

**Automotive-Qualified Small-Signal MOSFETs In Tiny DFNs**

[Nexperia’s](#) automotive-qualified, single and dual small-signal MOSFETs are offered in two miniature DFN packages—the DFN1110D-3 and DFN1412-6 (see the figure). The 1.1-mm x 1-mm DFN1110D-3 in particular has seen increasingly wide adoption and is quickly becoming the “de-facto” industry standard package for small-signal MOSFETs and bipolar transistors intended for use in automotive applications, according to the vendor. Part numbers and key electrical specs are listed in the table.

The DFN1110D-3 and DFN1412-6 are leadless packages that offer superior thermal performance, with almost 50% lower thermal resistance from junction to ambient ( $R_{thj-s}$ ), from a tiny footprint. This makes them a highly attractive alternative to established high-volume leaded enclosures such as SOT23, SOT323, SOT363, or SOT666, thereby addressing the automotive industry’s relentless demand for miniaturized components. The DFN1110-D-3 also features side-wettable flanks to support lower-cost automated optical inspection (AOI) of solder joints, which also helps to improve reliability.

This latest release makes Nexperia the industry’s sole supplier of single and dual small-signal MOSFETs in both DFN1110D-3 and DFN1412-6 packages, says the vendor.

These new products also join the Q-portfolio of Nexperia devices. The Q-portfolio is dedicated to providing high-quality products that not only meet established standards such as AEC-Q101 but also ensure automatic compliance with future automotive requirements. Additionally, the portfolio offers extended service support and guarantees longevity of more than 10 years.

To learn more about Nexperia’s portfolio of DFN Q-portfolio small signal MOSFETs for automotive, see the MOSFETs [page](#).



Figure. Nexperia’s automotive-qualified small-signal MOSFETs in the DFN1110D-3 and DFN1412-6 packages are said to offer thermal performance superior to that of legacy packages.

Table. Key electrical specs for Nexperia’s automotive-qualified MOSFETs in tiny DFNs.

Type number	Package version	Package name	Channel type	V <sub>DS</sub> max (V)	R <sub>DS(ON)</sub> max at V <sub>GS</sub> = 10 V (mΩ)	R <sub>DS(ON)</sub> max at V <sub>GS</sub> = 4.5 V (mΩ)
BSS138AKQB-Q	SOT8015	DFN1110D-3	N	60 V	2800	3600
2N7002AKQB-Q	SOT8015	DFN1110D-3			2800	3500
BSS138AKRA-Q	SOT1268	DFN1412-6			2900	3700
2N7002AKRA-Q	SOT1268	DFN1412-6			2900	3600