

# 600 V - 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/ $\mu$ 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

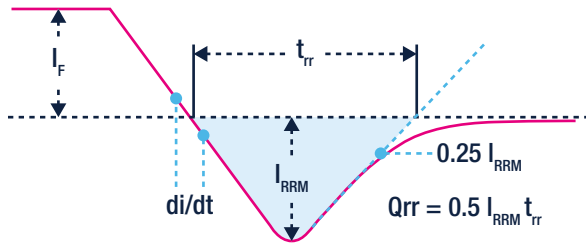
## 600 V - 650 V MDmesh\* DM9 super-junction fast-recovery Power MOSFETs

600 - 650 V<sub>DS</sub> rated

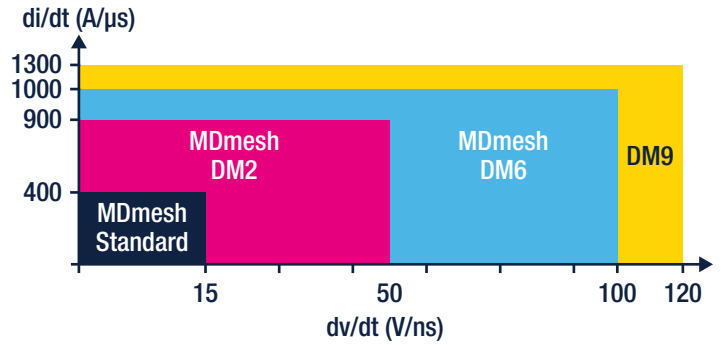
ST's latest fast-recovery body diode super-junction MOSFET technology is optimized for the most demanding bridge topologies and ZVS phase-shift converters. With a breakdown voltage from 600 to 650 V, MDmesh DM9 STPOWER MOSFETs reduce reverse recovery effects, increasing the maximum allowable di/dt and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

Thanks to their extremely low on-state resistance (R<sub>DS(on)</sub>) and gate charge (Q<sub>g</sub>), the STPOWER MOSFET MDmesh DM9 series enables designers to reach the highest level of efficiency compared to competitor devices and previous ST technologies.

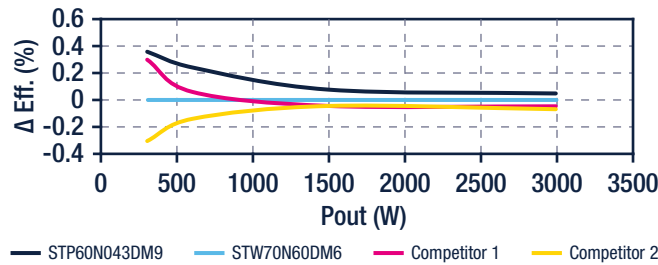
Reverse recovery current



Safe area for peak diode recovery voltage



Δ Efficiency vs previous technology and best competitors



## MDmesh DM9 product plan

600 V											
R <sub>DS(on)</sub> (mΩ)	Id <sup>1</sup> max (A)	SOT223-2	DPAK	8x8 HV	T0-LL	D2PAK	HU3PAK	T0-220/FP	T0-247 LL	T0247-4	
19	108								STWA60N019DM9	STW60N019DM9-4	
23	95								STWA60N023DM9	STW60N023DM9-4	
30/32	75				STO60N032DM9				STWA60N030DM9	STW60N030DM9-4	
40/42/44	59			ST8L60N044DM9	STO60N042DM9				STWA60N040DM9	STW60N040DM9-4	
43/45	56				STO60N045DM9	STB60N043DM9	STHU60N043DM9	STP60N043DM9 <sup>2</sup>	STWA60N043DM9 <sup>2</sup>		
59/63/64	39			ST8L60N065DM9	STO60N063DM9	STB60N059DM9			STWA60N059DM9		
94/100/103	30			ST8L60N103DM9	STO60N100DM9	STB60N094DM9			STWA60N094DM9		
120/130	23			ST8L60N130DM9	STO60N127DM9			STP/F60N120DM9			
145/155/160	20		STD60N155DM9	ST8L60N160DM9		STB60N145DM9		STP/F60N145DM9			
350	10	STN60N350DM9	STD60N350DM9								
550	7	STN60N550DM9									
1400	4	STN60N1K4DM9									
650 V											
R <sub>DS(on)</sub> (mΩ)	Id <sup>1</sup> max (A)	8x8 HV	T0-LL	D2PAK	T0-220	T0-247 LL	T0247-4				
22	96							STWA65N022DM9	STW65N022DM9-4		
25	93							STWA65N025DM9	STW65N025DM9-4		
33/36	74		STO65N036DM9					STWA65N033DM9			
44/47/48/50	56/53	ST8L65N050DM9	STO65N048DM9		STB65N047DM9	STP65N047DM9		STWA65N044DM9			
60/64/65	45	ST8L65N065DM9	STO65N064DM9		STB65N060DM9	STP65N060DM9		STWA65N060DM9			
85/90/95	33	ST8L65N095DM9	STO65N090DM9		STB65N085DM9	STP65N085DM9		STWA65N085DM9			
105/110/115	27	ST8L65N115DM9	STO65N110DM9		STB65N105DM9	STP65N105DM9		STWA65N105DM9			
132/140/145	22	ST8L65N145DM9	STO65N140DM9		STB65N132DM9	STP65N132DM9					
165/175/180	19	ST8L65N180DM9	STO65N175DM9		STB65N165DM9	STP65N165DM9					

Note \* is a registered and/or unregistered trademark of STMicroelectronics – 1 referred to through hole package – 2 in production



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