

500/650 V MDmesh™ M2: The New ST High Voltage Super-junction MOSFET Series



MDmesh™ M2 is ST's latest leading-edge highly performing Super-junction MOSFET technology to boost efficiency in resonant type power supplies, LED drivers and adapters

Power supply designers have now the necessity to increase the power density and have an efficient thermal management. An answer to this goal is in using resonant topologies and moreover in the use of LLC resonant converter. For these topologies, the MOSFET parasitic capacitances can affect the total behaviors increasing switching losses and decreasing efficiency. The profile of the output capacitances influences the switching operation and determines the total performance of the system. MDmesh™ M2 series shows better efficiency especially when the system operates a low load.

KEY FEATURES

- Extremely low Q_g
- Optimized for light load conditions
- From 500 to 650V BV_{DSS} rated
- Available in TO-220FP wide creepage package

KEY BENEFITS

- Low conduction and switching losses in PFC and soft switching
- Easy to drive
- Especially targeted for resonant topologies (LLC)
- Higher insulation rating thanks to the new package



LIST OF AVAILABLE POWER TRANSISTORS BELONGING TO MDmesh™ M2 SERIES

V_{DS} (V)	Max $R_{DS(on)}$ (Ω)	Max I_D (A)	Qg (nC)	Sales Type	Packages
600 V	0.95	5	8.8	STx7N60M2	DPAK/IPAK/TO-220/TO-220FP
	0.780/0.860*	5.5	8	STx9N60M2	IPAK/DPAK/TO-220/TO-220FP/I ² PAKFP/PowerFLAT™ 5x6 HV
	0.600/0.66*	8	10	STx10N60M2	IPAK/DPAK/D ² PAK/TO-220/TO-220FP/TO-220FP wide creepage/I ² PAKFP/PowerFLAT™ 5x6 HV
	0.380/0.420*	11	16	STx13N60M2	IPAK/DPAK/D ² PAK/TO-247/TO-220/TO-220FP/TO-220FP wide creepage/I ² PAKFP/PowerFLAT™ 5x6 HV
	0.280/0.308*	13	21	STx18N60M2	TO-220/TO-220FP/TO-220FP wide creepage/TO-247/D ² PAK/PowerFLAT™ 5x6 HV
	0.190/0.210*	18	29	STx24N60M2	TO-220/TO-220 FP/TO-220FP wide creepage/D ² PAK/I ² PAKFP/I ² PAK/TO-247/PowerFLAT™ 8x8 HV
	0.150	24	39	STx28N60M2	TO-220/TO-220FP/TO-220FPNL/I ² PAKFP/D ² PAK/TO-247
	0.125/0.135*	26	45	STx33N60M2	TO-220/ TO-220 FP/TO-247/D ² PAK/PowerFLAT™ 8x8 HV
	0.088	34	75	STx40N60M2	TO-220/ TO-220 FP/ TO-220FP wide creepage/D ² PAK/I ² PAKFP/TO-247/TO-3PF
	0.040	68	130	STW70N60M2	TO-247
650 V	1.8	2.3	5	STL3N65M2	PowerFLAT™ 3.3 x 3.3 HV
	1.35	4	9.8	STx6N65M2	DPAK/D ² PAK/IPAK/TO-220/TO-220FP
	1.25	4	6.5	STL8N65M2**	PowerFLAT™ 5x6 HV
	1.15	5	9	STx7N65M2	DPAK/IPAK/TO-220/TO-220FP
	1	4.5	8	STL10N65M2	PowerFLAT™ 5x6 HV
	0.9	4.7	8.5	STL10HN65M2**	PowerFLAT™ 5x6 HV
	0.9	5	10	STx9N65M2	DPAK/IPAK/TO-220/TO-220FP
	0.82	5.5	11.5	STx9HN65M2	DPAK/IPAK/TO-220FP
	0.68	7	12.5	STx11N65M2	DPAK/IPAK/I ² PAK/TO-220/TO-220FP
	0.5/0.75*	8/5*	16.5	STx12N65M2	DPAK/TO-220FP/PowerFLAT™ 5x6 HV
	0.43/0.475*	10/6.5*	17	STx13N65M2	DPAK/IPAK/I ² PAKFP/TO-220/TO-220FP/TO-220FP ULTRA NARROW LEADS/PowerFLAT™ 5x6 HV
	0.36/0.395*	11/7.5*	19.5	STx16N65M2	DPAK/IPAK/TO-220/TO-220FP/PowerFLAT™ 5x6 HV
	0.33/0.365*	12/8*	20	STx18N65M2	I ² PAK/TO-220/TO-220FP/TO-220FP ULTRA NARROW LEADS/PowerFLAT™ 5x6 HV
	0.23	16	29	STx24N65M2	D ² PAK/TO-220/TO-220FP
	0.18	20	35	STx28N65M2	D ² PAK/TO-220/TO-220FP/TO-220FP ULTRA NARROW LEADS/TO-247
	0.14	24	41.5	STx33N65M2	D ² PAK/I ² PAK/TO-220/TO-220FP
	0.099	32	56	STx40N65M2	I ² PAK/TO-220/TO-220FP/TO-247
	0.062	49	93	STx56N65M2	TO-247/TO247-4
	0.046	65	135	STW70N65M2	TO-247

Notes:* Value for PowerFLAT™ package
** Datasheet available on line within Q1

For a complete MDmesh™ M2 product portfolio visit www.st.com/mdmeshm2 or consult the APP ST-MOSFET-Finder



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