

LFPAK in DC/DC applications

Probably the best power package in the world

The LFPAK power package offers you a highly efficient and reliable solution for your high-frequency DC/DC application needs. It delivers thermal and electrical performance comparable with DPAK in an SO8 footprint.

Key features

- ▶ Robust SO8 power package – structurally similar to traditional power packages
- ▶ Low thermal resistance (2 K/W)
- ▶ Complies with stringent AEC Q101 requirements
- ▶ Exceeds IPC thermal fatigue requirements
- ▶ Complies with 'green' RoHS legislation

Key benefits

- ▶ Thermal performance comparable with DPAK from an SO8 footprint area
- ▶ Easier to handle, inspect and solder than competing power SO8 solutions
- ▶ Minimal switching losses

Key applications

- ▶ High-density DC/DC converters
- ▶ Notebook PCs
- ▶ Voltage regulator modules in servers
- ▶ PoL (Point of Load) applications in infrastructure equipment

In traditional power packages such as DPAK and D²PAK, the primary thermal pathway is vertically downwards through the mounting base and into the PCB.

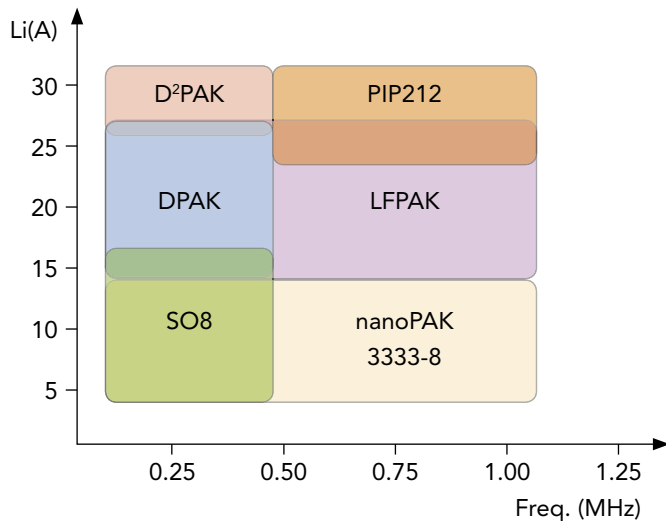
LFPAK significantly improves heat dissipation by providing an additional thermal pathway upwards, allowing heat to be dissipated through the top of the package as well. This structural difference makes LFPAK suitable for both top-side and bottom-side heatsinking solutions. It also gives LFPAK a low $R_{th(j-mb)}$ of just 2 K/W.

While the LFPAK offers performance advantages over the DPAK and D²PAK, there are still structural similarities to these traditional power packages. The robust construction of the LFPAK also enables it to exceed the thermal fatigue requirements of IPC9701, and it is the only power SO8 package that meets the stringent requirements of the Automotive Electronic Council AEC Q101. This simplifies your task when building high-frequency DC/DC systems as LFPAK offers ease of handling, inspection and soldering compared with competing power SO8 solutions.

The low inductance of the LFPAK improves MOSFET switching speeds. When coupled with the improved low $R_{DS(on)}$ and Q_{gd} of NXP' TrenchMOS technology, LFPAK helps you quickly and easily meet design objectives such as minimizing footprint and increasing circuit efficiency whilst keeping heat loss to a minimum.

Portfolio overview

The LFPAK is targeted at high-frequency DC/DC converters. This is illustrated in the diagram below which shows LFPAK with regard to the rest of the NXP portfolio.



LFPAK overview

Part Number	V _{DS} (V)	Max. R _{DS(on)} mΩ			Q _{GD} (nC)
		V _{GS} =10V	V _{GS} =4.5V	V _{GS} =2.5V	
PH2520U	20		2,7	3,9	18
PH3120L	20	2,65	3,7		13
PH2925U	25		3	4,2	20
PH2525L*	25	2,5	3,9		6,8
PH4025L*	25	4	6,2		5,0
PH5525L*	25	5,5	8,2		3,3
PH9025L*	25	9	13		2,7
PH3230S	30	3,2	6,5		13
PH3330L*	30	3,3	4,5		6,9
PH3830L	30	3,8	4,9		11
PH4530L	30	5,7	7,2		6,5
PH4830L*	30	4,8	7,0		5,4
PH5330E	30	5,7	8,5		6
PH8030L*	30	5,9	9,7		3,1
PH7030L	30	7,9	10		3,2
PH8230E	30	8,2	13,2		5
PH9930L*	30	9,9	13,5		3,2
PH16030L	30	16	23,5		2,9
PH4840S	40	4,1	4.8 (@7V)		16
PH955L	55	8,3	9,9		17
PH1955L	55	16	21		8
PH3855L	55	36	45		5,5
PH1875L	75	16,5	20		15
PH3075L	75	28	34		9
PH20100S	100	23			8,9
PSMN059-150Y*	150	59			9,1
PSMN102-200Y*	200	102			10,1
PH2230AL**	30	2,2	3,3		7,6
PH6530AL**	30	6,5	9,7		3,5

* Types in bold red represent new products

** Types in bold red italic underlined represent products in development

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