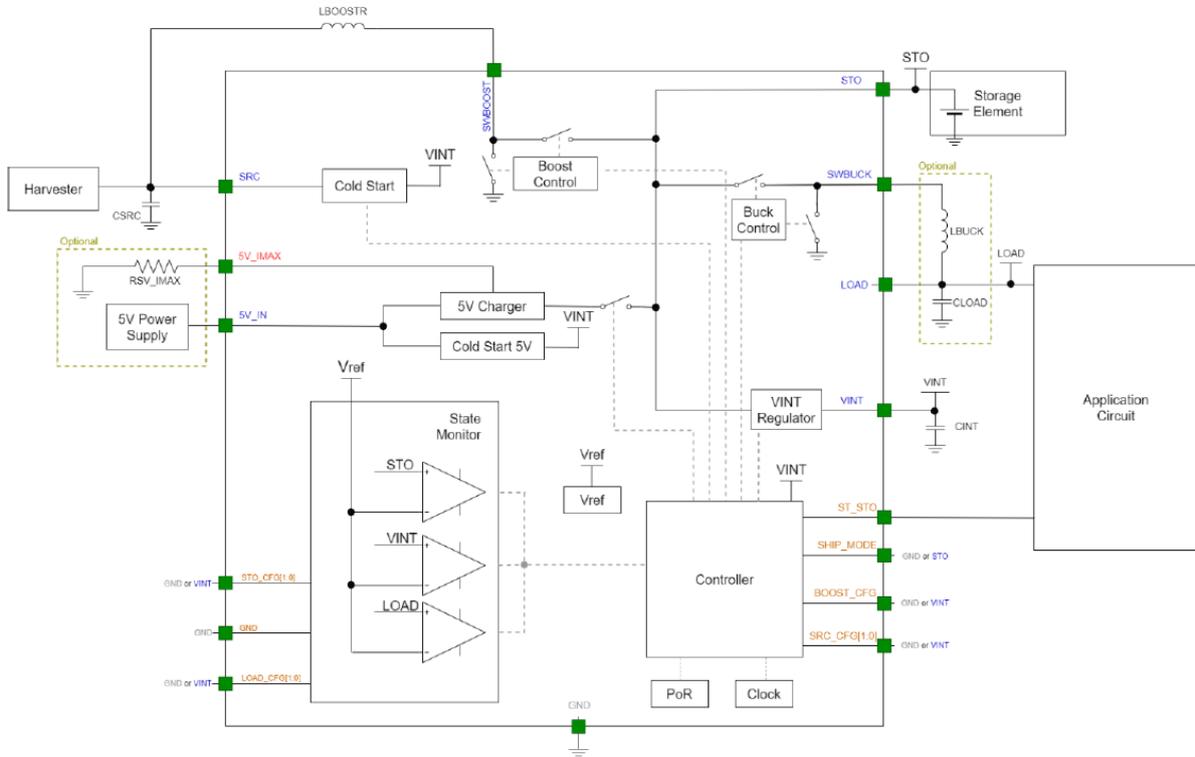
Typical Applications

- Smart home
- Smart building
- Edge IoT
- Industrial sensor
- Retail
- PC accessories

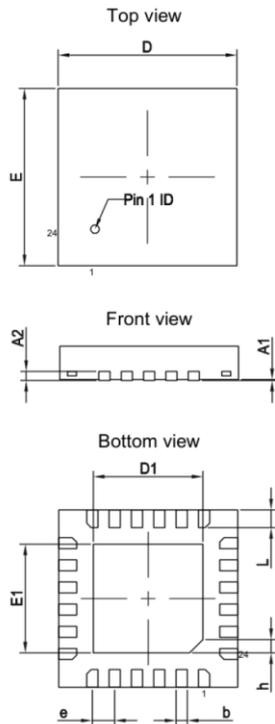
Basic Application Diagram



Block Diagram



Package Information



	SYMBOL	MIN	NOM	MAX
TOTAL THICKNESS	A	0.70	0.75	0.80
STAND OFF	A1	0.00	0.02	0.05
L/F THICKNESS	A2		0.203REF	
LEAD WIDTH	b	0.20	0.25	0.30
BODY SIZE X	D	3.90	4.00	4.10
EP SIZE X	D1	2.35	2.45	2.55
BODY SIZE Y	E	3.90	4.00	4.10
EP SIZE Y	E1	2.35	2.45	2.55
LEAD PITCH	e		0.50BSC	
LEAD LENGTH	L	0.35	0.40	0.45
CHAMFER	h	0.20	0.30	0.40
LF PAD SIZE	X	2.90	Y	2.90

Ordering Information

Device name	Package	Remark
GW4236	4.0mmx4.0mm, 0.5mm pitch	QFN24

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