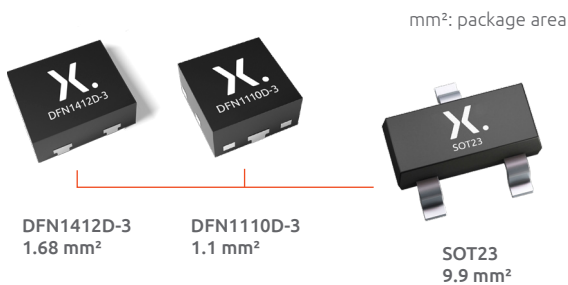


# Small & light automotive diodes and transistors

The compact package standard with side-wettable flanks.  
More flexibility – less space.

To satisfy an ever-increasing number of electronic functions, vehicles require more semiconductor components. Nexperia's AEC-Q101 qualified leadless packages with side-wettable flanks help save space and minimize weight while ensuring the performance and efficiency of these components – especially at high temperatures. Automotive DFN (Discretes Flat no-leads) options exist across the full portfolio of diodes, bipolar transistors, and MOSFETs.

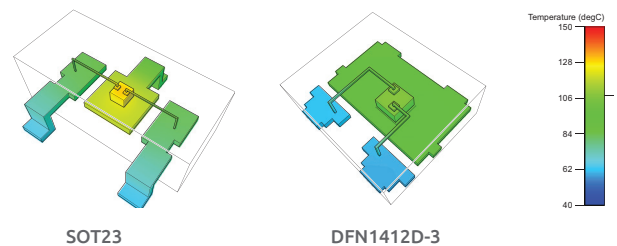
## Space efficient designs



- › Ultra-compact footprint
- › Very low height
- › AEC-Q101 qualified DFN alternatives exist for all leaded SMD packages

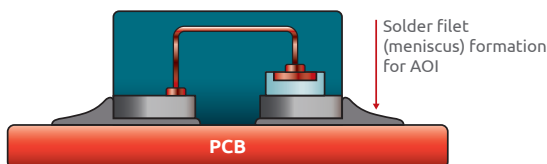
## High thermal performance

Example: DFN1412D-3 stays 25K cooler at 250mW



- › High power dissipation ( $P_{tot}$ )
- › Low operating temperature extending the total system reliability
- ›  $T_j = 175^\circ\text{C}$  capability

## AOI capable and reliable



- › Side-wettable flanks for easy automated optical inspection (AOI)
- › Robust solder joints, high reliability

## Large portfolio



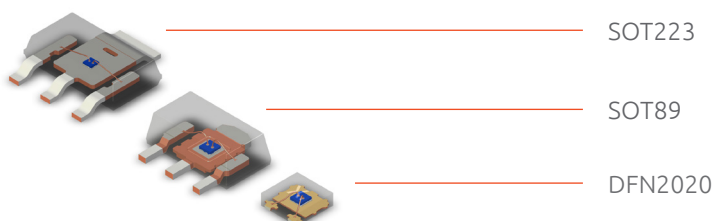
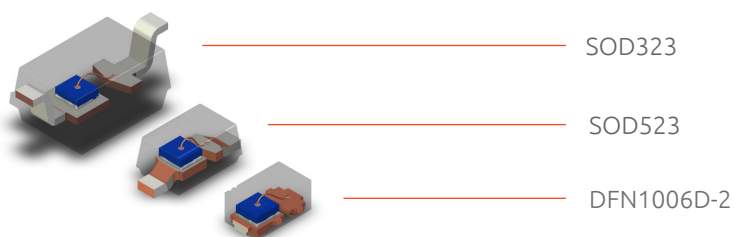
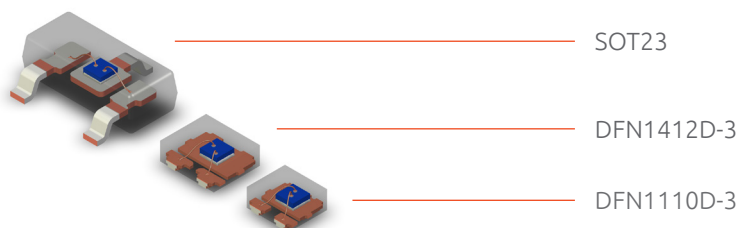
- › General purpose and low  $V_{CEsat}$  bipolar transistors, RETs (digital transistors)
- › Switching, Schottky and Zener diodes
- › ESD protection diodes
- › Small signal MOSFETs
- › LED drivers

## Automotive DFN packages range – high component density







Package	DFN1006BD-2 (SOD882BD-2)	DFN1110D-3 (SOT8015)	DFN1412D-3 (SOT8009)	DFN1608D-2 (SOD1608)	DFN2020D-3 (SOT1061D)	DFN2020D-6 (SOT1118D)	DFN2020MD-6 (SOT1220)
Package area (mm <sup>2</sup> )	0.6	1.1	1.68	1.28	4	4	4
Body size (l x w x h) (mm)	1.0 x 0.6 x 0.5	1.1 x 1.0 x 0.5	1.4 x 1.2 x 0.5	1.6 x 0.8 x 0.37	2.0 x 2.0 x 0.6	2.0 x 2.0 x 0.6	2.0 x 2.0 x 0.6
R <sub>th(j-ep)</sub> (K/W)	46	60	53	20	16	25	5

## Space saving DFN options across the full portfolio





DFN offers an equal electrical performance on a smaller footprint compared to standard SMD






## Bipolar transistors (BJT)

	SOT23	DFN1412D-3	DFN1110D-3	SOT223	SOT89	DFN2020D-3
						
Package area (mm <sup>2</sup> )	9.9	1.68	1.1	45.5	18.0	4.0
General purpose BJT	BC807	BC807QC series	BC807QB series			
	BC817	BC817QC series	BC817QB series			
	BC847	BC847QB series	BC847QB series			
	BC857	BC857QB series	BC857QB series			
				BCP5x series	BCX5x series	BC5xPAS series
Low VCEsat BJT				PBSS series	PBSS series	PBSSx360PAS series
Resistor equipped transistors (RETs)	PDTC series	PDTC-QC series				
	PDTA series	PDTA-QC series				










## LED drivers / constant current source

	SOT223	SOT23	SOT457	DFN2020D-6
				
	45.5	9.9	7.98	4.0
	NCRxZ series	NCRxT series	NCRxU series	NCRxPAS series



## Small-signal MOSFETs



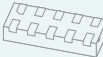
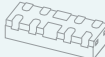



	SOT23	DFN1110D-3	DFN2020MD-6
			
	9.9	1.1	4.0
	2N7002BK	2N7002KQB	
	BSS84AK	BSS84AKQB	
			BUK series
			PMPBxxA series

## Diodes

	SOT23	DFN1412D-3	DFN1110D-3	SOD323	SOD523	DFN1006BD-2	DFN1608D-2	SOT223	DFN2020D-3
									
Package area (mm <sup>2</sup> )	9.9	1.68	1.1	6.23	1.28	0.6	1.28	45.5	4.0
Switching diodes	BAS16	BAS16QC	BAS16QB	BAS316	BAS516	BAS16LD(LS)			
	BAS21	BAS21QC	BAS21QB	BAS321	BAS521	BAS21LS			
	BAV99	BAV99QC							
Zener diodes	BZX84 series				BZX585 series	BZX884(S) series			
Schottky diodes and rectifiers	BAS40			1PS76SB40	1PS79SB40	BAS40LS			
	BAT54	BAT54QC	BAT54QB	1PS76SB10	1PS79SB10				
	PMEGxET			PMEGxAEA	PMEGxEB	PMEGxELD	PMEGxEPK	BAT160A/C/S	PMEGxPAS / PMEGxCPAS

## ESD protection

	SOT23	SOT323	DFN1412D-3	DFN1110D-3	SOD323	SOD523	DFN1006BD-2
							
Package area (mm <sup>2</sup> )	9.9	4.2	1.68	1.1	6.23	1.28	0.6
In-Vehicle Networks (IVN)	PESD2CANFDx-T series	PESD2CANFDx-U series	PESD2CANFD-QC series	PESD2CANFD-QB series			
	PESD2IVNx-T series	PESD2IVNx-U series			PESD1IVNx-A series		PESD1IVNx-LS series
General purpose ESD protection							PESD12VV1BLS
							PESD3V3T1BLS
					PESD5V0V1BA	PESD5V0V1BB	PESD5V0V1BLS
	PESDxS2UT				PESDxS1UA	PESDxS1UB	PESDxS1ULS series

	SOT23	SOD523	SOT1176D	SOT1165D	DFN1006-2	DFN1006D-2	DFN1006BD-2
							
Package area (mm <sup>2</sup> )	9.9	1.28	2.5	2.5	0.6	0.6	0.6
Infotainment / SerDes	PESD5V0S2BT	PESD5V0V1BB	PESD4USB3U-TBS	PESD4USB3U-TTS	PESD18VF1BL-Q	PESD5V0V1BLD	PESD1ETH1GLS-Q
		PESD5V0S1BB	PESD4USB5U-TBS	PESD4USB5U-TTS	PESD24VF1BL	PESD5V0S1BLD	PESD1ETH1GXLS-Q
			PESD4USB3B-TBS	PESD4USB3B-TTS	PESD30VF1BL	PESD5V0F1BLD	PESD5V0C1ULS-Q
			PESD4USB5B-TBS	PESD4USB5B-TTS	PTVxS1BL series	PESD5V0VF1BRLD	PESD5V0C1BLS-Q

For more information go to: [www.nexperia.com/automotiveDFN](http://www.nexperia.com/automotiveDFN)

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Date of release:

March 2022

Printed:

In the Netherlands

