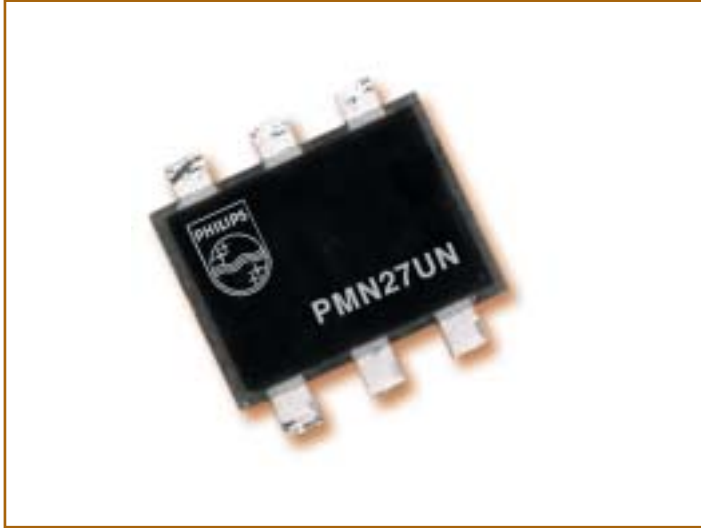


μTrenchMOS™

A new dimension in power

As a technology leader, Philips continues to develop new power devices delivering essential solutions for today's rapidly moving market. μTrenchMOS is a new product portfolio exploiting Philips' core competencies in both innovative Trench technology and package miniaturization. These small devices help designers meet the demanding requirements of motor, load and switching circuits in compact, portable and battery operated appliances.



Key features

- 9.3 mm² footprint – comparable to that of SOT23 (7.4 mm²)
- Low V_{GS(th)} (1.8 V) capability
- Very low R_{DS(ON)} – TSOP6 94% lower R_{DS(ON)} than current SOT23 portfolio
- Superior thermal and electrical properties (50 K/W compared to 90 K/W for SOT23)

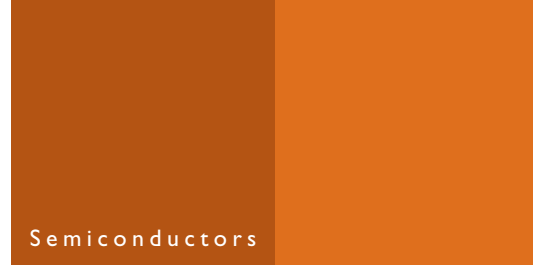
Key benefits

- High performance from a small footprint
- Longer battery life
- Lower power dissipation
- Cooler running applications

Key applications

- Battery powered motor control
- Load switch in notebook PC's
- High speed switch in set-top box power supplies
- Driver FET in DC/DC converters

30, 20 and 12 V N-channel MOSFETs in TSOP6



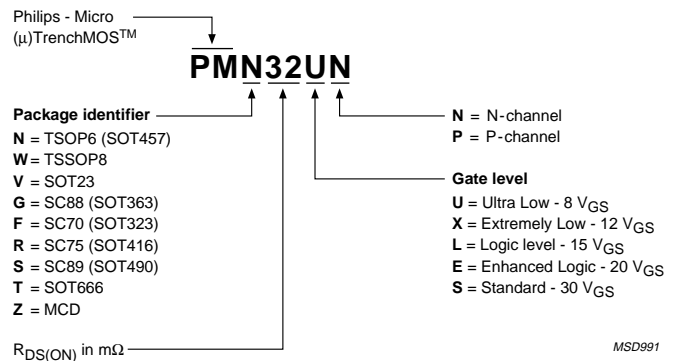
Reliable regulated power control

First out of the μTrenchMOS stable is a range of 30 V, 20 V and 12 V N-channel MOSFETs in TSOP6 package. Capable of handling high peak currents and voltages, and tolerant of voltage drops, these devices ensure reliable, stable operation of load, motor and signal switching circuits in a wide variety of low power and battery operated applications circuitry.

Product overview

	Max. V _{DS} (V)	Typical R _{DS(ON)} mΩ				V _{GS}	I _D max.
		V _{GS} =10 V	V _{GS} =4.5 V	V _{GS} =2.5 V	V _{GS} =1.8 V		
PMN34UN	30	-	38	45	54	8	4.9
PMN45EN	30	32	42	-	-	20	5.2
PMN40LN	30	32	40	-	-	15	5.4
PMN55LN	20	55	70	-	-	15	4.1
PMN34LN	20	28	34	-	-	15	5.7
PMN23UN	20	-	23	28	36.4	8	6.4
PMN27UN	20	-	27	32	39	8	5.7
PMN28UN	12	-	28	32	39	8	5.7

μTrenchMOS™ part numbering



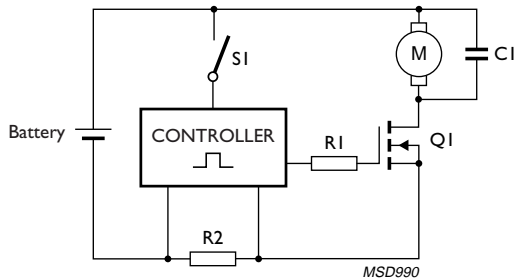
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μ TrenchMOS™ a new dimension in power

30, 20 and 12 V N-channel MOSFETs in TSOP6



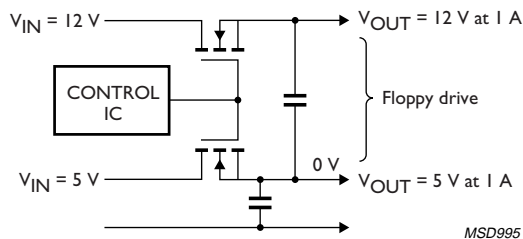
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Battery powered motor control

Small motor control is a common requirement of many domestic and industrial devices and a typical application circuit is illustrated to the left. Despite variations in the motor load – which varies the current through the MOSFET – the speed of the motor must remain constant. Observing the current through the motor and the MOSFET by monitoring the voltage developed across R2, the controller can maintain a highly stable motor speed, irrespective of load. In this circuit the MOSFET gate current can be limited and any spikes generated by the motor are suppressed.

Peripheral load switch



Load/supply routing switches in notebook PCs

Effective power saving in today's notebook PCs is essential, both to conserve battery life and because of wider environmental concerns. To achieve this power is often routed to different parts of the motherboard in different modes. For example, the charging circuit can be disabled and the external supply inputs isolated when the laptop is powered from the battery, while peripheral devices such as the hard drive, floppy drive, LCD screen are turned off when not used for prolonged periods of time. The low power dissipation of Philips' μ TrenchMOS delivers this in an extremely small footprint, often the second important design requirement in this market area.

Philips Semiconductors

Philips Semiconductors is a worldwide company with over 100 sales offices in more than 50 countries. For a complete up-to-date list of our sales offices please e-mail sales.addresses@www.semiconductors.philips.com

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