

Description

IT2359 is a monolithic step-down switch mode converter with a built-in power MOSFET. It achieves 1.2A peak output current over a wide input supply range with excellent load and line regulation. Current mode operation provides fast transient response and eases loop stabilization. Fault condition protection includes cycle-by-cycle current limiting and thermal shutdown.

IT2359 requires a minimum number of readily available standard external components and is available in SOT23-6 packages.

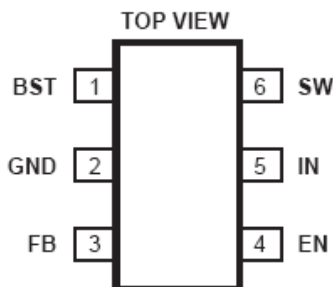
Features

- 1.2A Peak Output Current
- 0.35Ω Internal Power MOSFET Switch
- Stable with Low ESR Output Ceramic Caps.
- Up to 92% Efficiency
- Fixed 1.4MHz Frequency
- Thermal Shutdown
- Cycle-by-Cycle Over Current Protection
- Wide 4.5V to 24V Operating Input Range
- Output Adjustable from 0.82V to 15V
- Available in SOT23-6

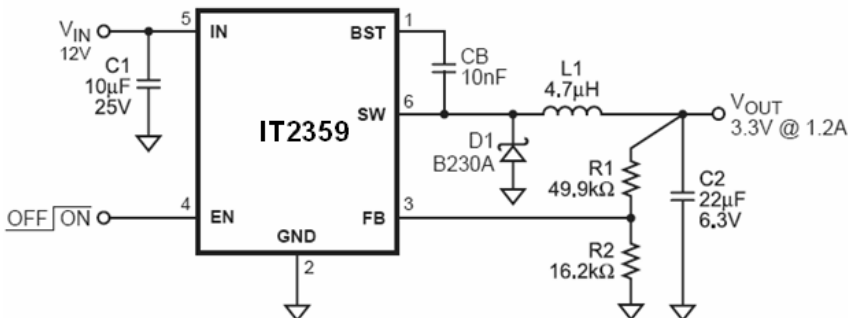
Applications

- Distributed Power Systems
- Battery Charger
- Pre-Regulator for Linear Regulators
- WLED Drivers

Pin Configuration



Typical Application



Pin Functions

Pin #	Name	Description
1	BST	Bootstrap. A capacitor is connected between SW and BS pins to form a floating supply across the power switch driver. This capacitor is needed to drive the power switch's gate above the supply voltage.
2	GND	Ground. This pin is the reference for the regulated output voltage. Care must be taken in its layout. This node should be placed outside of the D1 to C1 ground path to prevent switching current spikes from inducing voltage noise into the part.
3	FB	Feedback. An external resistor divider from the output to GND, tapped to the FB pin sets the output voltage. To prevent current limit run away during a short-circuit fault condition, the fold-back comparator lowers the oscillator frequency when the FB voltage is below 250mV.
4	EN	On/Off Control Input. Pull EN above 1.2V to turn the device on.
5	IN	Supply Voltage. The IT2359 operates from a +4.5V to +24V unregulated input. C1 is needed to prevent large voltage spikes from appearing at the input.
6	SW	Switch Output.

Absolute Maximum Ratings ⁽¹⁾

Supply Voltage V_{IN}	26V
V_{SW}	27V
V_{BS}	$V_{SW}+6V$
All other pins	-0.3V to 6V
Junction Temperature	150°C
Lead Temperature	260°C
Storage Temperature	-60°C to +150°C
Continuous Power Dissipation ⁽²⁾ $T_A=+25°C$	
SOT23-6	0.5W

Recommended Operating Conditions ⁽³⁾

Supply Voltage V_{IN}	4.5V to 24V
Output Voltage V_{OUT}	0.82V to 15V
Ambient Temperature	-40°C to +85°C

Thermal Resistances

	θ_{JA}	θ_{JC}	
SOT23-6	220	110	°C/W

Notes:

- (1) Exceeding these ratings may damage the device.
- (2) The maximum allowable power dissipation is a function of the maximum junction temperature $T_{J(MAX)}$, the junction-to-ambient thermal resistance θ_{JA} , and the ambient temperature T_A . The maximum allowable continuous power dissipation is calculated by $P_{D(MAX)} = (T_{J(MAX)} - T_A) / \theta_{JA}$. Exceeding the maximum allowable power dissipation will cause excessive die temperature, and the regulator will go into thermal shutdown.
- (3) The device is not guaranteed to function outside its operating conditions.