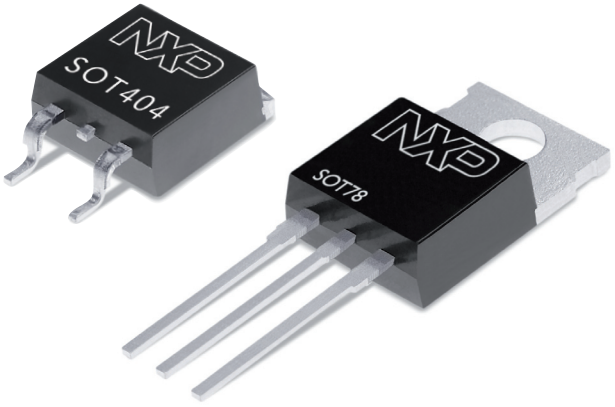


Optimized GPA TrenchMOS™ for Linear Mode Circuits

BUK75/7610-55AL

NXP's extremely reliable General Purpose Automotive (GPA) TrenchMOS family is ideally suited to driving a wide range of automotive applications. The latest additions to the 55 V range, the BUK7510-55AL and BUK7610-55AL, offer added stability to drive electric motors in simple linear mode circuits while simplifying their design-in.

Key features and benefits

- Rated to 175 °C
- SOT404 (D^2PAK) package (BUK7610-55AL)
- SOT78 (TO220AB) package (BUK7510-55AL)
- Automotive-qualified (AEC-Q101) GPA TrenchMOS technology
- Stable operation in linear mode

Key applications

- Automotive HVAC systems
- DC linear motor control
- Repetitive clamped inductive switching
- 12 V and 24 V loads

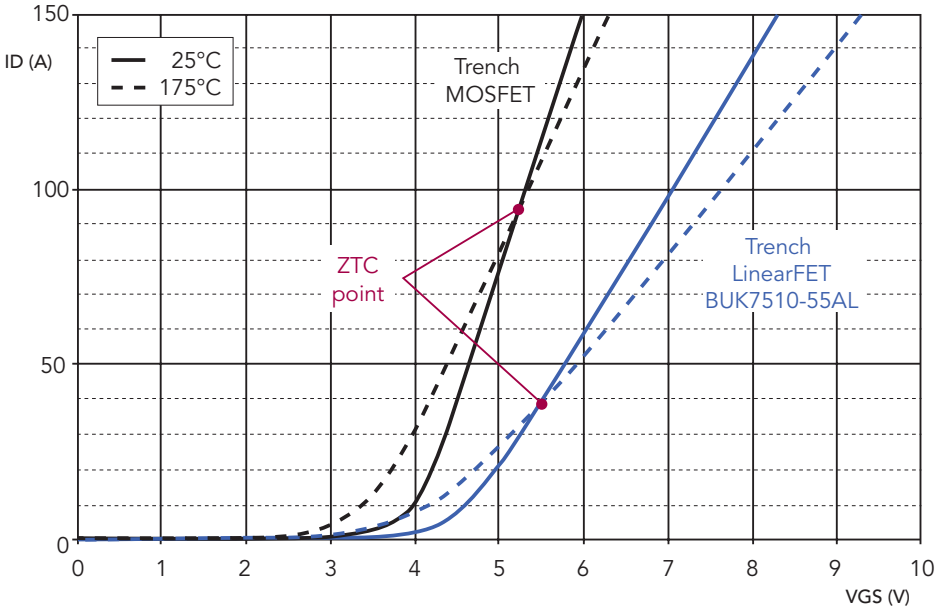
The BUK7510-55AL and BUK7610-55AL automotive-qualified PowerMOS devices are the latest members of NXP's GPA TrenchMOS family. Ideal for driving electric motors such as fan motors in simple linear mode circuits, they eliminate the need for expensive Pulse Width Modulation (PWM) strategies by delivering operation stability throughout the linear mode.

Advanced small cell-pitch DMOS and Trench technologies normally lack stability when operated in the linear mode, due to the high current density value of the transconductance at the zero temperature coefficient (ZTC) point.

NXP has overcome this limitation for TrenchMOS technology by using a unique chip design, which when combined with automotive-qualified GPA Trench technology delivers products with a significantly lower ZTC point than previously achievable. This ensures stable operation throughout the linear mode with the added benefit of full protection across the Safe Operating Area curve.

NXP founded by Philips

Type number	Package	V_{DS} (V)	I_D DC (A)	$R_{DS(on)}$ (mΩ)	Q_{GD} (typ) (nC)	Thermal resistance (K/W)
BUK7510-55AL	SOT78 (TO-220AB)	55	75	10 @ 10V	50	0.5
BUK7610-55AL	SOT404 (D^2PAK)	55	75	10 @ 10V	50	0.5



Trench MOSFET

Trench LinearFET BUK7510-55AL

Figure 1 shows the dramatic reduction in the ZTC point in comparison to a standard GPA TrenchMOS with an almost identical active area. The BUK7510-55AL provides a reduction of more than 60% compared to it's standard equivalent.

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