HPA TrenchMOS™ in LFPAK

MOSFETs that pack-a-punch in automotive power

Delivering the ultimate in performance, NXP's new range of High Performance Automotive (HPA) MOSFETs in the compact, thermally enhanced LFPAK provides reduced on-resistance along with improved ruggedness and thermal performance. All this in a very small package that ensures you can put power where you need it most, anywhere in the car.

Key features

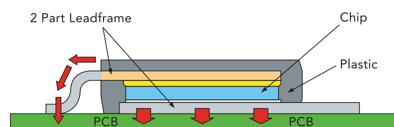
- Low on-resistance HPA TrenchMOS technology
- SO8 compatible footprint area
- Very low thermal resistance, equivalent to DPAK
- Low profile further reducing space requirements
- Universal solder land for all die sizes
- Conventional surface mount leads allowing optical inspection of solder joints

Key benefits

- Increased device efficiency
- Faster switching
- Cooler-running applications
- Reduced PCB size

Key applications

- Petrol and diesel engine management systems
- Automotive motor drives where control electronics must be integrated
- General-purpose automotive switching where space is at a premium



Cross section of board-mounted LFPAK

In automotive systems space is becoming a key issue, especially under the hood. Today's MOSFETs need to provide the absolute best thermal performance possible to enable switching of loads requiring significant currents. In answer to this, NXP has extended its successful High Performance Automotive (HPA) range of MOSFETs with the introduction of the SOT669 Loss Free PAcKage (LFPAK) to ensure a superior level of on-resistance and thermal performance in an extremely compact housing. The combination of NXP's advanced TrenchMOS technology and LFPAK delivers compact power to many applications that previously were limited to only large discrete power packages.

Fully qualified to meet the rigorous demands of the AEC Q101 standard for discrete devices these new products are aimed at a variety of applications where size and thermal performance are critical design considerations. NXP's HPA range of MOSFETs is ideal for demanding automotive applications, and LFPAK now enables this technology to be used in small modules such as engine management systems.

NXP founded by Philips

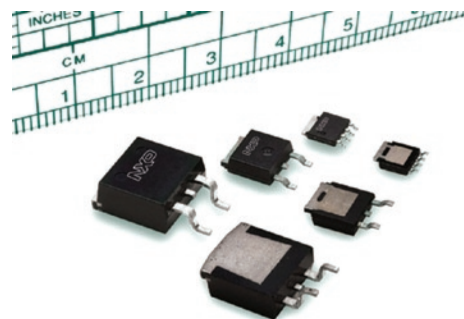
The LFPAK (SOT669) package

NXP's SOT669 LFPAK offers outstanding thermal performance from the compact footprint of the SO8. Its internal construction overcomes the limitations of the SO8. The thermal resistance is comparable to that of bigger packages such as DPAK which helps maintain the lowest possible operating temperature. Furthermore, the LFPAK has an extremely low profile – at 1.1 mm thick it is 40% thinner than SO8. Its innovative internal construction gives it an inductance considerably lower than comparable packages.

The package blends the small-size advantages of SO8 with the superior thermal properties of the much larger packages such as DPAK. In a traditional power package the main thermal pathway is vertically down through the mounting and into the PCB. However, the LFPAK also conducts a significant amount of power upwards and out through the source lead, giving it thermal resistances significantly lower than SO8 and comparable with much larger packages such as DPAK and D^2PAK.

Voltage	$R_{DS(on)}$ Max (mΩ)	@V_{GS} (V)	I_D Max	Product Type
30V	7	10	75	BUK7Y07-30B
	8	5	75	BUK9Y08-30B
	10	10	66	BUK7Y10-30B
	11	5	63	**BUK9Y11-30B**
	20	10	39	BUK7Y20-30B
	22	5	37	BUK9Y22-30B
40V	9	10	75	BUK7Y09-40B
	10	5	74	BUK9Y10-40B
	13	10	58	**BUK7Y13-40B**
	14	5	56	**BUK9Y14-40B**
	25	10	35	BUK7Y25-40B
	27	5	34	BUK9Y27-40B
55V	12	10	64	BUK7Y12-55B
	13	5	62	BUK9Y13-55B
	18	10	47	BUK7Y18-55B
	19	5	46	**BUK9Y19-55B**
	38	10	27	BUK7Y38-55B
	40	5	26	**BUK9Y40-55B**
75V	19	10	46	BUK7Y19-75B
	20	5	46	BUK9Y20-75B
	28	10	35	BUK7Y28-75B
	30	5	34	**BUK9Y30-75B**
	54	10	21	BUK7Y54-75B
	59	5	20	BUK9Y59-75B
100V	35	10	34	BUK7Y35-100B
	36	5	33	BUK9Y36-100B
	52	10	25	BUK7Y52-100B
	53	5	25	**BUK9Y53-100B**
	103	10	14	BUK7Y103-100B
	104	5	14	BUK9Y104-100B
150V	80	10	20	BUK7Y80-150B

Types in red are in development.
Please contact sales team for further details.



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