

N-Channel MOSFET

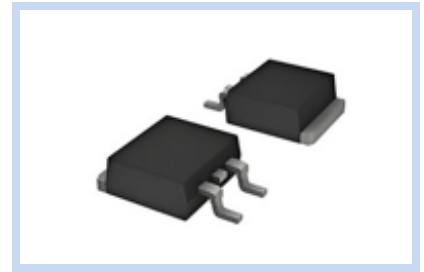
60V 35A 63W TO-252

MFT6N35T252

MERITEK

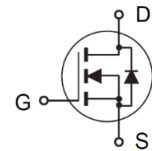
FEATURE

- $R_{DS(ON)} < 21m\Omega$ at $V_{GS}=10V$, $I_D=20A$
- $R_{DS(ON)} < 24m\Omega$ at $V_{GS}=4.5V$, $I_D=12A$
- Improved dv/dt capability
- High Switching Speed with Reduced Switching Losses
- High Power and Current handling Capability



APPLICATIONS

- Power Electronics for DC-DC Converters, Buck/Boost Regulator, SMPS
- Battery Management System, Load Switching in 12-48V systems
- Motor Drivers and Load Control in DC motors, Pumps, Fans



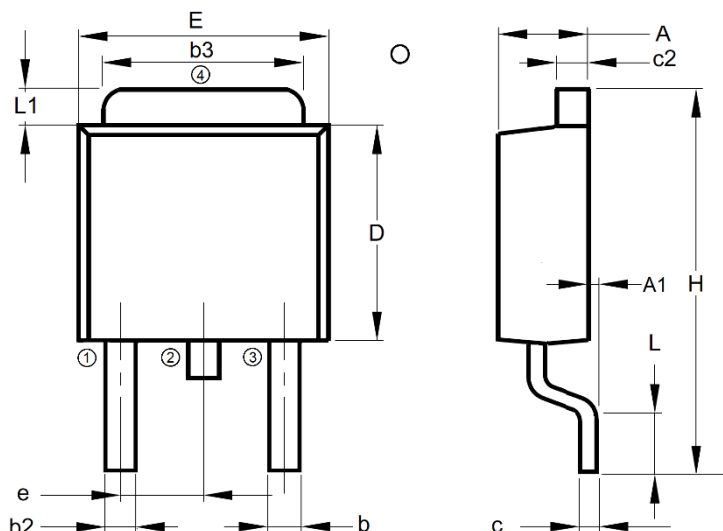
MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous	$T_C=25^\circ C$	I_D	35	A
	$T_C=100^\circ C$		22	
Drain Current – Pulsed	$T_C=25^\circ C$	I_{DM}	140	A
Power Dissipation	$T_C=25^\circ C$	P_D	63	W
	$T_C=100^\circ C$		25	
Drain Current – Continuous	$T_A=25^\circ C$	I_D	4.7	A
	$T_A=100^\circ C$		3.8	
Power Dissipation	$T_A=25^\circ C$	P_D	1.1	W
	$T_A=100^\circ C$		0.7	
Single Pulse Avalanche Energy		E_{AS}	42	mJ
Thermal Resistance Junction to Ambient		$R_{\theta JA}$	110	$^\circ C/W$
Thermal Resistance Junction to Case		$R_{\theta JC}$	2	$^\circ C/W$
Operating Junction and Storage Temperature		T_J, T_{STG}	-55 to 150	$^\circ C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A	2.18	2.39
A1	--	0.13
b	0.64	0.89
b2	0.64	0.89
b3	4.95	5.59
c	BSC	0.508
c2	0.46	0.89
D	5.97	6.22
E	6.35	6.73
e	--	2.29
H	8.80	10.23
L	1.40	1.78
L1	0.89	1.27

Note: 1: Gate, 2, 4: Drain, 3: Source



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ELECTRICAL CHARACTERISTICS

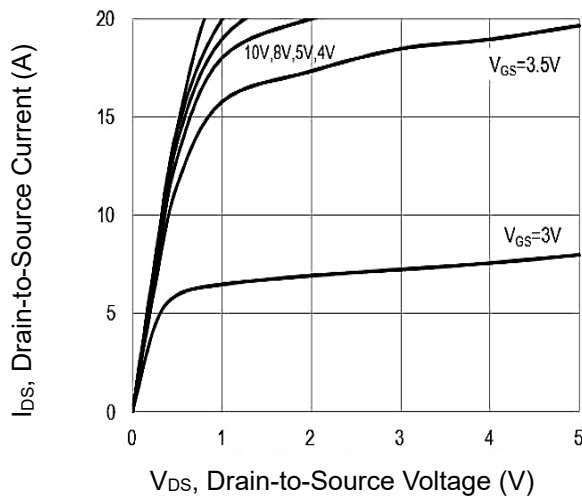
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSSF}	--	--	± 100	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	--	17	21	m Ω
	$V_{GS}=4.5V, I_D=12A$		--	20	24	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.73	2.5	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=30V, V_{GS}=15V, I_D=10A$	Q_g	--	28	--	nC
Gate-Source Charge		Q_{gs}	--	3.5	--	
Gate-Drain Charge		Q_{gd}	--	6.5	--	
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=6\Omega, I_D=1A$	$T_{d(on)}$	--	7.2	--	ns
Rise Time		T_r	--	38	--	
Turn-Off Delay Time		$T_{d(off)}$	--	34	--	
Fall Time		T_f	--	8.2	--	
Input Capacitance	$V_{DS}=20V, V_{GS}=0V, F=1MHz$	C_{iss}	--	1680	--	pF
Output Capacitance		C_{oss}	--	115	--	
Reverse Transfer Capacitance		C_{rss}	--	85	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Diode Forward Current	--	I_S	--	--	35	A
Diode Forward Voltage	$V_{GS}=0V, I_S=0A$	V_{SD}	--	0.67	1	V

Note:

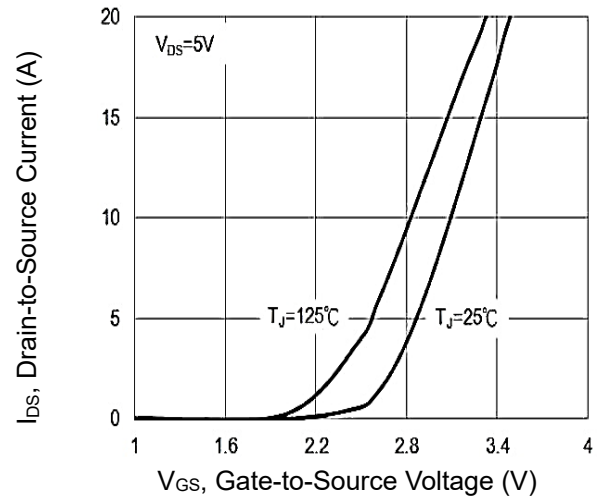
1. Repetitive Rating: Pulse width limited by maximum junction temperature,
2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
3. The test condition is $L=0.1mH, I_{AS}=29A, V_{DD}=25V, V_{GS}=10V, R_G=25\Omega$, Starting $T_J=25^\circ C$.
4. Device mounted on $1in^2$ board with 2oz. pad of copper
5. Guaranteed by design, not subject to production testing.

CHARACTERISTIC CURVES

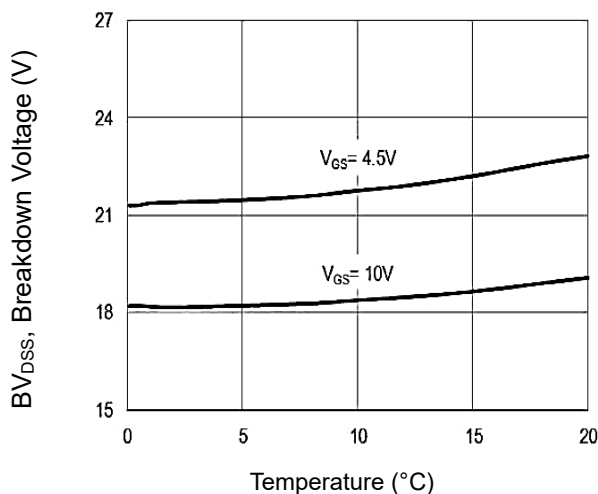
Output Characteristics



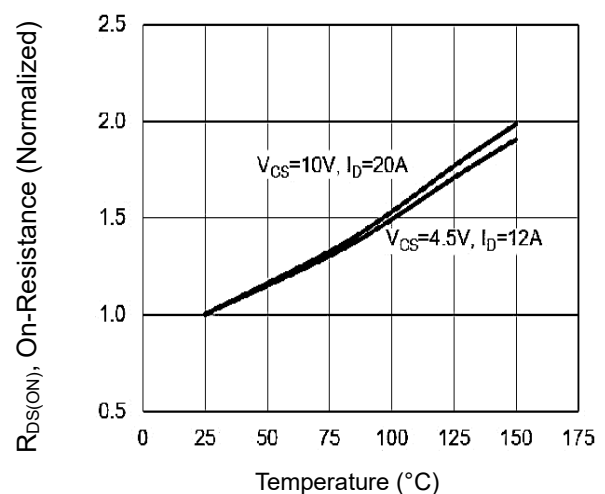
Transfer Characteristics



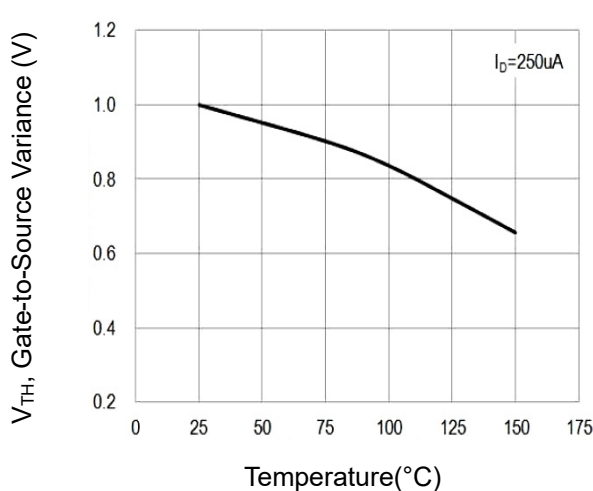
Breakdown Voltage vs. Temperature



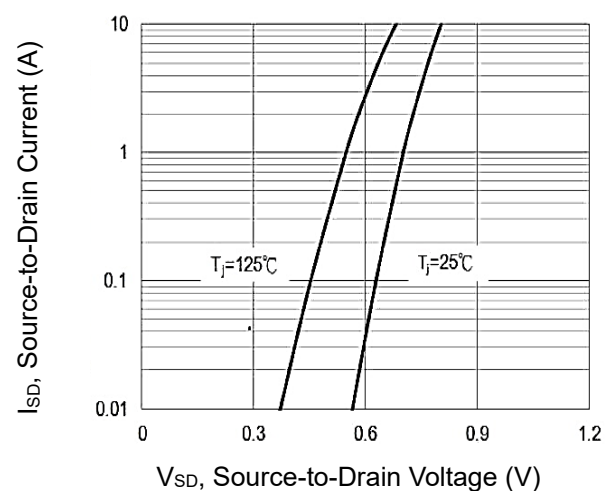
On-Resistance vs. Junction temperature



Threshold Voltage Variation with Temperature

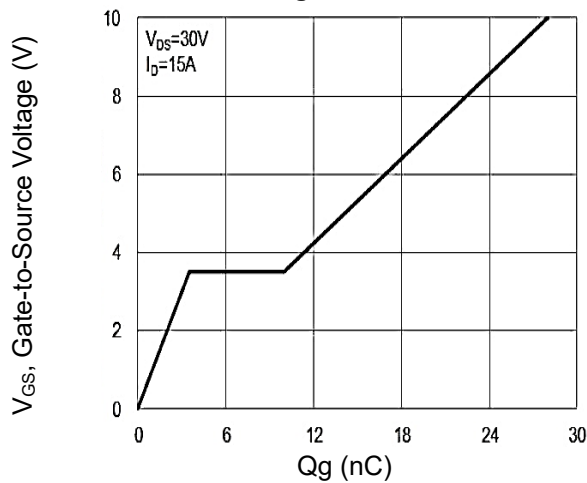


Body Diode Characteristics

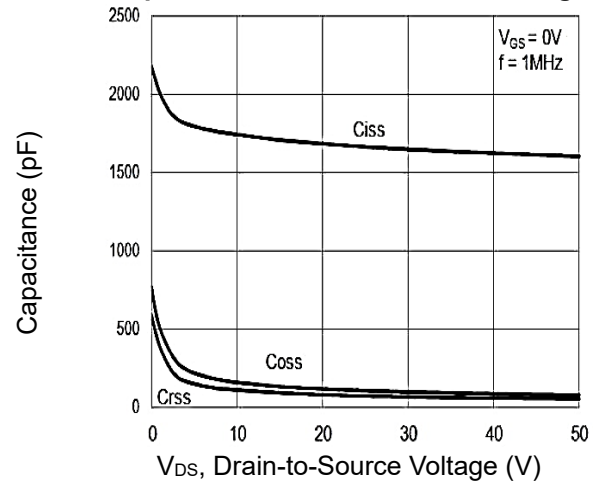


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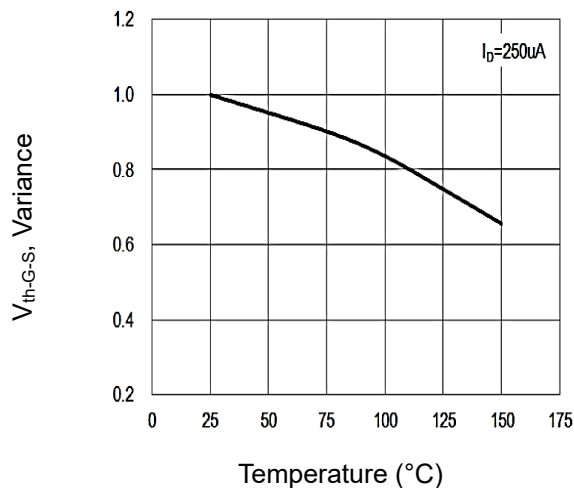
Gate-Charge Characteristics



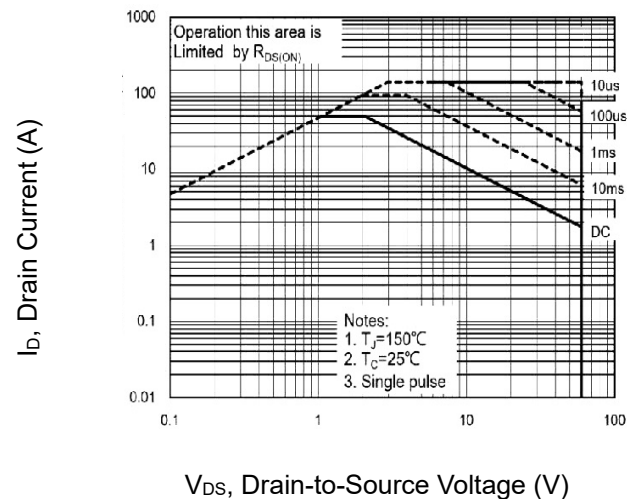
Capacitance vs. Drain-Source Voltage



Threshold Voltage Variation vs. Temp



Maximum Safe Operating Area



Normalized Transient Thermal Impedance vs Pulse Width

