

# T6 and T8 Technology - 60V and 80V

## Features and Benefits

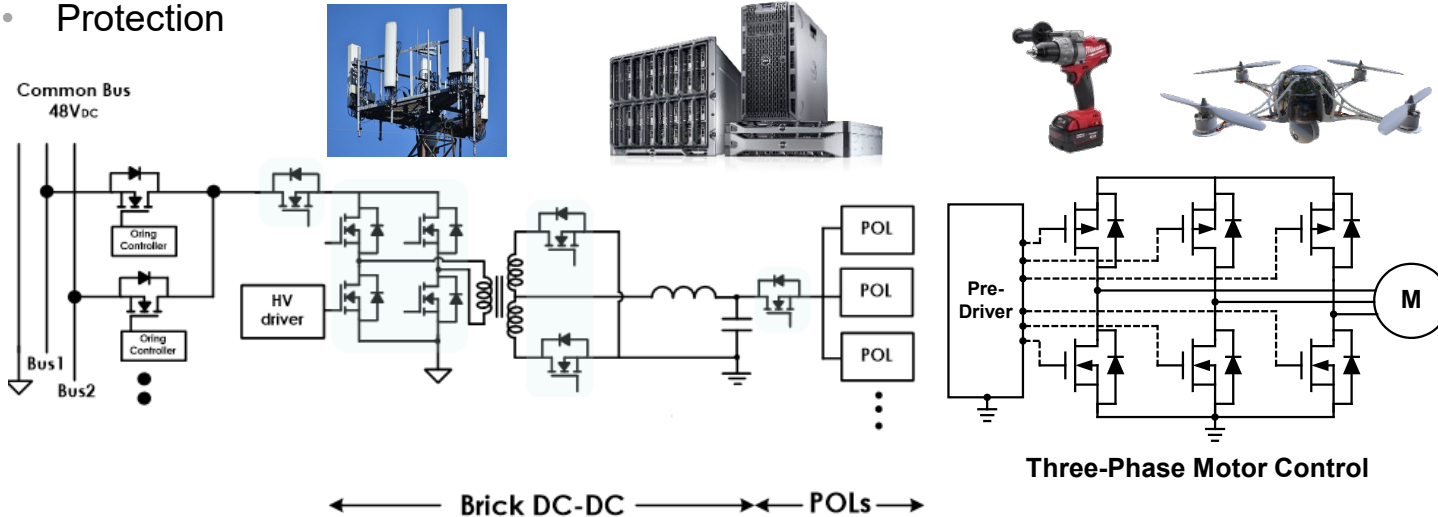
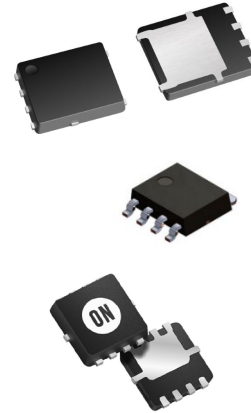
- Low RDS(on) → Improve System Efficiency
- Low Capacitance and Gate Charge → Improve Switching Losses
- Advanced Power 5x6mm and 3x3 Packages → Improve Thermal Performance

## Application

- High Efficiency DC-DC Conversion
  - Primary Side
  - Secondary Synchronous Rectification
- High Efficiency AC-DC Conversion
- Motor Drive
- Oring and Power Load Switch
- Protection

## End Products

- 5G Base Station
- Network Systems
- Cloud Computing
- Power Tools
- Others



## Technology Roadmap

T6

- Reduced On-resistance
  - 60V, 1.2mΩ in SO8FL, NTMFS5C604NL
- Increased Power Density

T8

- Optimized Switching performance
  - 60V, 1.3mΩ, SO8FL, NTMFS5H600NL
- 35~40% lower Q<sub>g</sub> and Q<sub>oss</sub> than T6

T10S  
T10M

- T10S: Optimized for Fast Switching DC/DC Applications
  - Improve R<sub>sp</sub> by at least 30%
  - Reduce FOM's: Q<sub>g</sub> x RDS(on) and Q<sub>gs</sub> x RDS(on)
  - Softer body diode and lower Q<sub>rr</sub>
- T10M: Optimized for Motor Control Applications
  - Lower on-resistance with optimized soft body diode and lower Q<sub>rr</sub>

# T6 MOSFET Portfolio (60V) – 3x3mm and 5x6mm Packages

Product	Package	Dimensions (mm)	Channel Polarity	Configuration	VDSS (V)	VGS Max (V)	VGS(th) Max (V)	ID Max (A)	RDS(on) Max VGS = 4.5V (mΩ)	RDS(on) Max VGS = 10V (mΩ)	Qg Typ VGS = 4.5V (nC)	Qg Typ VGS = 10V (nC)	Ciss Typ (pF)	Status
NTTFS5C670NL	WDFN-8 / u8FL	3x3	N-Channel	Single	60	±20	2	70	9.1	6.5		20	1400	Released
NTTFS5C673NL	WDFN-8 / u8FL	3x3	N-Channel	Single	60	±20	2	50	13.3	9.3	10.5	9.5	880	Released
NTMFS5C604N	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	4	280		1.2		80	6400	Released
NTMFS5C604NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	276	1.7	1.2	41	120	8900	Released
NTMFS5C612NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	226	2.3	1.5	22	91	6660	Released
NTMFS5C612N	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	4	230		1.6		60.2	4830	Released
NTMFS5C628NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	150	3.3	2.4		52	3600	Released
NTMFS5C628N	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	4	150		3		34	2630	Released
NTMFS5C645NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	100	5.7	4	15.7	34	2200	Released
NTMFS5C645N	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	4	94		4.5		20.4	1510	Released
NTMFS5C646NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	89	6.3	4.7	4.5	33.7	2164	Released
NTMFS5C670NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	71	8.8	6.1		20	1400	Released
NTMFS5C673NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	50	13	9.2	50	9.5	880	Released
NTMFS5C677NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	36	21.5	15	4.5	9.7	620	Released
NTMFD5C650NL	SO-8FL Dual	5x6	N-Channel	Dual	60	±20	2.2	111	5.8	4.2	16	37	2546	Released
NTMFD5C672NL	SO-8FL Dual	5x6	N-Channel	Dual	60	±20	2.2	49	16.8	11.9	5.7	12.3	793	Released
NTMFD5C674NL	SO-8FL Dual	5x6	N-Channel	Dual	60	±20	2.2	42	20.4	14.4	4.7	10	640	Released
NTMFD5C680NL	SO-8FL Dual	5x6	N-Channel	Dual	60	±20	2.2	26	41	28	2	5	350	Released

# T8 MOSFET Portfolio (60V & 80V) - 3x3mm and 5x6mm Packages

Product	Package	Dimensions (mm)	Channel Polarity	Configuration	VDSS (V)	VGS Max (V)	VGS(th) Max (V)	ID Max (A)	RDS(on) Max VGS = 4.5V (mΩ)	RDS(on) Max VGS = 10V (mΩ)	Qg Typ VGS = 4.5V (nC)	Qg Typ VGS = 10V (nC)	Ciss Typ (pF)	Status
NTTFS5D1N06HL	WDFN-8 / u8FL	3x3	N-Channel	Single	60	±20	2	78	7.1	5.2	10.3	22.5	1610	Released
NTMFS5H600NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	250	1.7	1.3		89	6680	Released
NTMFS5H615NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	200	2.5	1.8	28	62	4860	Released
NTMFS5H630NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	120	4.4	3.1	16	35	2540	Released
NTTFS3D7N06HL	PQFN-8	5x6	N-Channel	Single	60	±20	2	103	5.2	3.9	15.1	32.7	2383	Released
NTMFS5H663NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	61	10	7.2	8	17	1131	Released
NTMFS5H610NL	SO-8FL / DFN-5	5x6	N-Channel	Single	60	±20	2	47	13	10	6	13	880	Released
NTTFS5D9N08H	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	4	84		5.9		31	2040	Released
NTTFS8D1N08H	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	4	61		8.3		23	1450	Released
NTTFS6H850NL	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	2	64	11	8.6	13	26	1450	Released
NTTFS6H850N	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	4	68		9.5	12.6	19	1140	Released
NTTFS6H854NL	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	2	41	17.3	13.4	8	17	902	Released
NTTFS6H860NL	WDFN-8 / u8FL	3x3	N-Channel	Single	80	±20	2	30	26	20	6	12	610	Released
NTMFS6H800NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	3.5	224	2.4	1.8	53	112	6900	Released
NTMFS6H801NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	160	3.3	2.7	44	90	5126	Released
NTMFS6H818N	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	4	123		3.7		46	3100	Released
NTMFS6H824N	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	4	103		4.5		38	2470	Released
NTMFS6D1N08H	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	4	89		5.5		32	2085	Released
NTMFS6H836NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	77	7.8	6.2	16	34	1950	Released
NTMFS6H848NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	59	11	8.8	12	25	1420	Released
NTMFS6H852NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	42	17	13.1	8	17	906	Released
NTMFS6H858NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	30	25	19.5	6	12	623	Released
NTMFS6H864NL	SO-8FL / DFN-5	5x6	N-Channel	Single	80	±20	2	22	38	29	4	9	431	Released

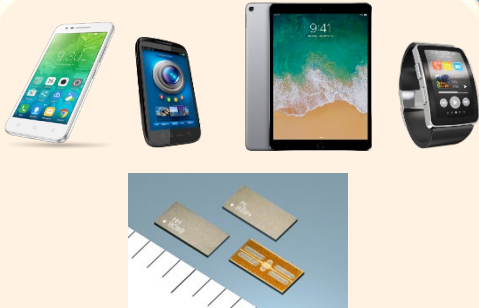
# T8 and T6 MOSFET Portfolio (60V & 80V) – LFPAK Packages

Product	Package	Dimensions (mm)	Channel Polarity	Configuration	VDSS (V)	VGS (V)	ID Max (A)	RDS(on) Max VGS = 4.5V (mΩ)	RDS(on) Max VGS = 10V (mΩ)	Qg Typ VGS = 4.5V (nC)	Qg Typ VGS = 10V (nC)	Ciss Typ (pF)	Status
NTMJS1D4N06CL	LFPAK-8	5x6	N-Channel	Single	60	±20	262	1.8	1.3	47	103	7430	Released
NTMJS1D6N06CL	LFPAK-8	5x6	N-Channel	Single	60	±20	250	2.3	1.36	41	91	6660	Released
NTMYS2D2N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	185	2.7	2	31	69	4800	Released
NTMJS2D5N06CL	LFPAK-8	5x6	N-Channel	Single	60	±20	150	3.3	2.5	24	52	3600	Released
NTMYS3D3N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	133	4.2	3	18.4	40.7	2880	Released
NTMYS4D1N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	100	5.7	4	16	34	2200	Released
NTMYS6D2N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	71	6.1	8.8	9	20	1400	Released
NTMYS9D3N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	50	9.2	13	4.5	9.5	880	Released
NTMYS014N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	42	20.54	14.5	4.7	10	640	Released
NTMYS021N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	26	31.5	21	2.5	5	410	Released
NTMYS025N06CL	LFPAK-4	5x6	N-Channel	Single	60	±20	21	43	27.5	2.7	5.8	330	Released
NTTYS009N08HL	LFPAK8 3x3	3x3	N-Channel	Single	80	±20	58	11	8.6		24	1402	Released
NTMYS003N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	132	4.3	3.3	31	64	3735	Released
NTMYS006N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	77	7.8	6.2	16	34	1950	Released
NTMYS008N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	59	11	8.8	12	25	1420	Released
NTMYS013N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	42	17	13.1	8	17	906	Released
NTMYS020N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	30	25	19.5	6	12	623	Released
NTMYS029N08HL	LFPAK-4	5x6	N-Channel	Single	80	±20	22	38	29	4	9	431	Released

# onsemi Broad MOSFET Portfolio

≤40V

Battery Protection MOSFETs



Battery Protection

Ultra Low RDS(on)

60V to 250V

Medium Voltage MOSFETs



DC-DC Full Bridge Conversion  
Synchronous Rectification  
Motor Control Drive

T6, T8, PTNG, and T10 Advanced Silicon Tech  
Leading FoM, Low RDS(on), Low Qrr, and SRD

≥600V

High Voltage MOSFETs



LLC Resonant Converters  
Power Factor Correction

Super FET III, Most Robust Body Diode

≤40V

Low Voltage MOSFETs

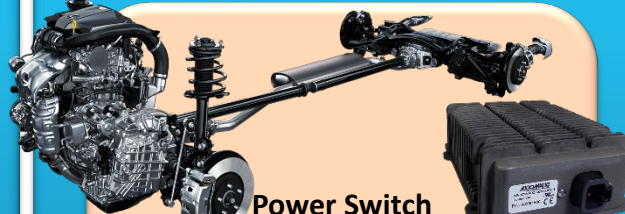


DC-DC Buck Conversion  
Motor Control Drive  
Hot Swap and Load Switch

PTE11E and T10, Leading FoM  
T6, Ultra Low RDS(on)

20V to 1200V

Automotive Qualified MOSFETs



Power Switch  
DC-DC Buck Conversion  
Motor Control Drive  
Reverse Battery Protection

SiC Module/Discrete, T10 Tech  
SF Next Gen, Thermally Efficient package

≥600V WBG

Most Robust with Patented Termination



Diode Rectification  
Inverter Modules  
Power Factor Correction

Most Robust with Patented Terminations

One-Stop

Broad MOSFET  
& SiC Solutions  
For All Design  
Challenges