

Fast Recovery AEC-Q Rectifiers Offer High Performance

[Taiwan Semiconductor](#)'s RS2x family of 2-A fast recovery rectifiers is available with reverse voltage ratings of 200 V and 1 kV, each available in either SOD-128 or Thin SMA packages. These two surface-mount packages align with standard pc-board solder pads, facilitating interchangeability, with the Thin SMA offering a lower profile and the SOD-128 providing improved thermal dissipation (see the figure).

Rectification, blocking and freewheeling uses for the RxBS family include enclosed- and open-frame power supplies and power electronic conversion systems used in automotive, industrial, telecom-datacom-networking systems, LED lighting, battery charging systems, UPS and inverters.

"The RS2x family offers industry leading forward voltage drop, switching speed, low profile and industry standard thermally-efficient packaging," said vice president, TSC Products, Sam Wang. "The combination of medium (200 V) and high (1 kV) ratings and identical performance in a pair of compatible packages enables design efficiency and manufacturing flexibility."

The RB2x family provides a number of beneficial features. As noted above, the company considers the low forward voltage drop of these rectifiers to be exceptional with an industry best maximum V_f of 1.06 V at $T_j = 25^\circ\text{C}$, $V_R=1000\text{ V}/1.01\text{ V}$ at $T_j = 25^\circ\text{C}$, $V_R+200\text{ V}$, which improves efficiency and thermal performance. Fast switching and reverse-recovery times increase efficiency in a wide range of power electronics designs from medium-voltage to high-voltage applications, lower EMI and RFI and simplify snubber and filtering design.

All parts in the family meet stringent automotive reliability and performance criteria (AEC-Q automotive qualified). Production Part Approval Process (PPAP) documentation is available. In addition, the rectifiers are RoHS compliant, halogen-free (per IEC-61249-2-21), WEEE, REACH, California Prop. 65, JESD-201 Class 2 Whisker Test and others. Finally, the small surface-mount packages are well suited for automated placement.

Design resources include the RS2DFS – RS2MFS [datasheet](#), the RS2DAL – RS2MAL [datasheet](#) and Spice models for each component in the series. Samples are in-stock at Digi-Key and Mouser. Production quantities are also available with unit pricing at \$0.0852.

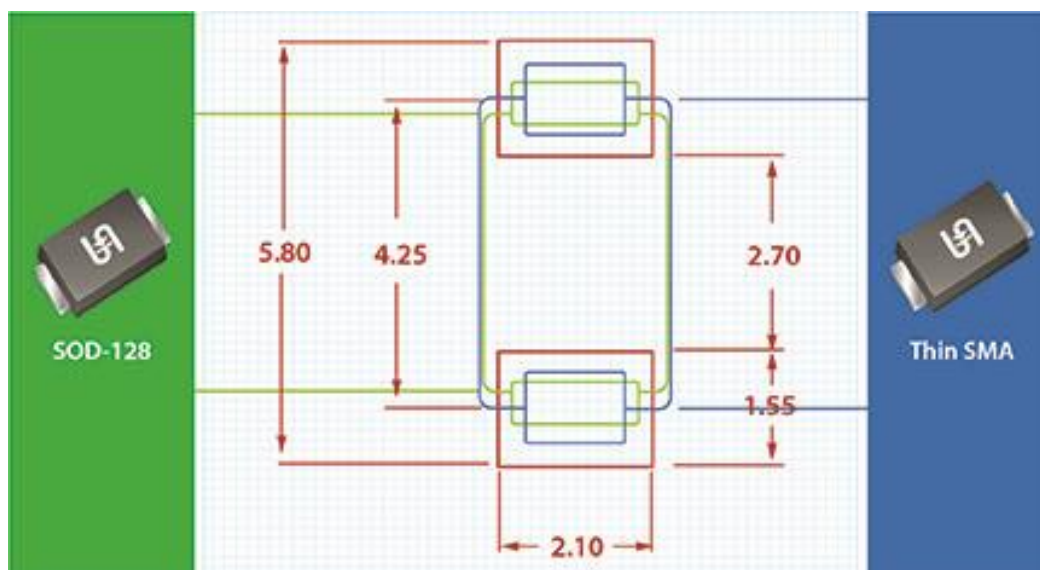


Figure. The RS2x family of 2-A and 200-V to 1000-V surface-mount diodes claim wider reverse voltage, lower forward voltage drop and faster reverse recovery time. The SOD-128 and Thin SMA packages offer unique benefits.