

80-V Resistor-Equipped Transistors Save Space In 48-V Applications

[Nexperia's](#) NHDTx and NHUMx series of resistor-equipped transistors (RETs) is described as the industry's first 80-V RET family. These new RETs or "digital transistors" provide enough headroom for use in 48-V automotive board net (as used in mild hybrid and EV cars) and other higher-voltage circuits. Such circuits are often subject to large spikes and pulses that the previously introduced 50-V RETs cannot handle.

RETs save space and reduce manufacturing costs by combining the bias resistor and bias-emitter resistor in the same SOT-23 ($P_{tot} = 250$ mW) or SOT-323 ($P_{tot} = 235$ mW) package as the transistor. Double RETs (two transistors and two matching bias resistors and bias-emitter resistors) are also available in the SOT-363 package with a P_{tot} of 350 mW for even greater integration and savings. Applications include controlling IC inputs, digital systems and switching loads.

The NHDTx and NHUMx series include 42 parts with PNP/NPN combinations. These come with the same bias resistor combinations as Nexperia's 50-V parts. Devices have a 100-mA current capability and are AEC-Q101-approved.

Frank Matschullat, product group manager at Nexperia comments, "Design engineers working on new EV applications can future-proof their systems with confidence by using Nexperia's new RETs to simplify circuit design, save PCB space, reduce pick and place time and increase reliability. As well as 48-V automotive circuit driver applications, general-purpose switching and amplification and other digital systems will benefit from these new high-voltage devices."

80-V RETs in SOT-23, SOT-323 and SOT-363 packages are available now. More information including product specs and datasheets is available on the Resistor Equipped Transistors (RETs) [page](#).