

N-Channel MOSFET

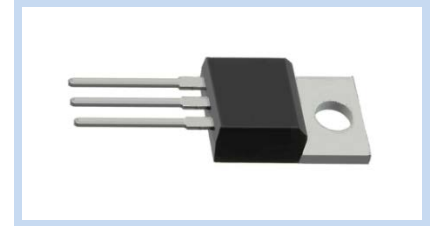
60V 60A 125W TO-220

MFT60N60T220

MERITEK

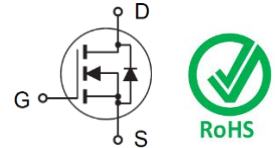
FEATURE

- $R_{DS(ON)} < 16m\Omega$, $V_{GS}=10V$, $I_D=24A$
- Super high dense cell design for extremely low $R_{DS(ON)}$
- High power and current handling capability
- Lead free product is acquired



MECHANICAL DATA

- Case: TO-220 Package
- Terminal: Solderable per MIL-STD-750, Method 2026

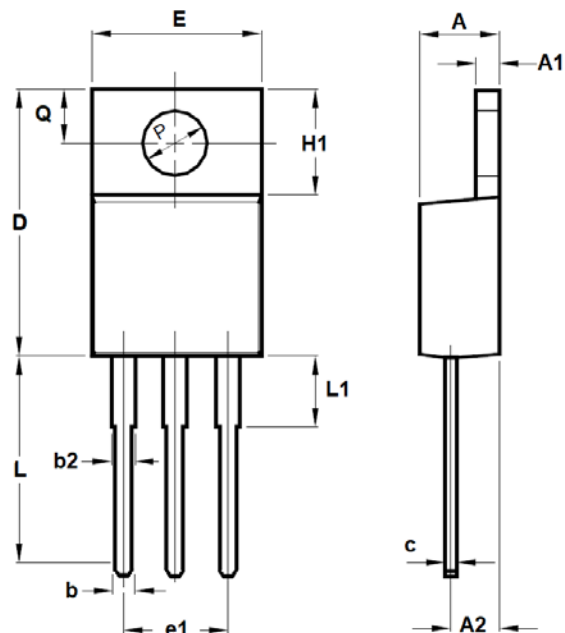


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	60	A
Drain Current – Pulsed	I_{DM}	240	A
Single Pulse Avalanche Energy	E_{AS}	360	mJ
Single Pulse Avalanche Current	I_{AS}	30	A
Power Dissipation	P_D	125	W
		Derate above 25°C	0.83
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.2	°C/W
Operating Junction and Storage Temperature	T_J, T_{STG}	-65 to 175	°C

DIMENSIONS

Item	Min. (mm)	Max. (mm)
A	4.320	4.826
A1	1.220	1.397
A2	2.032	2.921
b	0.610	0.910
b2	1.143	1.778
c	0.356	0.530
D	14.224	16.510
E	9.652	10.668
e1	5.080	5.080
H1	5.842	6.858
L	12.700	14.732
L1	3.400	4.000
Q	2.540	3.429



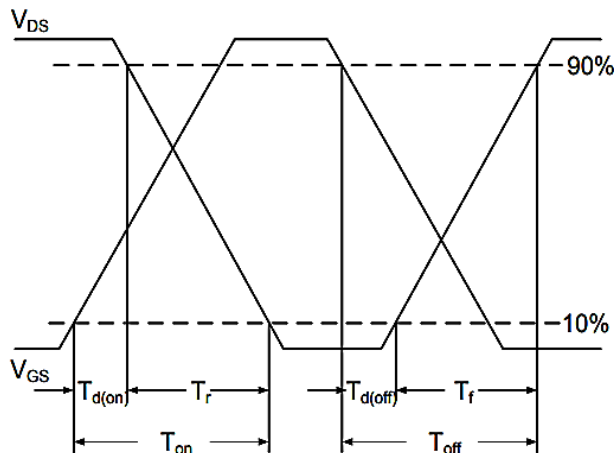
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	I_{bss}	--	--	1	μA
Gate Leakage Current, Forward	$V_{GS}=20V, V_{DS}=0V$	I_{GSSF}	--	--	100	nA
Gate Leakage Current, Reverse	$V_{GS}= -20V, V_{DS}=0V$	I_{GSSR}	--	--	-100	
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=24A$	$R_{DS(ON)}$	--	13	16	m Ω
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	2	--	4	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=48V, V_{GS}=10V, I_D=75A$	Q_g	--	52	68	nC
Gate-Source Charge		Q_{gs}	--	11	--	
Gate-Drain Charge		Q_{gd}	--	18	--	
Turn-On Delay Time	$V_{DD}=30V, R_G=4.7\Omega$ $I_D=15A, V_{GS}=10V$	$T_{d(on)}$	--	22	44	ns
Rise Time		T_r	--	17	34	
Turn-Off Delay Time		$T_{d(off)}$	--	47	94	
Fall Time		T_f	--	18	36	
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	C_{iss}	--	2015	--	pF
Output Capacitance		C_{oss}	--	495	--	
Reverse Transfer Capacitance		C_{rss}	--	55	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current-Continuous	--	I_S	--	--	60	A
Diode Forward Voltage	$V_{GS}=0V, I_S=24A$	V_{SD}	--	--	1.3	V

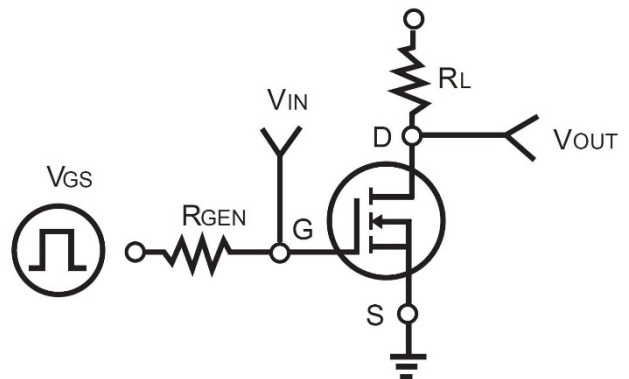
Note:

1. $L=0.8mH, I_{AS}=30A, V_{DD}=30V, R_G=25\Omega$, Starting $T_J=25^\circ C$
2. Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
3. Essentially Independent of operating temperature typical characteristics.
4. Guaranteed by design, not subject to production testing.

Switching Time Waveform

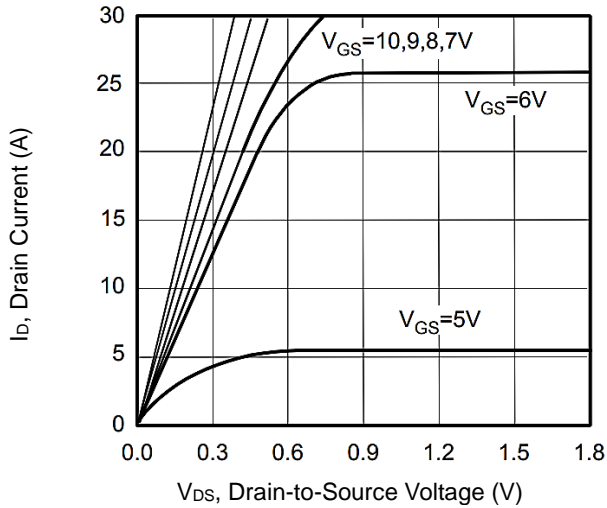


Switching Test Circuit

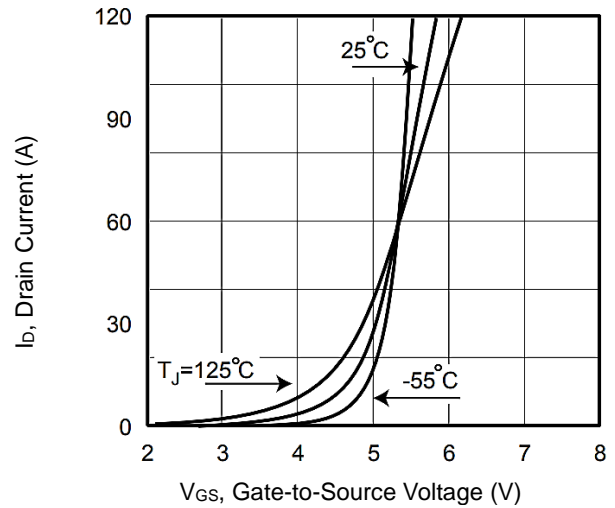


CHARACTERISTICS CURVES

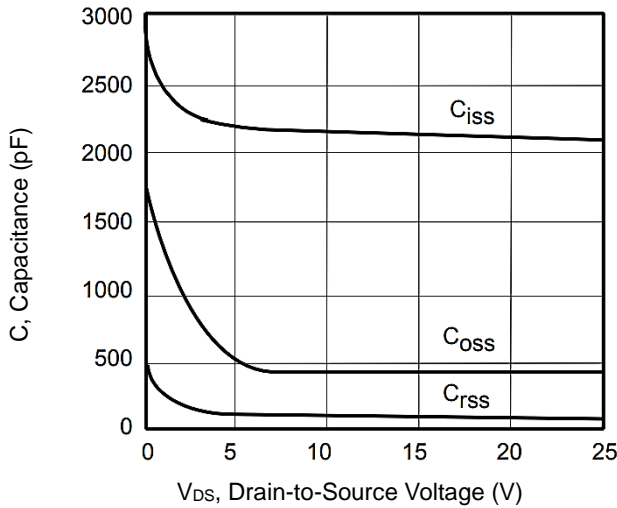
Output Characteristics



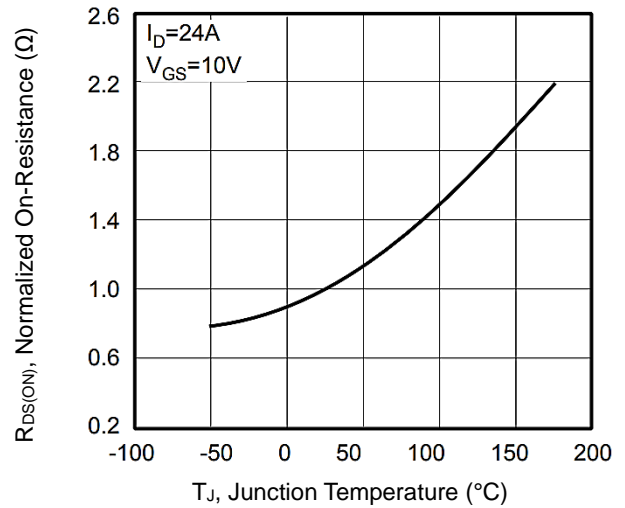
Transfer Characteristics



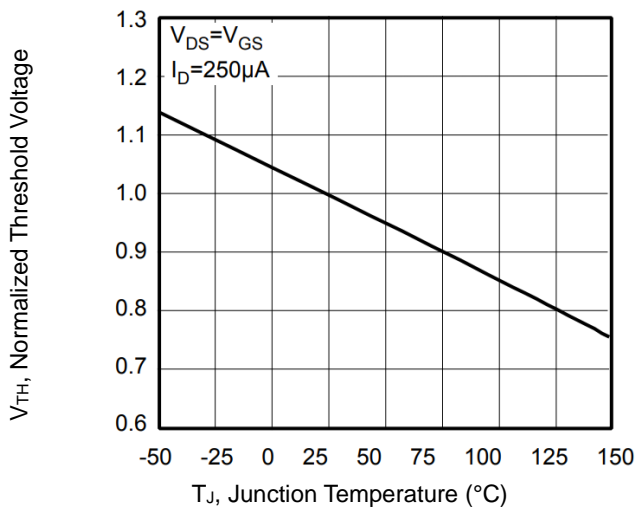
Capacitance



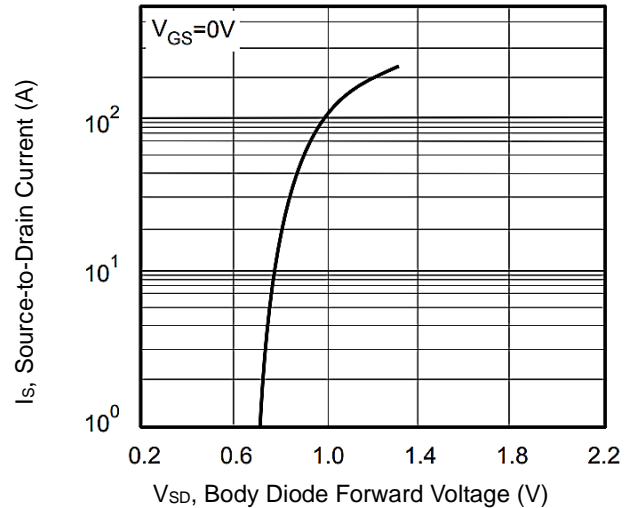
On-Resistance vs Junction Temperature



Gate Threshold Variation with Temperature

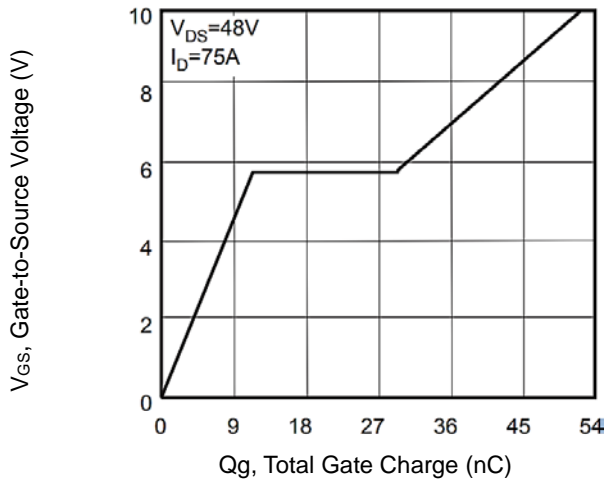


Body Diode Forward Voltage

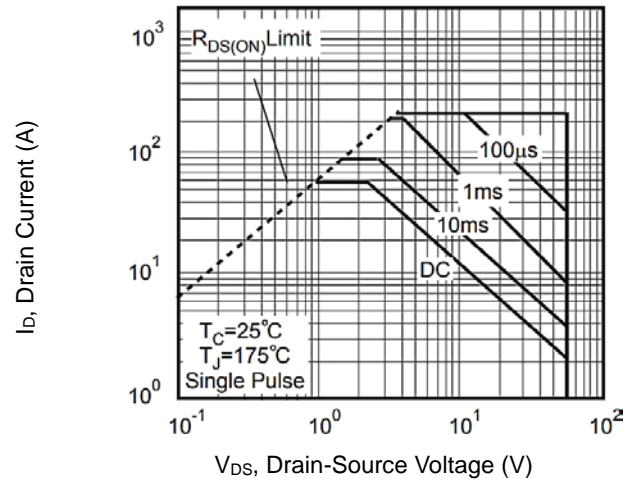


CHARACTERISTICS CURVES

Gate Charge



Maximum Safe Operating Area



Normalized Transient Thermal Impedance Curves

