

N-Channel MOSFET

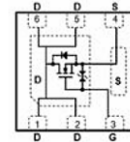
100V 5A 1.5W DFN2X2-6 ESD

MFT10N5A0D226

MERITEK

FEATURE

- $R_{DS(ON)}=62m\Omega$, $V_{GS}=10V$, $I_D=4.5A$
- $R_{DS(ON)}=96m\Omega$, $V_{GS}=4.5V$, $I_D=2.6A$
- ESD Protected
- Application: Power Over Ethernet, Power Sourcing Equipment, Motor Control



MECHANICAL DATA

- Case: DFN2X2-6 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

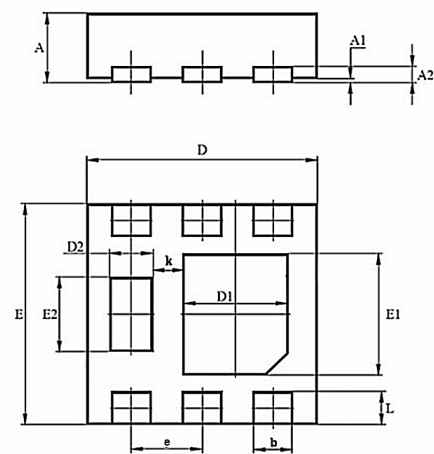
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	5	A
$T_C=25^\circ C$			
Drain Current – Pulsed	I_{DM}	30	A
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	83.3	$^\circ C/W$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

Note:

1. Pulse Test: Pulse Width $< 100\mu s$, Duty Cycle $\leq 2\%$.
2. Pulse Width Limited by Junction Temperature $T_{J(MAX)}=150^\circ C$.
3. Device Mounted on FR-4 Substrate PC Board, 2oz Copper, with 1-Inch² Copper Plate in Still Air.
4. $T_A=25^\circ C$ Unless Otherwise Noted.

DIMENSIONS

Item	Min. (mm)	Max. (mm)
A	0.550	0.650
A1	0.000	0.050
A2	0.150 TYP.	
b	0.250	0.350
D	1.950	2.050
D1	0.850	1.050
D2	0.330	0.430
E	1.950	2.050
E1	1.050	1.250
E2	0.650	0.750
e	0.650 BSC	
L	0.225	0.325
k	0.360 BSC	



N-Channel MOSFET

100V 5A 1.5W DFN2X2-6 ESD

MFT10N5A0D226

MERITEK

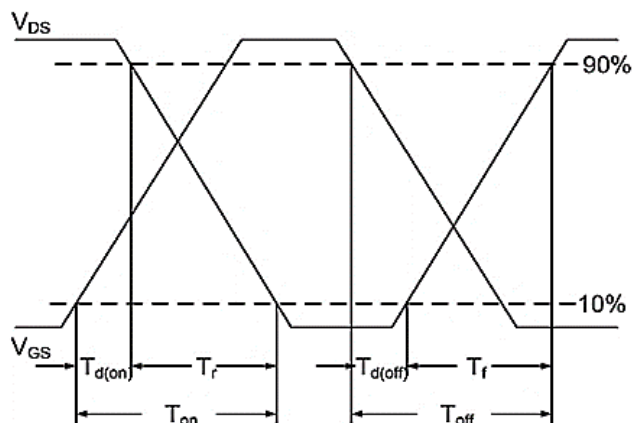
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100	--	--	V
Drain-Source Leakage Current	$V_{DS}=80V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 16V, V_{DS}=0V$	I_{GSS}	--	--	± 10	μA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=4.5A$	$R_{DS(ON)}$	--	--	62	m Ω
	$V_{GS}=4.5V, I_D=2.6A$		--	--	96	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	--	2.5	V
Forward Transconductance	$V_{DS}=5V, I_D=1A$	g_{FS}	--	4	--	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g	--	0.7	--	Ω
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=50V, V_{GS}=4.5V, I_D=4.5A$	Q_g	--	4.7	--	nC
	$V_{DS}=50V, V_{GS}=10V, I_D=4.5A$		--	9.0	--	
Gate-Source Charge	$V_{DS}=50V, V_{GS}=10V, I_D=4.5A$	Q_{gs}	--	1.7	--	
Gate-Drain Charge		Q_{gd}	--	3.0	--	
Turn-On Delay Time	$V_{DS}=50V, V_{GS}=10V, R_g=3.3\Omega, I_D=4.5A$	$T_{d(on)}$	--	6.0	--	ns
Rise Time		T_r	--	8.0	--	
Turn-Off Delay Time		$T_{d(off)}$	--	6.0	--	
Fall Time		T_f	--	1.4	--	
Input Capacitance	$V_{DS}=50V, V_{GS}=0V, F=1MHz$	C_{iss}	--	317	--	pF
Output Capacitance		C_{oss}	--	61	--	
Reverse Transfer Capacitance		C_{rss}	--	7	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Diode Forward Current	--	I_S	--	--	5	A
Diode Forward Voltage	$V_{GS}=0V, I_S=1A$	V_{SD}	--	--	1.2	V
Reverse Recovery Time	$I_S=4.5A, di/dt=100A/\mu s$	T_{rr}	--	38	--	ns
Reverse Recovery Charge		Q_{rr}	--	24	--	nC

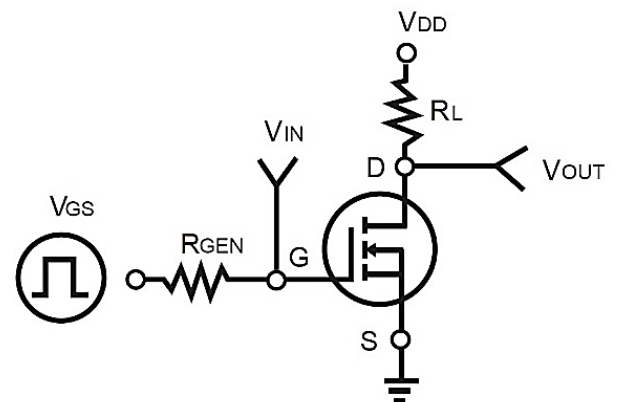
Note:

1. $T_A=25^\circ C$ Unless Otherwise Noted.

Switching Time Waveform

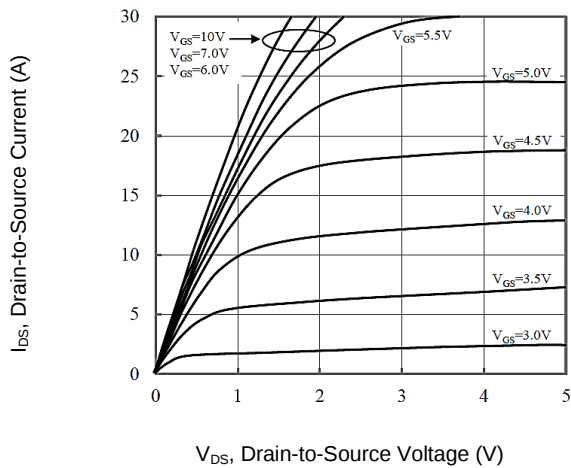


Switching Test Circuit

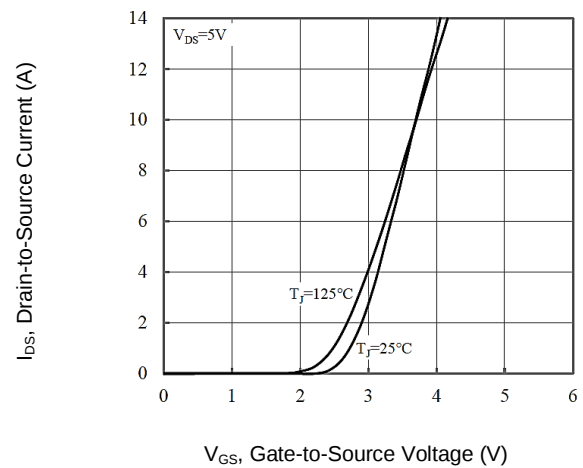


CHARACTERISTIC CURVES

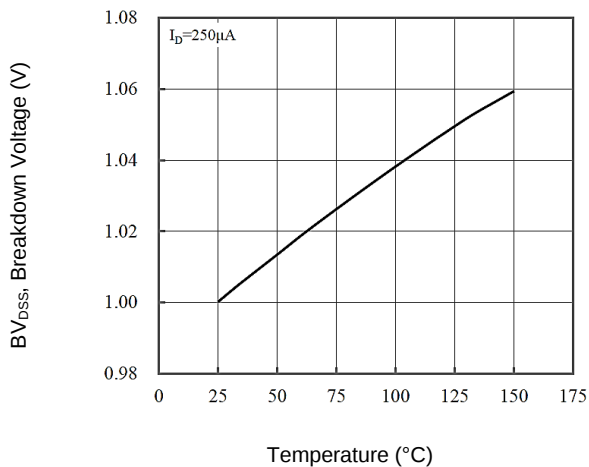
Output Characteristics



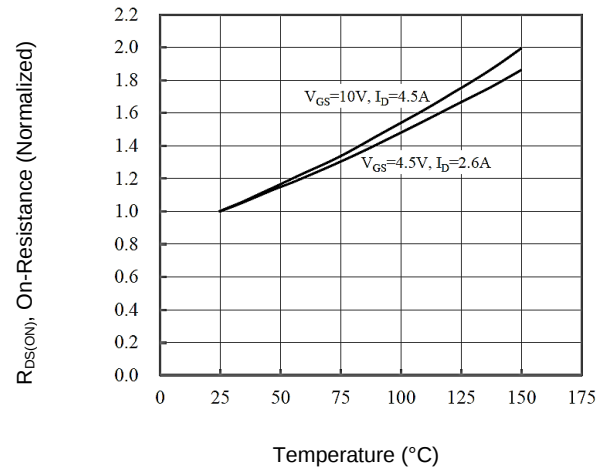
Transfer Characteristics



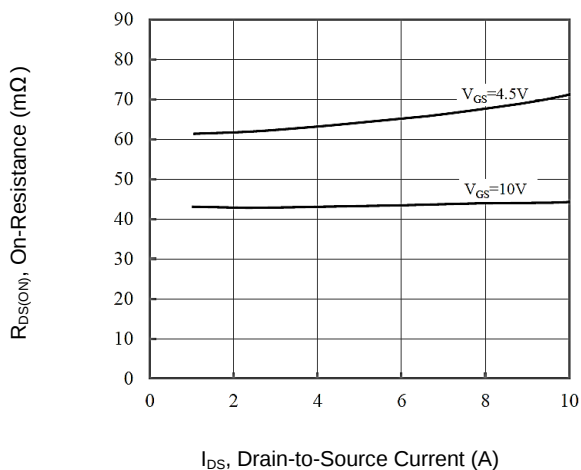
Breakdown Voltage vs. Temperature



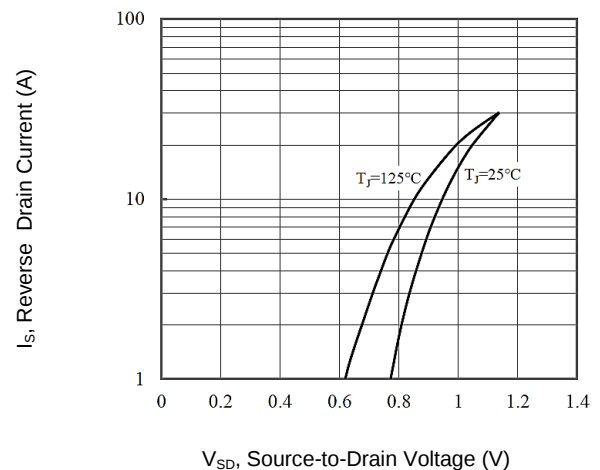
On-Resistance Vs. Junction Temperature



On-Resistance vs Drain Current

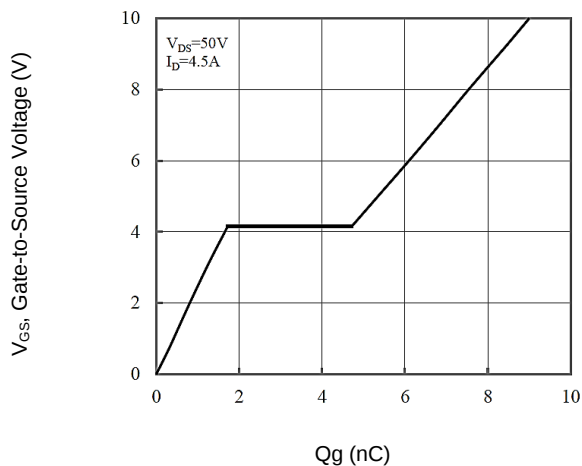


Source- Drain Diode Forward

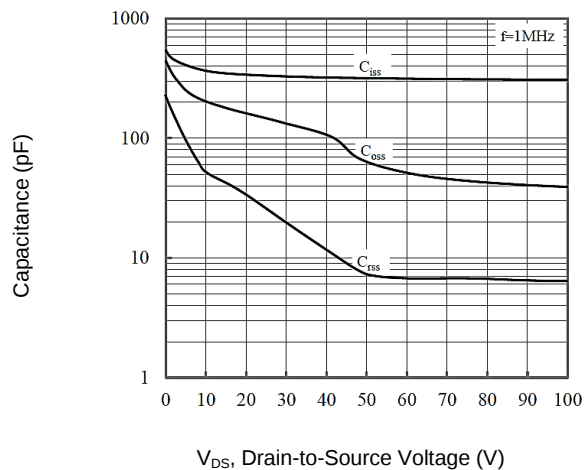


CHARACTERISTIC CURVES

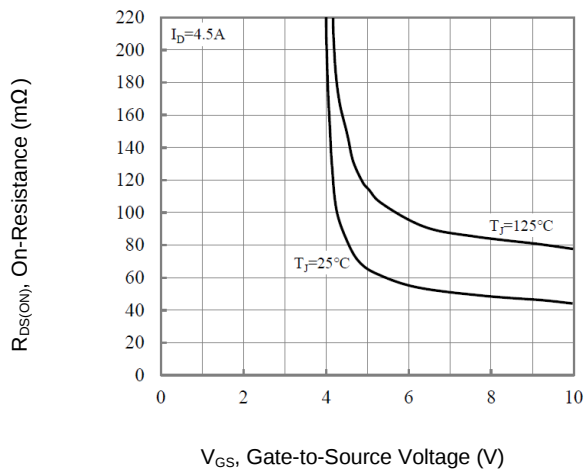
Gate-Charge Characteristics



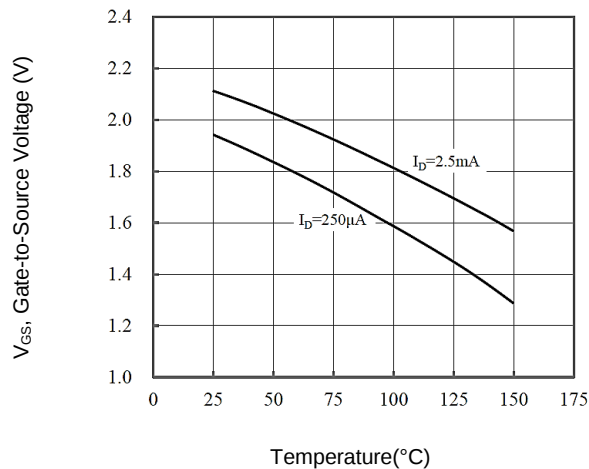
Capacitance



On-Resistance vs. Gate-Source Voltage



Gate-to-Source vs. Junction Temperature



Drain-to-Source Leakage Current vs. Temperature

