Power MOSFET Selection Guide 2013

Smaller, faster, cooler

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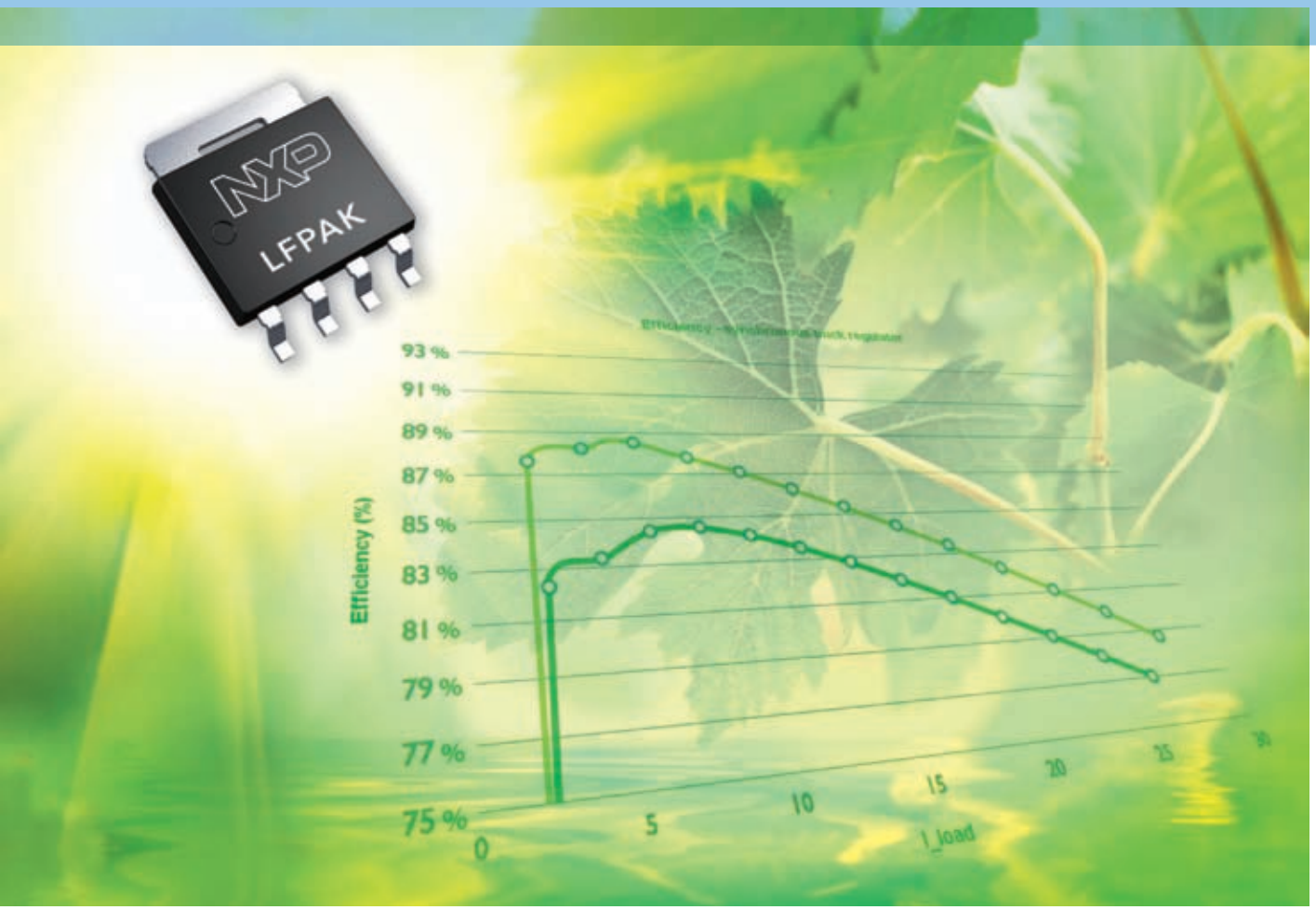
Power MOSFETs - Smaller, faster, cooler



NXP MOSFETs are renowned for their quality, performance and reliability.

Whether you are designing a complex automotive system, a super high efficiency industrial power supply or a slimline portable PC, NXP has a range of smaller, faster, cooler MOSFETs to help you on your way.

For example our 25 V and 30 V MOSFETs in LFPAK56 (Power-SO8 compatible) offer the lowest $R_{DS(ON)}$ of any devices in this category. Our Automotive Trench 6 portfolio leads theindustry in both breadth of range and performance, with $R_{DS(ON)}$ from 1.3 mΩ to over 100 mΩ and voltages from 30 V to 100 V.

In the Industrial sector we have extended our NextPower range in to more packages, such as:

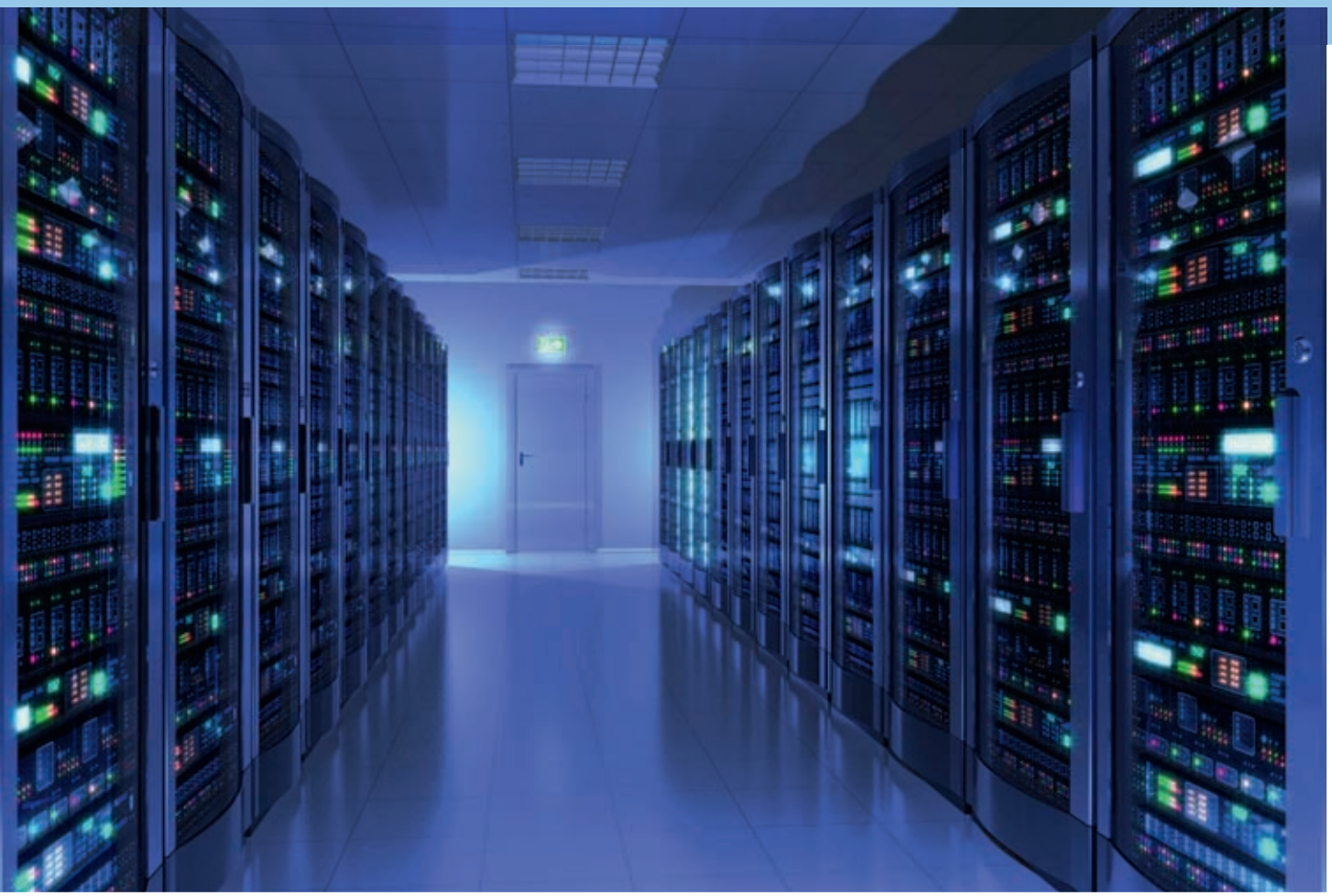
- Full Pack (TO220F) with integrated isolation for ease of assembly
- A wider range of D^2PAK devices for surface mount applications
- I^2PAK for slimline notebook adapters and other height-constrained applications
- Extension of the LFPAK clip-mounting technology into the 3.3 x 3.3 mm LFPAK33 for space saving without compromising reliability and performance
- The Benchmark 1.6 mΩ / 40 V LFPAK56 (Power-SO8 compatible)
- New devices with specific enhancements for applications such as Power Tools and wide SOA parts for Hot Swap and Soft-Start applications

In addition we have now introduced Automotive Grade dual-channel LFPAK56D devices in Trench 6

A printed selection guide is by necessity a snapshot in time of our portfolio. To ensure that you stay up to date with our very latest product offerings please visit our newly designed website www.nxp.com/mosfets incorporating our market leading MOSFET parametric search tool.

Join My NXP http://www.nxp.com/my and you can also follow us on twitter @MOSFETs.

Featured application: wide SOA



NextPower Live! – MOSFETs for a non-stop world

Reliable linear mode performance AND low RDS(on) efficiency in “hot-swap” and “soft-start” applications.

Non-stop Applications

- Cloud computing
- Network storage
- Communications infrastructure
- Industrial process control
- Transaction processing
- Traffic monitoring & signalling
- CCTV security

Non-stop Equipment

- Blade servers
- Routers, switches & base stations
- RAID arrays
- Industrial PCs
- Programmable Logic Controllers (PLCs)
- Digital video recorders
- “Hot-swap” & “soft-start” systems

Mobile phones, ATMs, the internet, traffic signals – so much of our daily life depends on 24/7/365 computers, communications, and storage, made possible by rack-based systems that can be maintained with the power on. NextPower Live MOSFETs are designed specifically for such applications:

- When a replacement board is plugged into a live system, it is important that the in-rush current is carefully controlled, so as to protect the components on the board and ensure that other parts of the system experience no power disruption. This application requires MOSFETs with strong linear mode performance and a wide safe operating area (SOA) to manage current effectively and reliably.
- Once the replacement board is safely installed, the MOSFET is turned fully ON. In this mode of operation, a low RDS(on) value is of primary importance, helping to keep temperatures low while maximizing system efficiency.
- Only NextPower Live MOSFETs offer reliable linear mode performance **AND** low RDS(on) efficiency.

NextPower Live Portfolio

Package	30 V for 12 V supplies used in computing applications	100 V for 48 V supplies used in computing telecommunications
D²PAK (SOT404) 	PSMN1R5-30BLE PSMN3R4-30BLE	**PSMN4R8-100BSE** **PSMN7R6-100BSE**
LFPAK56 (Power-SO8) 	PSMN2R40-30YLE	**PSMN013-100YSE**
LFPAK33 		(specificaly for PoE applications) **PSMN040-100MSE** **PSMN075-100MSE**

Available Now **Available Q1/2013**

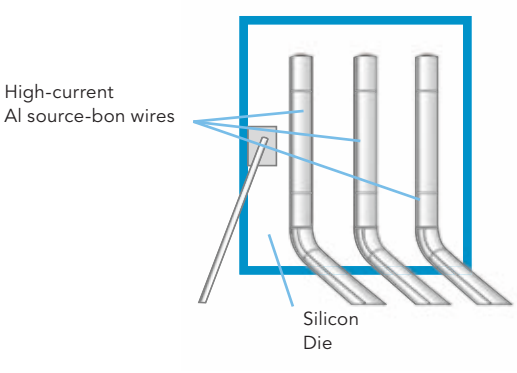
Featured application: power tools

Battery-powered tools, which include everything from small engraving devices and screwdrivers to heavy-duty saws and agricultural tools, present a wide variety of requirements for driving the motor. The MOSFETs used in these systems have to perform at demanding levels and must have:

- Low on-resistance for optimum battery life
- Low thermal resistance for reduced junction temperature (for greater reliability)
- High current capability (if, for example, the motor stalls)
- Choice of logic- and standard-level gate drives, depending on battery voltage
- Excellent avalanche ruggedness to withstand high-load conditions (such as a stalled motor)
- Environmental robustness , such as wide operating / storage temperature, since a tool might be stored in a van during winter in Siberia or used in the mid-day heat of Dubai
- Competitive cost

In other words, the motor-control MOSFET needs to deliver automotive-grade performance at a commercially competitive price

Typical Power Tools MOSFET internal construction



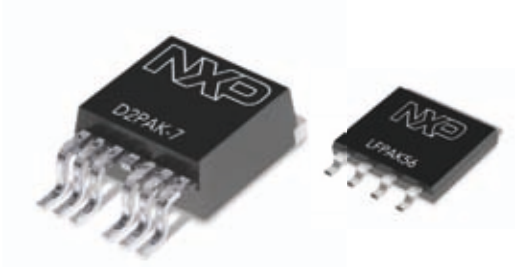
NXP has developed a range of MOSFETs specifically aimed at motor-control applications. They have the same high-current source bond-wires and high reliability design as our AEC Q101 automotive-qualified parts. A selection of these devices is shown in the table. Look for the power tool symbol in the selection tables for other suitable devices.

NXP's pedigree in automotive MOSFETs means we have the know-how to produce devices with excellent avalanche ruggedness. The same expertise deployed in power steering and ABS systems worldwide is put to use in our devices for power tools, and that means performance you can count on.

Max Current (I_D[max]) depends largely on the number and diameter of the aluminium bond wires. The NXP Power Tools portfolio is based on the automotive standard of three wires of 500 µm (typ), allowing for an I_D[max] rating of up to 150 A in a TO220 package.

Device name	V_{DS} (V)	R_{DSon} [max] @ V_{GS} = 10 V (mΩ)	R_{DSon} [max] @ V_{GS} = 4.5 V (mΩ)	I_D [max] (A)	EAS at rated current [mJ]	Package	Gate threshold
PSMN2R0-30YL	30	2	2.63	100	151	LFPAK56	Logic Level
PSMN2R0-30YLE	30	2	3.5	100	370	LFPAK56	Logic Level
PSMN2R5-30YL	30	2.4	3.16	100	103	LFPAK56	Logic Level
PSMN2R6-30YLC	30	2.8	3.65	100	50	LFPAK56	Logic Level
PSMN1R9-40PL	40	1.7	TBC	150	1008	TO220 (SOT78)	Logic Level
PSMN2R1-40PL	40	2.2	TBC	150	622	TO220 (SOT78)	Logic Level
PSMN1R5-40PS	40	1.6	TBC	120	1400	TO220 (SOT78)	Standard Level
PSMN2R2-40PS	40	2.1	TBC	100	1240	TO220 (SOT78)	Standard Level
PSMN2R5-60PL	60	2.6	TBC	150	655	TO220 (SOT78)	Logic Level
PSMN2R6-60PS	60	2.9	TBC	150	519	TO220 (SOT78)	Standard Level
PSMN3R3-60PL	60	3.4	TBC	130	404	TO220 (SOT78)	Logic Level
PSMN3R9-60PS	60	3.9	TBC	130	372	TO220 (SOT78)	Standard Level
PSMN4R2-60PL	60	4.3	TBC	130	372	TO220 (SOT78)	Logic Level
PSMN7R6-60PS	60	7.8	TBC	92	110	TO220 (SOT78)	Standard Level

Types in **bold red** represent new products



Heavier duty tools with large batteries require MOSFETs to withstand higher currents. NXP's SOT427 (7Pin D2PAK) with Trench 6 silicon will handle up to up to 300A. Smaller hand-held tools may require smaller batteries. The high-reliability LFPAK56 is ideal for lower currents and space-constrained applications.

NXP's LFPAK – Designed for reliability

Designing a complex automotive system, a high efficiency industrial power supply or a slimline portable PC? NXP has a range of smaller, faster, cooler MOSFETs to help you deliver maximum reliability.

Since 1999, NXP has led the way with LFPAK, our ground-breaking solution for high reliability, high performance MOSFETs in a variety of commercial, industrial and automotive applications.

The first products were in the Power-SO8 compatible LFPAK56, developed as a 'true' power package. Design and construction were optimized to give the best thermal and electrical performance, cost and reliability.

As industries trend toward miniaturization, LFPAK is still the answer and our LFPAK33 is the ideal solution for the popular 3.3 x 3.3 mm outline footprint.

Thermal Performance
- No wires, no glue
- 175 °C Tj max

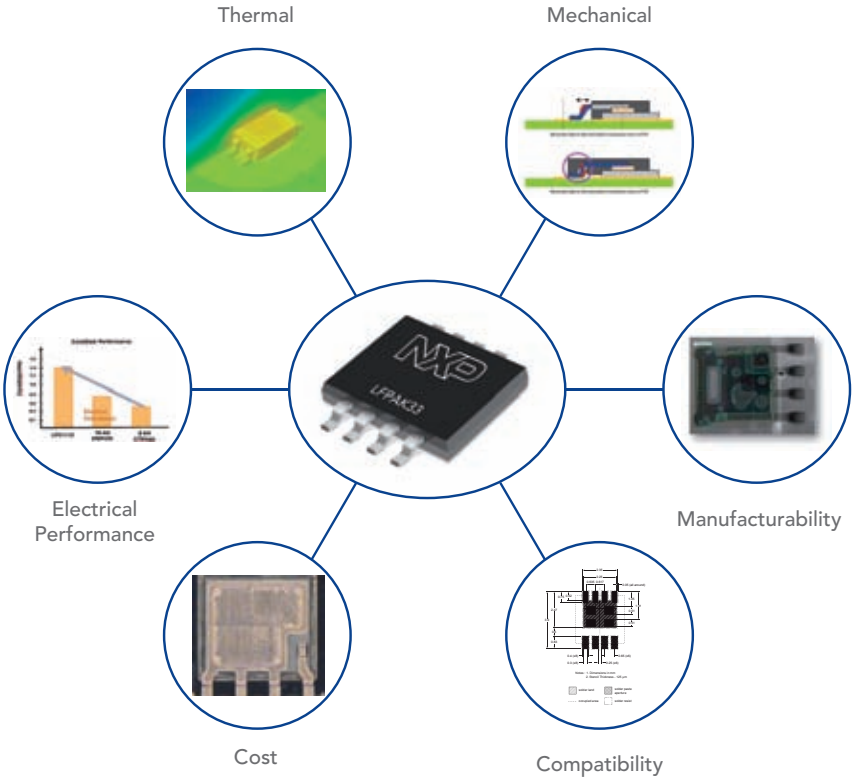
Electrical performance
- Low package resistance and inductance
- Current handling up to 100 A

Cost
- Fewer manufacturing steps means cost-effective, high volume production

Mechanical robustness
- Exposed leads absorb thermal and mechanical stresses

Manufacturability
- Easy optical inspection of solder joints
- Low package height

Compatibility
- 100% compatible with industry-standard footprints



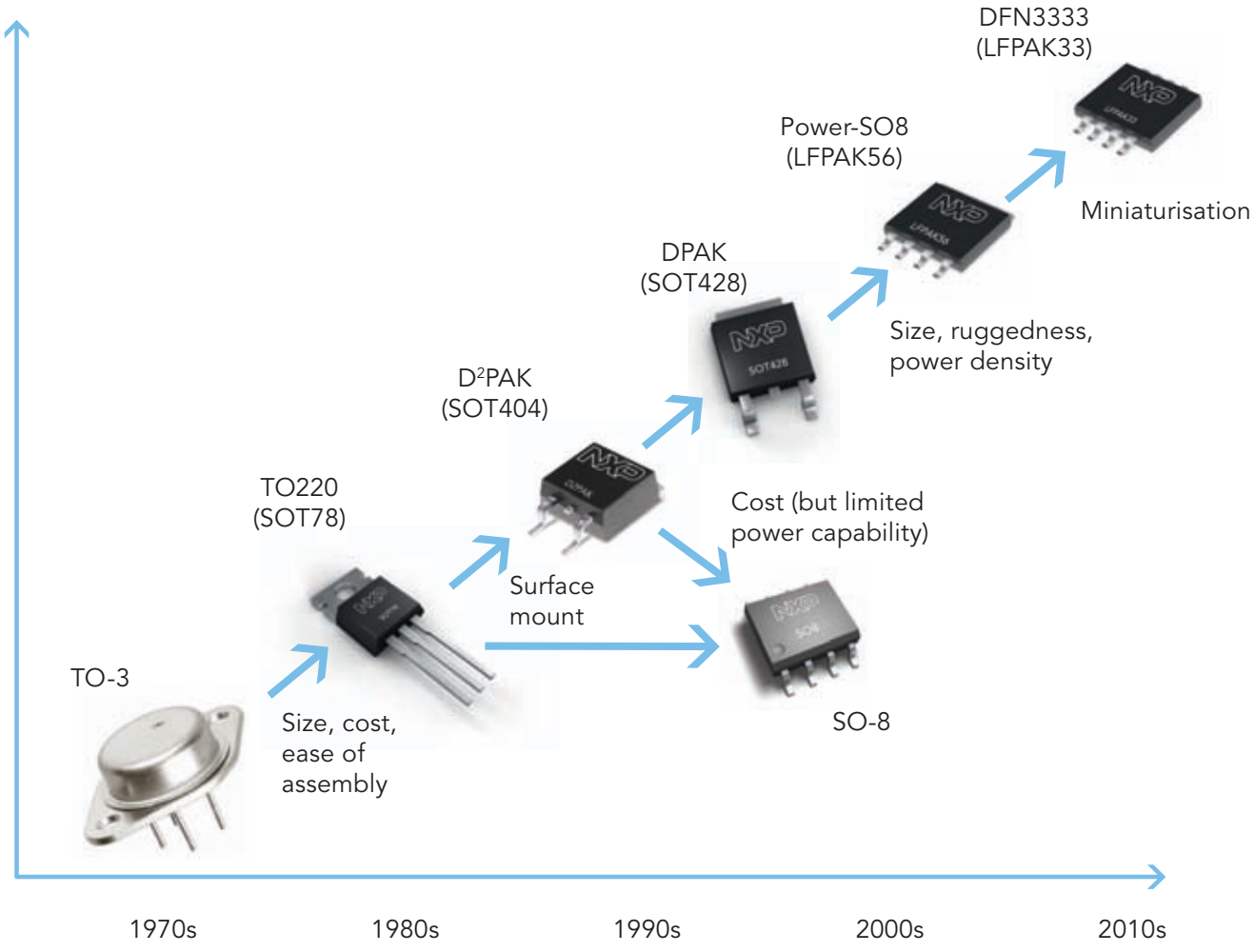
MOSFET package evolution

MOSFET packaging technology has changed enormously over the last 40 years in line with ever increasing demands for smaller, more capable electronic devices.

The first TO220 device was introduced in the 1980s, providing a package that was smaller, less expensive and easier to assemble than its predecessors. With the rise of surface mount technology towards the end of the decade, a new leadframe was developed and the D2PAK was born.

The industry then split in two. Some manufacturers preferred the lower cost but more limited options afforded by high volume IC packages such as the SO8. Others simply shrank the D2PAK in size and developed the DPAK.

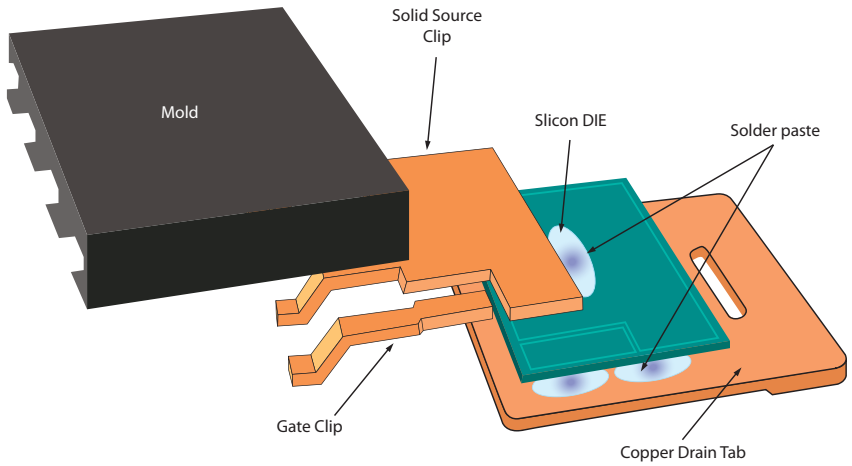
When it was introduced, the LFPAK56, which has similar dimensions to an SO8 but was specifically designed to deliver maximum performance in power applications. Such was its success that it became the first Power-SO8 package to achieve AEC Q101 qualification. Building on this heritage, NXP has now introduced a miniaturized version, the LFPAK33.



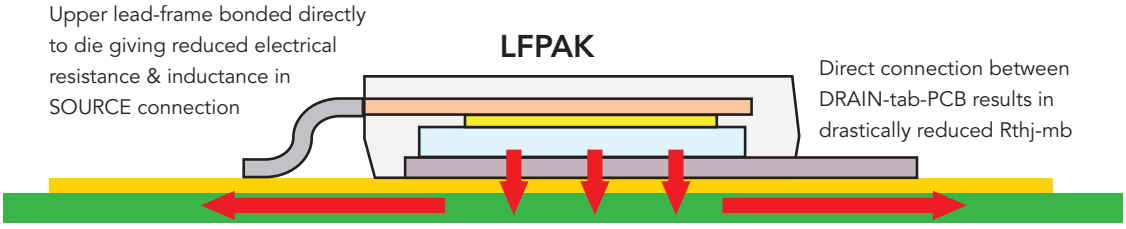
LFPAK rugged construction

Innovative clip-bonding

The silicon die is soldered to the drain tab forming the electrical drain connection. Then the top-clip is soldered to the silicon die to provide source and gate connections, eliminating bond wires and reducing package resistance and inductance.



The drain tab is soldered directly to the PCB to provide a low electrical resistance path and also low thermal resistance between the MOSFET and the PCB.



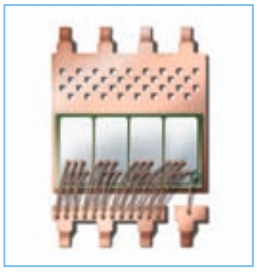
MOSFET assembly techniques

Compare the LFPAK with competitor Power-SO8 types which are often constructed using wire bonding as shown right. LFPAK uses a combined copper clip which is soldered in a single operation to the gate and source. This reduces spreading resistance, and gives LFPAK superior electrical and thermal characteristics as well as increased reliability.

LFPAK eliminates wire-bonding used in many competitor devices.
The combined gate and source clip with soldered die-attach delivers:

- maximum mechanical ruggedness and reliability
- lowest electrical resistance
- lowest thermal resistance
- simplified manufacturing process

Cu wire-bonding



Resists mechanical and thermal stress

Customer feedback consistently shows that LFPAK is more reliable and rugged than competitor QFN and other micro-lead devices. The LFPAK56 meets full automotive qualification (AEC Q101), clear proof of its superior ruggedness and reliability in the toughest conditions.

The following diagram shows the mechanical stresses that can occur when a device is rapidly heated and cooled. Different rates of expansion and contraction of the PCB and the MOSFET package can cause cracking of the MOSFET moulding as well as solder joint failures on a QFN device. LFPAK's construction allows the gate and source pins to 'flex' and safely absorb these stresses.

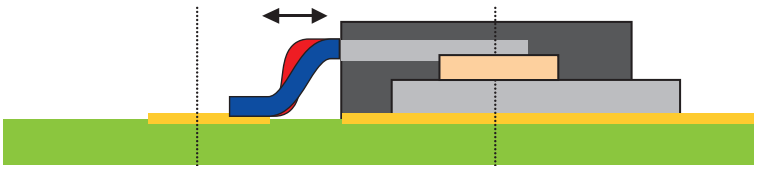
Solder joint inspection of QFN & micro-lead devices often requires costly X-ray analysis and specialist SMT rework equipment. LFPAK solder joints can be visually inspected and, if necessary, it is possible to rework an LFPAK device using simple, low-cost tools.

Mechanical stresses occur when a SMT device is subject to rapid temperature change or if the PCB bends due to mechanical strain or vibration.

The LFPAK's exposed lead-frame provides compliance and allows for movement caused by thermal expansion and mechanical strain.

QFN sawn & micro-lead packages are fully encapsulated and do not allow for movement due to thermal expansion or mechanical strain. Mechanical & thermal stresses can lead to solder-joint failures.

Cracking can also occur in the mould material around the pins which can lead to moisture ingress & ionic contamination, causing degradation and early failure of the MOSFET.

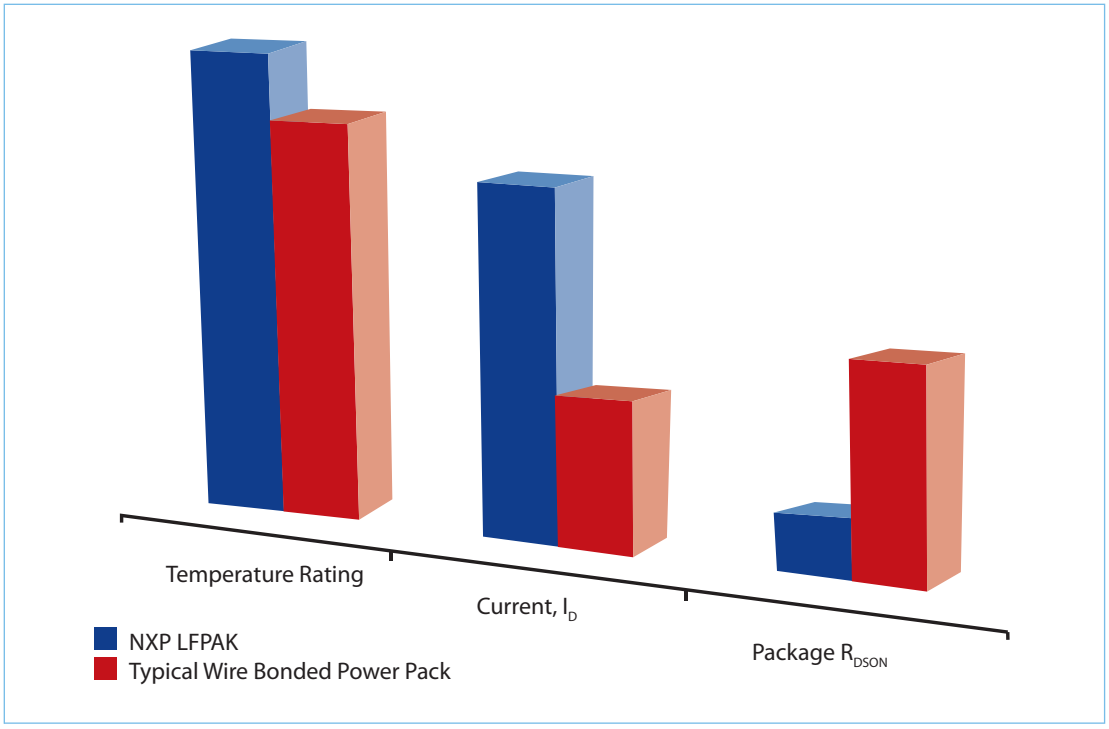


Movement due to thermal and/or mechanical stress in PCB

Movement due to thermal and/or mechanical stress in PCB

Superior thermal and electrical performance

The LFPAK was developed as a true power package. Package design has been optimized for thermal and electrical performance, cost and reliability.



LFPAK summary

Parameter	LFPAK56 *	LFPAK33 **
Junction temperature	175 °C	175 °C
I_D (max)	100 A	70 A
Rth (j-c) typ / (max)	0.40 K/W (0.45)	1.44 K/W (1.65)
Maximum power dissipation	137 W	91 W
SOA (I_D at 10 V / 100 µs)	325 A	105 A
R_{DSon} (typ, at V_{GS} = 10 V)	0.75 mΩ	2.45 mΩ
Height	1.0 mm	0.85 mm
External leads for optical inspection and reduced stress	√	√
Industry standard footprint	√	√

* Based on PSMN0R9-25YLC

** Based on PSMN2R9-30MLC

Manufacturing and quality

High volume electronics manufacturing environments make use of sophisticated optical inspection equipment to monitor the quality of their output. Solder joints in particular, are subject to stringent rules and manufacturing results are continuously fed back into the process control system.

The fully encapsulated nature of QFN and DFN type devices mean that only part of the solder joint is visible without the use of expensive X-ray equipment. In contrast, the exposed leads of LFPAK are available for detailed solder joint inspection and assessment.

LFPAK56 – Automotive Qualified

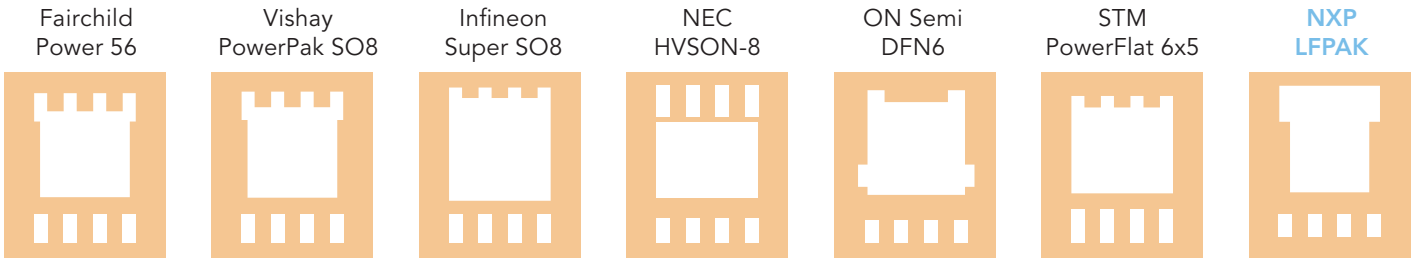
NXP Automotive Power MOSFETs are commonly deployed in many critical applications such as braking, power steering and engine management, where quality and reliability requirements are paramount.

The LFPAK56's copper source clip design overcomes the limitations of SO8 and Power-SO8 packages and has been fully qualified to the stringent AEC Q101 standard for discrete devices.

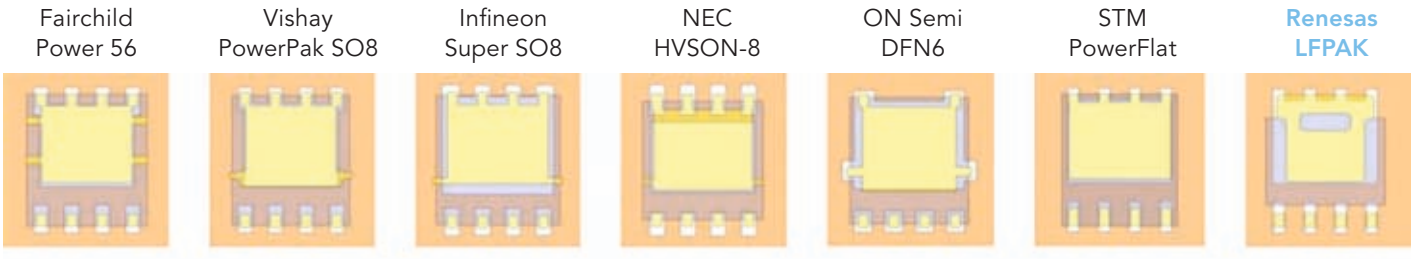
LFPAK56 (SOT669) soldering and footprint compatibility

There are many power MOSFETs available in the Power-SO8 family. However as there is no generic JEDEC standard for Power-SO8 devices, each device generally has a different PCB footprint. None of the manufacturers' devices are guaranteed to be interchangeable with other devices.

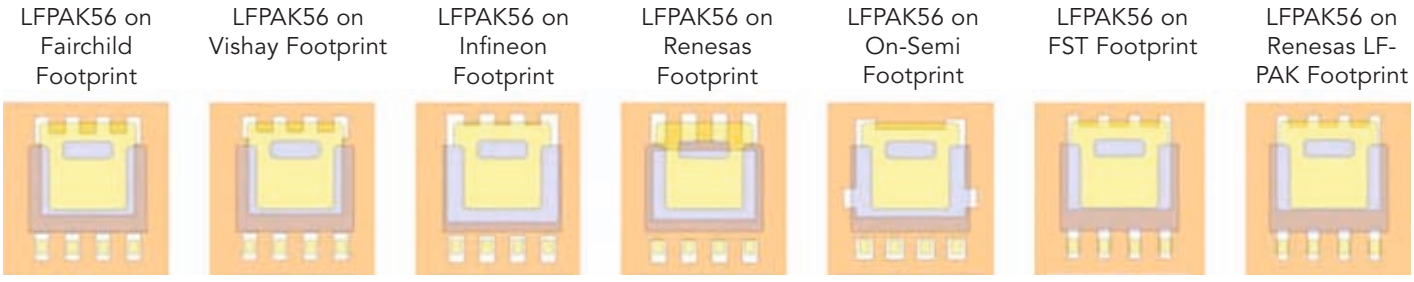
The following diagram shows that the package styles and recommended PCB footprints differ significantly from each manufacturer.



NXP's LFPAK56 (SOT669 & SOT1023) does achieve electrical and mechanical compatibility with these Power-SO8 types. Each variant may require a different solder-resist, solder-stencil and machine programming unless careful consideration has been made in advance to design a universal footprint which will allow multiple devices to be fitted to the PCB. The following diagram shows each manufacturer's original footprint with their Power-SO8 mounted on it.



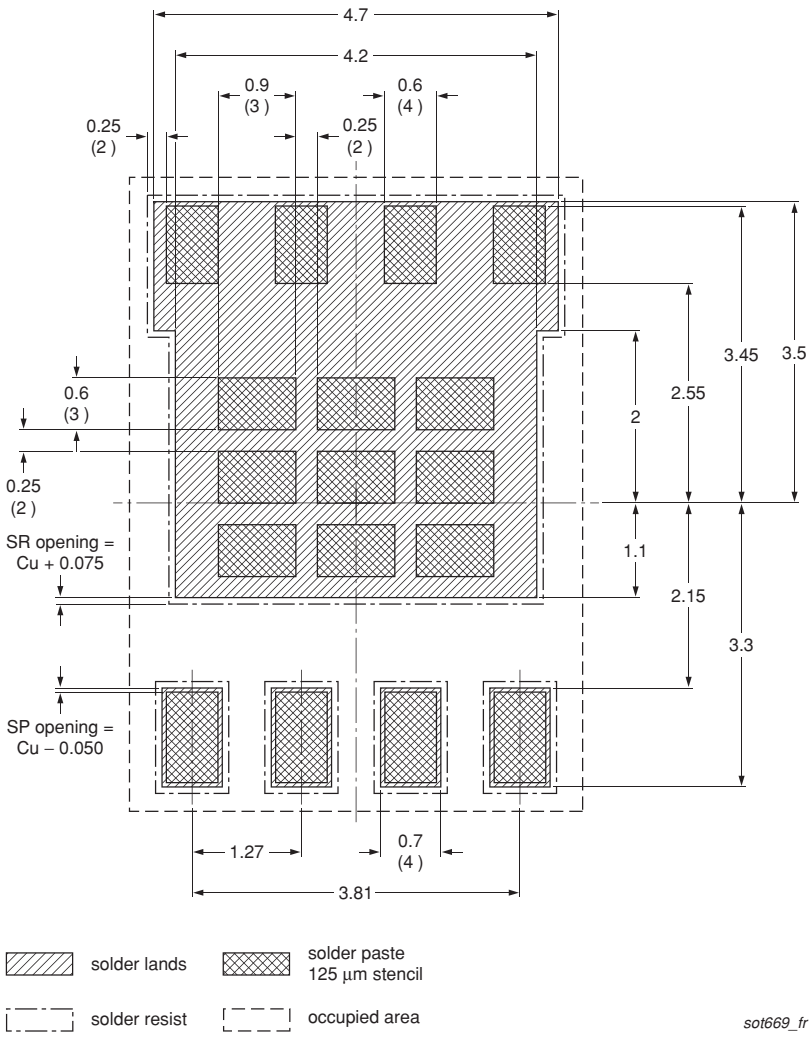
The diagram below shows the manufacturers footprint with an LFPAK56 mounted. This shows how it is possible to fit an LFPAK56 packaged product instead of a competitor device.



Comprehensive study reports are available on request for LFPAK56 and LFPAK33 packages showing more detailed proof of compatibility with competitor footprints.

LFPAK56 universal footprint design

Through careful design of the PCB footprint, it is possible to design a universal footprint, such as the one shown below, that meets the requirements of various Power-SO8 manufacturers. This universal footprint example shows the solder resist and solder stencil details that allow a PCB designer to create a footprint compatible the majority of Power-SO8 types.



Recommended universal Power-SO8 and LFPAK footprint allows the following device types to be mounted to a single PCB design:

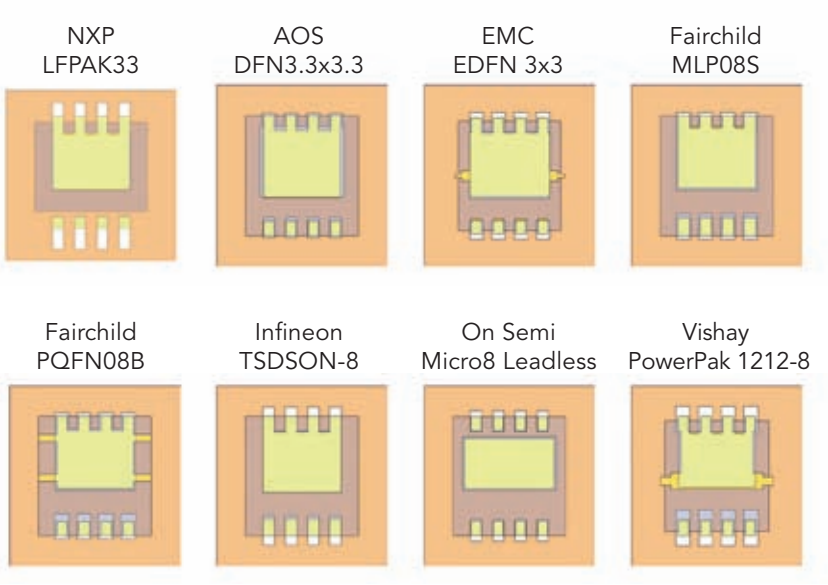
- NXP LFPAK (SOT669 & SOT1023)
- Infineon PG-TDSON-8
- Fairchild Power 56
- Vishay PowerPAK SO-8
- NEC 8-pin HVSON
- ON Semi SO−8 FL
- STM PowerFLAT (6x5)
- Renesas LFPAK

The original document can be downloaded at:
http://www.nxp.com/documents/reflow_soldering/sot669_fr.pdf

LFPAK33 (SOT1210) soldering and footprint compatibility

3.3 x 3.3 mm PCB footprints with package mounted

Through careful design of the PCB footprint, it is possible to design a universal footprint, such as the one shown below, that meets the requirements of various Power-SO8 manufacturers. This universal footprint example shows the solder resist and solder stencil details that allow a PCB designer to create a footprint compatible the majority of Power-SO8 types.



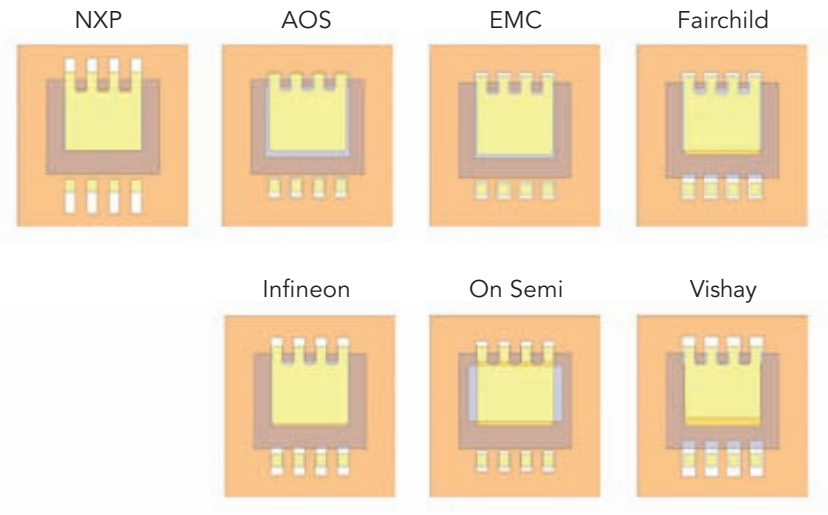
An independent study has been performed by Norcott Technologies (www.norcott.co.uk) to check compatibility:

- Placement of competitors on NXP universal SOT1210 footprint
- Placement of SOT1210 package on competitor footprints

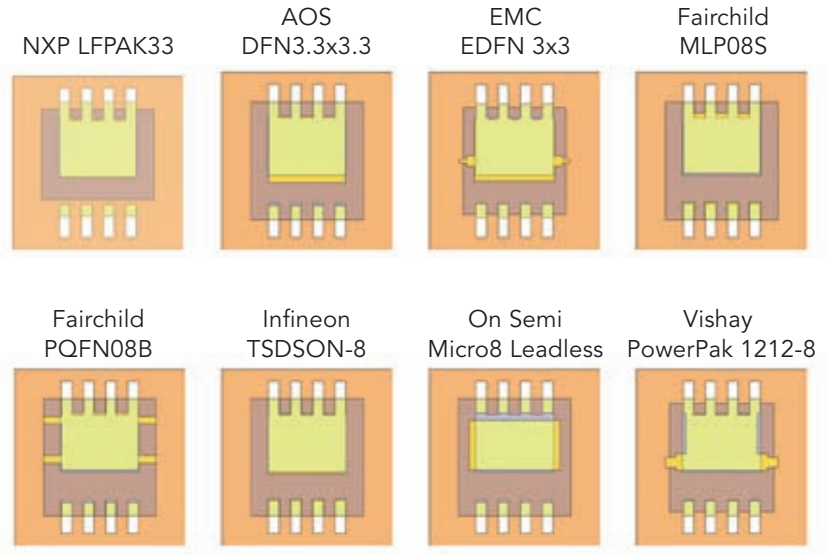
The conclusion of the study is that LFPAK33 is compatible in both scenarios above. The report is available upon request.

LFPAK33 soldering and footprint compatibility

NXP LFPAK33 on competitors' 3.3 x 3.3 package footprints



Competitors' 3.3 x 3.3 package on NXP LFPAK33 footprint

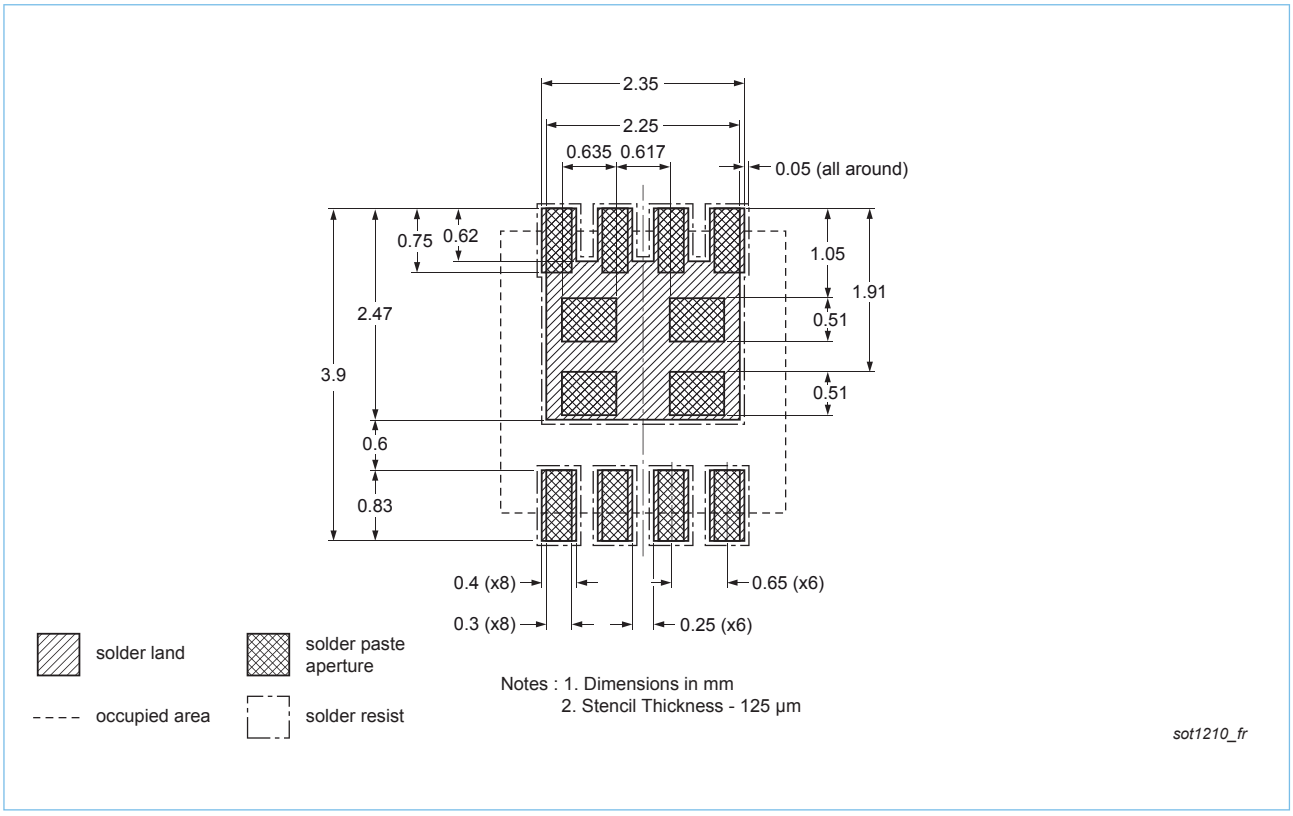


LFPAK33 universal footprint design

The LFPAK33 footprint allows for one PCB design to accommodate:

- NXP - LFPAK33 (SOT1210)
- NXP - DFN3333-8 (SOT873)
- Fairchild - MLP 3.3x3.3
- Vishay - POWERPAK® 1212-8
- Infineon - PG-TSDSON-8 3.3x3.3
- ON SEMI - WDFN8 3.3x3.3
- STM - POWERFlat® 3.3x3.3
- IR - PQFN 3x3

Other manufacturers' devices may also be compatible, but have not been verified by this trial.

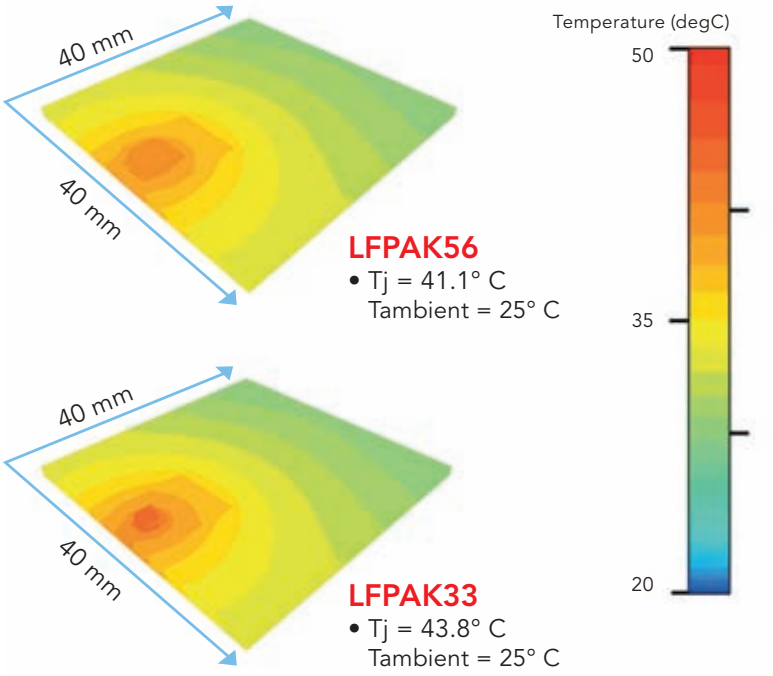


Two sizes – One performance

LFPAK's unique construction means that miniaturization does not require a compromise on performance. Thermal simulations show that LFPAK33 can replace LFPAK56 in a typical application with only a small resultant temperature rise in the silicon.

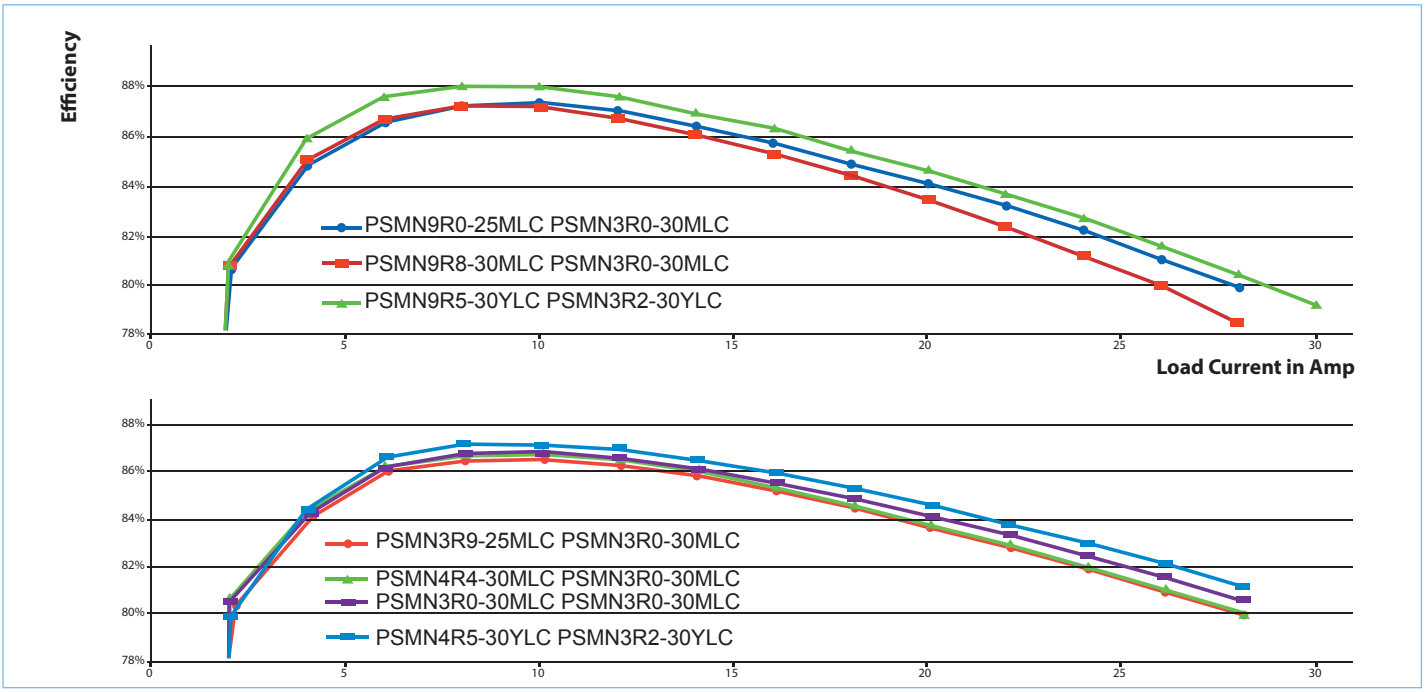
The following images show relative junction temperatures when the MOSFET is mounted on a 10 x 10 mm copper pad, with power dissipation of 0.5 W in the MOSFET.

The PCB's stack-up and copper pad dimensions remain as the dominant factor for system thermal resistance.



Efficiency – LFPAK33 versus LFPAK56

Where space is at a premium, LFPAK33 offers similar efficiency to the LFPAK56.



20 V – 25 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 4.5 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
D^2PAK (SOT404) 	PHB66NQ03LT	25	10.5		66	12
DPAK (SOT428) 	PHD38N02LT	20			44.7	15.1
	PHD97NQ03LT	25	6.3	10.6	75	11.7
Power SO8 (LFPAK56) 	PH3120L	20	2.65	3.7	100	48.5
	PH2520U	20		2.7	100	78
	PSMN0R9-25YLC	25	0.99	1.25	100	51
	PSMN1R1-25YLC	25	1.15	1.5	100	39
	PSMN1R2-25YL	25	1.2	1.85	100	50.6
	PSMN1R2-25YLC	25	1.3	1.7	100	31
	PSMN1R5-25YL	25	1.5	2.2	100	36
	PSMN1R7-25YLC	25	1.9	2.5	100	28
	PSMN1R9-25YLC	25	2.05	2.7	100	27
	PSMN2R2-25YLC	25	2.4	3.15	100	18
	PSMN2R9-25YLC	25	3.15	4.1	100	16
	PSMN3R2-25YLC	25	3.4	4.45	100	14
	PSMN3R7-25YLC	25	3.9	5.1	97	10.1
	PSMN4R0-25YLC	25	4.5	5.8	84	10.9
	PSMN6R0-25YLB	25	6.1	7.9	73	9
	PSMN6R5-25YLC	25	6.5	8.5	64	8.4
	PSMN7R5-25YLC	25	7.4	9.8	56	7
	PSMN9R0-25YLC	25	9.1	12.3	46	5.6
	PSMN010-25YLC	25	10.6	14	39	5
	PSMN012-25YLC	25	12.6	16.6	33	3.8
	PH2925U	25		3	100	92
LFPAK33 (SOT1210) 	**PSMN2R8-25MLC**	**25**	**2.8**	**3.75**	**70**	**16.3**
	PSMN3R9-25MLC	**25**	**4.15**	**5.55**	**70**	**9.7**
	PSMN9R0-25MLC	**25**	**8.65**	**11.3**	**55**	**5.4**
DFN1006 (SOT883) 	PMZ250UN	20		300	2.28	0.89
	PMZ270XN	20		340	2.15	0.72
DFN1006B-3 (SOT883B) 	PMZB290UN	20		350	1	0.89
	PMZB290UNE	20		380	1	0.45
	PMZB300XN	20		380	1	0.72
DFN2020-6 (SOT1118) 	PMDPB28UN	20		37	5.8	3.1
	PMDPB30XN	20		40	5.3	14.4
	PMDPB38UNE	20		46	5	2.9
	PMDPB42UN	20		50	5.1	2
DFN2020MD-6 (SOT1220) 	PMPB12UN	20		18	11.3	8.8
	PMPB15XN	20		21	10.4	13.4
	PMPB20UN	20		25	9.4	4.7

Types in **bold red** represent new products

20 V – 25 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 4.5 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
SC-70 (SOT323) 	PMF63UN	20		74	1.9	2.2
	PMF280UN	20		340	1.02	
	PMF290XN	20		350	1	0.72
SC-75 (SOT416) 	PMR280UN	20		340	0.98	0.89
	PMR290XN	20		350	0.97	0.72
	PMR290UNE	20		380	0.7	0.45
SO8 (SOT96-1) 	PSMN006-20K	20		5	32	32
	PHKD6N02LT	20			10.9	15.3
SOT666 	PMDT290UNE	20		380	0.8	0.45
TO-236AB (SOT23) 	PMV16UN	20		18	5.8	7.4
	PMV28UN	20		32	3.3	5.8
	PMV30XN	20		35	3.2	4.9
	PMV30UN	20		36	5.7	7.4
	PMV31XN	20		37	5.9	5.8
	PMV56XN	20		85	3.76	5.4
	SI2302DS	20		85	2.5	5.4
	PMV170UN	20		165	1.5	1.1
	BSH105	20		200	1.05	3.9
TSOP6 (SOT457) 	PMN34LN	20	34	40	5.7	13.1
	PMN55LN	20	65	82	4.1	13.1
	PMN25UN	20		27	6	6.4
	PMN23UN	20		28	6.3	10.6
	PMN27UN	20		34	5.7	10.6
TSSOP6 (SOT363) 	PMGD130UN	20		145	1.3	0.88
	PMGD280UN	20		340	0.87	0.89
	PMGD290XN	20		350	0.86	0.72

30 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 4.5 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)	
D^2PAK (SOT404) 	**PSMNR90-30BL**	**30**	**1**	**1.3**	**120**	**118**	
	PSMN1R5-30BLE	**30**	**1.5**	**1.85**	**120**	**228**	Wide SOA
	PSMN1R8-30BL	**30**	**1.8**	**2.1**	**100**	**83**	
	PSMN1R6-30BL	**30**	**1.9**	**2.2**	**100**	**101**	
	PSMN2R0-30BL	**30**	**2.1**	**2.9**	**100**	**55**	
	PSMN2R7-30BL	**30**	**3**	**3.7**	**100**	**32**	
	PSMN3R4-30BL	**30**	**3.3**	**3.8**	**100**	**31**	
	PSMN3R4-30BLE	**30**	**3.4**	**5**	**120**	**81**	Wide SOA
	PSMN4R3-30BL	**30**	**4.1**	**5.2**	**100**	**19**	
	PSMN017-30BL	**30**	**17**	**23.3**	**32**	**5.1**	
	PSMN022-30BL	**30**	**22.6**	**29.6**	**30**	**4.4**	
DPAK (SOT428) 	PHD101NQ03LT	30	5.5		75	23	
	PHD71NQ03LT	30	10		75	13.2	
I^2PAK (SOT226) 	PSMN1R1-30EL	30	1.3	1.4	120	118	
	PSMN017-30EL	**30**	**17**	**23.4**	**32**	**5.1**	
Power-SO8 (LFPAK56) 	PSMN1R0-30YLC	30	1.15	1.4	100	50	
	PSMN1R2-30YLC	30	1.25	1.65	100	38	
	PSMN1R3-30YL	30	1.3	1.95	100	46.6	
	PSMN1R5-30YL	30	1.5	1.9	100	36.2	
	PSMN1R5-30YLC	30	1.55	2.05	100	30	
	PSMN1R7-30YL	30	1.7	2.1	100	36.2	
	PSMN2R0-30YL	30	2	2.63	100	30	
	PSMN2R0-30YLE	**30**	**2**	**3.5**	**100**	**87**	Wide SOA
	PSMN2R2-30YLC	30	2.15	2.8	100	26	
	PSMN2R5-30YL	30	2.4	3.16	100	27	
	PSMN2R6-30YLC	30	2.8	3.65	100	18	
	PSMN3R0-30YL	30	3	4.04	100	21	
	PSMN3R2-30YLC	30	3.5	4.55	100	14.2	
	PSMN3R5-30YL	30	3.5	4.61	100	19	
	PSMN3R7-30YLC	30	3.95	5.15	100	14	
	PSMN4R0-30YL	30	4	5.25	100	17.6	
	PSMN4R1-30YLC	30	4.35	5.7	92	11	
	PSMN4R5-30YLC	30	4.8	6.1	84	9.6	
	PSMN5R0-30YL	30	5	6.7	91	14.1	
	PSMN6R0-30YL	30	6	7.87	79	11	
	PSMN5R9-30YL	30	6.1	9	78	10.5	
	PSMN6R0-30YLB	30	6.5	8.1	71	9	
	PSMN7R0-30YL	30	7	9.1	76	10	
	PSMN7R0-30YLC	30	7.1	8.9	61	7.9	
	PSMN8R0-30YLC	30	7.9	10	54	7	
	PSMN9R0-30YL	30	8	11.03	61	8.7	
	PSMN8R0-30YL	30	8.3	12.2	62	9	
	PSMN9R1-30YL	30	9.1	13.6	57	8.4	
	PSMN9R5-30YLC	30	9.8	12.1	44	5	
	PSMN011-30YL	30	10.7	16.1	51	7.3	
	PSMN011-30YLC	30	11.6	14.5	37	4.9	
	PSMN013-30YLC	30	13.6	16.9	32	4	

Types in **bold red** represent new products

30 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 4.5 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
LFPAK33 (SOT1210) 	**PSMN2R9-30MLC**	**30**	**2.95**	**3.8**	**70**	**16.7**
	PSMN3R0-30MLC	**30**	**3.15**	**4.05**	**70**	**16.1**
	PSMN4R4-30MLC	**30**	**4.65**	**6**	**70**	**10.6**
	PSMN7R0-30MLC	**30**	**7**	**9**	**67**	**8.2**
	PSMN9R8-30MLC	**30**	**9.8**	**12.4**	**50**	**5**
	PSMN013-30MLC	**30**	**13.6**	**16.9**	**39**	**3.7**
	PSMN020-30MLC	**30**	**18.1**	**27**	**31.8**	**4.6**
DFN1006-3 (SOT883) 	PMZ350XN	30		420	1.87	0.65
	PMZ390UN	30		460	1.78	0.89
	PMZ1000UN	30		1000	0.48	0.89
DFN1006B-3 (SOT883B) 	PMZB380XN	30		460	0.93	0.65
	PMZB370UNE	30		490	0.9	0.77
	PMZB420UN	30		490	0.9	0.75
	NX3008NBKMB	30		1400	0.53	0.52
DFN2020-6 (SOT1118) 	PMDPB70EN	30	57	88	4.5	3
	PMDPB56XN	30		73	4	1.9
	PMDPB95XNE	30		120	3.1	1.65
DFN2020MD-6 (SOT1220) 	PMPB11EN	30	14.5	16.5	13	13.7
	PMPB20EN	30	19.5	24.5	10.4	7.2
	PMPB16XN	30		21	10.3	7.2
	PMPB33XN	30		47	5.5	5.1
	PSMN9R0-30LL	30	9	13	21	20.6
	PSMN013-30LL	30	13	19	21	12.2
	PSMN017-30LL	30	17	25	15	10
SC-70 (SOT323) 	PMF87EN	30	80	110	1.9	3.1
	NX3020NAKW	30	4500	5200	0.18	0.34
	PMF77XN	30		97	1.63	1.9
	PMF250XN	30		300	0.9	0.74
	PMF370XN	30		440	0.87	0.65
	PMF400UN	30		480	0.83	0.89
	NX3008NBKW	30		1400	0.35	0.52
SC-73 (SOT223) 	PMT21EN	30	21	26	7.4	12.5
	PMT29EN	30	29	36	6	9.6
	BSP030	30	30		10	24
	BSP100	30	100	200	6	6
SC-75 (SOT416) 	NX3020NAKT	30	4500	5200	0.18	0.34
	PMR370XN	30		440	0.84	0.65
	PMR400UN	30		480	0.8	0.89
	NX3008NBKT	30		1400	0.35	0.52
SO8 (SOT96-1) 	PHK31NQ03LT	30	4.4	5.6	30.4	33
	PSMN005-30K	30	5.5	8		34
	PHK28NQ03LT	30	6.5	7.7	23.7	30.3
	PHK18NQ03LT	30	8.9	12.5	20.3	10.6
	SI4410DY	30	13.5	20	10	21.5
	PHK13N03LT	30	20	26	13.8	10.7
	PHKD13N03LT	30	20	26	10.4	10.7
	PHN203	30	30	55	6.3	14.6
	PHN210T	30	100	200	3.4	6
	PHC21025	30	250	400		10
	PHK12NQ03LT	30		14	11.8	

Types in **bold red** represent new products

30 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 4.5 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
SOT666 	NX3020NAKV	30	4500	5200	0.2	0.34
	NX3008NBKV	30		1400	0.4	0.52
TO-220AB (SOT78) 	PSMN1R1-30PL	30	1.3	1.4	120	118
	PSMN1R6-30PL	30	1.7	2.1	100	101
	PSMN1R8-30PL	30	1.8	2.3	100	83
	PSMN2R0-30PL	30	2.1	2.8	100	55
	PSMN2R7-30PL	30	2.7	3.6	100	32
	PSMN3R4-30PL	30	3.4	4.1	100	31
	PSMN4R3-30PL	30	4.3	6.2	100	19
	PHP36N03LT	30	17	22	43.4	18.5
	PSMN017-30PL	**30**	**17**	**23.4**	**32**	**5.1**
	PSMN022-30PL	30	22	34	30	4.4
TO-236AB (SOT23) 	PMV22EN	30	22	29	5.2	8.6
	PMV37EN	30	36	47	3.1	6.5
	PMV45EN	30	42	54	5.4	9.4
	PMV60EN	30	55	72	4.7	9.4
	PMV90EN	30	84	115	2.1	2.6
	PMV117EN	30	117	190	2.5	4.6
	SI2304DS	30	117	190	1.7	4.6
	BSH108	30	120		1.9	6.4
	PMV20XN	30		25	4.8	6.4
	PMV40UN	30		47	4.9	9.3
	PMV185XN	30		250	1.2	0.87
	BSH103	30		400		2.1
	NX3008NBK	30		1400	0.4	0.52
TSOP6 (SOT457) 	PMN20EN	30	20	25	6.7	12.4
	PMN25EN	30	23	31	6.2	9.6
	PMN35EN	30	31	43	5.1	6.2
	PMN40LN	30	38	45	5.4	13.8
	PMN38EN	30	38	46	5.4	6.1
	PMN45EN	30	40	50	5.2	6.1
	PMN49EN	30	47	60	4.6	8.8
	PMN22XN	30		27	5.7	6.4
	PMN34UN	30		46	4.9	9.9
TSSOP6 (SOT363) 	NX3020NAKS	30	4500	5200	0.18	0.34
	PMGD175XN	30		225	1	0.7
	PMG370XN	30		440	0.96	0.65
	PMGD370XN	30		440	0.74	0.65
	PMGD400UN	30		480	0.71	0.89
	NX3008NBKS	30		1400	0.35	0.52
	PMGD8000LN	30			0.125	0.35

40 V – 50 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
D^2PAK (SOT404) 	**PSMN1R1-40BS**	**40**	**1.3**	**120**	**136**
	PSMN2R2-40BS	**40**	**2.2**	**100**	**130**
	PSMN2R8-40BS	**40**	**2.9**	**100**	**71**
	PSMN4R5-40BS	**40**	**4.5**	**100**	**35**
	PSMN8R0-40BS	**40**	**7.6**	**77**	**21**
I^2PAK (SOT226) 	PSMN1R5-40ES	40	1.6	120	136
Power-SO8 (LFPAK56) 	**PSMN1R6-40YLC**	**40**	**1.55**	**100**	**59**
	PSMN1R8-40YLC	**40**	**1.8**	**100**	**45**
	PSMN2R6-40YS	40	2.8	100	63
	PSMN3R3-40YS	40	3.3	100	49
	PH4840S	40	4.1	94.5	67
	PSMN4R0-40YS	40	4.2	100	38
	PSMN5R8-40YS	40	5.7	90	28.8
	PSMN8R3-40YS	40	8.6	70	20
	PSMN014-40YS	40	14	46	12
	PSMN023-40YLC	**40**	**23**	**24**	**4.3**
TO-220AB (SOT78) 	PSMN1R5-40PS	40	1.6	120	136
	PSMN1R9-40PL	**40**	**1.7**	**150**	
	PSMN2R2-40PS	40	2.1	100	110
	PSMN2R1-40PL	**40**	**2.2**	**150**	
	PSMN2R8-40PS	40	2.8	100	71
	PSMN4R5-40PS	40	4.6	100	35
	PSMN8R0-40PS	40	7.6	77	17
TO-236AB (SOT23) 	BSN20	50	15000	0.173	

Types in **bold red** represent new products - Types in **bold green** represent products in development

55 V – 60 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
D^2PAK (SOT404) 	PHB191NQ06LT	55	3.7	75	95.6
	PHB21N06LT	55	70	19	
	PHB20N06T	55	75	20.3	11
	PSMN1R7-60BS	**60**	**2**	**120**	**137**
	PSMN3R0-60BS	**60**	**3.2**	**100**	**130**
	PSMN004-60B	60	3.6	75	168
	PSMN4R6-60BS	**60**	**4.4**	**100**	**70.8**
	PSMN7R6-60BS	**60**	**7.8**	**92**	**38.7**
	PSMN015-60BS	**60**	**14.8**	**50**	**20.9**
	PHB32N06LT	60	37	34	17
DPAK (SOT428) 	PHD20N06T	55	77	18	11
Power-SO8 (LFPAK56) 	PH955L	55	8.3	62.5	42
	PSMN5R5-60YS	60	5.2	100	56
	PSMN7R0-60YS	60	6.4	89	45
	PSMN8R5-60YS	60	8	76	39
	PSMN012-60YS	60	11.1	59	28.4
	PSMN017-60YS	60	15.7	44	20
	PSMN030-60YS	60	24.7	29	13
SC-70 (SOT323) 	BSH121	55		0.3	1
SC-73 (SOT223) 	PHT6N06T	55	150	5.5	
	PHT6N06LT	55		5.5	4.5
	PHT8N06LT	55		7.5	11.2
TO-220AB (SOT78) 	PHP191NQ06LT	55	3.7	75	95.6
	PHP20N06T	55	75	20.3	11
DFN1006-3 (SOT883) 	PMZ760SN	60	900	1.22	1.05
	2N7002BKM	60	1600	0.45	0.5
DFN1006B-3 (SOT883B) 	PMZB790SN	60	940	0.65	1.05
	2N7002BKMB	60	1600	0.45	0.5
DFN2020MD-6 (SOT1220) 	PMPB40SNA	60	43	12.9	12.1
I^2PAK (SOT226) 	PSMN2R0-60ES	60	2.2	120	137
	PSMN3R0-60ES	60	3	100	130
SC-70 (SOT323) 	PMF780SN	60	920	0.57	1.05
	BSS138BKW	60	1600	0.32	0.6
	2N7002BKW	60	1600	0.31	0.5
	2N7002PW	60	1600	0.31	0.6
	BSS138PW	60	1600	0.32	0.72
	PMF3800SN	60	4500	0.26	0.85
	NX7002AKW	60	4500	0.17	0.33
SC-75 (SOT416) 	PMR780SN	60	920	0.55	1.05
	2N7002BKT	60	1600	0.29	0.5
	2N7002PT	60	1600	0.31	0.6

55 V – 60 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
SOT666 	2N7002BKV	60	1600	0.34	0.5
	2N7002PV	60	1600	0.35	0.6
TO-220AB (SOT78) 	PSMN2R0-60PS	60	2.2	120	137
	PSMN2R5-60PL	**60**	**2.6**	**150**	
	PSMN2R6-60PS	**60**	**2.9**	**150**	
	PSMN3R0-60PS	**60**	**3**	**100**	**130**
	PSMN3R3-60PS	**60**	**3.4**	**130**	
	PSMN3R9-60PS	**60**	**3.9**	**130**	
	PSMN4R2-60PL	**60**	**4.3**	**130**	
	PSMN4R6-60PS	60	4.6	100	70.8
	PSMN7R6-60PS	60	7.8	92	38.7
	PSMN015-60PS	60	14.8	50	20.9
TO-236AB (SOT23) 	BSH111	55		0.335	1
	BSS138BK	60	1600	0.36	0.6
	2N7002CK	60	1600	0.3	1.09
	2N7002BK	60	1600	0.35	0.5
	2N7002P	60	1600	0.36	0.6
	BSS138P	60	1600	0.36	0.72
	2N7002F	60	2000	0.475	0.69
	2N7002E	60	3000	0.385	0.69
	NX7002AK	60	4500	0.19	0.33
	2N7002	60	5000	0.3	
	PMBF170	60	5000	0.3	
	NXS7002AK	60	5000	0.19	0.33
TSSOP6 (SOT363) 	PMGD780SN	60	920	0.49	1.05
	BSS138BKS	60	1600	0.32	0.6
	2N7002BKS	60	1600	0.3	0.5
	2N7002PS	60	1600	0.32	0.6
	BSS138PS	60	1600	0.32	0.72
	NX7002AKS	60	4500	0.17	0.33

Types in **bold green** represent products in development

75 V – 80 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
D²PAK (SOT404) 	PSMN005-75B	75	5	75	165
	PSMN008-75B	75	8.5	75	122.8
	PHB110NQ08T	75	9	75	113.1
	PHB29N08T	75		27	19
	PSMN2R8-80BS	**80**	**3**	**120**	**139**
	PSMN3R3-80BS	**80**	**3.5**	**120**	**111**
	PSMN4R4-80BS	**80**	**4.5**	**100**	**125**
	PSMN5R0-80BS	**80**	**5.1**	**100**	**101**
	PSMN6R5-80BS	**80**	**6.9**	**100**	**71**
	PSMN8R7-80BS	**80**	**8.7**	**90**	**52**
	PSMN012-80BS	**80**	**11**	**74**	**36**
	PSMN017-80BS	**80**	**17**	**50**	**26**
	PSMN050-80BS	**80**	**46**	**22**	**11**
TO-220AB (SOT78) 	PSMN005-75P	75	5	75	165
	PHP79NQ08LT	75	16	73	30
	PHP29N08T	75		27	19
I²PAK (SOT226) 	PSMN3R3-80ES	80	3.3	120	139
	PSMN3R5-80ES	80	3.5	120	139
	PSMN4R3-80ES	80	4.3	120	111
Power-SO8 (LFFPAK56) 	PSMN8R2-80YS	80	8.5	82	55
	PSMN011-80YS	80	11	67	45
	PSMN013-80YS	80	12.9	60	37
	PSMN018-80YS	80	18	45	26
	PSMN026-80YS	80	27.5	34	20
	PSMN045-80YS	80	45	24	12.5
TO-220AB (SOT78) 	PSMN3R3-80PS	80	3.3	120	139
	PSMN3R5-80PS	80	3.5	120	139
	PSMN4R4-80PS	80	4.1	100	112
	PSMN4R3-80PS	80	4.3	120	111
	PSMN5R0-80PS	80	4.7	100	87
	PSMN6R5-80PS	80	6.9	100	71
	PSMN8R7-80PS	80	8.7	90	52
	PSMN012-80PS	80	11	74	36
	PSMN017-80PS	80	17	50	26
	PSMN050-80PS	80	46	22	9

100 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)	
D²PAK (SOT404) 	**PSMN3R8-100BS**	**100**	**3.9**	**120**	**170**	
	PSMN4R8-100BSE	**100**	**4.8**	**120**	**196**	Wide SOA
	PSMN5R6-100BS	**100**	**5.6**	**100**	**141**	
	PSMN7R6-100BSE	**100**	**7.6**	**75**	**128**	Wide SOA
	PSMN7R0-100BS	**100**	**6.8**	**100**	**125**	
	PSMN009-100B	100	8.8	75	156	
	PSMN9R5-100BS	**100**	**9.6**	**89**	**82**	
	PSMN013-100BS	**100**	**13.9**	**68**	**59**	
	PSMN015-100B	100	15	75	90	
	PSMN016-100BS	**100**	**16**	**57**	**49**	
	PHB45NQ10T	100	25	47	61	
	PSMN027-100BS	**100**	**26.8**	**37**	**30**	
	PHB47NQ10T	100	28	47	66	
	PSMN034-100BS	**100**	**34.5**	**32**	**23.8**	
	PHB27NQ10T	100	50	28	30	
	PHB18NQ10T	100	90	18	21	
DPAK (SOT428) 	PSMN025-100D	100	25	47	61	
I²PAK (SOT226) 	PSMN4R3-100ES	100	4.3	120	170	
	PSMN5R0-100ES	100	5	120	170	
	PSMN7R0-100ES	100	6.8	100	125	
	PSMN8R5-100ES	**100**	**8.5**	**100**	**111**	
	PSMN013-100ES	100	13.9	68	59	
Power-SO8 (LFPAK56) 	PSMN012-100YS	100	12	60	64	
	PSMN013-100YSE	**100**	**13**	**58**	**75**	Wide SOA
	PSMN016-100YS	100	16.3	51	54	
	PSMN020-100YS	100	20.5	43	41	
	PH20100S	100	23	34.3	39	
	PSMN028-100YS	100	27.5	42	33	
	PSMN039-100YS	100	39.5	28.1	23	
	PSMN069-100YS	100	72.4	17	14	
SC-73 (SOT223) 	PHT6NQ10T	100	90	6.5	21	
	PHT4NQ10T	100	250	3.5	7.4	
	BSP110	100		0.52		
	PHT4NQ10LT	100		3.5	6.8	

Types in **bold red** represent new products - Types in **bold green** represent products in development

100 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
SO8 (SOT96-1) 	PHK12NQ10T	100	28	11.6	35
	PSMN038-100K	100	38		43
	PHKD3NQ10T	100	90	3	21
TO-220AB (SOT78) 	PSMN4R3-100PS	100	4.3	120	170
	PSMN5R0-100PS	100	5	120	170
	PSMN5R6-100PS	100	5.6	100	141
	PSMN7R0-100PS	100	6.8	100	125
	PSMN8R5-100PS	**100**	**8.5**	**100**	**111**
	PSMN009-100P	100	8.8	75	156
	PSMN9R5-100PS	100	9.6	89	82
	PSMN013-100PS	100	13.9	68	59
	PSMN015-100P	100	15	75	90
	PSMN016-100PS	100	16	57	49
	PHP45NQ10T	100	25	47	61
	PSMN027-100PS	100	26.8	37	30
	PSMN034-100PS	100	34.5	32	23.8
	PHP18NQ10T	100	90	18	21
TO-220F SOT186A) 	**PSMN4R6-100XS**	**100**	**4.6**	**70.4**	**153**
	PSMN5R0-100XS	**100**	**5**	**67.5**	**153**
	PSMN5R6-100XS	**100**	**5.6**	**61.8**	**145**
	PSMN7R0-100XS	**100**	**6.8**	**55**	**121**
	PSMN8R5-100XS	**100**	**8.5**	**49**	**100**
	PSMN9R5-100XS	**100**	**9.6**	**44.2**	**81.5**
	PSMN013-100XS	**100**	**13.9**	**35.2**	**57.5**
	PSMN016-100XS	**100**	**16**	**32.1**	**46.2**
	PSMN027-100XS	**100**	**26.8**	**23.4**	**30**
TO-236AB (SOT23) 	PMV213SN	100	250	1.9	7
	BSH114	100	500	0.85	4.6
	BSS123	100	6000	0.15	
	BST82	100		0.19	

Types in **bold red** represent new products

105 V – 150 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
TO-220AB (SOT78) 	PHP45NQ11T	105	25	47	60
	PSMN015-110P	110	15	75	90
	PHP27NQ11T	110	50	27.6	30
	PHP23NQ11T	110	70	23	22
	PHP18NQ11T	110	90	18	21
	PSMN6R3-120PS	**120**	**6.7**	**70**	**207**
	PSMN7R8-120PS	**120**	**7.8**	**70**	**168**
TO-220F (SOT186A) 	**PSMN7R8-120XS**	**120**	**7.8**	**53**	**168**
I²PAK (SOT226) 	**PSMN7R8-120ES**	**120**	**7.8**	**70**	**168**
D²PAK (SOT404) 	PSMN030-150B	150	30	55.5	98
	PSMN035-150B	150	35	50	79
	PHB45NQ15T	150	42	45.1	32
DPAK (SOT428) 	PSMN063-150D	150	63	29	55
Power-SO8 (LFPAK56) 	PSMN059-150Y	150	59	43	27.9
SO8 (SOT96) 	PHK5NQ15T	150	75	5	29
	PSMN085-150K	150	85		40
TO-220AB (SOT78) 	PSMN030-150P	150	30	55.5	98
	PSMN035-150P	150	35	50	79
	PHP30NQ15T	150	63	29	55
	PHP28NQ15T	150	65	28.5	24

Types in **bold green** represent products in development

200 V – 300 V N-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
D²PAK (SOT404) 	PSMN057-200B	200	57	39	96
	PSMN070-200B	200	70	35	77
	PHB33NQ20T	200	77	32.7	32.2
	PHB20NQ20T	200	130	20	65
DFN3333-8 (SOT873-1) 	PML260SN	200	294	8.8	13.3
	PML340SN	220	386	7.3	13.2
DPAK (SOT428) 	PSMN130-200D	200	130	20	65
	PHD9NQ20T	200	400	8.7	24
Power-SO8 (LFPAK56) 	PSMN102-200Y	200	102	21.5	30.7
SC-73 (SOT223) 	BSP122	200	2500	0.55	
SO8 (SOT96-1) 	PSMN165-200K	200	165		40
	PHC2300	300	6000		6.24
SOT89 	BSS87	200	3000	0.4	
TO-220AB (SOT78) 	PSMN057-200P	200	57	39	96
	PSMN070-200P	200	70	35	77
	PHP33NQ20T	200	77	32.7	32.2
	PHP20NQ20T	200	130	20	65
	PHP9NQ20T	200	400	8.7	24
SC-73 (SOT223) 	BSP89	240	5000	0.375	
	BSP126	250	5000	0.375	
	BSP130	300	6000	0.35	

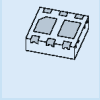
P-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ VGS = 4.5 V (mΩ)	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
DFN1006-3 	BSS84AKM	-50	7500		-0.23	0.26
DFN1006B-3 	BSS84AKMB	-50	7500		-0.23	0.26
	NX3008PBKMB	-30		4100	-0.3	0.55
	PMZB350UPE	-20		450	-1.4	1.3
	PMZB670UPE	-20		850	-0.68	0.76
DFN2020-6 	PMDPB70XP	-30		87	-3.8	5.2
	PMDPB58UPE	-20		67	-4.5	6.3
	PMDPB55XP	-20		70	-4.5	16.5
	PMDPB65UP	-20		70	-3.5	4.5
	PMDPB70XPE	-20		79	-4.2	5
	PMDPB80XP	-20		102	-3.7	5.7
	PMDPB85UPE	-20		103	-3.7	5.4
DFN2020MD-6 	PMPB27EP	-30	29	43	-8.8	30
	PMPB48EP	-30	50	76	-6.8	17
	PMPB33XP	-20		37	-7.9	15
	PMPB15XP	-12		19	-11.8	67
SC-70 	BSS84AKW	-50	7500		-0.15	0.26
	NX3008PBKW	-30		4100	-0.2	0.55
	PMF170XP	-20		200	-1	2.6
SC-73 	BSP230	-300	17000			
	BSP225	-250	15000		-0.225	
	BSP220	-200	12000		-0.225	
	BSP250	-30	250	400		
SC-75 	BSS84AKT	-50	7500		-0.15	0.26
	NX3008PBKT	-30		4100	-0.2	0.55
	PMR670UPE	-20		850	-0.48	0.76
SO8 	PMK30EP	-30	19	30	-14.9	50
	PMK35EP	-30	19	35	-14.9	42
	PHP225	-30	250	400		10
	PMK50XP	-20		50	-7.9	10
	PHK04P02T	-16		120	-4.66	7.2
SOT666 	BSS84AKV	-50	7500		-0.17	0.26
	NX3008PBKV	-30		4100	-0.22	0.55
	PMDT670UPE	-20		850	-0.55	0.76
SOT89 	BSS192	-240	12000		-0.2	

P-channel MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ VGS = 4.5 V (mΩ)	I_D [max] [A]	$Q_{G(tot)}$ [typ] (nC)
TO-236AB 	BSH201	-60	2500		-0.3	
	BSS84AK	-50	7500		-0.18	0.26
	BSS84	-50	10000		-0.13	
	BSH202	-30	900		-0.52	
	BSH203	-30		900	-0.47	2.2
	NX3008PBK	-30		4100	-0.23	0.55
	PMV32UP	-20		36	-4	15.5
	PMV33UPE	-20		36	-5.3	14.7
	PMV48XP	-20		55	-3.5	8.5
	PMV50UPE	-20		66	-3.7	10.5
	PMV65XP	-20		74	-4.3	7.7
	NX2301P	-20		120	-2	4.5
	PMV160UP	-20		210	-1.2	3.3
	BSH205	-12			-0.75	
TSOP6 	PMN27XPE	-20		30	-5.7	15
	PMN27UP	-20		32	-5.7	21
	PMN34UP	-20		40	-5	15.5
	PMN40UPE	-20		43	-6	15.6
	PMN42XPE	-20		46	-5.7	11.5
	PMN48XP	-20		55	-4.1	8.7
	PMN50UPE	-20		66	-4	10.5
	PMN70XPE	-20		85	-4.1	5.2
	PMN80XP	-20		102	-3.2	5
	BSH207	-12			-1.52	
TSSOP6 	BSS84AKS	-50	7500		-0.16	0.26
	NX3008PBKS	-30		4100	-0.2	0.55
	PMG85XP	-20		115	-2	4.8

Multi-chip MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ VGS = 4.5 V (mΩ)	I_D [max] [A]
DFN2020-6 (SOT118) 	PMDPB70XP	-30		87	-3.8
	PMCPB5530X	-20		34	5.3
	PMDPB58UPE	-20		67	-4.5
	PMDPB55XP	-20		70	-4.5
	PMDPB65UP	-20		70	-3.5
	PMDPB70XPE	-20		79	-4.2
	PMDPB80XP	-20		102	-3.7
	PMDPB85UPE	-20		103	-3.7
	PMDPB28UN	20		37	5.8
	PMDPB30XN	20		40	5.3
	PMDPB38UNE	20		46	5
	PMDPB42UN	20		50	5.1
	PMDPB70EN	30	57	88	4.5
	PMDPB56XN	30		73	4
	PMDPB95XNE	30		120	3.1
TSSOP6 (SOT363) 	BSS84AKS	-50	7500		-0.16
	NX3008CBKS	-30		1400	0.35
	NX3008PBKS	-30		4100	-0.2
	PMGD130UN	20		145	1.3
	PMGD290XN	20		350	0.86
	NX3020NAKS	30	4500	5200	0.18
	PMGD175XN	30		225	1
	PMGD370XN	30		440	0.74
	PMGD400UN	30		480	0.71
	NX3008NBKS	30		1400	0.35
	PMGD8000LN	30			0.125
	PMGD780SN	60	920	1400	0.49
	BSS138BKS	60	1600	2200	0.32
	2N7002BKS	60	1600		0.3
	2N7002PS	60	1600		0.32
	BSS138PS	60	1600		0.32
	NX7002AKS	60	4500		0.17

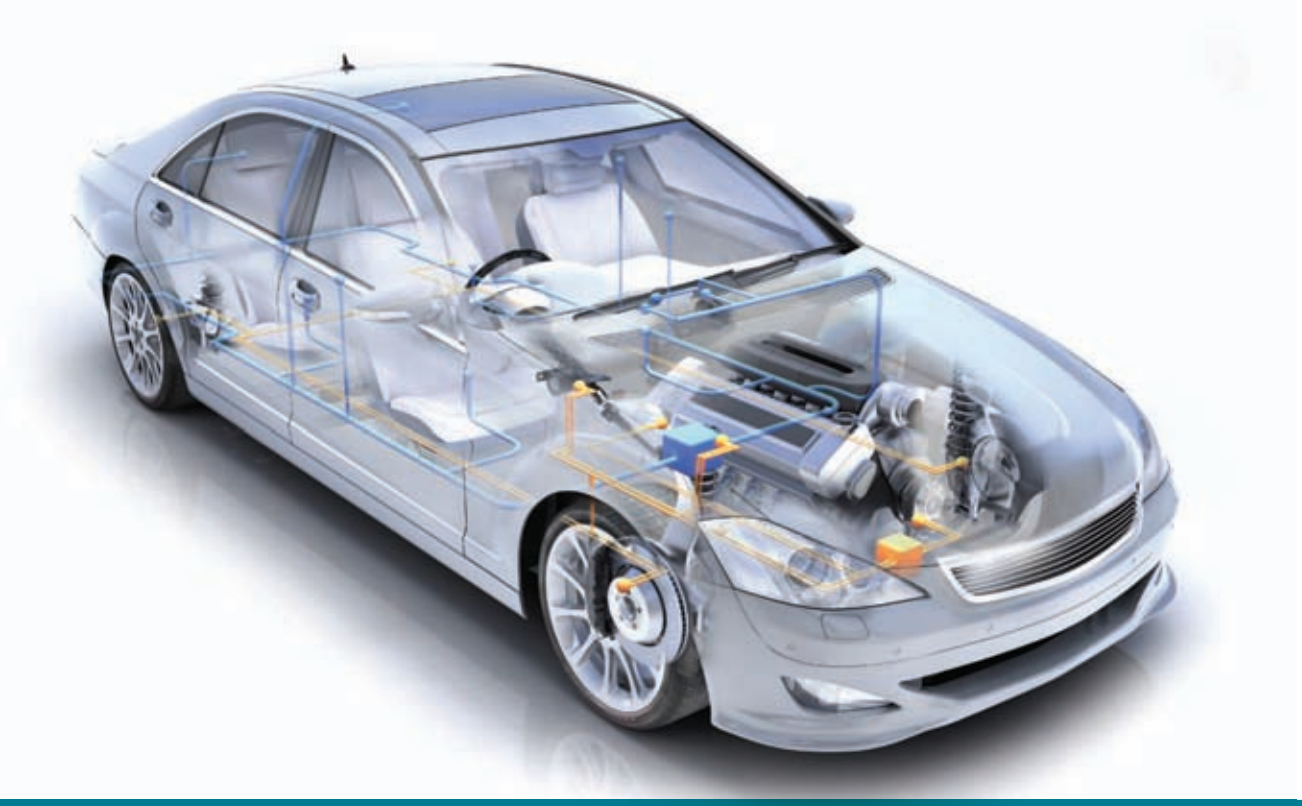
Multi-chip MOSFETs

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ VGS = 4.5 V (mΩ)	I_D [max] [A]
SOT666 	NX1029X	-50	1600		0.33
	BSS84AKV	-50	7500		-0.17
	NX3008CBKV	-30		1400	0.4
	NX3008PBKV	-30		4100	-0.22
	PMDT290UCE	-20		380	0.8
	PMDT670UPE	-20		850	-0.55
	PMDT290UNE	20		380	0.8
	NX3020NAKV	30	4500	5200	0.2
	NX3008NBKV	30		1400	0.4
	2N7002BKV	60	1600		0.34
	2N7002PV	60	1600		0.35
SO8 (SOT96-1) 	PHP225	-30	250	400	
	PHKD6N02LT	20			10.9
	PHKD13N03LT	30	20	26	10.4
	PHN203	30	30	55	6.3
	PHN210T	30	100	200	3.4
	PHC21025	30	250	400	
	PHKD3NQ10T	100	90		3
	PHC2300	300	6000		

PSMN part numbering

Prefix			N- or P-channel	R_{DSon} with V_{gs} = 10 V			-	B_{VDSS} voltage			Package type	Gate threshold voltage	NextPower special features
P	S	M	N	1	R	7	-		3	0	Y	L	C
«Power Silicon Max»			N = N-ch	R95 = 0.95 mΩ			-	25 = 25 V			B = D^2PAK	L = Logic-level (16V Vgs)	B = optimized for low Qgd and/or high Qoss
			P = P-ch	1R7 = 1.7 mΩ				30 = 30 V			D = DPAK	S = Standard-level (<20V Vgs)	C= optimized for Qg FoM
			X = Dual N-ch	014 = 14 mΩ			-	40 = 40 V			E = I^2PAK	U = Ultra low gate (8V Vgs)	D = optimized for smooth switching
			Y = Dual P-ch	125 = 125 mΩ			-	60 = 60 V			K = SO8	X = Extremely low gate (12 V Vgs)	E = optimized for wide SOA
			Z = N-ch + P-ch				-	80 = 80 V			L = QFN3333	E = Enhanced Logic (20V Vgs)	
							-	100 = 100 V			P = TO220		
							-	110 = 110 V			Y = LFPAK		
							-	120 = 120 V			X = TO220F (FULLPACK)		
								150 = 150 V			M = LFPAK33		
								200 = 200 V			N = QFN2020		

Advanced MOSFET technology from the Automotive Power experts



Everything we know is in this technology

NXP continues to expand its automotive MOSFET product portfolio. Its new automotive grade-technology, Trench 6, brings new levels of performance and manufacturing excellence to an already comprehensive base. The Trench 6 portfolio includes industry standard D²PAK TO-220 and I2PAK. In addition, Automotive Trench 6 is available in NXP's ultra-reliable LFPAK56 and LFPAK56D (Single and dual channel Power- SO8). The new technology platform covers all key voltage grades: 30 V, 40 V, 60 V, 80 V and 100 V with both standard and logic level gate drive variants available for every product.

With a strategic focus on low voltage MOSFETs for the automotive industry, NXP aims to offer the broadest portfolio in the market to enable solutions for the vast majority of automotive applications through a comprehensive suite of package, voltage range and performance levels. From simple lamp driving to the sophisticated needs of powertrain, chassis systems or fast-switching DC/DC converters in modern vehicles, NXP's Trench 6 MOSFETs offer multiple solutions for the job.

At the heart of Trench 6 technology lies NXP's passion for product leadership and manufacturing excellence with benchmark performance across the range and a major emphasis on product quality. Trench 6 has been built on almost two decades of experience in delivering high quality, high performance solutions to the automotive market. The combination of this advanced silicon technology and NXP's proven track record in the field enables designers to create new systems with confidence whilst pushing performance to a new level, giving the edge where it's needed.

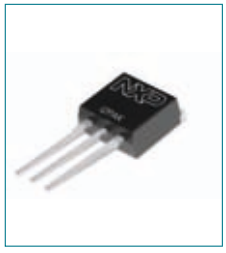
Furthermore, as our most robust technology yet, it exceeds the reliability requirements beyond AEC-Q101 compliance to the 15 year mission profile of modern vehicles demanded by our customers.

The combination of great MOSFET technology and NXP's technical, quality and, marketing support teams enables seamless integration into your system and safe launch into the automotive market.

Check out our simple to use website (www.nxp.com/automotivemosfets) for the tools you need to get you started with your design, including datasheets, spice models and thermal models.





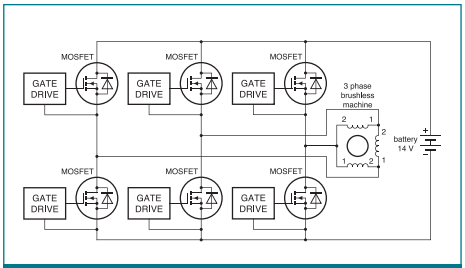



Key features and benefits

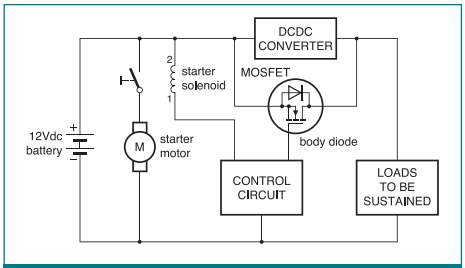
- AEC-Q101 automotive grade products rated at 175 °C across the range
- Industry benchmark low on-resistance and current handling performance
- High performance switching capability for high frequency applications
- Simple, robust, avalanche rugged technology structure
- Highest quality and reliability proven through extended life testing
- Widest range of products for application flexibility and customer choice
- Dual source wafer manufacturing for supply chain risk reduction
- Proven packaging and silicon technology – designed with automotive zero defects in mind
- Comprehensive technical support information for easy design-in

Applications

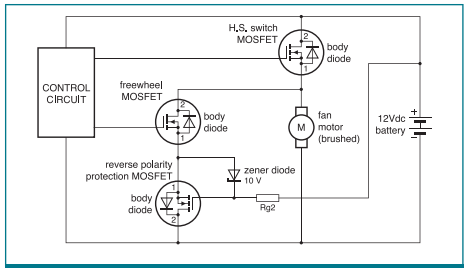
NXP Trench 6 Power MOSFETS are ideal for many automotive applications, a few examples of which are shown below.



Drives for brushless 3 phase motors e.g. Power Steering, Integrated starter generator for micro hybrids



DC DC Converter bypass for Start-Stop



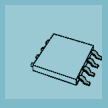
Drives for brushed motors e.g. Auxiliary fans

30 V N -channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
Power-SO8 (LFPAK56) 	BUK9Y07-30B	30	6	7	75	1.42
	BUK7Y07-30B	30	7		75	1.42
	BUK9Y11-30B	30	9	11	59	2
	BUK7Y10-30B	30	10		67	1.76
	BUK9Y22-30B	30	19	22	37.7	2.53
	BUK7Y20-30B	30	20		39.5	2.53
LFPAK56D (SOT1205) 	**BUK9K5R1-30E**	**30**	**4.2**	**5.0**	**40**	**2.21**
	BUK9K5R6-30E	**30**	**4.6**	**5.5**	**40**	**2.36**
	BUK7K5R1-30E	**30**	**5.1**		**40**	**2.21**
	BUK7K5R6-30E	**30**	**5.6**		**40**	**2.36**
D²PAK (SOT404) 	**BUK961R4-30E**	**30**	**1.2**	**1.4**	**120**	**0.42**
	BUK761R3-30E	**30**	**1.3**		**120**	**0.43**
	BUK761R4-30E	**30**	**1.45**		**120**	**0.46**
	BUK661R6-30C	30	1.6	2.5	120	0.49
	BUK761R8-30C	30	1.8		100	0.45
	BUK661R8-30C	30	1.9	2.8	120	0.57
	BUK962R8-30B	30	2.4	2.8	75	0.5
	BUK762R7-30B	30	2.7		75	0.5
	BUK662R5-30C	30	2.8	3.9	100	0.74
	BUK763R4-30B	30	3.4		75	0.59
	BUK663R5-30C	30	3.5	5.2	100	0.95
	BUK9605-30A	30	4.6	5	75	0.65
	BUK9607-30B	30	5	7	75	0.95
	BUK7607-30B	30	7		75	0.95
	BUK961R5-30E	**30**	**13**	**1.5**	**120**	**0.46**
DPAK (SOT428) 	BUK624R5-30C	30	4.5	6	90	0.95
	BUK724R5-30C	30	4.5		75	0.95
	BUK9207-30B	30	5	7	75	0.95
	BUK625R2-30C	30	5.2	7.5	90	1.17
	BUK7207-30B	30	7		75	0.95
	BUK6209-30C	30	9.8	15	50	1.87
	BUK9213-30A	30	11	13	75	1
	BUK9214-30A	30	12	14	63	1.4
	BUK6213-30A	30	13		55	1.4
	BUK6213-30C	30	14	22	47	2.52
TO-220AB (SOT78A) 	**BUK951R6-30E**	**30**	**1.4**	**1.6**	**120**	**0.43**
	BUK751R6-30E	**30**	**1.6**		**120**	**0.43**
	BUK652R0-30C	30	2.2	3	120	0.49
	BUK652R1-30C	30	2.4	3	120	0.57
	BUK952R8-30B	30	2.4	2.8	75	0.5
	BUK752R7-30B	30	2.7		75	0.5
	BUK653R3-30C	30	3.3	4.4	100	0.74
	BUK653R7-30C	30	3.9	5.8	100	0.95
	BUK9507-30B	30	5	7	75	0.95
	BUK7507-30B	30	7		75	0.95
I²PAK (SOT226) 	**BUK9E1R6-30E**	**30**	**1.4**	**1.6**	**120**	**0.43**
	BUK7E1R6-30E	**30**	**1.6**		**120**	**0.43**
	BUK6E2R0-30C	30	2.2	3	120	0.49
	BUK7E2R7-30B	30	2.7		75	0.5
	BUK9E04-30B	30	3	4	75	0.59

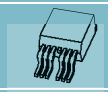
Types in **bold red** represent new products - Types in **bold green** represent products in development

40 V N -channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
Power-SO8 (LFPAK56) 	BUK9Y3R0-40E	40	2.4	3.0	100	0.8
	BUK9Y3R5-40E	40	2.9	3.5	100	0.9
	BUK7Y3R0-40E	40	3.0		100	0.8
	BUK7Y3R5-40E	40	3.5		100	0.9
	BUK9Y4R4-40E	40	3.7	4.4	100	1.0
	BUK7Y4R4-40E	40	4.4		100	1.0
	BUK9Y7R6-40E	40	6.2	7.6	79	1.6
	BUK7Y7R6-40E	40	7.6		79	1.6
	BUK7Y08-40B	40	8		75	1.42
	BUK9Y09-40B	40	8	9	75	1.42
	BUK9Y12-40E	40	9.9	12.2	50	2.5
	BUK9Y14-40B	40	11	14	56	1.8
	BUK7Y12-40E	40	12.2		50	2.5
	BUK7Y13-40B	40	13		58	1.8
	BUK9Y21-40E	40	17	21	31	3.7
	BUK7Y21-40E	40	20.9		31	3.7
	BUK9Y29-40E	40	24	29	23	4.7
	BUK9Y27-40B	40	24	27	34	2.53
	BUK7Y25-40B	40	25		35.3	2.53
	BUK7Y29-40E	40	29.2		24	4.7
LFPAK56D (SOT1205) 	BUK7K6R2-40E	40	5.9		40	2.2
	BUK9K6R2-40E	40	6	6.2	40	2.2
	BUK9K6R8-40E	40	6.1	6.9	40	2.4
	BUK7K6R8-40E	40	6.8			2.4
	BUK9K8R7-40E	40	7.8	8.9	30	2.8
	BUK7K8R7-40E	40	8.5		30	2.8
	BUK9K18-40E	40	16	19.5	30	4.0
	BUK7K18-40E	40	17.4		30	4.0
	BUK9K25-40E	40	23	27	24	4.7
	BUK7K25-40E	40	25			4.7
D²PAK (SOT404) 	BUK961R6-40E	40	1.4	1.6	120	0.43
	BUK961R7-40E	40	1.5	1.7	120	0.46
	BUK761R6-40E	40	1.57		120	0.43
	BUK761R7-40E	40	1.6		120	0.46
	BUK962R1-40E	40	1.8	2.1	120	0.51
	BUK661R9-40C	40	1.9	2.6	120	0.49
	BUK762R0-40E	40	2		120	0.51
	BUK762R0-40C	40	2		100	0.45
	BUK662R4-40C	40	2.3	3.2	120	0.57
	BUK962R6-40E	40	2.4	2.8	100	0.57
	BUK762R6-40E	40	2.6		100	0.57
	BUK963R1-40E	40	2.7	3.1	100	0.64
	BUK963R2-40B	40	2.8	3.2	100	0.5
	BUK762R9-40E	40	2.9		100	0.64
	BUK763R1-40B	40	3.1		75	0.5
	BUK663R2-40C	40	3.2	4.8	100	0.74
	BUK964R1-40E	40	3.5	4.1	75	0.82

Types in **bold red** represent new products - Types in **bold green** represent products in development

40 V N -channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
D²PAK (SOT404) 	BUK763R6-40C	40	3.6		100	0.74
	BUK764R0-40E	**40**	**4**		**75**	**0.82**
	BUK9604-40A	40	4	4.4	75	0.5
	BUK964R4-40B	40	4	4.4	75	0.59
	BUK764R3-40B	40	4.3		75	0.59
	BUK965R4-40E	**40**	**4.4**	**5.4**	**75**	**1.09**
	BUK7604-40A	40	4.5		75	0.5
	BUK664R6-40C	40	4.6	6.1	100	0.95
	BUK765R3-40E	**40**	**4.9**		**75**	**1.09**
	BUK9606-40B	40	5	6.4	75	0.74
	BUK765R2-40B	40	5.2		75	0.74
	BUK968R3-40E	**40**	**6.4**	**7.9**	**75**	**1.56**
	BUK9609-40B	40	7	9	75	0.95
	BUK768R1-40E	**40**	**7.2**		**75**	**1.56**
	BUK7608-40B	40	8		75	0.95
D²PAK-7 (SOT427) 	**BUK9C1R3-40E**	**40**	**1.1**	**1.3**	**200**	**0.43**
	BUK7C1R2-40E	**40**	**1.2**		**200**	**0.43**
	BUK7C1R4-40E	**40**	**1.4**		**200**	**0.47**
DPAK (SOT428) 	BUK625R0-40C	40	5	6.9	90	0.95
	BUK725R0-40C	40	5		75	0.95
	BUK626R2-40C	40	6.2	8.8	90	1.17
	BUK9209-40B	40	7	9	75	0.95
	BUK7208-40B	40	8		75	0.95
	BUK6212-40C	40	11.2	16.3	50	1.87
	BUK6218-40C	40	16		42	2.52
TO-220AB (SOT78A) 	**BUK951R8-40E**	**40**	**1.7**	**1.8**	**120**	**0.43**
	BUK751R8-40E	**40**	**1.8**		**120**	**0.43**
	BUK952R3-40E	**40**	**2.2**	**2.5**	**120**	**0.51**
	BUK752R3-40E	**40**	**2.3**		**120**	**0.51**
	BUK652R3-40C	40	2.3	3.1	120	0.49
	BUK752R3-40C	40	2.3		100	0.45
	BUK652R6-40C	40	2.7	3.8	120	0.57
	BUK953R2-40E	**40**	**2.8**	**3.2**	**100**	**0.64**
	BUK953R2-40B	40	2.8	3.2	100	0.5
	BUK753R1-40E	**40**	**3.1**		**100**	**0.64**
	BUK753R1-40B	40	3.1		75	0.5
	BUK653R4-40C	40	3.6	5.3	100	0.74
	BUK754R0-40C	40	4		100	0.74
	BUK9504-40A	40	4	4.4	75	0.5
	BUK954R4-40B	40	4	4.4	75	0.59
	BUK754R3-40B	40	4.3		75	0.59
	BUK654R8-40C	40	4.8	6.5	100	0.95
	BUK9506-40B	40	5	6.4	75	0.74
	BUK755R2-40B	40	5.2		75	0.74
	BUK958R5-40E	**40**	**6.6**	**8.1**	**75**	**1.56**
	BUK9509-40B	40	7	9	75	0.95
	BUK758R3-40E	**40**	**7.4**		**75**	**1.56**
	BUK7508-40B	40	8		75	0.95
I²PAK (SOT226) 	**BUK9E1R8-40E**	**40**	**1.7**	**1.8**	**120**	**0.43**
	BUK7E1R8-40E	**40**	**1.8**		**120**	**0.43**
	BUK7E1R9-40E	**40**	**1.9**		**120**	**0.46**
	BUK9E2R3-40E	**40**	**2.2**	**2.5**	**120**	**0.51**
	BUK7E2R3-40E	**40**	**2.3**		**120**	**0.51**
	BUK9E3R2-40E	**40**	**2.8**	**3.2**	**100**	**0.64**
	BUK7E3R1-40E	**40**	**3.1**		**100**	**0.64**
	BUK9E8R5-40E	**40**	**6.6**	**8.1**	**75**	**1.56**
	BUK7E8R3-40E	**40**	**7.4**		**75**	**1.56**

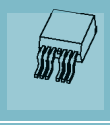
Types in **bold red** represent new products - Types in **bold green** represent products in development

55 V – 60 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
Power-SO8 (LFPAK56) 	BUK9Y12-55B	55	11	12	61.8	1.42
	BUK7Y12-55B	55	12		61.8	1.42
	BUK9Y19-55B	55	17.3	19	46	1.8
	BUK7Y18-55B	55	18		47.4	1.76
	BUK7Y35-55B	55	35		28.43	2.53
	BUK9Y40-55B	55	36	40	26	2.5
	BUK9Y4R8-60E	**60**	**4.1**	**4.8**	**100**	**0.6**
	BUK7Y4R8-60E	**60**	**4.8**		**100**	**0.6**
	BUK9Y6R0-60E	**60**	**5.2**	**6.0**	**100**	**0.7**
	BUK7Y6R0-60E	**60**	**6.0**		**100**	**0.7**
	BUK9Y7R2-60E	**60**	**6.2**	**7.2**	**100**	**0.8**
	BUK7Y7R2-60E	**60**	**7.2**		**100**	**0.8**
	BUK9Y8R7-60E	**60**	**7.5**	**8.7**	**89**	**1.0**
	BUK7Y8R7-60E	**60**	**8.7**		**89**	**1.0**
	BUK9Y15-60E	**60**	**13.1**	**15.1**	**53**	**1.6**
	BUK7Y15-60E	**60**	**15.1**		**53**	**1.6**
	BUK9Y25-60E	**60**	**21.6**	**25.0**	**33**	**2.5**
	BUK7Y25-60E	**60**	**25**		**33**	**2.5**
	BUK9Y43-60E	**60**	**37**	**43.2**	**20**	**3.7**
	BUK7Y43-60E	**60**	**43**		**20**	**3.7**
	BUK9Y59-60E	**60**	**51**	**59.3**	**15**	**4.7**
	BUK7Y59-60E	**60**	**59**		**16**	**4.7**
LFPAK56D (SOT1205) 	**BUK9K12-60E**	**60**	**10.7**	**11.5**	**40**	**2.2**
	BUK7K12-60E	**60**	**11.2**		**40**	**2.2**
	BUK9K13-60E	**60**	**12.0**	**12.9**	**40**	**2.4**
	BUK7K13-60E	**60**	**12.5**		**40**	**2.4**
	BUK9K17-60E	**60**	**16.1**	**17.5**	**30**	**2.8**
	BUK7K17-60E	**60**	**17.0**		**30**	**2.8**
	BUK9K35-60E	**60**	**32**	**35**	**22**	**4.0**
	BUK7K35-60E	**60**	**35**		**22**	**4.0**
	BUK9K52-60E	**60**	**49**	**55**	**17**	**4.7**
	BUK7K52-60E	**60**	**52**		**17**	**4.7**
D^2PAK (SOT404) 	**BUK962R5-60E**	**60**	**2.3**	**2.5**	**120**	**0.43**
	BUK762R4-60E	**60**	**2.4**		**120**	**0.43**
	BUK962R8-60E	**60**	**2.5**	**2.8**	**120**	**0.46**
	BUK762R6-60E	**60**	**2.6**		**120**	**0.46**
	BUK662R7-55C	55	2.7	3.8	120	0.45
	BUK963R3-60E	**60**	**3**	**3.3**	**120**	**0.51**
	BUK763R1-60E	**60**	**3.1**		**120**	**0.51**
	BUK663R5-55C	55	3.4	4.3	120	0.57
	BUK964R2-55B	55	3.7	4.2	75	0.5
	BUK763R9-60E	**60**	**3.9**		**100**	**0.57**
	BUK964R2-60E	**60**	**3.9**	**4.2**	**100**	**0.57**
	BUK764R0-55B	55	4		75	0.5
	BUK964R8-60E	**60**	**4.4**	**4.8**	**100**	**0.64**
	BUK764R4-60E	**60**	**4.5**		**100**	**0.64**
	BUK664R4-55C	55	4.9	6.6	100	0.74
	BUK9606-55B	55	5.4	6	75	0.58
	BUK9606-55A	55	5.8	6.3	75	0.5
	BUK966R5-60E	**60**	**5.9**	**6.5**	**75**	**0.82**
	BUK7606-55B	55	6		75	0.59
	BUK766R0-60E	**60**	**6**		**75**	**0.82**
	BUK7606-55A	55	6.3		75	0.5

Types in **bold red** represent new products - Types in **bold green** represent products in development

55 V – 60 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
D²PAK (SOT404) 	BUK6607-55C	55	6.5	8.7	100	0.95
	BUK9608-55B	55	7	8.4	75	0.74
	BUK7607-55B	55	7.1		75	0.74
	BUK9608-55A	55	7.5	8	75	0.59
	BUK7608-55A	55	8		75	0.59
	BUK9609-55A	55	8	9	75	0.71
	BUK969R0-60E	**60**	**8**	**9**	**75**	**1.09**
	BUK768R3-60E	**60**	**8.3**		**75**	**1.09**
	BUK7609-55A	55	9		75	0.71
	BUK9610-55A	55	9	10	75	0.75
	BUK7610-55AL	55	10		75	0.5
	BUK9611-55A	55	10	11	75	0.9
	BUK9612-55B	55	10	12	75	0.95
	BUK7611-55A	55	11		75	0.9
	BUK7611-55B	55	11		75	0.95
	BUK9614-60E	**60**	**12.8**	**14**	**56**	**1.56**
	BUK9614-55A	55	13	14	73	1
	BUK7613-60E	**60**	**13**		**58**	**1.56**
	BUK7614-55A	55	14		73	0.9
	BUK9616-55A	55	15	16	66	1.1
	BUK9618-55A	55	16	18	61	1.1
	BUK9620-55A	55	18	20	54	1.2
	BUK7620-55A	55	20		54	1.2
	BUK9624-55A	55	21.7	24	46	1.4
	BUK7624-55A	55	24		47	1.4
	BUK9628-55A	55	25	28	42	1.5
	BUK7628-55A	55	28		42	1.5
	BUK9635-55A	55	32	35	34	1.8
	BUK7635-55A	55	35		35	1.7
	BUK9675-55A	55	68	75	20	2.4
	BUK7675-55A	55	75		20.3	2.4
D²PAK-7 (SOT427) 	BUK6C2R1-55C	55	2.3	3.1	228	0.5
	BUK9C2R2-60E	**60**	**1.9**	**2.2**	**200**	**0.43**
	BUK7C1R8-60E	**60**	**1.8**		**200**	**0.43**
	BUK7C2R2-60E	**60**	**2.2**		**200**	**0.47**
DPAK (SOT428) 	BUK6207-55C	55	7.8	10	90	0.95
	BUK6210-55C	55	9.6	13.2	78	1.17
	BUK7210-55B	55	10		75	0.95
	BUK9212-55B	55	10	12	75	0.95
	BUK7212-55B	55	12		75	0.95
	BUK9215-55A	55	13.6	15	62	1.3
	BUK7215-55A	55	15		62	1.3

Types in **bold red** represent new products - Types in **bold green** represent products in development

55 V – 60 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
DPAK (SOT428) 	BUK9219-55A	55	17.6	19	55	1.3
	BUK6217-55C	55	19	24.5	44	1.87
	BUK7219-55A	55	19		55	1.3
	BUK9222-55A	55	20	22	48	1.5
	BUK7222-55A	55	22		48	1.5
	BUK9225-55A	55	22	25	43	1.6
	BUK7225-55A	55	25		43	1.6
	BUK9230-55A	55	27	30	38	1.7
	BUK6228-55C	55	29	38	31	2.52
	BUK7230-55A	55	30		38	1.7
	BUK9237-55A	55	33	37	32	1.94
	BUK7237-55A	55	37		32.3	1.9
	BUK9245-55A	55	40	45	28	2.1
	BUK9277-55A	55	69	77	18	2.93
	BUK7277-55A	55	77		18	2.9
	BUK92150-55A	55	125	140	11	4.1
	BUK72150-55A	55	150		11	4.1
TO-220AB (SOT78A) 	BUK653R2-55C	55	3.2	4.2	120	0.45
	BUK954R2-55B	55	3.7	4.2	75	0.5
	BUK653R5-55C	55	3.9	4.9	120	0.57
	BUK754R0-55B	55	4		75	0.5
	BUK654R6-55C	55	5.4	7	100	0.74
	BUK7506-55A	55	6.3		75	0.5
	BUK6507-55C	55	7	9	100	0.95
	BUK9508-55B	55	7	8.4	75	0.74
	BUK7507-55B	55	7.1		75	0.74
	BUK7508-55A	55	8		75	0.59
	BUK7509-55A	55	9		75	0.71
	BUK7510-55AL	55	10		75	0.5
	BUK9511-55A	55	10	11	75	0.9
	BUK9512-55B	55	10	12	75	0.95
	BUK7511-55B	55	11		75	0.95
	BUK9514-55A	55	13	14	73	1
	BUK7514-55A	55	14		73	0.9
	BUK9516-55A	55	15	16	66	1.1
	BUK7516-55A	55	16		65.7	1.1
	BUK9518-55A	55	16	18	61	1.1
	BUK7520-55A	55	20		54	1.2
	BUK9524-55A	55	21.7	24	46	1.4

55 V – 60 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
TO-220AB (SOT78A) 	BUK7528-55A	55	28		42	1.5
	BUK9535-55A	55	32	35	34	1.8
	BUK7535-55A	55	35		35	1.7
	BUK9575-55A	55	68	75	20	2.4
	BUK7575-55A	55	75		20.3	2.4
	BUK752R7-60E	**60**	**2.6**		**120**	**0.43**
	BUK952R8-60E	**60**	**2.6**	**2.8**	**120**	**0.43**
	BUK953R5-60E	**60**	**3.4**	**3.7**	**120**	**0.51**
	BUK753R5-60E	**60**	**3.5**		**120**	**0.51**
	BUK954R8-60E	**60**	**4.5**	**4.9**	**100**	**0.64**
	BUK754R7-60E	**60**	**4.6**		**100**	**0.64**
	BUK7514-60E	**60**	**13**		**58**	**1.56**
	BUK9515-60E	**60**	**13**	**15**	**54**	**1.56**
I²PAK (SOT226) 	BUK6E3R2-55C	55	3.2	4.2	120	0.45
	BUK9E06-55B	55	5.4	6	75	0.58
	BUK9E06-55A	55	5.8	6.3	75	0.5
	BUK9E08-55B	55	7	8.4	75	0.74
	BUK7E07-55B	55	7.1		75	0.74
	BUK7E11-55B	55	11		75	0.95
	BUK7E2R6-60E	**60**	**2.6**		**120**	**0.43**
	BUK9E2R8-60E	**60**	**2.6**	**2.8**	**120**	**0.43**
	BUK9E3R7-60E	**60**	**3.4**	**3.7**	**120**	**0.51**
	BUK7E3R5-60E	**60**	**3.5**		**120**	**0.51**
	BUK9E4R9-60E	**60**	**4.5**	**4.9**	**100**	**0.64**
	BUK7E4R6-60E	**60**	**4.6**		**100**	**0.64**
	BUK7E13-60E	**60**	**13**		**58**	**1.56**
	BUK9E15-60E	**60**	**13**	**15**	**54**	**1.56**
SC-73 (SOT223) 	BUK9832-55A	55	29	32	12	15
	BUK9880-55A	55	73	80	7	15
	BUK7880-55A	55	80		7	15
	BUK98150-55A	55	137	150	5.5	15
	BUK78150-55A	55	150		5.5	15

Types in **bold red** represent new products - Types in **bold green** represent products in development

BUK type numbering

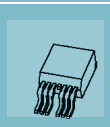
Prefix			Gate threshold voltage	Package type	MOSFET on-resistance R_{DSon}			-	B_{VDSS} voltage			Trench generation	Special features
B	U	K	6	6	1	R	8	-		3	0	C	
NXP Automotive MOSFET			6 = Intermediate level	2 = DPAK SOT428	1R8 = 1.8 mΩ			-	30 = 30 V			Blank = Generation 1	L= Optimized for linear-mode operation
			7 = Standard level	5 = TO220 SOT78	12 = 12 mΩ			-	40 = 40 V			A = Generation 2	
			9 = Logic level	6 = D²PAK SOT404	150 = 150 mΩ			-	55 = 55 V			B = Generation 3	
				8 = SOT223				-	60 = 60 V			C = Generation 4	
				C = 7-Pin D²PAK SOT427				-	75 = 75 V			E = Generation 6	
				E = I²PAK SOT226				-	80 = 80 V			AL= Generation 2 linear mode	
				Y = LFPAK56 SOT669				-	100 = 100 V				
				K = LFPAK56D				-	150 = 150 V				

75 V – 80 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
Power-SO8 (LFPAK56) 	BUK7Y18-75B	75	18		49	1.42
	BUK9Y19-75B	75	18	19	48.2	1.42
	BUK7Y28-75B	75	28		35.5	1.76
	BUK9Y30-75B	75	28	30	34	1.8
	BUK9Y58-75B	75	53	58	20.73	2.53
	BUK7Y54-75B	75	54		21.4	2.53
	BUK9Y8R5-80E	**80**	**7.4**	**8.5**	**100**	**0.6**
	BUK7Y7R8-80E	**80**	**7.8**		**100**	**0.6**
	BUK9Y11-80E	**80**	**9.4**	**11.0**	**93**	**0.7**
	BUK7Y9R9-80E	**80**	**9.9**		**93**	**0.7**
	BUK9Y12-80E	**80**	**10.9**	**11.9**	**77**	**0.8**
	BUK7Y12-80E	**80**	**11.9**		**77**	**0.8**
	BUK9Y14-80E	**80**	**13.0**	**14.2**	**66**	**1.0**
	BUK7Y14-80E	**80**	**14.2**		**66**	**1.0**
	BUK9Y25-80E	**80**	**23**	**25**	**39**	**1.6**
	BUK7Y25-80E	**80**	**25**		**39**	**1.6**
	BUK9Y41-80E	**80**	**38**	**41**	**24**	**2.5**
	BUK7Y41-80E	**80**	**41**		**24**	**2.5**
	BUK9Y72-80E	**80**	**66**	**72**	**15**	**3.7**
	BUK7Y72-80E	**80**	**72**		**15**	**3.7**
	BUK9Y107-80E	**80**	**93**	**107**	**11**	**4.7**
	BUK7Y98-80E	**80**	**98**		**11**	**4.7**
LFPAK56D (SOT1205) 	**BUK9K19-80E**	**80**	**18**	**19**	**38**	**2.2**
	BUK7K19-80E	**80**	**18**		**39**	**2.2**
	BUK9K21-80E	**80**	**20**	**21**	**35**	**2.4**
	BUK7K21-80E	**80**	**20**		**35**	**2.4**
	BUK9K29-80E	**80**	**27**	**29**	**27**	**2.8**
	BUK7K29-80E	**80**	**28**		**27**	**2.8**
	BUK9K57-80E	**80**	**56**	**59**	**16**	**4.0**
	BUK7K57-80E	**80**	**57**		**16**	**4.0**
	BUK9K85-80E	**80**	**84**	**89**	**12**	**4.7**
	BUK7K85-80E	**80**	**86**		**12**	**4.7**
D^2PAK (SOT404) 	BUK663R7-75C	75	4	5.3	120	0.49
	BUK764R0-75C	75	4		100	0.45
	BUK664R8-75C	75	5	6.3	120	0.57
	BUK9606-75B	75	5.5	6.1	75	0.5
	BUK7606-75B	75	5.6		75	0.5
	BUK6607-75C	75	7	8.6	100	0.74
	BUK9609-75A	75	8.5	9	75	0.65

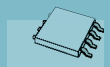
Types in **bold green** represent products in development

75 V – 80 V N-channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25 °C [A]	$R_{th(j-mb)}$ [max] [K/W]
D²PAK (SOT404) 	BUK7609-75A	75	9		75	0.65
	BUK6610-75C	75	10	12.5	78	0.95
	BUK7613-75B	75	13		75	0.95
	BUK9616-75B	75	14	16.4	67	0.95
	BUK9623-75A	75	22	23	53	1.1
	BUK7623-75A	75	23		53	1.1
	BUK763R8-80E	**80**	**3.8**		**120**	**0.43**
	BUK964R2-80E	**80**	**4**	**4.2**	**120**	**0.43**
	BUK764R2-80E	**80**	**4.2**		**120**	**0.46**
	BUK964R7-80E	**80**	**4.5**	**4.7**	**120**	**0.46**
	BUK769R6-80E	**80**	**9.6**		**75**	**0.82**
	BUK9611-80E	**80**	**10**	**11**	**75**	**0.82**
D²PAK-7 (SOT427) 	BUK6C3R3-75C	75	3.4	4.3	181	0.5
	BUK7C3R1-80E	**80**	**3.1**		**200**	**0.43**
	BUK9C3R8-80E	**80**	**3.5**	**3.8**	**194**	**0.43**
	BUK7C3R8-80E	**80**	**3.8**		**186**	**0.47**
DPAK (SOT428) 	BUK6211-75C	75	11	13.2	74	0.95
	BUK7214-75B	75	14		70	0.95
	BUK6215-75C	75	15	18	57	1.17
	BUK9217-75B	75	15	17	64	0.95
	BUK9226-75A	75	24.6	26	45	1.3
	BUK7226-75A	75	26		45	1
	BUK6226-75C	75	29	35	33	1.87
	BUK6246-75C	75	46	56	22	2.52
TO-220AB (SOT78A) 	BUK654R0-75C	75	4.2	5.3	120	0.49
	BUK754R3-75C	75	4.3		100	0.45
	BUK655R0-75C	75	5.3	6.5	120	0.57
	BUK9506-75B	75	5.5	6.1	75	0.5
	BUK7506-75B	75	5.6		75	0.5
	BUK6507-75C	75	7.6	9.1	100	0.74
	BUK7509-75A	75	9		75	0.65
	BUK6510-75C	75	10.4	12.4	77	0.95
	BUK7513-75B	75	13		75	0.95
	BUK9516-75B	75	14	16.4	67	0.95
	BUK753R8-80E	**80**	**4**		**120**	**0.43**
	BUK954R4-80E	**80**	**4.2**	**4.4**	**120**	**0.43**
I²PAK (SOT226) 	BUK6E4R0-75C	75	4.2	5.3	120	0.49
	BUK7E4R3-75C	75	4.3		100	0.45
	BUK7E4R0-80E	**80**	**4**		**120**	**0.43**
	BUK9E4R4-80E	**80**	**4.2**	**4.4**	**120**	**0.43**

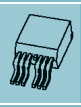
Types in **bold red** represent new products - Types in **bold green** represent products in development

100 V N -channel Automotive TrenchMOS

Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25°C [A]	$R_{th(j-mb)}$ [max] [K/W]
Power-SO8 (LFPAK56) 	**BUK9Y12-100E**	**100**	**11.9**	**12**	**90**	**0.6**
	BUK7Y12-100E	**100**	**12.2**		**90**	**0.6**
	BUK9Y15-100E	**100**	**15.1**	**15**	**71**	**0.7**
	BUK7Y15-100E	**100**	**15.5**		**71**	**0.7**
	BUK9Y19-100E	**100**	**18.2**	**19**	**59**	**0.8**
	BUK7Y19-100E	**100**	**18.6**		**59**	**0.8**
	BUK9Y22-100E	**100**	**21.5**	**22**	**51**	**1.0**
	BUK7Y22-100E	**100**	**22**		**51**	**1.0**
	BUK7Y33-100B	100	33		35	1.42
	BUK9Y34-100B	100	33	34	35.2	1.42
	BUK9Y38-100E	**100**	**38**	**38**	**30**	**1.6**
	BUK7Y38-100E	**100**	**38**		**30**	**1.6**
	BUK9Y53-100B	100	49	53	23	2
	BUK7Y53-100B	100	53		24.8	1.76
	BUK9Y65-100E	**100**	**63**	**65**	**18**	**2.5**
	BUK7Y65-100E	**100**	**65**		**18**	**2.5**
	BUK9Y104-100B	100	99	104	14.8	2.53
	BUK7Y102-100B	100	102		15	2.53
	BUK9Y113-100E	**100**	**110**	**113**	**11**	**3.7**
	BUK7Y113-100E	**100**	**113**		**11**	**3.7**
	BUK9Y153-100E	**100**	**149**	**153**	**9**	**4.7**
	BUK7Y153-100E	**100**	**153**		**9**	**4.66**
LFPAK56D (SOT1205) 	**BUK9K29-100E**	**100**	**27**	**29**	**30**	**2.2**
	BUK7K29-100E	**100**	**28**		**30**	**2.2**
	BUK7K32-100E	**100**	**31**		**27**	**2.4**
	BUK9K32-100E	**100**	**32**	**32**	**27**	**2.4**
	BUK9K45-100E	**100**	**42**	**45**	**21**	**2.8**
	BUK7K45-100E	**100**	**44**		**21**	**2.8**
	BUK9K89-100E	**100**	**85**	**89**	**12.5**	**4.0**
	BUK7K89-100E	**100**	**88**		**12**	**4.0**
	BUK7K134-100E	**100**	**134**		**9**	**4.7**
	BUK9K134-100E	**100**	**139**	**139**	**9**	**4.7**
D^2PAK (SOT404) 	**BUK765R0-100E**	**100**	**5**		**120**	**0.43**
	BUK965R8-100E	**100**	**5.6**	**5.8**	**120**	**0.43**
	BUK768R1-100E	**100**	**8.1**		**100**	**0.57**
	BUK969R3-100E	**100**	**8.9**	**9.3**	**100**	**0.57**
	BUK9610-100B	100	9.7	10	75	0.5
	BUK7610-100B	100	10		75	0.5
	BUK7613-100E	**100**	**13**		**72**	**0.82**
	BUK9615-100E	**100**	**14**	**15**	**66**	**0.82**
	BUK9615-100A	100	14.4	15	75	0.65
	BUK9620-100B	100	18.5	20	63	0.75

Types in **bold red** represent new products - Types in **bold green** represent products in development

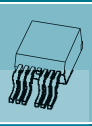
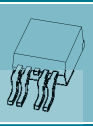
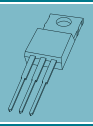
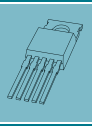
100 V N -channel Automotive TrenchMOS

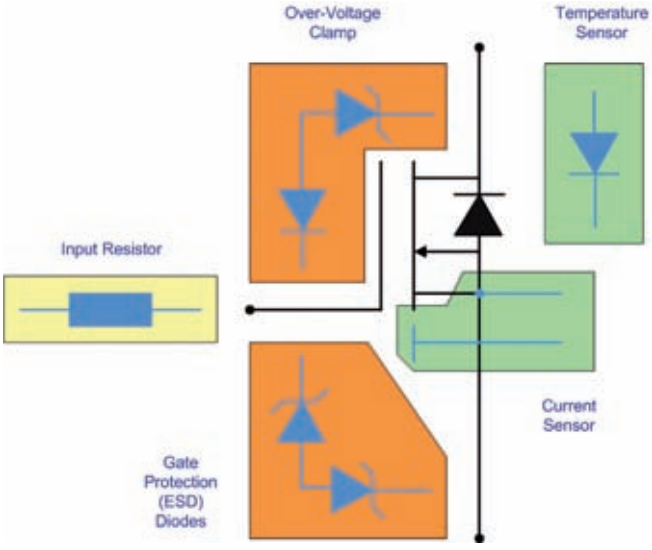
Package name	Type number	V_{DS} [max] [V]	R_{DSon} [max] @ 10 V [mΩ]	R_{DSon} [max] @ 5 V [mΩ]	I_D [max] @ 25°C [A]	$R_{th(j-mb)}$ [max] [K/W]
D²PAK (SOT404) 	BUK7619-100B	100	19		64	0.74
	BUK7620-100A	100	20		63	0.75
	BUK7626-100B	100	26		49	0.95
	BUK9628-100A	100	27	28	49	0.9
	BUK9629-100B	100	27	29	46	0.95
	BUK7628-100A	100	28		47	0.9
	BUK7631-100E	**100**	**31**		**34**	**1.56**
	BUK9635-100A	100	34	35	41	1
	BUK7635-100A	100	35		41	1
	BUK9637-100E	**100**	**36**	**37**	**30.7**	**1.56**
	BUK9640-100A	100	39	40	39	0.95
	BUK7640-100A	100	40		37	1.1
	BUK9660-100A	100	58	60	26	1.4
	BUK7660-100A	100	60		26	1.4
	BUK9675-100A	100	72	75	23	1.5
	BUK7675-100A	100	75		23	1.5
	BUK96180-100A	100	173	180	11	2.8
D²PAK-7 (SOT427) 	**BUK7C4R5-100E**	**100**	**4.5**		**169**	**0.43**
	BUK9C5R3-100E	**100**	**5.1**	**5.3**	**154**	**0.43**
	BUK7C5R4-100E	**100**	**5.4**		**147**	**0.47**
DPAK (SOT428) 	BUK7227-100B	100	27		48	0.95
	BUK9230-100B	100	28	30	47	0.95
	BUK9240-100A	100	39	40	33	1.3
	BUK7240-100A	100	40		34	1.3
	BUK9275-100A	100	72	75	21.7	1.7
	BUK7275-100A	100	75		21.7	1.7
TO-220AB (SOT78A) 	**BUK755R4-100E**	**100**	**5**		**120**	**0.43**
	BUK956R1-100E	**100**	**6**	**6**	**120**	**0.43**
	BUK9510-100B	100	10	10	75	0.5
	BUK7510-100B	100	10		75	0.5
	BUK9515-100A	100	14	15	75	0.65
	BUK7515-100A	100	15		75	0.5
	BUK9520-100B	100	19	20	63	0.75
	BUK9520-100A	100	19	20	63	0.75
	BUK7520-100A	100	20		63	0.75
	BUK7526-100B	100	26		49	0.95
	BUK9529-100B	100	27	29	46	0.95
	BUK7528-100A	100	28		47	0.9
	BUK9535-100A	100	34	35	41	1
	BUK7535-100A	100	35		41	1
	BUK7540-100A	100	40		37	1.1
	BUK9575-100A	100	72	75	23	1.5
	BUK7575-100A	100	75		23	1.5
I²PAK (SOT226) 	**BUK7E5R2-100E**	**100**	**5.2**		**120**	**0.43**
	BUK9E6R1-100E	**100**	**5.9**	**6.1**	**120**	**0.43**
SC-73 (SOT223) 	BUK9875-100A	100	72	75	7	15
	BUK98180-100A	100	173	180	4.6	15

Types in **bold red** represent new products - Types in **bold green** represent products in development

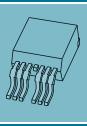
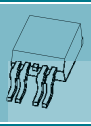
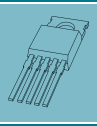
TrenchPLUS MOSFETs

TrenchPLUS is a range of standard MOSFETs with additional protection features, such as current and temperature sensing components, overvoltage clamps, and gate protection (ESD) diodes. The system microcontroller can use data gathered from these sensors to implement cost-effective protection features, thus eliminating the need to design with protected power devices. All the standard products listed below offer one or more "PLUS" features. Custom versions can be developed for high-volume applications.

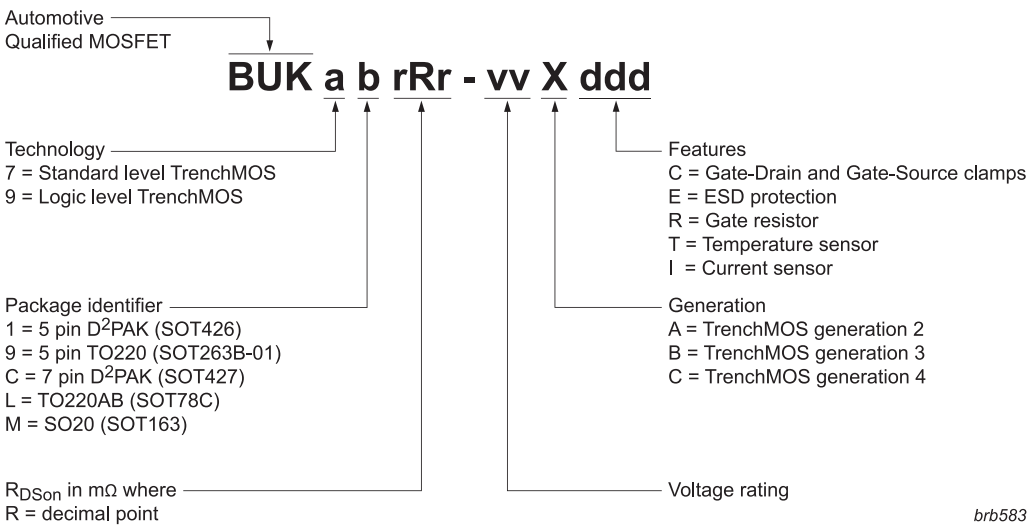
V_{DS} (V)	R_{DSon} (max) @ 10 V (mΩ)	R_{DSon} (max) @ 5 V (mΩ)	I_D (max) @ 25 °C (A)	Temp Sense	Gate Source Clamps	Gate Drain Clamps	Current Sensing	Gate Resistor	Surface Mount Package		Leaded Package	
									7-pin D²PAK (SOT427)	5-pin D²PAK (SOT426)	TO220AB (SOT78C)	5-pin TO220 (SOT263B-01)
												
									10.0 x 15 x 4.5	10.0 x 15.0 x 4.5	15.0 x 10.0 x 4.5	10.0 x 19.0 x 4.5
34	3.3		75		✓	✓		✓			BUK7L3R3-34BRC	
34	6		75		✓	✓		✓			BUK7L06-34ARC	
34	11		75		✓	✓		✓			BUK7L11-34ARC	
40	4.1		75	✓						BUK714R1-40BT		BUK794R1-40BT
40	5		75		✓		✓			BUK7105-40AIE		BUK7905-40AIE
40	5		75	✓	✓					BUK7105-40ATE		BUK7905-40ATE
40	5		75				✓					BUK7905-40AI
40	6		75	✓	✓		✓		BUK7C06-40AITE			
40	6.6	7	75	✓	✓	✓				BUK9107-40ATC		BUK9907-40ATC
40	7		75	✓	✓	✓				BUK7107-40ATC		BUK7907-40ATC
40	8		75		✓		✓			BUK7108-40AIE		BUK7908-40AIE
55	6.6	7	75	✓	✓					BUK9107-55ATE		BUK9907-55ATE
55	7		75		✓		✓			BUK7107-55AIE		BUK7907-55AIE
55	7		75	✓	✓					BUK7107-55ATE		BUK7907-55ATE
55	8		75	✓	✓		✓		BUK7C08-55AITE			
55	9	10	75	✓			✓		BUK9C10-55BIT			



TrenchPLUS MOSFETs

V_{DS} (V)	R_{DSon} (max) @ 10 V (mΩ)	R_{DSon} (max) @ 5 V (mΩ)	I_D (max) @ 25 °C (A)	Temp Sense	Gate Source Clamps	Gate Drain Clamps	Current Sensing	Gate Resistor	Surface Mount Package			Leaded Package
									7-pin D²PAK (SOT427)	5-pin D²PAK (SOT426)	SO20 (SOT163)	5-pin TO220 (SOT263B-01)
												
									10.0 x 15 x 4.5	10.0 x 15.0 x 4.5	13.0 x 10.0 x 2.65	10.0 x 19.0 x 4.5
55	9+23	10+25	17+9	✓			✓				BUK9MGP-55PTS	
55	14+14	15+15	13+13	✓			✓				BUK9MJJ-55PSS	
55	14+14	15+15	13+13	✓			✓				BUK9MJJ-55PTT	
55	14+90	15+100	13+4	✓			✓				BUK9MJT-55PRF	
55	23+23	25 + 25	9+9	✓			✓				BUK9MPP-55PRR	
55	27+27	30+30	8+8	✓			✓				BUK9MMM-55PNN	
55	45+45	50+50	6+6	✓			✓				BUK9MLL-55PLL	
55	56+56	65+65	5+5	✓			✓				BUK9MRR-55PGG	
65	6.5	7	75	✓			✓		BUK9C07-65BIT			
65	9.2	10	75	✓			✓		BUK9C10-65BIT			
65	11+11	12+12	15+15	✓			✓				BUK9MHH-65PNN	
65	13+13	14+14	13+13	✓			✓				BUK9MFF-65PSS	
65	16+16	17+17	11+11	✓			✓				BUK9MJJ-65PLL	
65	25+25	27+27	8+8	✓			✓				BUK9MPP-65PLL	
65	33+33	36+36	7+7	✓			✓				BUK9MNN-65PKK	
65	61+61	67+67	5+5	✓			✓				BUK9MRR-65PKK	
65	90+90	100+100	4+4	✓			✓				BUK9MTT-65PBB	
75	7		75	✓	✓					BUK7109-75ATE		BUK7909-75ATE
75	9		75		✓		✓			BUK7109-75AIE		BUK7909-75AIE
75	10		75	✓	✓		✓		BUK7C10-75AITE			

Automotive TrenchPLUS Part Numbering



NXP Automotive LFPAK56D MOSFETs

High Reliability Dual Power-S08 for Automotive Applications

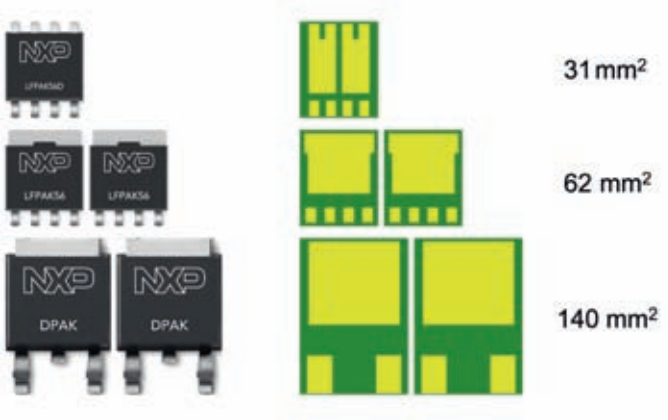
LFPAK56D takes the initiative to further reduce the footprint size of the typical automotive electronics module. The migration from DPAK to LFPAK56 (Power-S08) now continues to LFPAK56D (dual Power-S08). With LFPAK56D the designer has the opportunity to reduce the footprint size per MOSFET channel by 77% compared to DPAK and 56% compared to LFPAK56.

Key Features

- Wire bond free – Cu clip design
- High $I_D$max rating
- Low package resistance and inductance
- Low thermal resistance
- Cost effective solution
- Footprint compatible with other Power-S08 packages
- High current transient robustness
- 100% avalanche tested
- Automotive AEC-Q101 qualified to 175° C
- Extensive product range

Package footprint size comparison

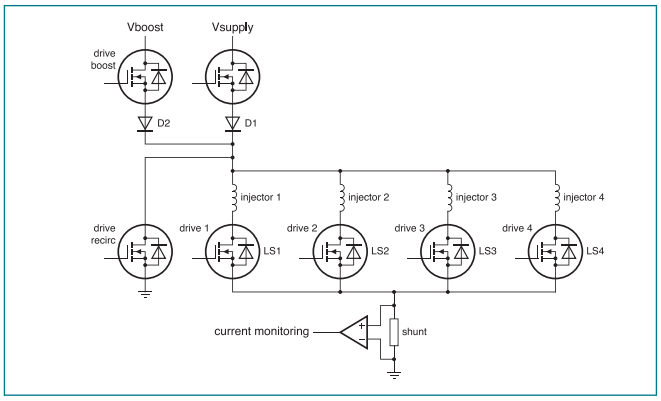
	L (mm)	W (mm)	Area (mm²)	Area / ch.(mm²)	Area compared to DPAK (%)
DPAK (SOT428)	6.73	10.4	70.0	70.0	100%
LFPAK56 (SOT669)	5	6.2	31.0	31.0	44%
LFPAK56D (SOT1205)	5.3	6.2	32.9	16.4	23%



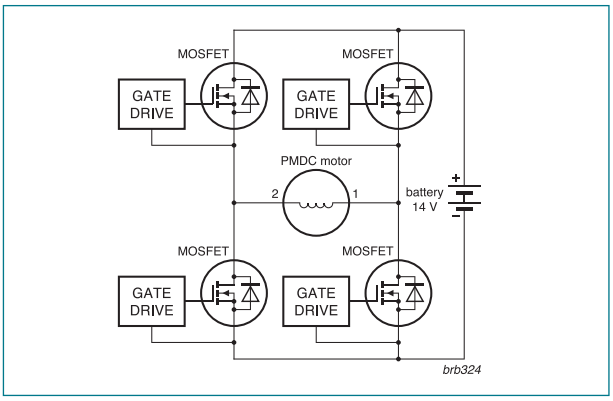
Target Applications

- Engine and transmission controllers
- Braking solenoid and motor drives
- General-purpose automotive switching where space is at a premium
- Design Tools
- RC thermal models
- Spice electrical models
- Flotherm thermal models

Typical diesel injector drive



Motor drive for typical electric parking brake



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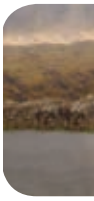
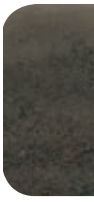

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