

Nine new Trench 6 MOSFETs in a Power-SO8 package

The world's first $< 1 \text{ m}\Omega$ Power-SO8 MOSFETs at 25 V

We've extended our range of Trench 6 MOSFETs with nine new devices at 25 V, 30 V, 40 V and 80 V in the LPAK (SOT669 and SOT1023) package.

NXP leads the way with its range of Trench 6 MOSFETs in LPAK (Loss Free PACkage). By combining Trench 6 silicon with the high performance LPAK package, our new devices provide customers with numerous performance and reliability advantages.

- World's first $< 1 \text{ m}\Omega$ ⁽¹⁾ 25 V MOSFET in a Power-SO8 footprint
- World's lowest $R_{DS(ON)}$ MOSFET at 30 V ⁽²⁾
- The only Power-SO8 devices rated to 175 °C
- The only Power-SO8 package automotive rated to AEC - Q101
- The LPAK is rated for $I_{D(MAX)}$ up to 100 A
- Fully compatible with visual inspection machines (unlike many Power-SO8 alternatives which require X-ray inspection)
- Avalanche rated
- ROHS compliant and halogen-free
- SOT669 and SOT1023 versions

⁽¹⁾ PSMN1R2-25YL has $R_{DS(ON)}$ (typ) = 0.9 m Ω and $R_{DS(ON)}$ (max) = 1.2 m Ω at V_{gs} = 10 V

⁽²⁾ PSMN1R3-30YL has $R_{DS(ON)}$ (typ) = 1.06 m Ω and $R_{DS(ON)}$ (max) = 1.3 m Ω at V_{gs} = 10 V

Trench 6 silicon technology provides NXP's lowest $R_{DS(ON)}$ performance yet, with 0.9 m Ω typical at V_{gs} = 10 V (PSMN1R2-25YL). These latest devices are ideal for a wide range of demanding applications including power OR-ing, motor control and high-efficiency synchronous buck-regulators.

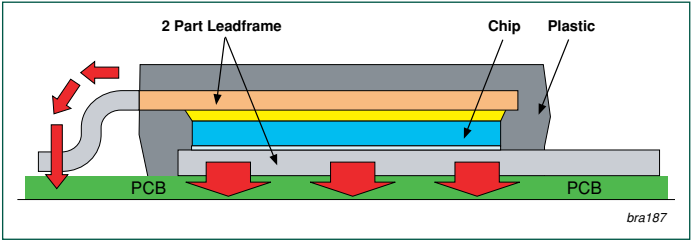
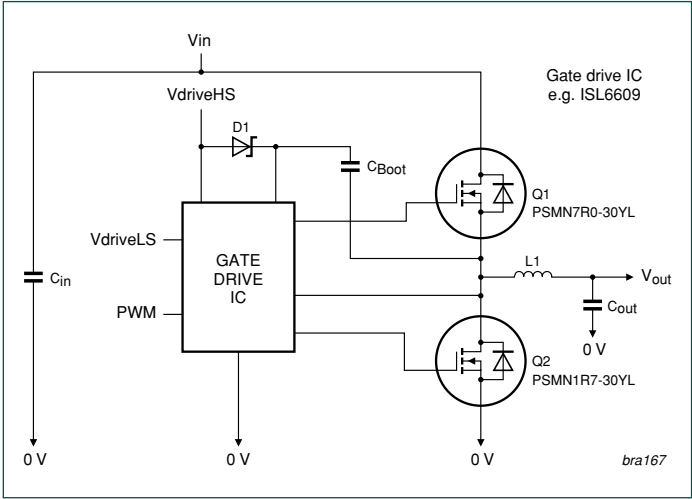
As well as delivering lower $R_{DS(ON)}$ than previous silicon technologies, Trench 6 also offers lower gate-charge (Q_g) and low gate resistance (R_g), making the devices suitable for high-efficiency power management applications with switching frequencies up to 1 MHz.

NXP's LPAK delivers compact power in a surface mount package. It provides superior electrical and thermal resistance as well as low package inductance, while maintaining the widely accepted SO8 PCB footprint.

Suitable for 'automated optical inspection' and 'manual inspection', LPAK is better than many other Power-SO8 alternatives which require costly X-ray inspection.

The combination of Trench 6 silicon and LFPAK package delivers higher operating efficiencies, improved current characteristics, higher power density and improved PCB thermal performance – essential for today’s high performance power management applications.

LFPAK block diagram



LFPAK cross section showing superior thermal conduction between silicon die and pcb (Rthjc)

Package	Part number	V _{DS}	R _{DS(ON)} (typ) V _{gs} = 10 V mΩ	R _{DS(ON)} (max) V _{gs} = 10 V mΩ
LFPAK	PSMN1R2-25YL	25 V	0.9	1.2
	PSMN1R5-25YL		1.13	1.5
	PSMN1R3-30YL		1.06	1.3
	PSMN1R7-30YL	30 V	1.29	1.7
	PSMN2R0-30YL		1.55	2
	PSMN2R5-30YL		1.79	2.4
	PSMN3R0-30YL		2.19	3
	PSMN3R5-30YL		2.43	3.5
	PSMN4R0-30YL		2.72	4
	PSMN5R0-30YL		3.63	5
	PSMN6R0-30YL		4.26	6
	PSMN7R0-30YL		4.92	7
	PSMN9R0-30YL		6.16	8
	PSMN2R6-40YS		40 V	2.17
	PSMN4R0-40YS	3.28		4.18
	PSMN8R3-40YS	6.79		8.58
	PSMN8R2-80YS	80 V	6.61	8.47
	PSMN013-80YS		10	12.84
	PSMN026-80YS		21.5	27.54
New devices are highlighted in bold red				
L denotes logic-level		S denotes standard-level		