

N-Channel MOSFET

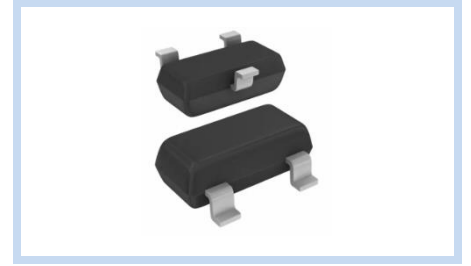
30V 3.6A 1W SOT-23

MFT3N3A6S23

MERITEK

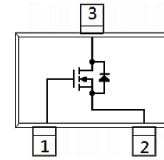
FEATURE

- $R_{DS(ON)} \leq 39m\Omega$, $V_{GS}=10V$
- $R_{DS(ON)} \leq 52m\Omega$, $V_{GS}=4.5V$
- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Application: Load Switch for Portable Devices, DC/DC Converter



MECHANICAL DATA

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

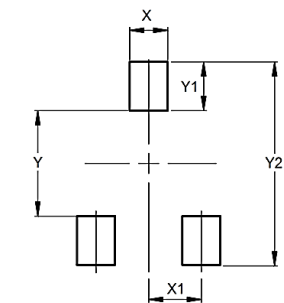
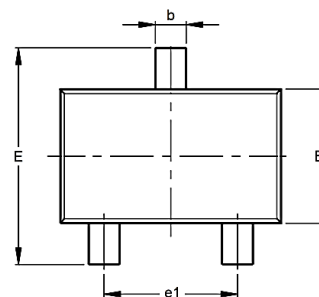
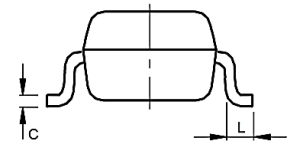
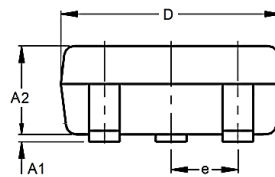


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	3.6	A
Drain Current – Pulsed	I_{DM}	15	A
Power Dissipation	P_D	1.0	W
Operating Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature Range	T_{stg}	-55 to 150	$^{\circ}C$

DIMENSIONS

Item	Min (mm)	Max (mm)
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.20
D	2.80	3.00
e	0.95	
e1	1.80	2.00
E	2.25	2.55
E1	1.20	1.40
L	0.30	0.50
X	0.80	
X1	0.95	
Y	1.40	
Y1	1.00	
Y2	3.40	



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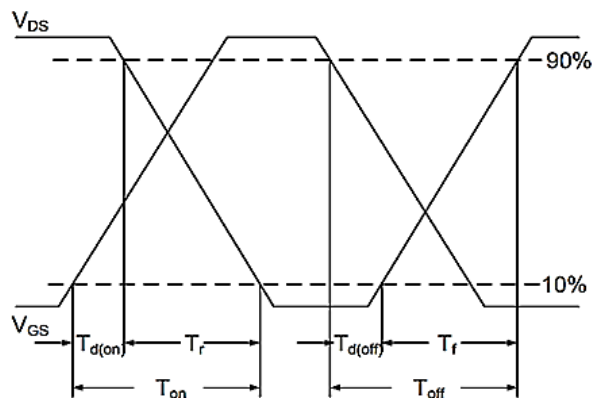
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	30	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	--	2.2	V
Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	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	$V_{GS}=10V, I_D=3.6A$	$R_{DS(on)}$	--	--	39	m Ω
	$V_{GS}=4.5V, I_D=3.0A$		--	--	52	
Dynamic Characteristics	Conditions	Symbol	--	Typ.	Max	Unit
Input Capacitance	$V_{DS}=15V, V_{GS}=0V, F=1MHz$	C_{iss}	--	390	--	pF
Output Capacitance		C_{oss}	--	67	--	
Reverse Transfer Capacitance		C_{rss}	--	41	--	
Turn-On Delay Time	$V_{DD}=15V, R_L=3.6\Omega, V_{GS}=4.5V, R_G=6\Omega$	$T_{d(on)}$	--	11	--	nS
Rise Time		T_r	--	48	--	
Turn-Off Delay Time		$T_{d(off)}$	--	14	--	
Fall Time		T_f	--	9	--	
Total Gate Charge	$V_{DS}=15V, V_{GS}=10V, I_D=3.6A$	Q_g	--	4.2	--	nC
Gate-Source Charge		Q_{gs}	--	1.0	--	
Gate-Drain Charge		Q_{gd}	--	1.3	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	--	V_{SD}	--	--	3.6	A
Diode Forward Voltage	$I_S=3.6A, V_{GS}=0V$	V_{SD}	--	--	1.2	V

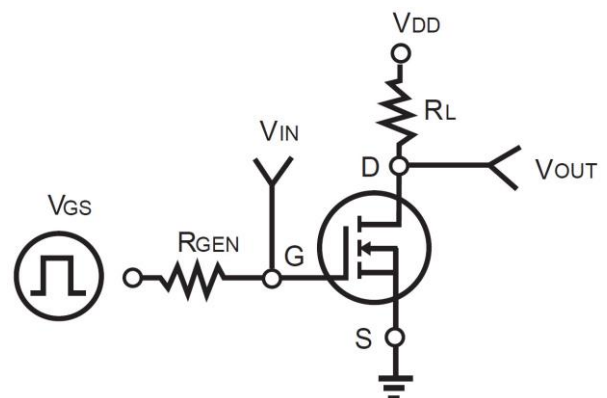
Note:

- $T_A=25$ oC, unless otherwise noted
- Pulse width<300 μs , Duty cycle<2%
- Guaranteed by design, not subject to production testing

Switching Time Waveform

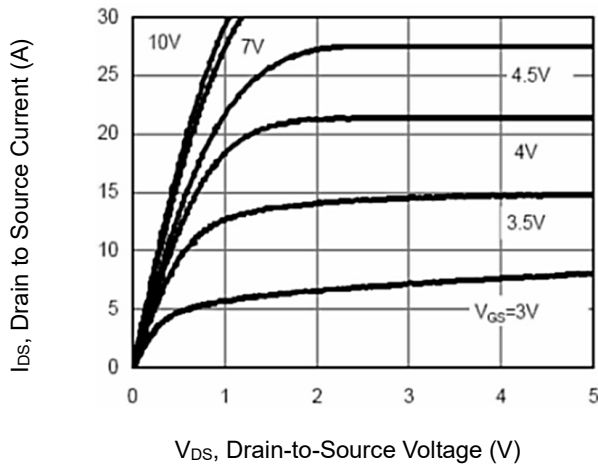


Switching Test Circuit

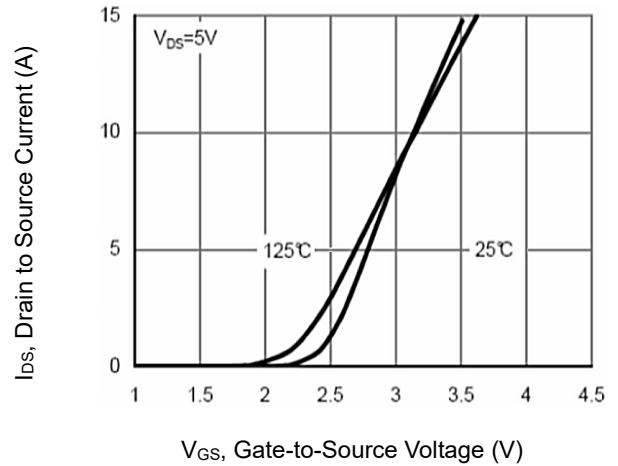


CHARACTERISTIC CURVES

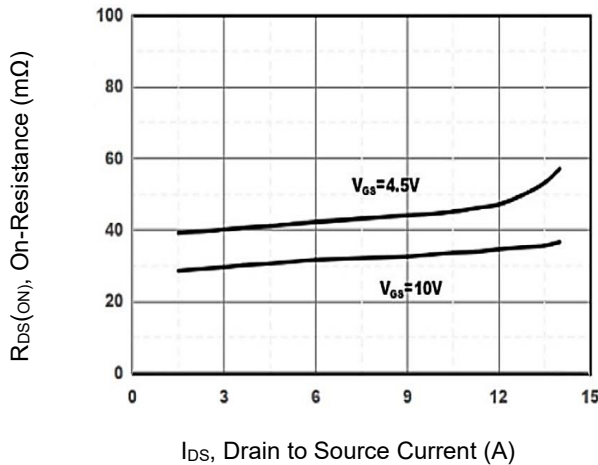
On Region Characteristics



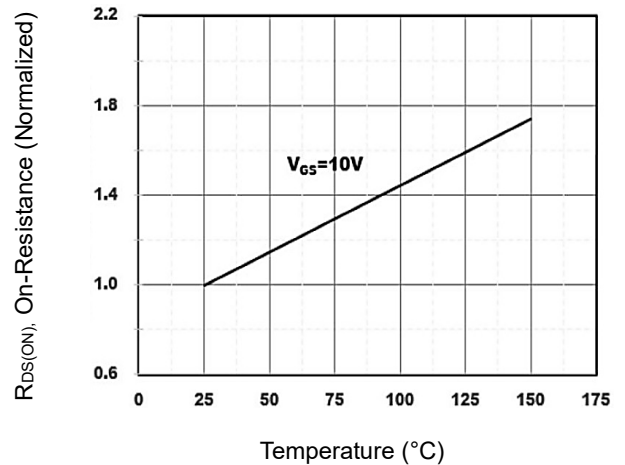
Transfer Characteristics



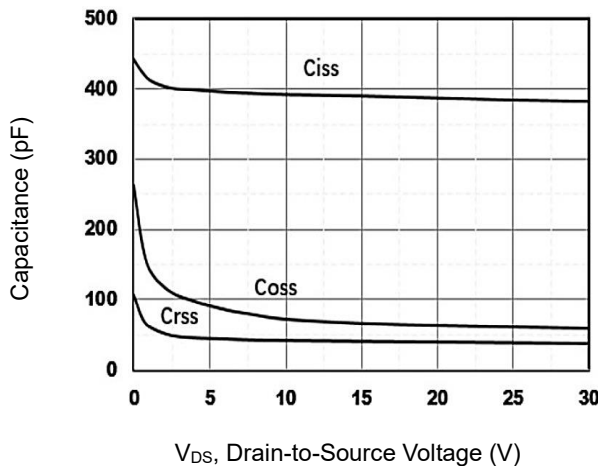
On-Resistance vs. Drain Current



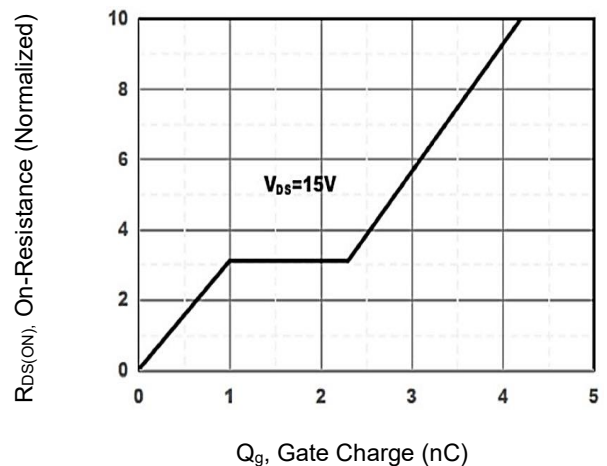
On-Resistance vs. Junction Temperature



Capacitance vs. Drain-Source Voltage



Gate Charge



CHARACTERISTIC CURVES

Safe Operating Area

