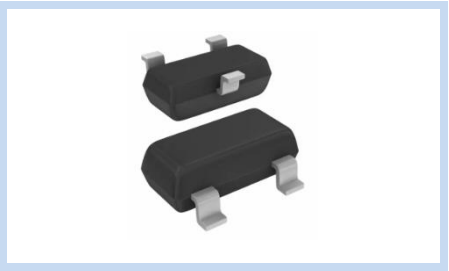
N-Channel MOSFET
30V 4.8A 1.25W SOT-23

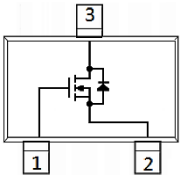
MFT3N4A8S23

MERITEK

FEATURE



- $R_{DS(ON)}$ <34mΩ, V_{GS}=10V, I_D=4.8A
- $R_{DS(ON}$ <40mΩ, V_{GS}=4.5V, I_D=4A
- $R_{DS(ON)}$ <45mΩ, V_{GS}=2.5V, I_D=2A
- $R_{DS(ON)}$ <60mΩ, V_{GS}=1.8V, I_D=1A
- Rugged and Reliable
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$



RoHS

MECHANICAL DATA

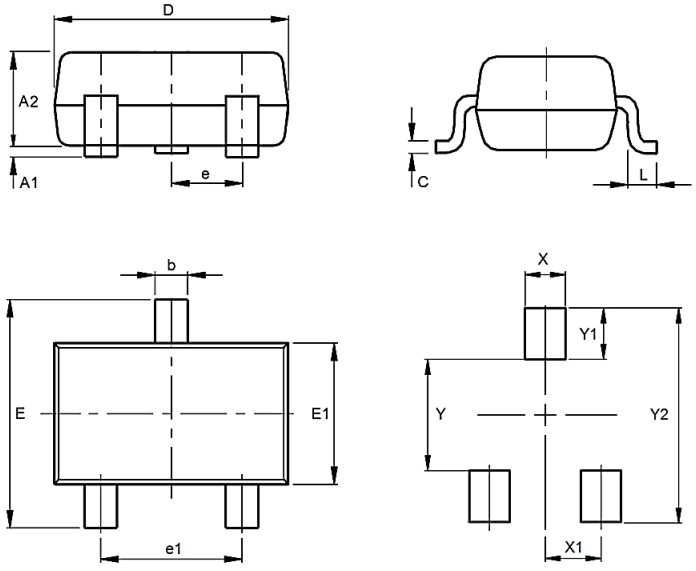
- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current – Continuous	I_D	4.8	A
Drain Current – Pulsed	I_{DM}	20	A
Single-Pulse Avalanche Current	I_{AS}	24	A
Single-Pulse Avalanche Energy	E_{AS}	28.8	mJ
Power Dissipation	P_D	1.25	W
Operating and Storage Junction Temperature	T_J , T_{stg}	-55 to 150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	°C / W

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.90	1.10
b	0.35	0.50
C	0.08	0.20
D	2.80	3.04
e	0.90	1.00
e1	1.80	2.00
E	2.20	2.60
E1	1.20	1.40
L	0.15	
X	0.80	
X1	0.95	
Y	1.10	
Y1	0.90	
Y2	2.90	

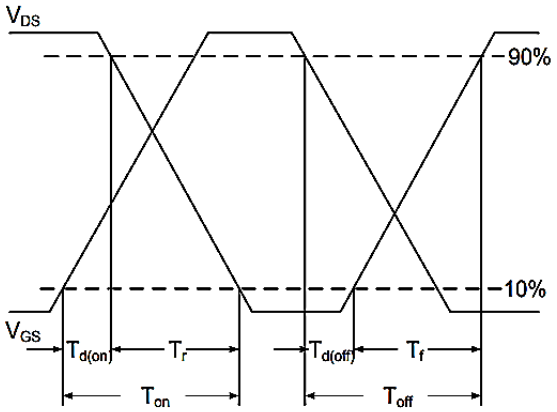


ELECTRICAL CHARACTERISTICS

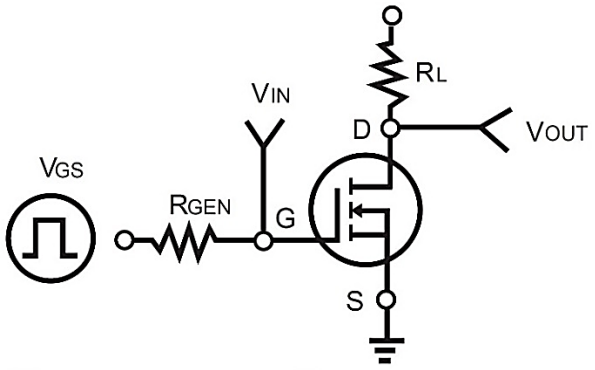
Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= 250μA	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	V_{GS}=V_{DS}, I_D= 250μA	$V_{GS(th)}$	0.4	--	1	V
Gate Leakage Current	V_{DS}=0V, V_{GS}=±12V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= 30V, V_{GS}=0V	I_{DSS}	--	--	1	μA
On Characteristics	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Static Drain-Source On-Resistance	V_{GS}= 10V, I_D= 4.8A	$R_{DS(ON)}$	--	24	34	mΩ
	V_{GS}= 4.5V, I_D= 4A		--	26	40	mΩ
	V_{GS}= 2.5V, I_D=2A		--	30	45	mΩ
	V_{GS}= 1,8V, I_D=1A		--	34	60	mΩ
Dynamic Characteristics	**Conditions**	**Symbol**	**--**	**Typ.**	**Max**	**Unit**
Input Capacitance	V_{DS}= 15V, V_{GS}=0V F=1.0MHz	C_{iss}	--	520	--	pF
Output Capacitance		C_{oss}	--	85	--	pF
Reverse Transfer Capacitance		C_{rss}	--	60	--	pF
Turn-On Delay Time	V_{DS}= 15V, I_D≡ 4.8A, V_{GS}= 4.5V, R_G= 10Ω	$T_{d(on)}$	--	9	--	nS
Rise Time		T_r	--	6	--	nS
Turn-Off Delay Time		$T_{d(off)}$	--	44	--	nS
Fall Time		T_f	--	10	--	nS
Total Gate Charge	V_{DS}= 15V, V_{GS}= 4.5V, I_D≡ 4.8A	Q_g	--	10	--	nC
Gate-Source Charge		Q_{gs}	--	1	--	nC
Gate-Drain Charge		Q_{gd}	--	3	--	nC
Drain-Source Body Diode	**Conditions**	**Symbol**	**Min**	**Typ.**	**Max**	**Unit**
Diode Forward Voltage	I_S=1A,V_{GS}=0V	V_{SD}	--	--	1	V
Diode Forward Current	--	I_S	--	--	1.2	A

Notes:
1. Repetitive rating; pulse width limited by max junction temperature
2. Guaranteed by design, not subject to production testing.
3. Device mounted on an FR4 board, t < 5 sec.
4. Pulse Test : Pulse Width < 300μs, Duty Cycle < 2%.
5. T_A =25°C, unless otherwise specified.

Switching Time Waveform

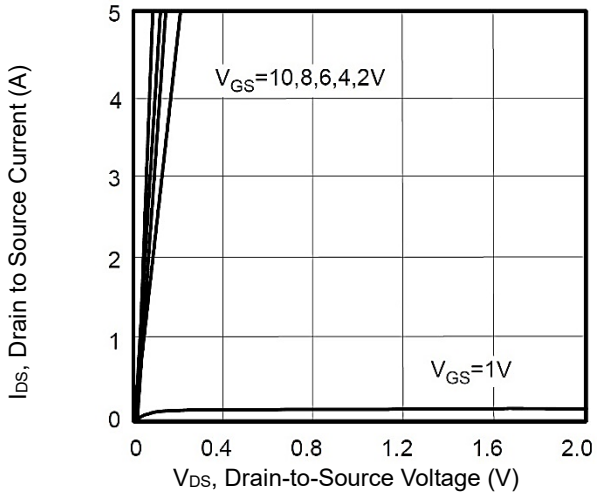


Switching Test Circuit

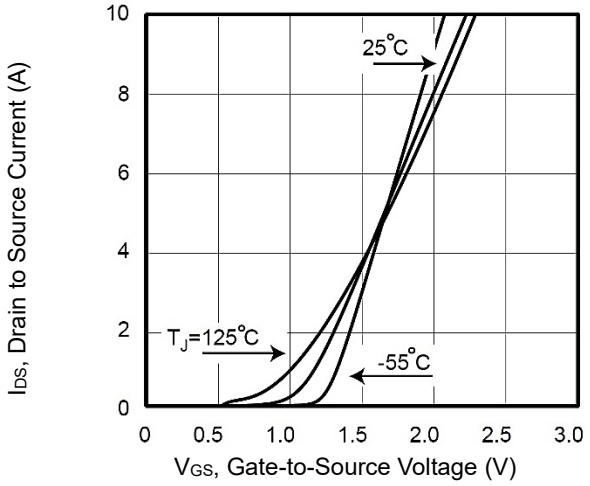


CHARACTERISTIC CURVES

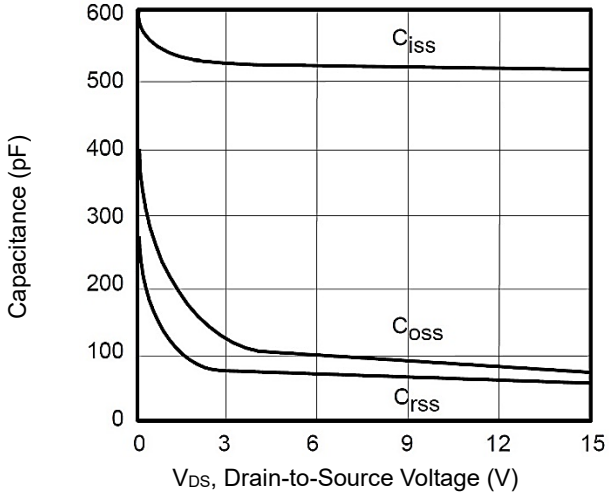
On Region Characteristics



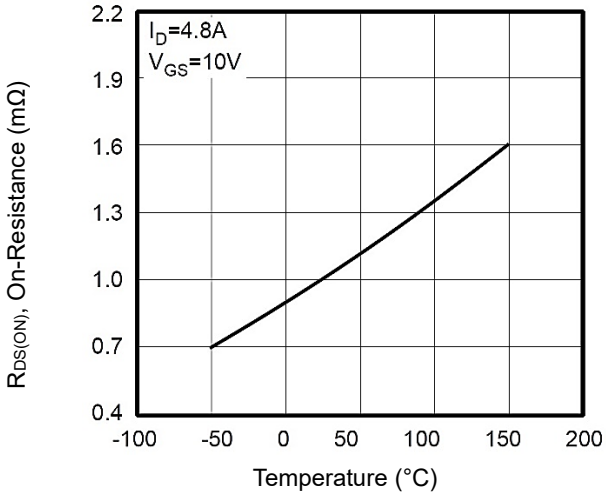
Transfer Characteristics



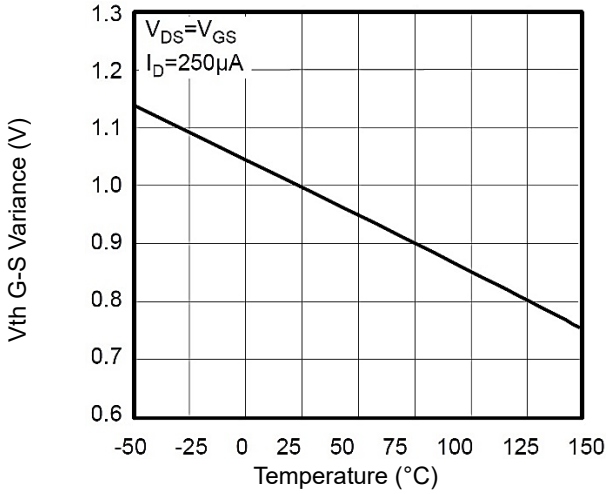
Capacitance vs. Drain-Source Voltage



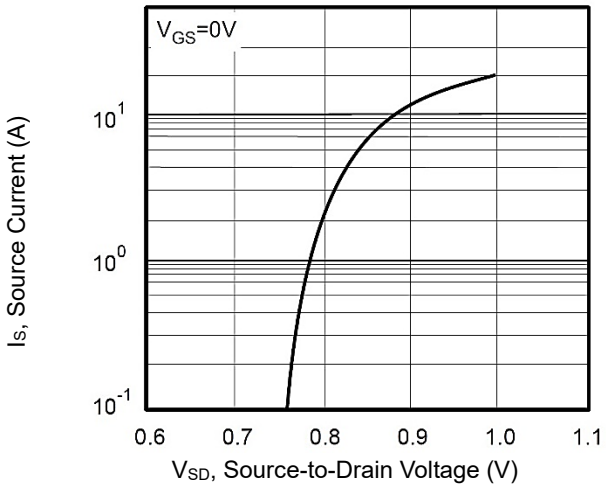
On-Resistance vs. Junction Temperature



Threshold Voltage Variance vs. Temperature

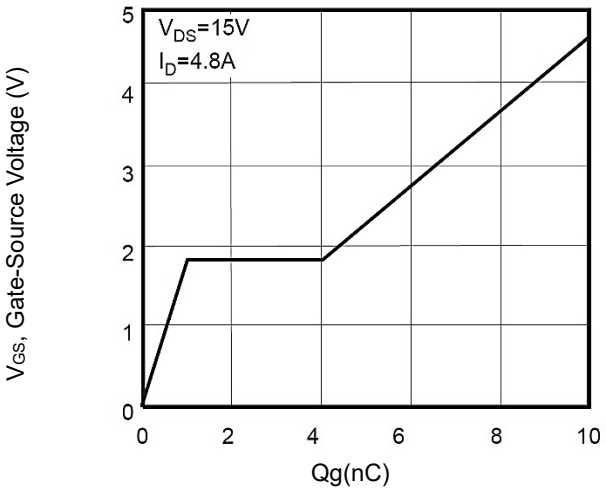


Body Diode Characteristics

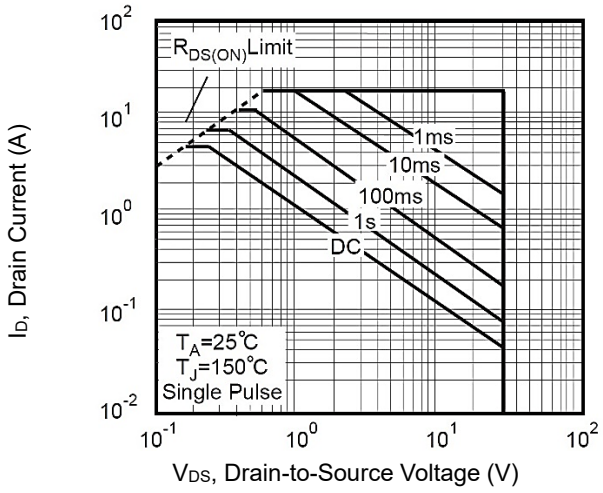


CHARACTERISTIC CURVES

Gate Charge Characteristics



Maximum Safe Operating Area



Normalized Transient Thermal Impedance Curves