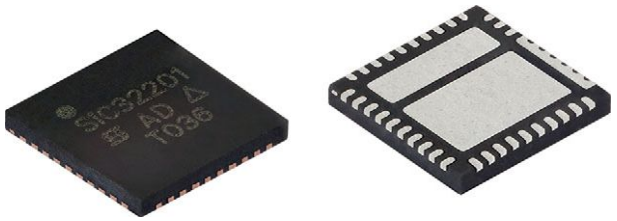
0.45 mΩ, Integrated OR-ing Switch With OR-ing Controller, Lossless Current Sense, and Temperature Report

(Datasheet in Brief)



DESCRIPTION

The SiC32201 is a highly integrated smart OR-ing solution featuring an advanced lossless current sensing design. Compared to conventional designs with shunt resistors, OR-ing MOSFETs and other discrete and ICs, the SiC32201 reduces the overall solution size and component count while increasing power density and efficiency.

The SiC32201 integrates a 0.45 mΩ n-channel OR-ing MOSFET, a MOSFET driver, forward and reverse voltage detection for OR-ing control and precision current and temperature sensing. Its internal fast reverse current protection circuit significantly reduces the reverse current level during the OR-ing input short fault, improving system bus voltage stability.

The SiC32201 is optimized for 12 V operation. It operates over the voltage range of 9 V to 20 V and can be paralleled to support different power range requirements. The current through the OR-ing switch is reported at the I_{MON} pin. The T_{MON} pin reflects the highest temperature of the parallel parts. It also flags overtemperature and insufficient OR-ing MOSFET gate drive.

The SiC32201 is available in the compact, thermally enhanced 6 mm x 6 mm PowerPAK® MLP66-40L package.

FEATURES

- High efficiency
  - Integrated 0.45 mΩ n-channel current sense MOSFET
  - Lossless current sense without shunt resistor
- Compact
  - Integrated current sensing and reporting circuits
  - Integrated OR-ing control and OR-ing FET driver
- Versatile
  - Guaranteed precise current reporting, ± 2 % for ≥ 10 A Load current. IMON offset is ± 10 µA at 0.5 A load current
  - Can be paralleled for different power ranges
  - Device temperature reporting through T_{MON}. Highest temperature reported when multiple T_{MON} pins are connected together
- Protection and alert
  - Fast response to reverse condition, 200 ns/typ. OR-ing FET off time
  - Reverse detection indicated pulling COMM1 low
  - T_{MON} pulled high, alert junction temperature is higher than 120 °C or internal charge pump UVLO

APPLICATIONS

- High availability system power
- N+1 redundant power supplies
- Telecom infrastructure
- Server and networking

APPLICATION CIRCUIT

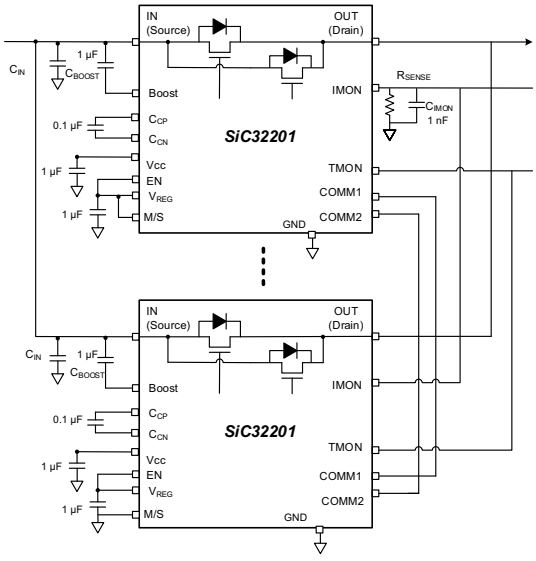


Fig. 1 - Typical Application Circuit

PRODUCT SUMMARY	
Part number	SiC32201
Description	0.45 mO, integrated OR-ing switch with OR-ing controller, lossless current sense, and temperature report
Configuration	Parallelable
Slew rate time (µs)	-
On delay time (µs)	-
Input voltage min. (V)	9
Input voltage max. (V)	18
On-resistance at input voltage min. (mΩ)	-
On-resistance at input voltage max. (mΩ)	0.45
Quiescent current at input voltage min. (µA)	-
Quiescent current at input voltage max. (µA)	1800
Output discharge (yes / no)	No
Reverse blocking (yes / no)	Yes
Continuous current (A)	100
Package type	PowerPAK® MLP66-40L
Package size (W, L, H) (mm)	6.0 x 6.0 x 0.75
Status code	1
Product type	OR-ing switch
Applications	Redundant power supply, server, data center, cloud computing

To request the full version of the datasheet, please contact: ICmarketing@vishay.com

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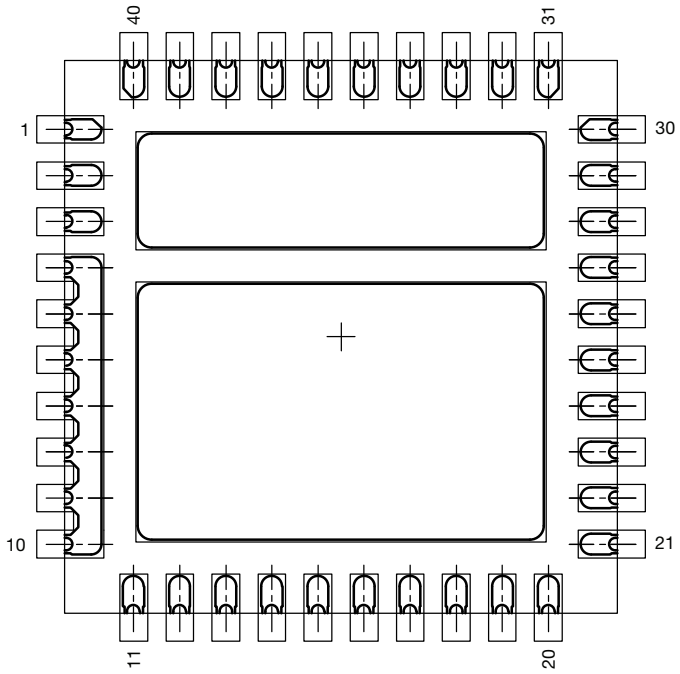
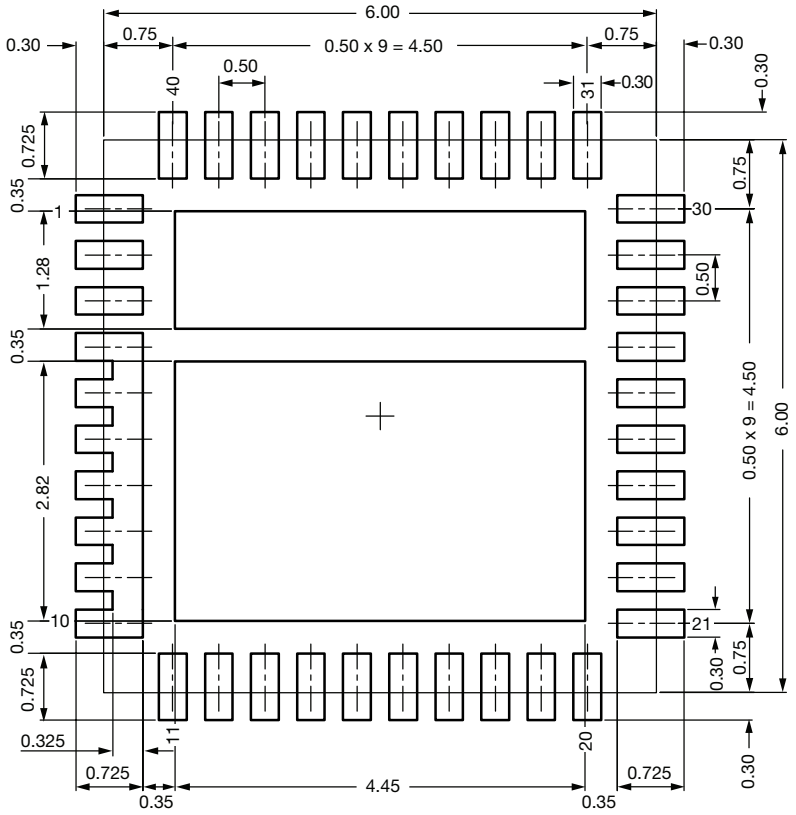
Recommended Land Pattern PowerPAK® MLP40-66





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