

N-Channel MOSFET

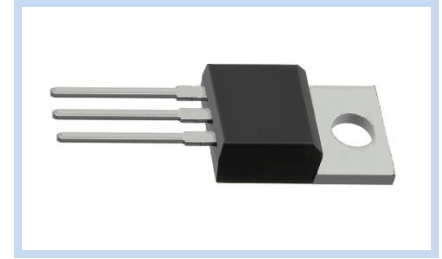
200V 63A 200W TO-220

MFT20N63T220

MERITEK

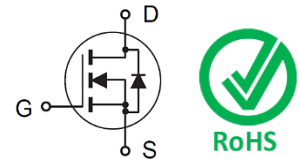
FEATURE

- $R_{DS(ON)} < 21m\Omega$, $V_{GS}=10V$, $I_D=63A$
- High Power and Current Handling Capability
- Super High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- RoHS compliant.



MECHANICAL DATA

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

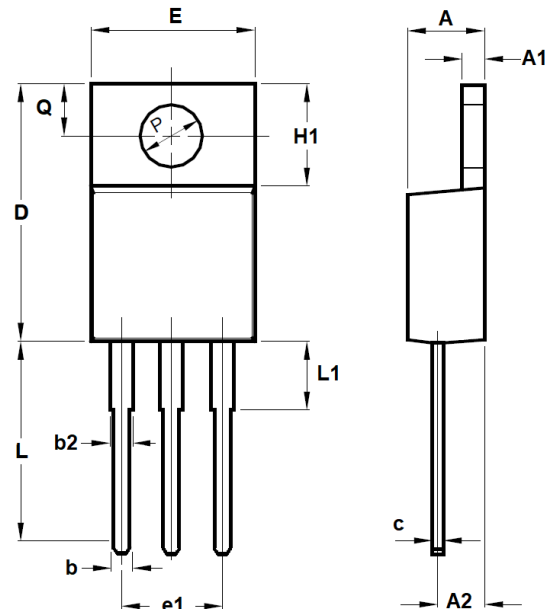


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	$T_C=25^\circ C$	63
		$T_C=100^\circ C$	45
Drain Current – Pulsed	I_{DM}	252	A
Power Dissipation	P_D	$T_C=25^\circ C$	200
		Derate above $25^\circ C$	1.33
Single Pulsed Avalanche Energy	E_{AS}	320	mJ
Single Pulsed Avalanche Current	I_{AS}	40	A
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	62.5	$^\circ C/W$
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.75	$^\circ C/W$
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to 175	$^\circ C$

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



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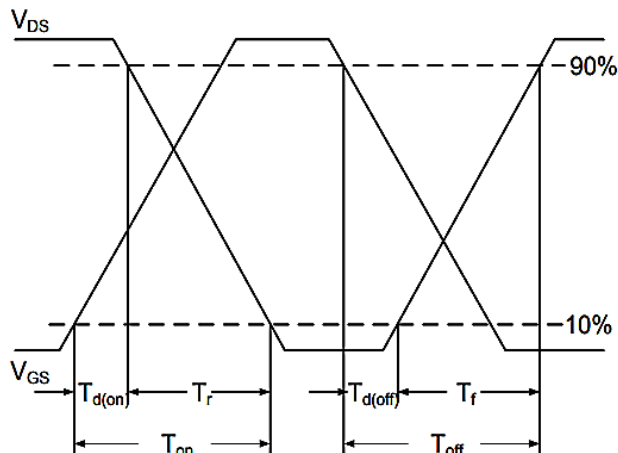
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	200	--	--	V
Drain-Source Leakage Current	$V_{DS}=200V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Gate-Body Leakage Current, Forward	$V_{GS}=20V, V_{DS}=0V$	I_{GSSF}	--	--	100	nA
Gate-Body Leakage Current, Reverse	$V_{GS}=-20V, V_{DS}=0V$	I_{GSSR}	--	--	-100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	--	16	21	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	$V_{DS}=160V, V_{GS}=10V, I_D=20A$	Q_g	--	39	--	nC
Gate-Source Charge		Q_{gs}	--	10	--	nC
Gate-Drain Charge		Q_{gd}	--	10	--	nC
Turn-On Delay Time	$V_{DD}=160V, V_{GS}=10V, R_G=3\Omega, I_D=20A$	$T_{d(on)}$	--	22	--	ns
Rise Time		T_r	--	9	--	ns
Turn-Off Delay Time		$T_{d(off)}$	--	50	--	ns
Fall Time		T_f	--	17	--	ns
Input Capacitance	$V_{DS}=30V, V_{GS}=0V, F=1MHz$	C_{iss}	--	2015	--	pF
Output Capacitance		C_{oss}	--	1250	--	pF
Reverse Transfer Capacitance		C_{rss}	--	20	--	pF
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Diode Forward Current	--	I_S	--	--	63	A
Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	V_{SD}	--	--	1.2	V
Reverse Recovery Time	$V_R=100V, I_F=20A,$	T_{rr}	--	110	--	ns
Reverse Recovery Charge	$di/dt=100A/\mu s$	Q_{rr}	--	425	--	μC

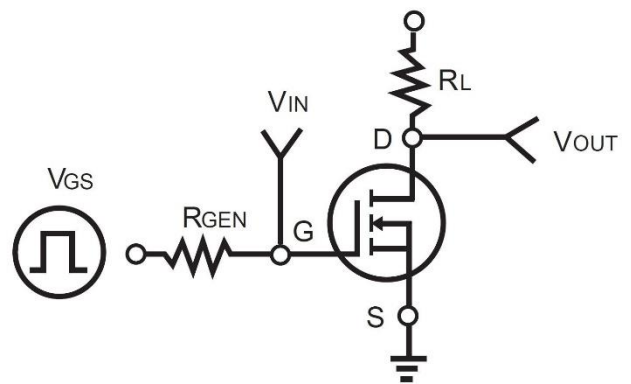
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$
3. Guaranteed by design, not subject to production testing.
4. Limited only by maximum temperature allowed.
5. Pulse Width Limited by safe operating area.
6. Full package $I_{S(MAX)} = 34.5A$.
7. $L=0.4mH, I_{AS}=40A, V_{DD}=50V, R_G=25\Omega$, Starting $T_J=25^\circ C$

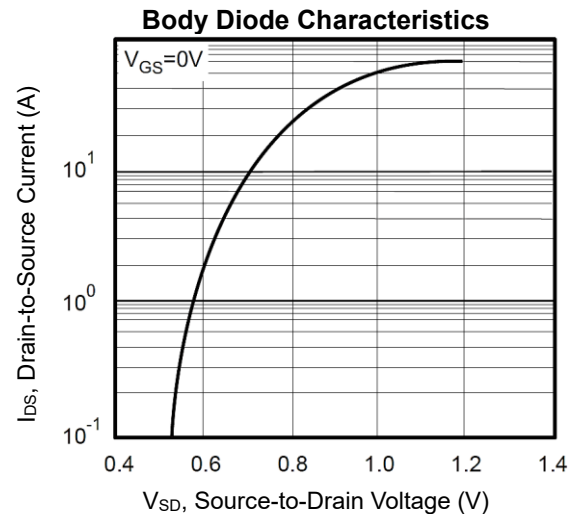
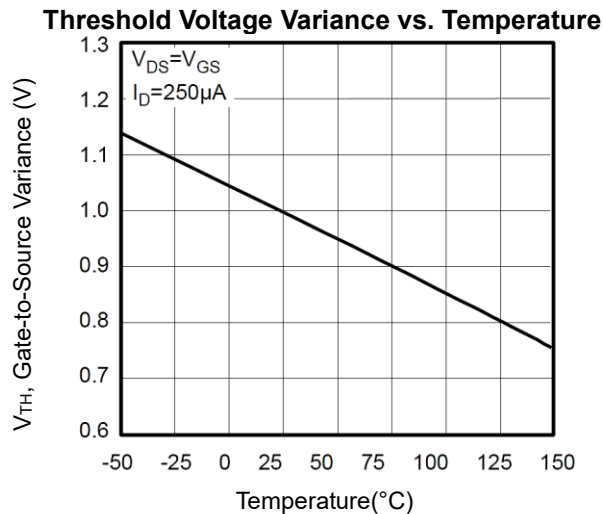
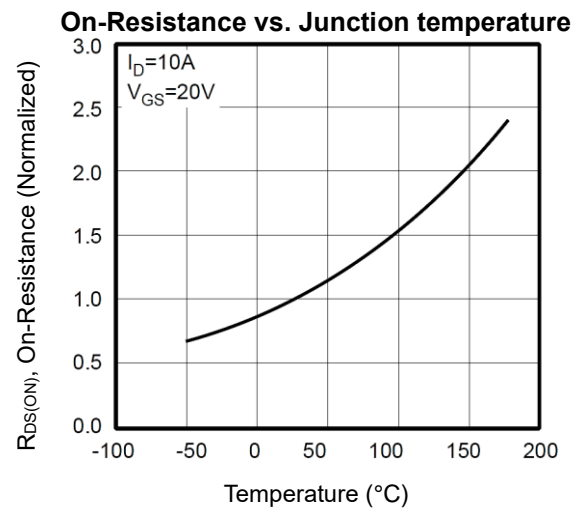
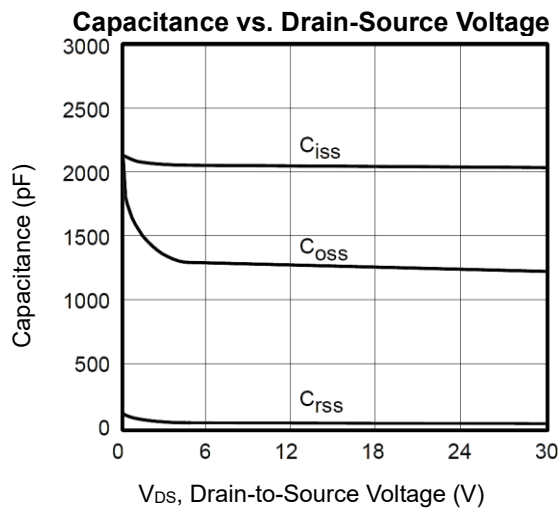
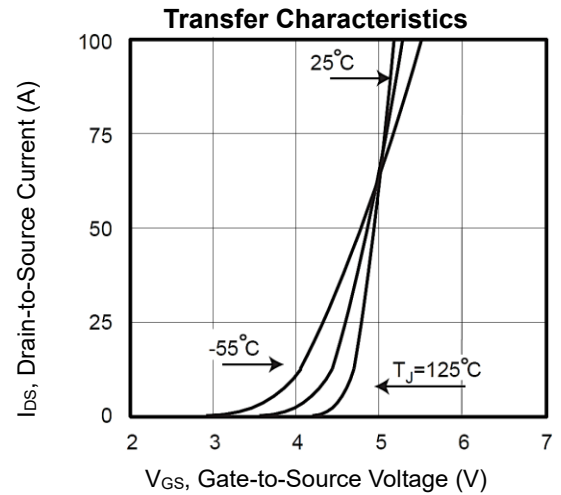
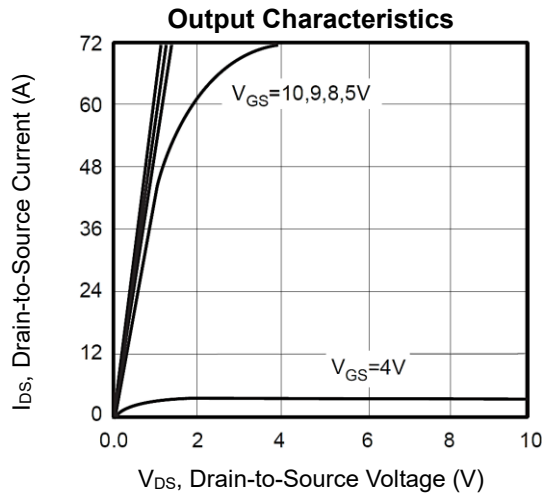
Switching Time Waveform



Switching Test Circuit



CHARACTERISTIC CURVES



CHARACTERISTIC CURVES

