

N-Channel MOSFET

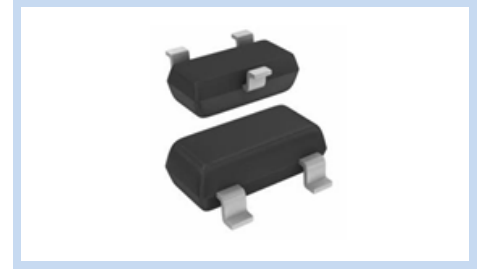
60V 2.5A 1.25W SOT-23

MFT6N2A5S23

MERITEK

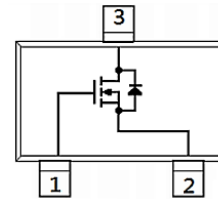
FEATURE

- $R_{DS(ON)} < 75m\Omega$, $V_{GS} = 10V$, $I_D = 2A$
- $R_{DS(ON)} < 90m\Omega$, $V_{GS} = 4.5V$, $I_D = 1A$
- Advanced Trench Process Technology
- Specifically Designed for Switch Load, PWM Application, etc.



MECHANICAL DATA

- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

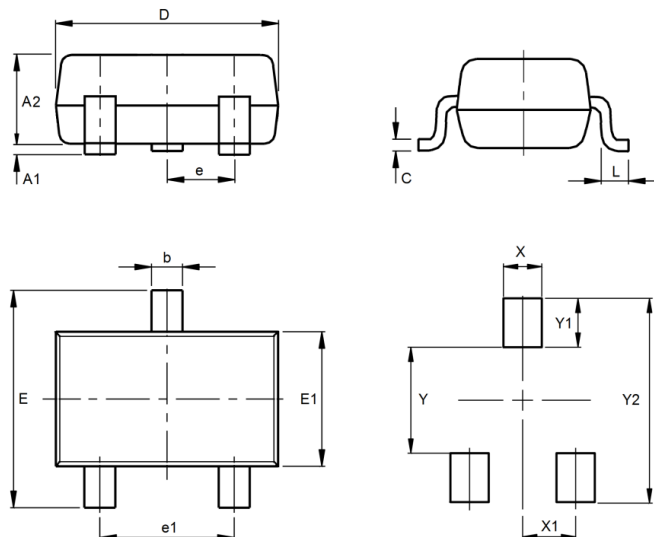


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	2.5	A
Drain Current – Pulsed	I_{DM}	10	A
Power Dissipation	P_D	1.25	W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}C/W$
Operating Junction and Storage Temperature	T_J, T_{STG}	-55 to 150	$^{\circ}C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	--	0.10
A2	0.79	1.30
b	0.30	0.50
C	0.08	0.20
D	2.70	3.10
e	0.89	1.02
e1	1.78	2.04
E	2.10	2.80
E1	1.20	1.60
L	0.15	--
X	0.66	
X1	0.65	
Y	0.99	
Y1	0.86	
Y2	1.85	



N-Channel MOSFET

60V 2.5A 1.25W SOT-23

MFT6N2A5S23

MERITEK

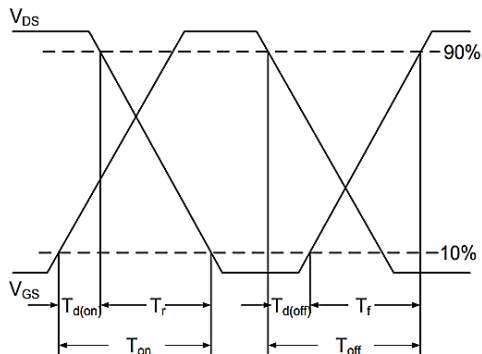
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=-80V, V_{GS}=0V$	I_{DSS}	--	--	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	$V_{GS}=10V, I_D=2A$	$R_{DS(ON)}$	--	85	110	m Ω
	$V_{GS}=4.5V, I_D=1A$		--	95	130	
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	$V_{GS(th)}$	1	--	3	V
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=30V, V_{GS}=4.5V, I_D=1.5A$	Q_g	--	3.6	--	nC
Gate-Source Charge		Q_{gs}	--	0.8	--	nC
Gate-Drain Charge		Q_{gd}	--	1.6	--	nC
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=3\Omega, I_D=1.5A$	$T_{d(on)}$	--	7.0	--	ns
Rise Time		T_r	--	2.7	--	ns
Turn-Off Delay Time		$T_{d(off)}$	--	18.8	--	ns
Fall Time		T_f	--	1.6	--	ns
Input Capacitance	$V_{DS}=30V, V_{GS}=0V, F=1MHz$	C_{iss}	--	405	--	pF
Output Capacitance		C_{oss}	--	70	--	pF
Reverse Transfer Capacitance		C_{rss}	--	30	--	pF
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Continuous Source Current	-	I_S	--	--	1	A
Diode Forward Voltage	$V_{GS}=0V, I_S=-1.0A$	V_{SD}	--	--	1.2	V

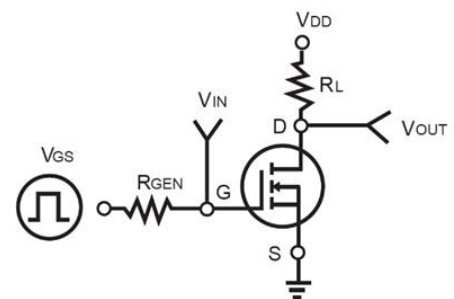
Note:

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Essentially independent of operating temperature typical characteristics
3. Repetitive rating: Pulse Width limited by junction temperature
4. Guaranteed by design, not subject to 0 production testing

Switching Time Waveform



Switching Test Circuit



N-Channel MOSFET

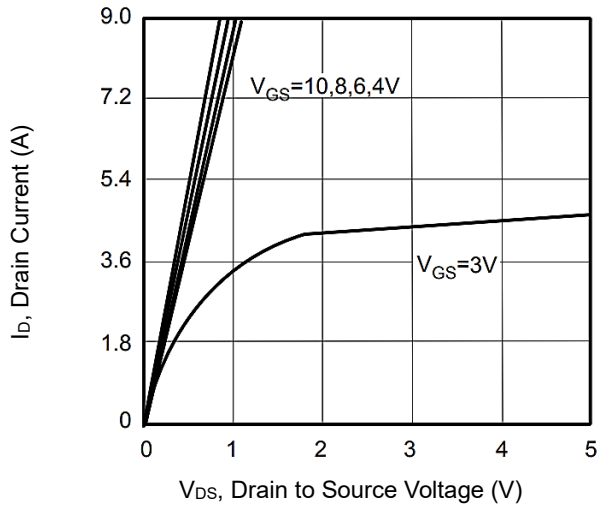
60V 2.5A 1.25W SOT-23

MFT6N2A5S23

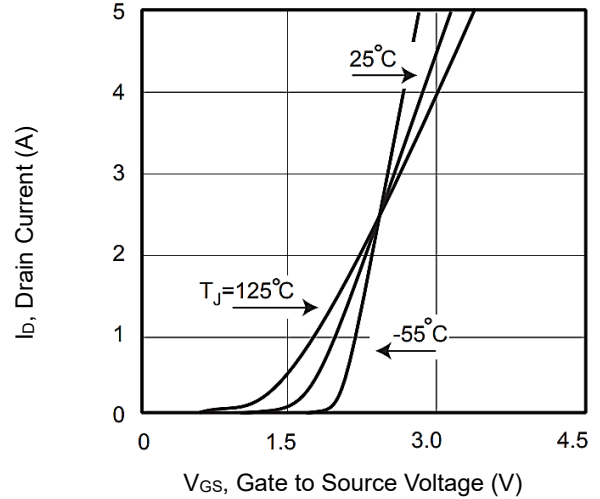
MERITEK

CHARACTERISTIC CURVES

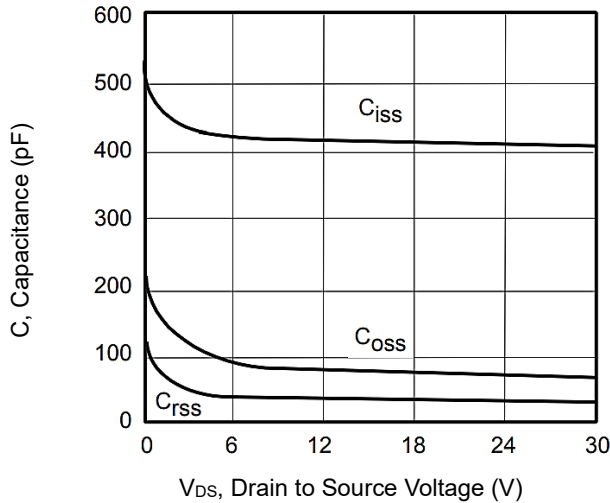
Output Characteristics



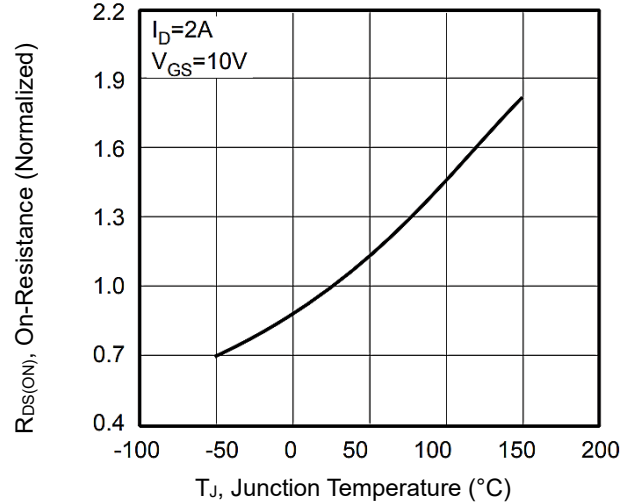
Transfer Characteristics



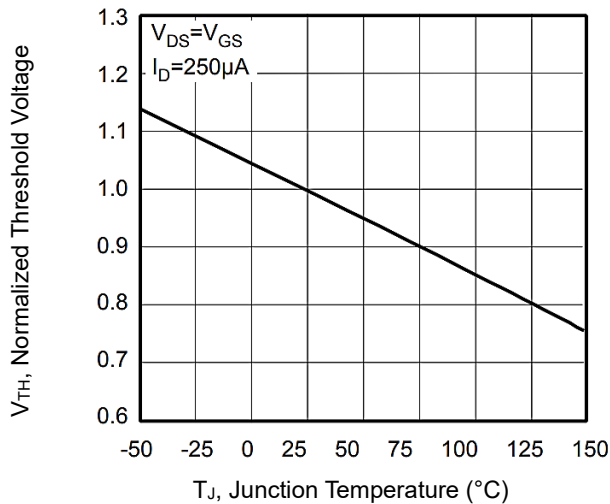
Capacitance



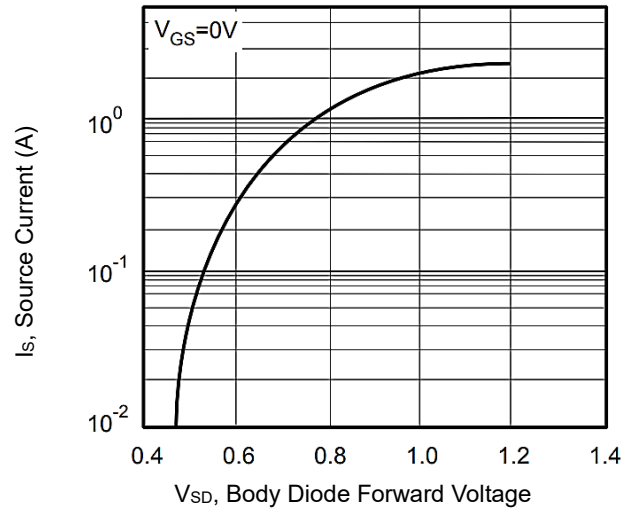
On-Resistance vs. Junction Temperature



Gate Threshold Variation with Temperature



Body Diode Characteristics



N-Channel MOSFET

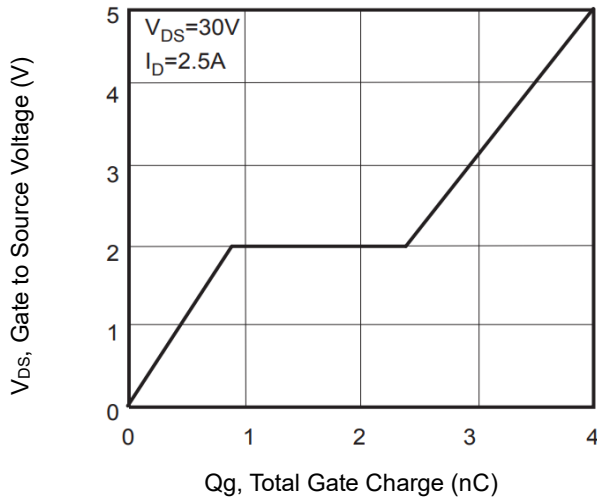
60V 2.5A 1.25W SOT-23

MFT6N2A5S23

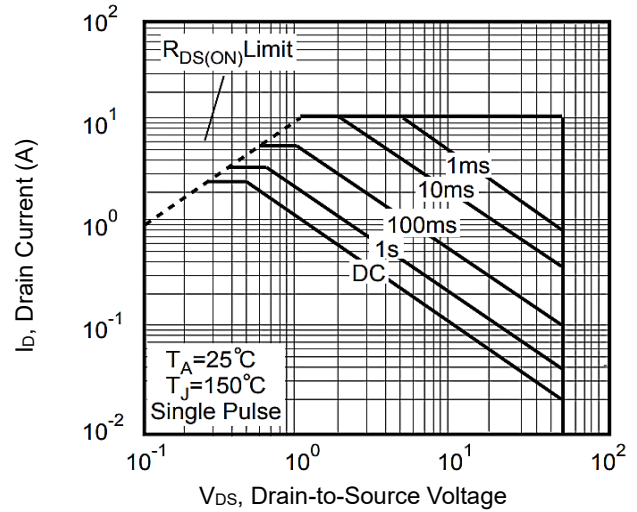
MERITEK

CHARACTERISTICS CURVES

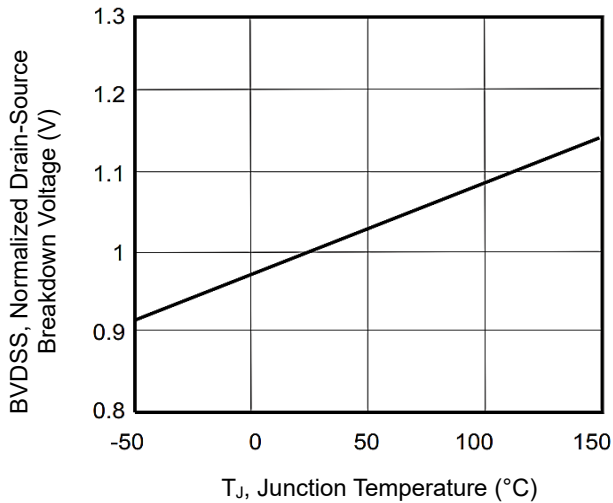
Gate-Charge Characteristics



Maximum Safe Operating Area



Breakdown Voltage Variation vs. Temperature



Normalized Thermal Transient Impedance Curve

