

AEC-Q101 qualified MOSFETs in small leaded SMD and leadless DFN packages



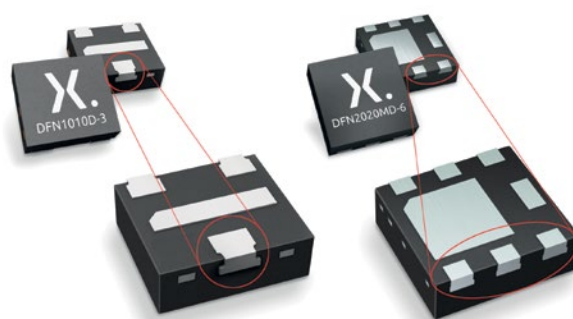
Key features and benefits

- › Available in SOT23, SOT457, DFN1010 and DFN2020
- › Side wettable flanks for optical solder inspection
 - Leadless packages contain tin plated side contacts for automatic optical inspection (AOI) and improved solder joint quality
- › Replacement of larger packages
 - Performance improvements in wafer technology and in package technology, especially leadless (DFN) packages enable higher electrical and thermal performance on a smaller footprint
- › Automotive compliant (AEC-Q101)
- › Key parameters
 - Most types with 2 kV ESD protection
 - $R_{DS(on)}$ down to 15 m Ω and up to 6 A max drain current
 - V_{DS} voltages of 20 V, 30 V, 40 V, 60 V, 70 V and 80 V
 - R_{th} down to < 10 K/W for DFN2020
- › New 'BUK' devices qualified to 175°C

Applications

- › Body control units
 - doors
 - window lift
 - seat control
- › Entertainment systems
 - car radio
 - navigation
- › Safety and control systems
 - air bag
 - LED lighting

Leadless packages with side wettable flanks for automatic optical inspection



Small-signal MOSFETs automotive portfolio

Low R_{DSon} MOSFETs

PACKAGE											SOT223	SOT457 (SC-74)	SOT23	DFN2020MD-6 (SOT1220)		
Size (mm)											6.5 x 3.5 x 1.65	2.9 x 1.5 x 1.0	2.9 x 1.3 x 1.0	2.0 x 2.0 x 0.65		
P_{tot} (mW)											1700	600	250	1250		
Pol.	V_{DS} (V)	V_{GS} (V)	I_D (A)	$V_{GSth min.}$ (V)	$V_{GSth max.}$ (V)	ESD (kV)	R_{DSon} typ (m Ω) @ $V_{GS} =$									
							10 V	4.5 V	2.5 V	1.8 V						
N	20	8	4.7	0.45	1	2	-	24	29	40				PMV28UNEAE		
			2.8	0.4	1	2	-	64	78	110				PMV65UNEAE		
		12	12.9	0.4	0.9	2	-	10	-	-					PMPB10XNEAE	
			11.4	0.4	0.9	2	-	12	-	-					PMPB12UNEAE	
	30	12	6.3	0.75	1.25	2	-	16	24	-				PMV20XNEAE	PMPB20XNEAE	
			11.3	0.4	0.9	2	-	13	-	-					PMPB13XNEAE	
			5	0.4	0.9	2	-	28	-	-					PMPB29XNEAE	
			4	0.75	1.25	2	-	55	72	-					PMPB55XNEAE	
		20	5.5	1	2.5	2	17	22	-	-					PMV25ENEAE	
			3.9	1	2.5	2	30	39	-	-					PMV50ENEAE	
			3.7	1	2.5	2	54	70	-	-					PMV100ENEAE	
			19	1.4	2.1	-	18	22	-	-						BUK9D23-40E
	40	20	19	1.3	2.7	-	17	22	-	-					BUK6D23-40E	
			19	2.4	4	-	18	-	-	-					BUK7D25-40E	
		20	3.1	1	2.5	1	65	88	-	-					PMV65ENEAE	
			2.5	1	2.5	1	95	120	-	-					PMV130ENEAE	
	60	20	13	1.3	2.7	-	32	38	-	-					BUK6D43-60E	
			4	1.3	2.7	2	42	49	-	-					PMPB55ENEAE	
			3.1	1.3	2.7	2	46	52	-	-					PMV55ENEAE	
			3	1.3	2.7	2	72	85	-	-					PMPB85ENEAE	
		20	2.1	1.3	2.7	2	96	108	-	-					PMV120ENEAE	
			1.5	1.3	2.7	2	176	196	-	-					PMV230ENEAE	
			0.8	1.3	2.7	2	300	332	-	-					PMV450ENEAE	
			2.8	1.3	2.7	2	80	92	-	-					PMPB95ENEAE	
80	20	1.9	1.3	2.7	2	175	195	-	-					PMPB215ENEAE		
		1.5	1.3	2.7	2	285	301	-	-		PMT280ENEAE			PMV280ENEAE		
100	20	1.1	1.3	2.7	2	527	555	-	-		PMT560ENEAE					
P	12	12	11.8	0.47	0.9	-	-	15	-	-				PMPB15XPA		
	20	8	5.6	0.45	0.95	2	-	27	38	50				PMV27UPEAE		
			6	0.45	0.95	2	-	37	45	59			PMN40UPEAE			
			2	0.5	1.1	-	-	100	155	210					NX2301P	
			2.3	0.45	0.95	-	-	120	150	200					BSH205G2	
		12	10.3	0.47	0.9	2	-	19	-	-					PMPB20XPEAE	
			5.7	0.75	1.25	2	-	27	39	-					PMN27XPEAE	
			5	0.47	0.9	2	-	28	-	-					PMPB29XPEAE	
			5.3	0.75	1.25	2	-	28	42	-					PMV30XPEAE	
	30	12	5.7	0.75	1.25	2	-	41	56	-					PMN42XPEAE	
			5	0.47	0.9	2	-	39	-	-					PMPB43XPEAE	
			3.5	0.75	1.25	-	-	48	71	-					PMN48XPA	
			3.3	0.75	1.25	2	-	67	99	-					PMV65XPEAE	
		20	4.1	0.75	1.25	2	-	70	101	-					PMN70XPEAE	
			2.4	1	2.5	2	-	97	147	-					PMV100XPEAE	
			5	0.47	0.9	-	-	47	-	-					PMPB100XPEAE	
			8.8	1	2.5	-	-	24	32	-	-				PMPB47XPA	
	40	20	4.2	1	3	2	35	47	-	-					PMPB27EPA	
			6.8	1	2.5	-	-	40	55	-	-				PMV50EPEAE	
		20	14	1.4	2.7	-	30	45	-	-					PMPB48EPA	
			1.5	1	2.5	1	180	220	-	-					BUK6D43-40P	
	60	20	8	1.9	3.2	-	95	125	-	-				PMV250EPEAE		
															BUK6D120-60P	

High R_{DSon} MOSFETs

PACKAGE											SOT23	SOT363	SOT323	SOT666	DFN1006-3 (SOT883)	
SIZE (mm)											2.9 x 1.3 x 1.0	2.0 x 1.25 x 0.95	2.0 x 1.25 x 0.95	1.6 x 1.2 x 0.55	1.0 x 0.6 x 0.5	
P_{tot} (mW)											250	300	200	300	250	
Pol.	V_{DS} (V)	V_{GS} (V)	I_D (A)	$V_{GSth min.}$ (V)	$V_{GSth max.}$ (V)	ESD (kV)	R_{DSon} typ (m Ω) @ $V_{GS} =$									
							10 V	4.5 V	2.5 V	1.8 V						
N	30	8	0.4	0.6	1.1	2	-	1000	1400	2000	NX3008NBK	NX3008NBKS	NX3008NBKW	NX3008NBKV		
	60	20	0.36	0.9	1.5	-	900	1000	-	-		BSS138P	BSS138PS	BSS138PW		
			0.36	0.48	1.6	1.5	1000	1100	1400	-	-		BSS138BK	BSS138BKS	BSS138BKW	
			0.3	1	2.5	2	1000	1300	-	-			2N7002BK	2N7002BKS	2N7002BKW	2N7002BKM
			0.3	1	2.5	3	1100	1300	-	-			2N7002CK			
			0.2	0.8	1.5	yes	2700	3000	4000	-	-		BSS138AKA			
P	30	8	0.23	0.6	1.1	2	-	2800	5300	-	NX3008PBK	NX3008PBKS	NX3008PBKW	NX3008PBKV		
	8	20	0.2	1.1	2.1	1	5300	6000	-	-	BSS84AK	BSS84AKS	BSS84AKW	BSS84AKV	BSS84AKM	

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