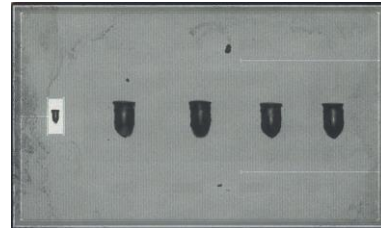


Si SJ MOSFET (600V) : Toshiba DTMOSVI TK024N60Z1 Overview Analysis Report



Package



Si SJ MOSFET Die

Overview

In March 2025, Toshiba DS released the "TK024N60Z1" a product with the smallest R_{on} ($=24m\Omega(max)$) among DTMOSVI 600V Si MOSFETs with a Super Junction structure. This product contributes to the high efficiency of power supply circuits for industrial equipment, etc.

Compared to the previous generation DTMOSIV-H, this product reduces $R_{on} \times Q_{gd}$ by approximately 52%, giving it a slight advantage over its competitor (Infineon CoolMOS C8) in this regard. We have now released an overview analysis report that provides a simple overview of the structural features of this product.

Product Press Release URL:

<https://toshiba.semicon-storage.com/jp/semiconductor/product/mosfets/400v-900v-mosfets/articles/600v-super-junction-structure-n-channel-power-mosfet-dtmos6-series-tk024n60z1-improves-efficiency-of-power-supply.html>

Product features

- Product type: TK024N60Z1, $V_{dss} = 600V$, $R_{ds(on)}(typ.)=20m\Omega$, $I_d=80A$
- Released data: March 2025

Data Sheet URL: https://toshiba.semicon-storage.com/info/TK024N60Z1_datasheet_ja_20240522.pdf?did=158081&prodName=TK024N60Z1

Applications: Data center servers and industrial equipment switching power supplies

Report Results Overview (Please refer to page 2 for details of the analysis)

Si SJ MOSFET Overview Analysis Report (13pages)

Despite changing the gate structure from trench type to planar type, this product has reduced $R_{on} \times Q_{gd}$ by approximately 52%, and $R_{on} \times A_A$ by approximately 16% compared to DTMOSIV-H. It is considered that this is achieved by changing the doping of the P-N pillars and the cell plane layout.

Report price

Delivered one week after order placement Please contact us for report pricing.

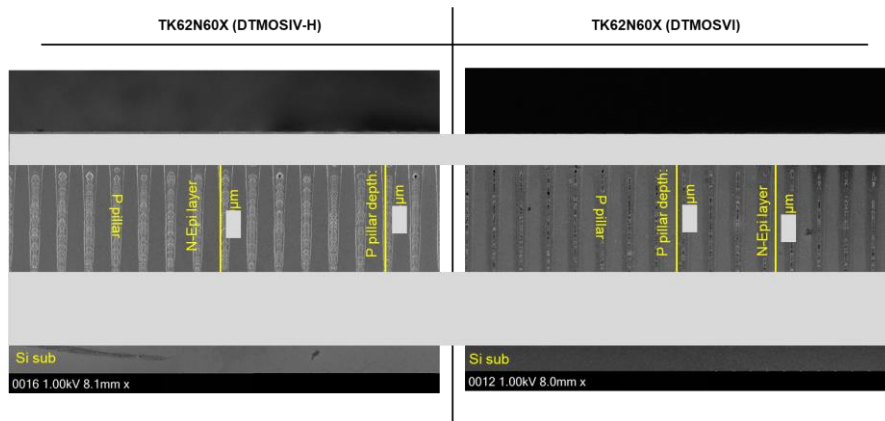
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Excerpt from Si SJ MOSFET Overview Analysis Report

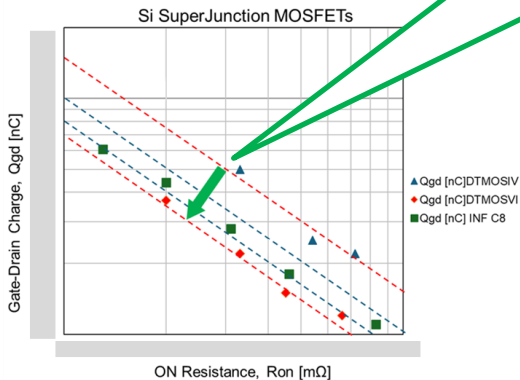
	Toshiba TK62N60X (DTMOSIV-H)	Toshiba TK024N60Z1 (DTMOSVI)	Infineon IPW60R037CM8 (CoolMOS C8)
VDSS (V)	600	600	650
Die size A (mm x mm = mm ²)			
Transistor active area AA (mm ²)			
Ron (mΩ) @ Vgs (V)	33 @ 10V	20 @ 10V	31 @ 10V
Ron x AA (mΩ·mm ²)			
Ron x Qgd (mΩ·nC)			

Comparison between previous generation (DTMOSIV-H) and Infineon CoolMOS C8

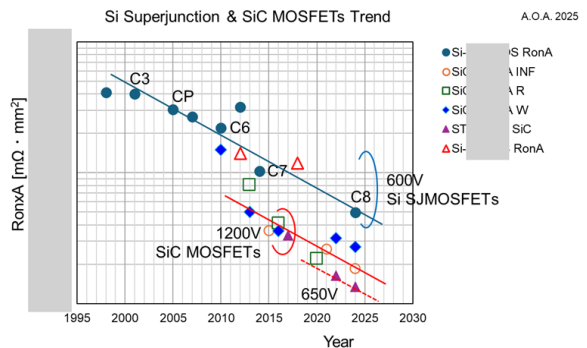


Comparison with previous generation product (DTMOSIV-H) (Epi layer)

DTMOSVI at 600V is approximately 52% lower than DTMOSIV-H at 600V



Ron x Qgd comparison



RonA vs. Annual Trend Graph