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Fast Facts



Product Group: Vishay Siliconix, Automotive MOSFETs / September 2024

# New SQS174ELNW 72 V MOSFET in PowerPAK® 1212-8SLW Enables High Efficiency for DC/DC Converters

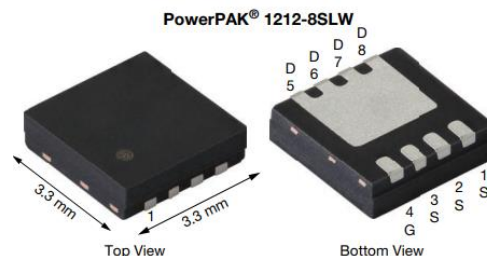
Vishay Siliconix has introduced the first 72 V n-channel MOSFET in the PowerPAK® 1212-8SLW package: the SQS174ELNW. This AEC-Q101 qualified Automotive Grade device features 72 V TrenchFET® Gen IV technology to achieve a maximum  $R_{DS(ON)}$  of 5.5 m $\Omega$  max and a typical  $R_{DS} \cdot Q_g$  figure of merit (FOM) of 175 m $\Omega \cdot$ nC.

The 72 V derivative of TrenchFET Gen IV technology strikes an optimal balance between  $R_{DS(ON)}$  improvement and drain-source breakdown voltage. The result of this tradeoff is a 22 % reduction in  $R_{DS(ON)}$  compared to the 80 V series, while still offering sufficient voltage headroom for applications in 24 V, 36 V, and 48 V systems.

The SQS174ELNW is compatible with logic-level gate driving operations and guarantees an  $R_{DS(ON)}$  of 7.2 m $\Omega$  at a  $V_{GS}$  of 4.5 V. Combining its improved  $R_{DS(ON)}$  with low  $Q_g$ , the MOSFET reduces power losses and enables higher efficiency for fast switching DC/DC converters.

The PowerPAK 1212-8SLW package offers a compact 3.3 mm by 3.3 mm footprint, with an exposed drain pad on the bottom that promotes thermal transfer to the PCB. The package also features wettable flanks to enhance solder wetting and form more robust solder joints, which enable automatic optical inspection (AOI) to improve board-level reliability.

The highly reliable SQS174ELNW offers a maximum junction temperature up to 175 °C, which leads to an extended lifetime compared to devices with lower temperature ratings.



This profile view provides a better look at the step-cut shaped wettable flanks. The leads are tin plated.

## Product Benefits

- Low  $R_{DS(ON)}$  reduces conduction loss
- $R_{DS} \cdot Q_g$  FOM is aimed at fast switching applications
- Compact package footprint
- Increases power density
- Wettable flanks promote solder fillet formation and enable AOI to increase reliability

## Market Applications

- DC/DC conversion
- 24 V and 36 V systems
- Battery charging
- Automotive 48 V power distribution



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## The Key Specifications

Package	Part Number	Ch	$V_{DS}$ (V)	$V_{GS}$ (V)	$R_{DS(ON)}$ (m $\Omega$ ) max. @		$Q_g$ typ. @ $V_{GS} = 10$ V (nC)	$R_{DS} \cdot Q_g$ FOM @ $V_{GS} = 10$ V (m $\Omega \cdot$ nC)	100 % $R_g$ and UIS tested
					$V_{GS} = 10$ V	$V_{GS} = 4.5$ V			
PowerPAK 1212-8SLW	SQS174ELNW	N	72	$\pm 20$	5.5	7.2	46	175	Yes

## Useful Links

- [Datasheet](#)
- [Product Page](#)
- [Automotive Grade MOSFETs](#)

## Contact Information

### Technical Support

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