Product brief

OptiMOS™ Linear FET

Combining a low $R_{DS(on)}$ with a wide safe operating area (SOA)

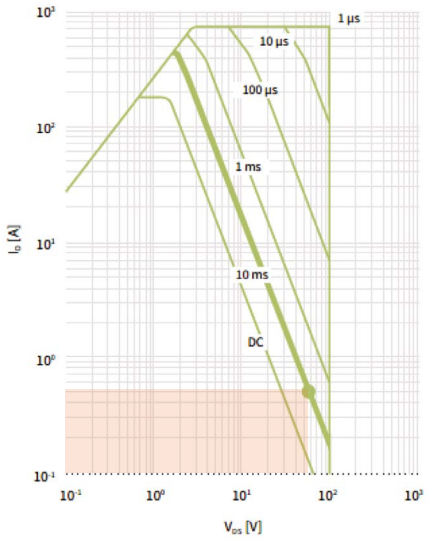
OptiMOS™ Linear FET is a revolutionary approach to avoid the trade-off between on-state resistance ($R_{DS(on)}$) and linear mode capability – operation in the saturation region of an enhanced mode MOSFET. It offers the state-of-the-art $R_{DS(on)}$ of a trench MOSFET together with the wide safe operating area of a classic planar MOSFET.

This product is the perfect fit for hot-swap, e-fuse, and protection applications commonly found in telecom and battery management systems (BMS). OptiMOS™ Linear FET prevents damage at the load by limiting the high in-rush current.

Safe operating area (SOA) comparison

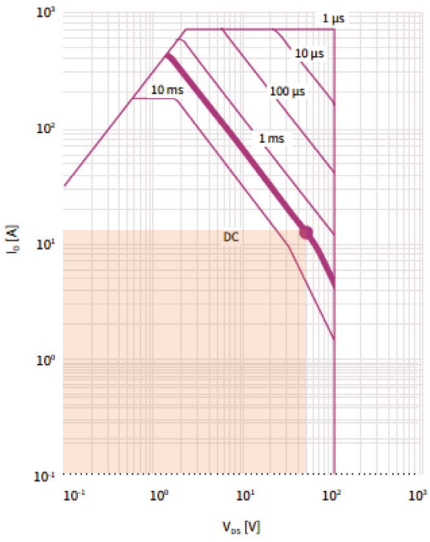
Whilst the OptiMOS™ 5 100 V, 1.7 mΩ power MOSFET has a safe operating area of 0.5 A, the OptiMOS™ Linear FET version at the same $R_{DS(on)}$ offers a much wider SOA of 11.5 A (@ 54 V, 10 ms).

OptiMOS™ 5
$R_{DS(on)}$ = 1.7 mΩ



0.5 A in OptiMOS™ 5
@ 54 V, t_{pulse} = 10 ms

OptiMOS™ Linear FET
$R_{DS(on)}$ = 1.7 mΩ



11.5 A in OptiMOS™ Linear FET
@ 54 V, t_{pulse} = 10 ms

Key features

- Combination of low $R_{DS(on)}$ and wide safe operating area (SOA)
- High max. pulse current
- High continuous pulse current

Key benefits

- Rugged linear mode operation
- Low conduction losses
- Higher in-rush current enabled for faster start-up and shorter down time

Applications

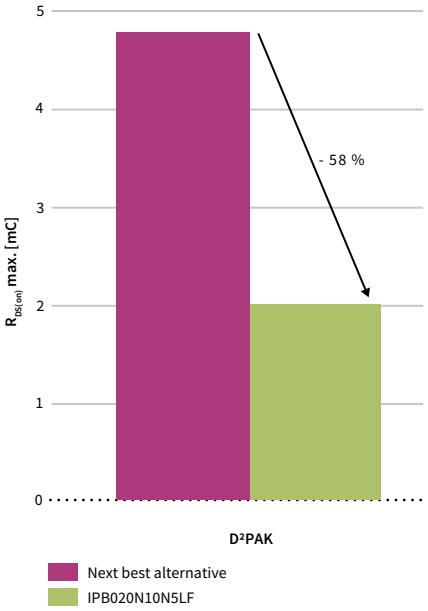
- Telecom
- Battery management system (BMS)

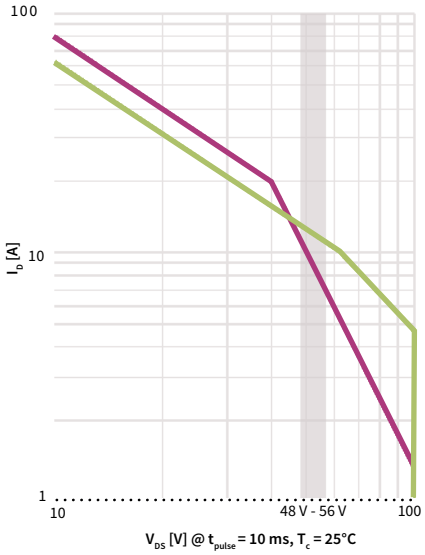
www.infineon.com/optimos-linearfet

OptiMOS™ Linear FET

Combining a low $R_{DS(on)}$ with a wide safe operating area (SOA)

OptiMOS™ Linear FET 100 V shows an $R_{DS(on)}$ reduction of up to 58 % when compared to the next best alternative. Furthermore, a wider SOA measured at 48 V to 56 V – a typical output voltage range of telecom systems – is achieved. OptiMOS™ Linear FET is available in voltage classes of 60 V, 80 V, 100 V, 150 V, and 200 V, and in package types of D²PAK, D²PAK-7pin and TO-leadless (TOLL).





Product portfolio

Voltage class package [V]		Product type	$R_{DS(on)}$ max. @ V_{GS} = 10 V [mΩ]	SOA @ 56 V, 10 ms [A]
60	TOLL	IPT008N06NM5LF	0.8	8.5 (SOA @ 40 V)
80	TOLL	IPT013N08NM5LF	1.3	10.0 (SOA @ 50 V)
100	D²PAK 7pin	IPB017N10N5LF	1.7	10.2
	D²PAK	IPB020N10N5LF	2.0	10.2
	D²PAK	IPB033N10N5LF	3.3	7.0
150	D²PAK	IPB048N15N5LF	4.8	10.8
	D²PAK	IPB083N15N5LF	**8.3**	5.6
200	D²PAK	IPB110N20N3LF	11.0	8.7

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