

600 - 650 V MDmesh DM9



Fast-recovery SJ Power MOSFETs boost efficiency and robustness



New silicon SJ MOSFET series with a fast intrinsic body diode offers impressive efficiency and reliability for full-bridge phase-shifted ZVS topologies

Featuring a very low recovery charge (Q_{rr}) and low recovery time (t_{rr}) combined with the best Figure of Merit ($R_{DS(on)} \times Q_g$), these super-junction fast-recovery silicon power MOSFETs ensure outstanding efficiency and very impressive power levels tailored for the most demanding bridge topologies and ZVS phase-shift converters.

With devices available for both industrial and automotive applications, these fast-recovery silicon power MOSFETs come in a wide range of packages including TO-247 long leads, TO-LL and SOT223-2 packages.

KEY FEATURES

- Best Figure of Merit ($R_{DS(on)} \times Q_g$) on the market
- Improved intrinsic diode reverse recovery time (t_{rr})
- Higher dv/dt (120 V/ns) and di/dt capability (1300 A/ μ s)
- Optimized body diode recovery phase and softness

KEY BENEFITS

- Increased power levels
- Extremely high efficiency performance and increased power density
- Improved system reliability and robustness
- Higher operating frequencies and better thermal management

KEY APPLICATIONS

- Charging stations for electric vehicles
- Telecom data centers
- 5G Power stations
- Servers
- Inverters
- UPS and energy storage systems

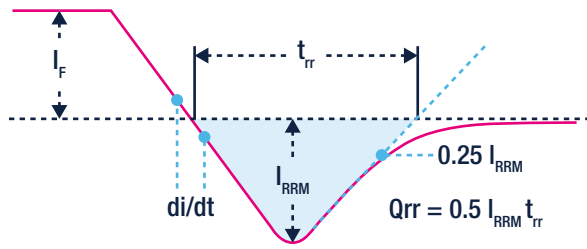
600 - 650 V MDmesh* DM9 super-junction fast-recovery Power MOSFETs

600 - 650 V V_{DS} rated

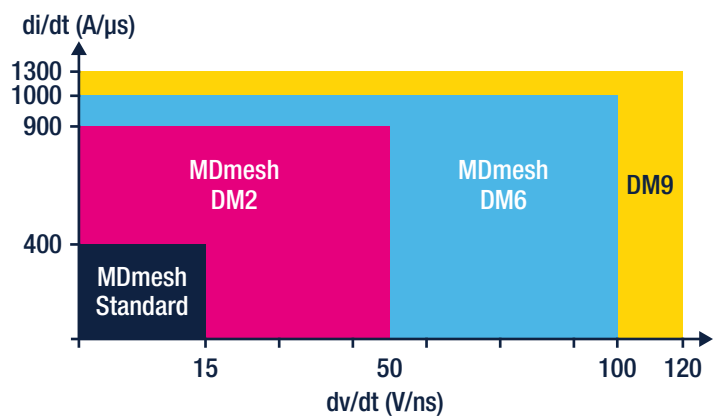
ST's latest fast-recovery body diode super-junction MOSFET technology is optimized for the most demanding bridge topologies and ZVS phase-shift converters. With a breakdown voltage from 600 to 650 V, MDmesh DM9 STPOWER MOSFETs reduce reverse recovery effects, increasing the maximum allowable di/dt and dv/dt.

Thanks to their extremely low on-state resistance ($R_{DS(on)}$) and gate charge (Q_g), the STPOWER MOSFET MDmesh DM9 series enables designers to reach the highest level of efficiency compared to competitor devices and previous ST technologies.

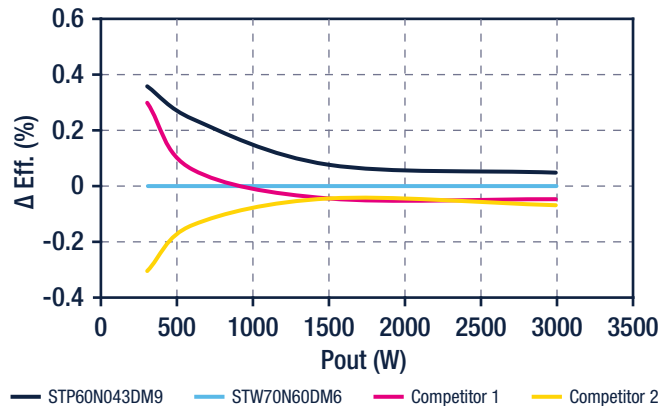
Reverse recovery current



Safe area for peak diode recovery voltage



Δ Efficiency vs previous technology and best competitors



600 - 650 V MDmesh DM9 product plan

V_{DS}	$R_{DS(on)}$ (mΩ)	I_D (A)	SOT223-2	DPAK	D ² PAK	HU3PAK	T0-220	T0-247	T0-247 long leads	T0247-4	PowerFLAT 8x8 HV
650 V	25	TBD						STW65N025DM9	STWA65N025DM9	STW65N025DM9-4	
	23	TBD							STWA65N023DM9	STW65N023DM9-4	
600 V	350	TBD	STN60N350DM9	STD60N350DM9							
	43/44 ¹	56			STB60N043DM9	STHU60N043DM9	STP60N043DM9	STW60N043DM9			ST8L60N044DM9

Note:

- developing
 - mature and full production
- 1: ST8L60N044DM9 in PowerFLAT 8x8 HV

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