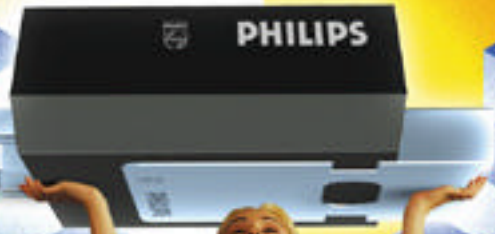


Philips Semiconductors



Silicon MAX

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Silicon MAX

Philips Semiconductors introduces innovative new range of Power MOSFETs

- **SiliconMAX™ ultra-low $R_{DS(on)}$ power MOSFETs to 200V**
 - Unsurpassed performance for SMPS and DC/DC converter applications

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Description

Based on next generation enhancements to the TrenchMOS process that minimise on-resistance ($R_{DS(on)}$), reduce gate charge (Q_{GD}) and increase breakdown voltage, SiliconMAX power MOSFETS provide unsurpassed levels of performance in switchmode power supply and DC/DC converter applications. Available with voltage ratings of 25V, 55V, 100V, 150V and 200V, they not only extend to higher voltages the range of applications that can benefit from TrenchMOS technology, they also offer improved performance in applications currently using first-generation TrenchMOS transistors.

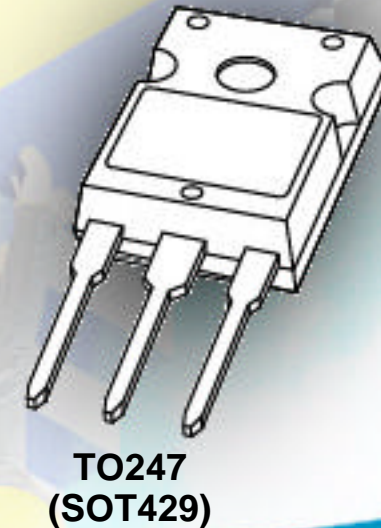
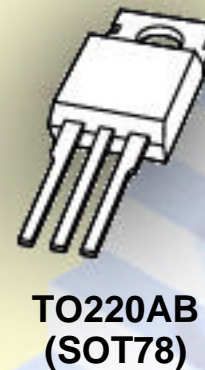
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Features

- Voltage ratings of 25V, 55V, 100V, 150V and 200V
- Comprehensive range of D²-PAK, D-PAK, TO220 and TO247 package options
- $R_{DS(on)}$ values as low as 15 m Ω in TO220 and 25 m Ω in D-PAK for 100-volt devices
- Very low gate-charge (Q_{GD})



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Applications

- **Switch mode power supplies**
- **DC/DC converters**
- **Industrial motor control**
- **Load switching applications**

particularly suited to those applications that previously required the use of 100V, 150V or 200V DMOS transistors

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Benefits

Package benefits

- **Smaller package size for the same $R_{DS(on)}$ value and/ or reduced component count resulting in greater power densities (W/mm³)**
- **Replacement of through-hole mounting power packages with surface mount devices**
- **Reduced heatsinking requirement**
- **Smaller size of end application**



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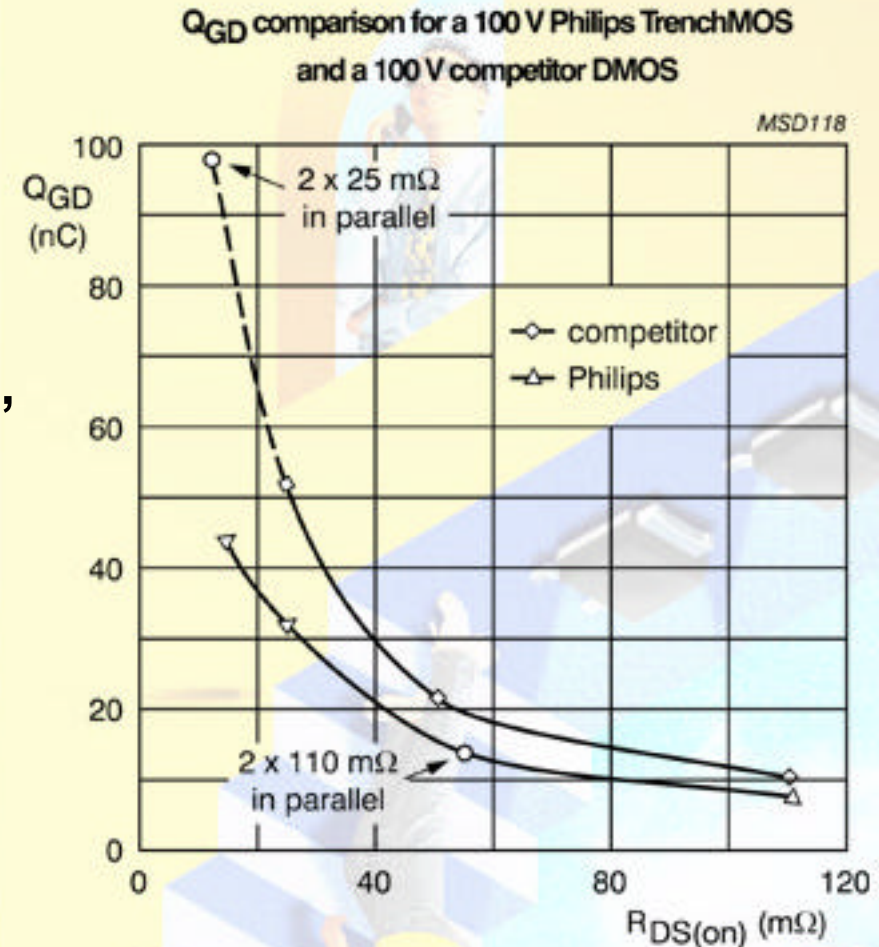
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Benefits (cont...)

SiliconMAX™ MOSFETs achieve the best of both worlds -

low $R_{DS(ON)}$ and fast switching

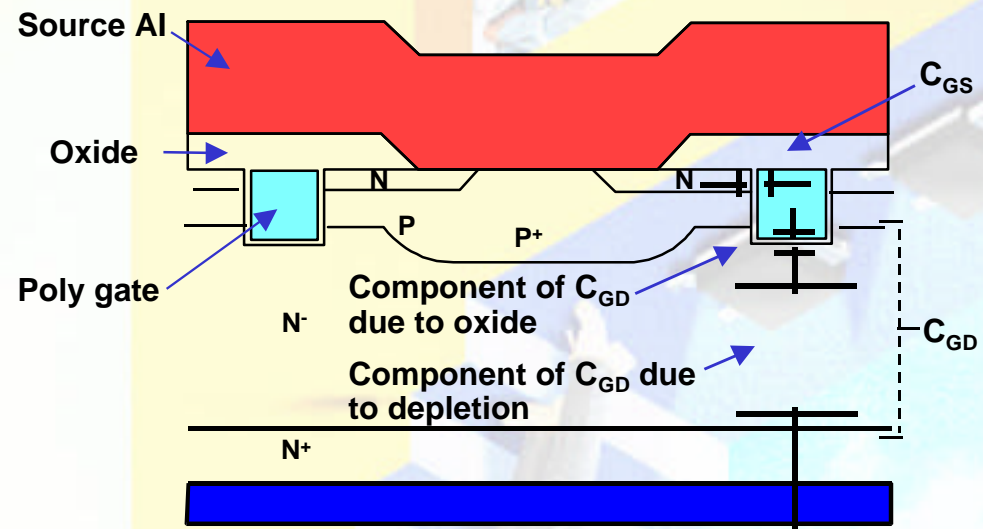
- for SiliconMAX™ power MOSFETs, gate charge (Q_{GD}) increases much more slowly with die size
- lower Q_{GD} means faster switching speeds and lower losses
- Conventional DMOS MOSFETs only provide low $R_{DS(ON)}$ or fast switching not both



Benefits (cont...)

TrenchMOS is the key to **reduced gate-charge** in SiliconMAX™ MOSFETs

- the vertical gate structure of TrenchMOS reduces gate-drain capacitance (C_{GD})
- reduced gate-drain capacitance reduces gate-charge (Q_{GD})



Ecovision

Fulfilling Philips' **EcoVision** for a less power-hungry world

- less power wasted in end-user equipment
- less energy/materials consumed during manufacture
- less energy/materials consumed during heastsink production
- less industrial waste



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Overall Benefit to YOU

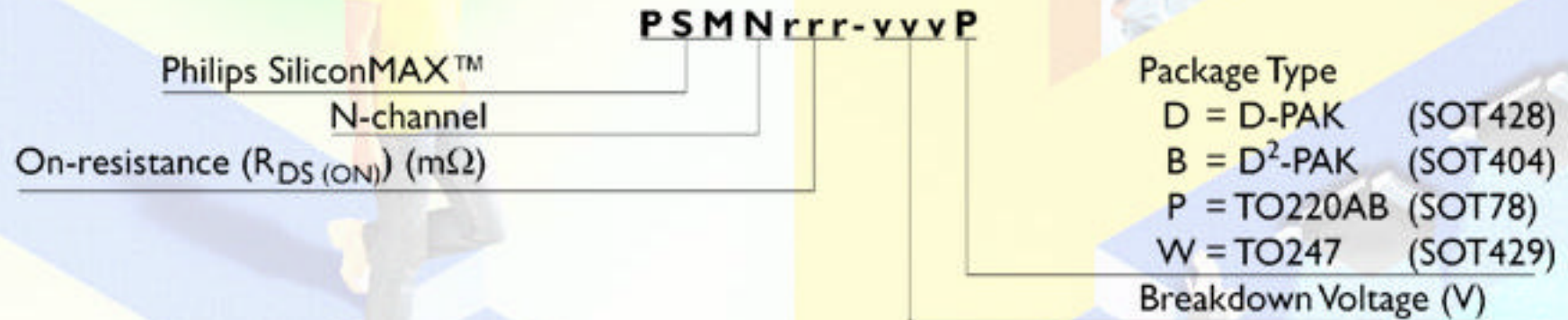
- Lower system cost and higher performance

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Part numbering guide



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Product Table

V _{DS} (V)	R _{DS(on)} (mΩ)	I _D (A)	Package			
			Surface Mount		Leaded	
			D-PAK** (SOT428)	D ² -PAK* (SOT404)	TO220AB* (SOT78)	TO247*** (SOT429)
			 M3D000	 M3D188	 M3D007	 M3D014
25	3.5	200				PSMN003-25W
25	4	160		PSMN004-25B	PSMN004-25P	
25	5.8	100	PSMN005-25D			
55	4.5	180				PSMN004-55W
55	5.8	130		PSMN005-55B	PSMN005-55P	
55	10.5	80	PSMN010-55D			
100	9	130				PSMN009-100W
100	15	80		PSMN015-100B	PSMN015-100P	
100	25	45	PSMN025-100D			
150	20	75				PSMN020-150W
150	35	50		PSMN035-150B	PSMN035-150P	
150	63	30	PSMN063-150D			
200	40	50				PSMN040-200W
200	70	35		PSMN070-200B	PSMN070-200P	
200	130	20	PSMN130-200D			

* All types are available now, ** All types will be available in Q3 1999, *** All types will be available in Q4 1999

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More information

- **Full product data on Semiconductors.COM/SiliconMAX including:**
 - datasheets
 - product status
 - spice models
 - package outline drawings
 - product news
 - technical information
- **“SiliconMAX” Leaflet (order code 9397 750 05724)**
- **“Power in SMPS” folder (order code 9397 750 05989)**

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