

RS31390 Stackable 60A eFuse with PMBus Digital Telemetry

Features

- Wide input voltage range: 2.97V to 16V
- Integrated 0.8mΩ Pass MOSFET
- Support 50A DC current and 60A peak current
- Standalone mode or primary mode in parallel application
- PMBus interface for configuration and telemetry
- Accurate current monitor
- Adjustable output soft start time
- Adjustable current limit during soft start and steady state
- Adjustable short circuit current limit
- Fast trip short-circuit protection
- Fault and power good indication
- Programmable Latch-off mode or hiccup mode for input OV, over current, short circuit, over-temperature protections.
- Input to output short circuit detection
- RoHS compliant and Green

Applications

- Graphics and accelerator cards
- Servers and high-performance computing
- Networking

- Hotswap

Description

The RS31390 is an active circuit protection device with integrated MOSFET used to limit current and voltage to safe levels during fault conditions.

The current limit level during startup and steady state can be set separately. Also, the device has integrated current sense to provide current monitor signal.

To limit the inrush current during device turn-on, the output soft start time can be set by a capacitor between DVDT and ground.

With PMBus interface, it allows user to configure and monitor the device.

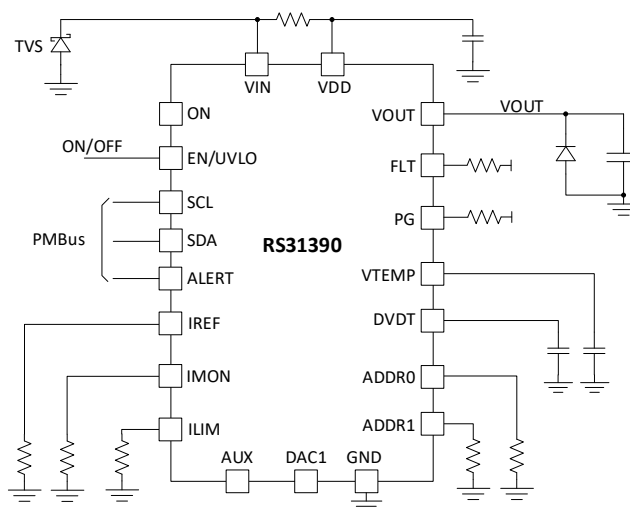
In addition, the device provides fault indication to the system for monitoring and control.

RS31390 can work with RS31389 in parallel for higher current applications.

The device is available in QFN-26, 4.5x5 mm package.

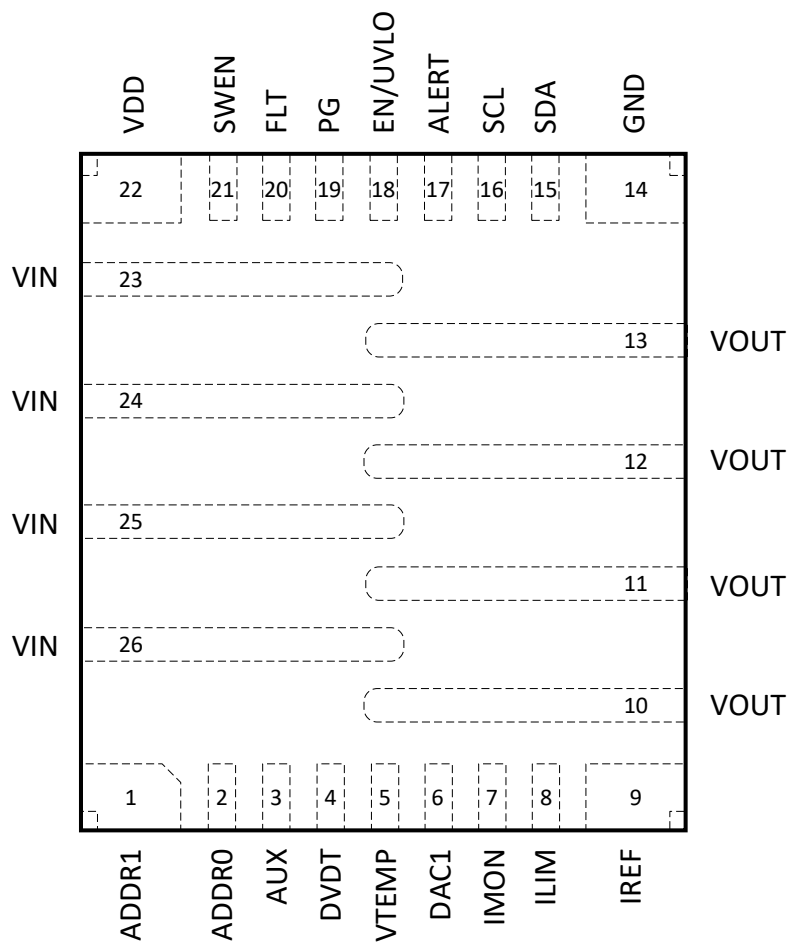
PART NUMBER	PACKAGE	BODY SIZE
RS31390	QFN-26	4.5x5 mm

Typical Application Circuit



Package Reference

Top View

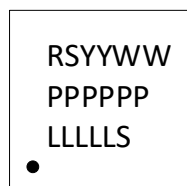


QFN-26 (4.5x5 mm)

Order Information

Part Number	Package	Size	MSL	Shipping Method	Package Marking
RS31390R	QFN-26	4.5x5 mm	Level-1	5000u Tape & Reel	R31390

Top Marking



Line 1

- RS: Prefix of Reed Semiconductor (RS is replaced by RE for engineering lot)
- YY: Year code
- WW: Week code

Line 2

- PPPPPP: Truncated part number

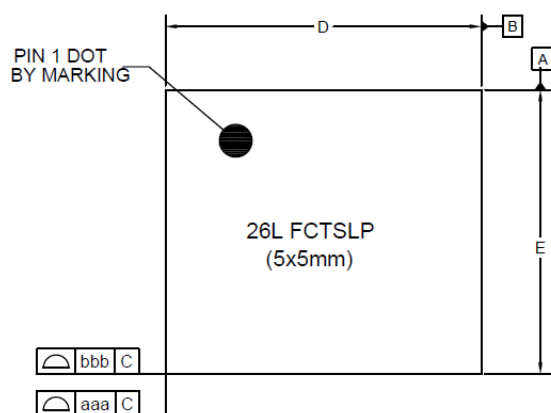
Line 3

- LLLLLL: Lot code
- S: Assembly site code

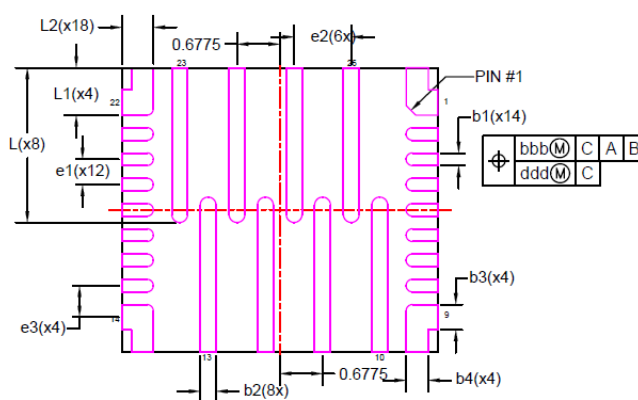
Pin Description

No.	NAME	TYPE	Description
1	ADDR1	O	PMBus address pin.
2	ADDR0	O	PMBus address pin.
3	AUX	I	Auxiliary ADC input which can be used to convert external analog to digital through PMBus interface.
4	DVDT	O	Vout slew rate setting pin. A capacitor to GND sets the Vout slew rate during power up.
5	VTEMP	O	Temperature sense output.
6	DAC1	I/O	The analog current output of the programmable general purpose DAC.
7	IMON	O	A resistor from this pin to GND sets the overcurrent protection threshold and the fast-trip threshold during steady state. This pin can also be used as the current monitoring pin. The voltage on this pin is proportional to the load current.
8	ILIM	O	A resistor from this pin to GND sets the overcurrent protection threshold and the fast-trip threshold during start-up. This pin also sets the active current sharing threshold during steady state in parallel operation.
9	IREF	O	Programmable reference voltage for over-current, short circuit protection and active current circuit.
10-13	VOUT	O	Power output. A Schottky diode can be placed between VOUT and GND to clamp negative voltage spike.
14	GND	G	Signal ground
15	SDA	I/O	PMBus data line
16	SCL	I/O	PMBus clock line
17	ALERT	O	PMBus alert signal
18	EN/UVLO	I	Enable input. Pull high to turn on the power FET and pull low to turn off the power FET. Connect the pin to VIN through resistor divider to set VIN ULVO threshold.
19	PG	O	Power good output. Open drain pin.
20	FLT	O	Open drain pin. Active low to indicate fault.
21	SWEN	I/O	Open-drain pin to indicate and control power MOSFET ON/OFF. This pin is used to synchronize ON/OFF in parallel application.
22	VDD	O	Power input pin for the internal control circuit. Connect this pin to VIN through a resistor to filter noise. Place a decoupling capacitor between this pin and GND.
23-26	VIN	I	Power input pin.

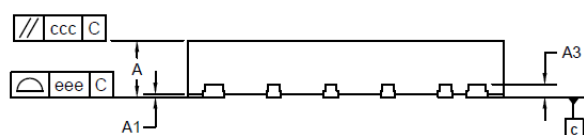
PACKAGE DIMENSION



TOP VIEW



BOTTOM VIEW



SIDE VIEW

REF	MIN	NOM	MAX
A	0.800	0.850	0.900
A1	---	---	0.050
A3	0.203 Ref.		
D	4.900	5.000	5.100
E	4.400	4.500	4.600
b1	0.150	0.200	0.250
b2	0.200	0.250	0.300
b3	0.350	0.400	0.450
b4	0.300	0.350	0.400
e1	0.400 BSC		
e2	0.905 BSC		
e3	0.500 BSC		
L	2.35	2.45	2.55
L1	0.65	0.75	0.85
L2	0.40	0.50	0.60
Tol. of Form & Position			
aaa	0.10		
bbb	0.10		
ccc	0.10		
ddd	0.05		
eee	0.08		

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSION AND TOLERANCING PER JEDEC MO-220.
3. DRAWING IS NOT TO SCALE.

1. Land patterns of pins 1, 9, 14 and 22 have the same shape and dimensions.
2. Land patterns of pins 10-13 and 23-26 have the same length and width.
3. All dimensions are in millimeter.
4. Lead coplanarity shall be 008 millimeters max.
5. JEDEC reference is MO-303.
6. Drawing is not to scale.