

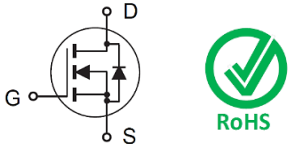
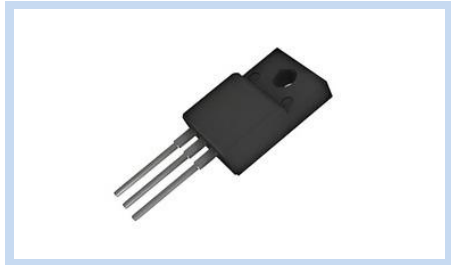
N-Channel MOSFET

650V 15A 32W TO-220F

MFT65N15T220F	MERITEK
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FEATURE

- $R_{DS(ON)} < 260m\Omega$, $V_{GS}=10V$, $I_D=7.5A$
- Fast Switching
- High Density Cell Design for Low Rd(Son)
- Application: DC/DC Converter, High-Frequency Switching and Synchronous Rectification

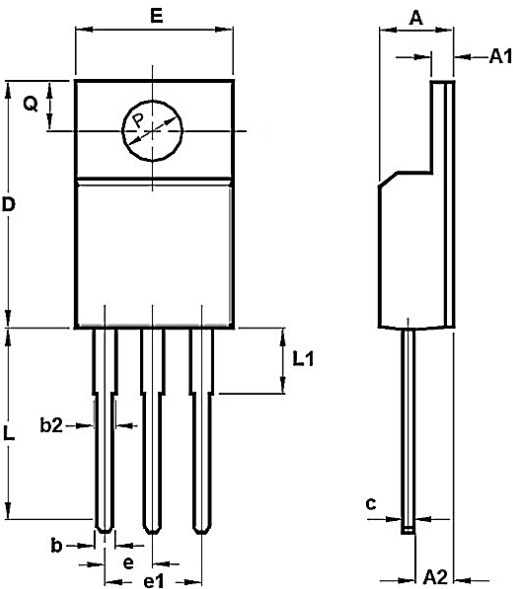


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	± 30	V
Drain Current – Continuous	$T_c=25^{\circ}C$	I_D	15	A
Drain Current – Pulsed		I_{DM}	45	A
Power Dissipation	$T_c=25^{\circ}C$	P_D	32	W
Single Pulse Avalanche Energy		E_{AS}	270	mJ
Thermal Resistance, Junction to Case		$R_{\theta JC}$	3.9	$^{\circ}C/W$
Operating Junction and Storage Temperature		T_J, T_{STG}	-55 to +150	$^{\circ}C$

DIMENSIONS

Item	Min. (mm)	Max. (mm)
A	4.55	4.75
A1	2.40	2.70
A2	2.75	3.15
b	0.50	0.75
b2	1.25	1.45
c	0.45	0.60
D	15.00	16.00
E	9.90	10.30
e	2.54 TYP	
e1	5.08 TYP	
L	12.75	13.25
L1	3.10	3.50
Q	2.90	3.50
P	3.50 REF	



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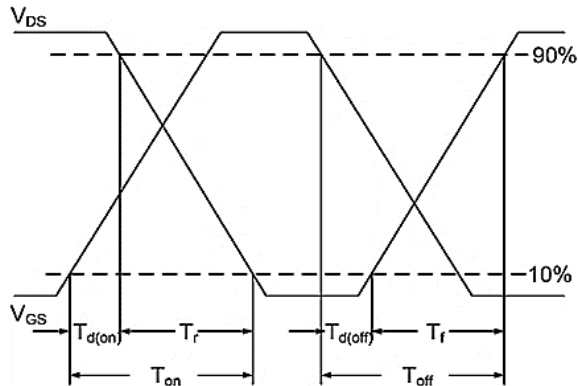
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	650	--	--	V
Zero Gate Voltage Drain Current	$V_{DS}=520V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	--	--	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	I_{GSS}	--	--	± 100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=7.5A$	$R_{DS(ON)}$	--	200	260	m Ω
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	2.5	3.5	4.5	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=325V, V_{GS}=10V, I_D=15A$	Q_g	--	25.2	--	nC
Gate-Source Charge		Q_{gs}	--	5.9	--	
Gate-Drain Charge		Q_{gd}	--	9.7	--	
Turn-On Delay Time	$V_{DD}=325V, V_{GS}=10V, R_G=25\Omega, I_D=15A$	$T_{d(on)}$	--	25	--	nS
Rise Time		T_r	--	34.5	--	
Turn-Off Delay Time		$T_{d(off)}$	--	107	--	
Fall Time		T_f	--	28	--	
Input Capacitance	$V_{DS}=100V, V_{GS}=0V, f=1MHz$	C_{iss}	--	1099	--	pF
Output Capacitance		C_{oss}	--	52	--	
Reverse Transfer Capacitance		C_{rss}	--	1	--	

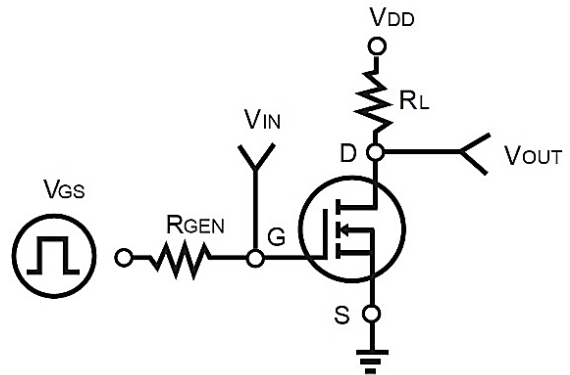
Note:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper.
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. The EAS data shows Max. rating. $L=60mH, I_{AS}=3A, V_{DD}=50V, R_G=25\Omega$, Starting at $T_J = 25^\circ C$

Switching Time Waveform



Switching Test Circuit



N-Channel MOSFET

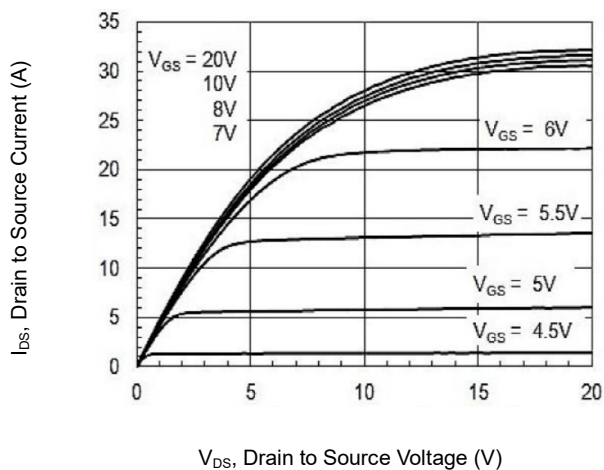
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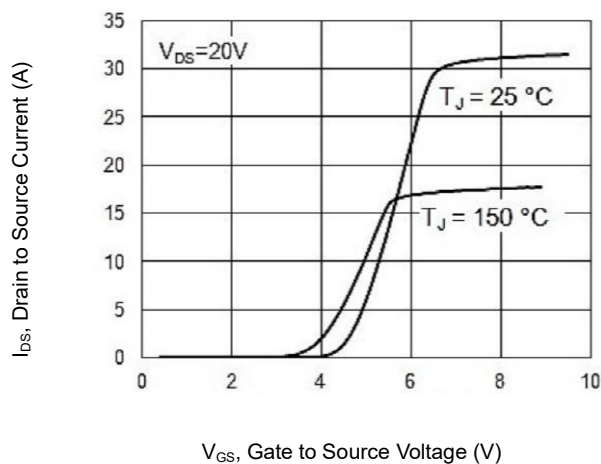
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CHARACTERISTIC CURVES

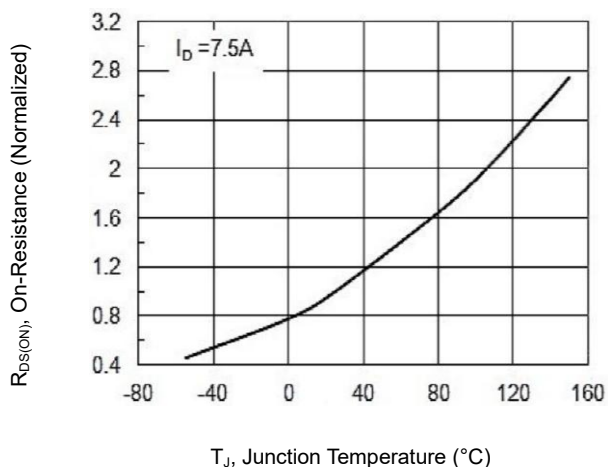
Output Characteristics



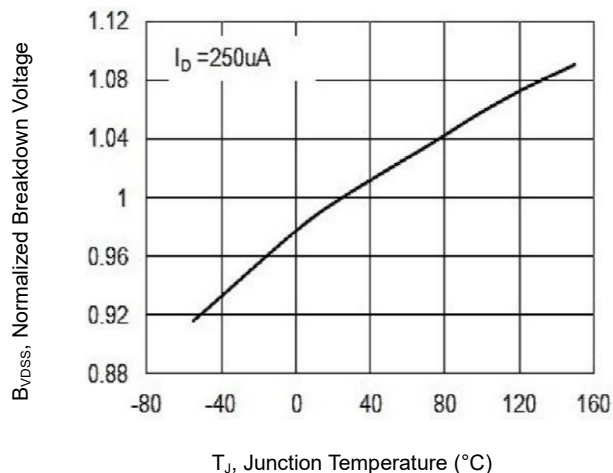
Transfer Characteristics



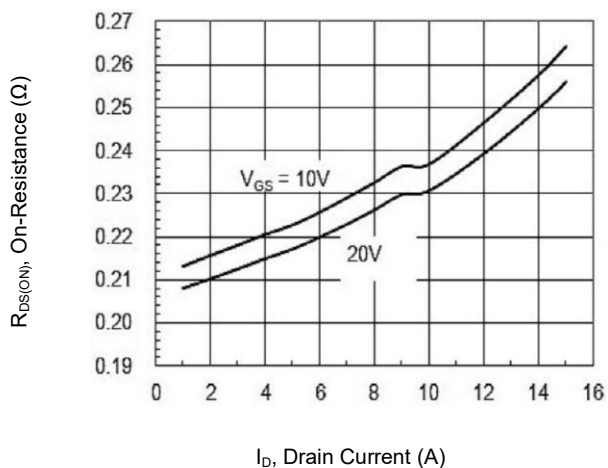
On-Resistance vs. Junction Temperature



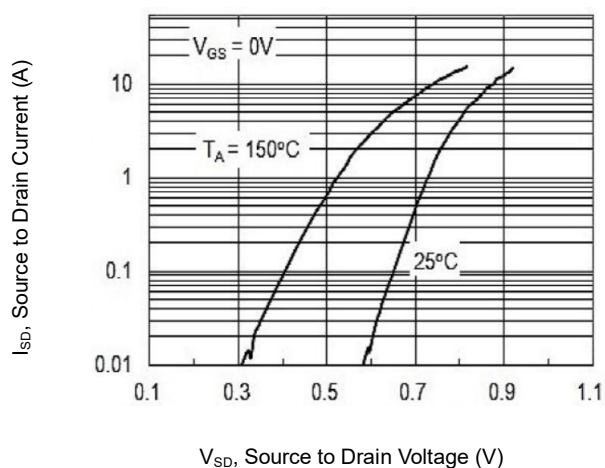
Breakdown Voltage vs. Temperature



On-Resistance vs. Drain Current and Gate Voltage



Body Diode Characteristics



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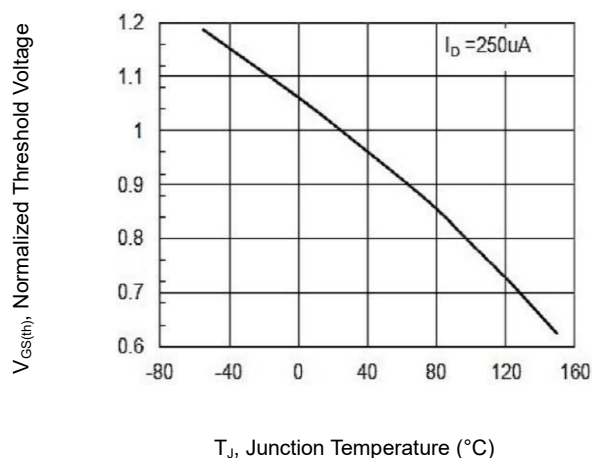
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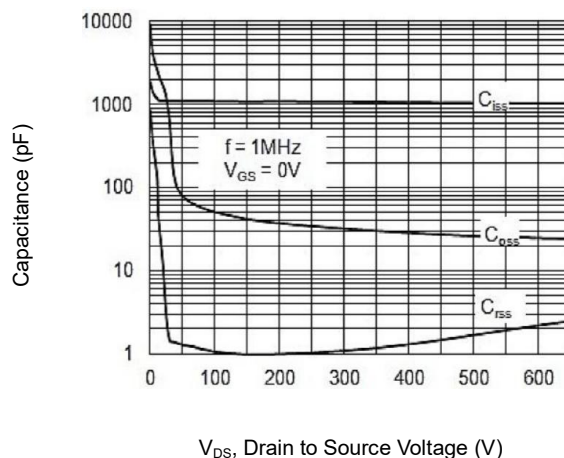
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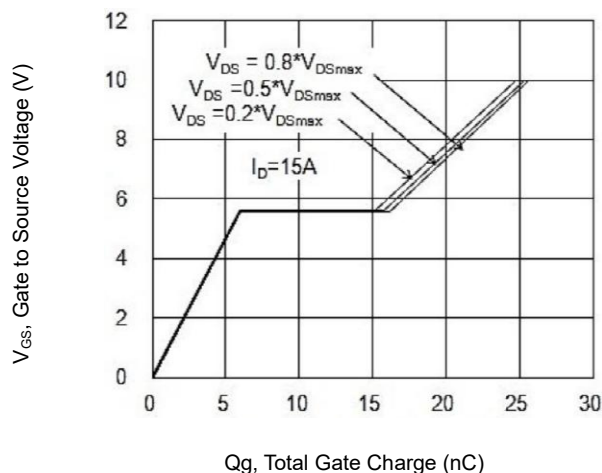
Threshold Voltage vs. Junction Temperature



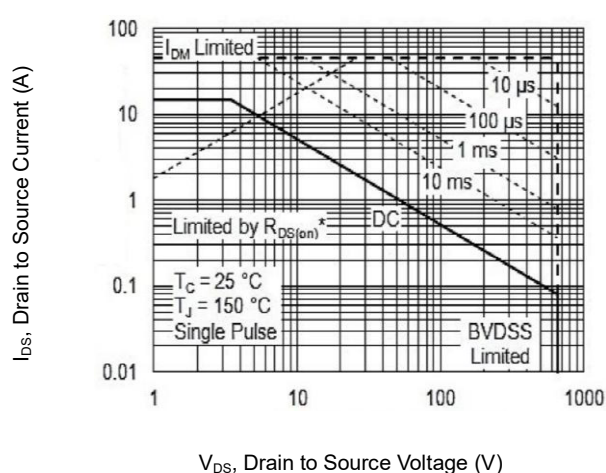
Capacitance



Gate Charge Characteristics



Maximum Safe Operating Area



Maximum Effective Thermal Impedance

