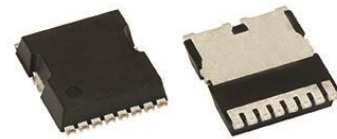




# Space-Saving SiJK140E 40 V MOSFET in PowerPAK<sup>®</sup> 10x12 Package Offers Best in Class $R_{DS(ON)}$ of 0.34 m $\Omega$ to Increase Efficiency, BWL Design for High $I_D$ to 795 A to Increase Power Density, and Low $R_{thJC}$ of 0.21 $^{\circ}C/W$ for Improved Thermal Performance

## Product Benefits:

- Offered in PowerPAK<sup>®</sup> 10x12 package
- Best in class on-resistance down to 0.34 m $\Omega$  typical at 10 V
- Low  $R_{thJC}$  of 0.21  $^{\circ}C/W$  typical
- Bond-wireless (BWL) design minimizes parasitic inductance, while maximizing current capability
- Continuous drain current up to 795 A
- High threshold voltage of 2.4  $V_{GS}$  avoids shoot-through
- RoHS-compliant and halogen-free
- 100 % Rg and UIS tested



## Market Applications:

- Synchronous rectification, hot swap switching, and OR-ing functionality
- Motor drive controls, power tools, welding equipment, plasma cutting machines, battery management systems, robotics, and 3D printers

## The News:

To provide higher efficiency and power density for industrial applications, Vishay Intertechnology introduces a new 40 V TrenchFET<sup>®</sup> Gen V n-channel power MOSFET in the PowerPAK<sup>®</sup> 10x12 package with best in class on-resistance.

- Compared to competing devices in the same footprint, the Vishay Siliconix SiJK140E slashes on-resistance by 32 %, while offering 58 % lower on-resistance than 40 V MOSFETs in the TO-263-7L
- With its ultra low on-resistance, the device minimizes power losses from conduction to increase efficiency, while improving thermal performance with its low  $R_{thJC}$
- By allowing designers to utilize one device instead of two in parallel to achieve the same low on-resistance, the SiJK140E also improves reliability and mean time between failures (MTBF)
- While TO-263-7L solutions in bond-wired (BW) packages are limited to currents of 200 A, the SiJK140E offers a continuous drain current up to 795 A for increased power density, while providing a robust SOA capability
- Occupying an area of 120 mm<sup>2</sup>, the device's PowerPAK 10x12 package saves 27 % PCB space compared to the TO-263-7L, while offering a 50 % lower profile



## The Key Specifications:

Part number	SiJK140E	SUM40014M	Performance improved
Package	PowerPAK10x12	TO-263-7L	-
Dimensions (mm)	10 x 12	10.4 x 16	+27 %
Height	2.4	4.8	+50 %
V <sub>DS</sub> (V)	40	40	-
V <sub>GS</sub> (V)	± 20	± 20	-
Configuration	Single	Single	-
V <sub>GSth</sub> (V)	Min. 2.4	1.1	+118 %
R <sub>DS(on)</sub> (mΩ) @ 10 V <sub>GS</sub>	Typ. 0.34	0.82	+58 %
	Max. 0.47	0.99	+53 %
Q <sub>g</sub> (nC) @ 10 V <sub>GS</sub>	Typ. 312	182	-
FOM	- 106	149	+29 %
I <sub>D</sub> (A)	Max. 795	200	+397 %
R <sub>thJC</sub> (C/W)	Max. 0.21	0.4	+47 %

### Availability:

Samples and production quantities of the SiJK140E are available now, with lead times of 26 weeks.

To access the product datasheet on the Vishay Website, go to <http://www.vishay.com/ppg?62451> (SIJK140E)

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