

N-Channel MOSFET

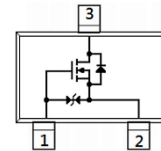
60V 0.35A 0.35W SOT-23 ESD

MFT6NA35S23E

MERITEK

FEATURE

- $R_{DS(ON)} \leq 2.2\Omega$ at $V_{GS}=10V$
- $R_{DS(ON)} \leq 2.8\Omega$ at $V_{GS}=4.5V$
- Low Gate Charge
- Application: Load Switch, Uninterruptible Power Supply



MECHANICAL DATA

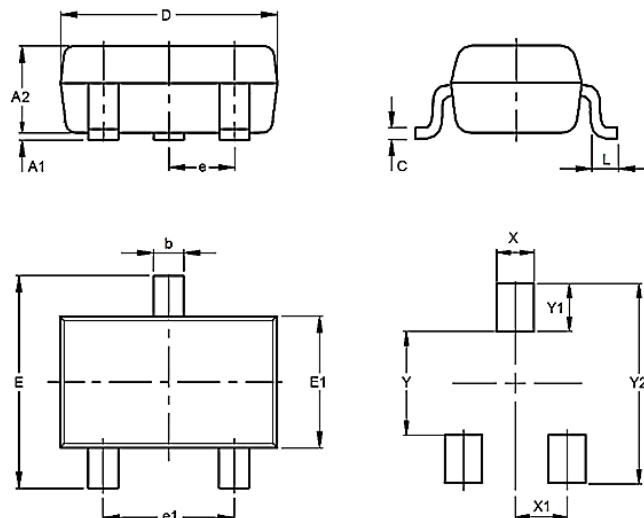
- Case: SOT-23 Package
- Terminals: Solderable per MIL-STD-750, Method 2026

MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Drain Current – Continuous	$V_{GS}=10V, T_c=25^\circ C$	I_D	350	mA
	$V_{GS}=10V, T_c=100^\circ C$		100	
Drain Current – Pulsed		I_{DM}	1.2	A
Power Dissipation		P_D	350	mW
Thermal Resistance form Junction to Ambient		$R_{\theta JA}$	357	$^\circ C/W$
Operating Junction and Storage Temperature Range		T_J, 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	0.15
D	2.80	3.00
e	0.95 TYP	
e1	1.80	2.00
E	2.25	2.55
E1	1.20	1.40
L	0.55 TYP	
X	0.80	
X1	0.95	
Y	1.22	
Y1	0.80	
Y2	2.82	



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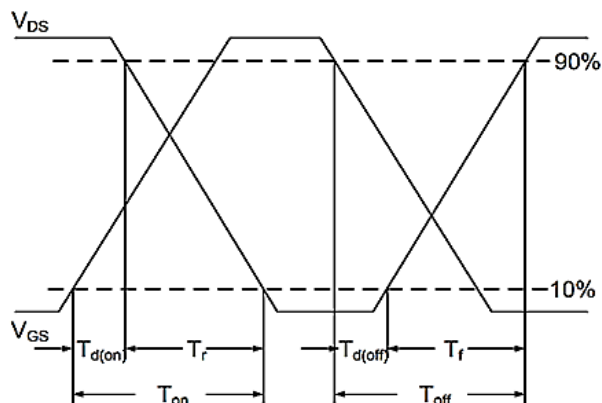
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	1.0	1.5	2.5	V
Gate Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	I_{GSS}	--	--	± 10	μA
Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$	I_{DSS}	--	--	1	μA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=300mA$	$R_{DS(ON)}$	--	1.7	2.2	Ω
	$V_{GS}=4.5V, I_D=200mA$		--	2.1	2.8	
Dynamic Characteristics	Conditions	Symbol	--	Typ.	Max	Unit
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	C_{iss}	--	28	--	pF
Output Capacitance		C_{oss}	--	11	--	
Reverse Transfer Capacitance		C_{rss}	--	4	--	
Turn-On Delay Time	$V_{DD}=10V, I_D \equiv 200mA, V_{GS}=10V, R_G=10\Omega$	$T_{d(on)}$	--	2	--	nS
Rise Time		T_r	--	15	--	
Turn-Off Delay Time		$T_{d(off)}$	--	7	--	
Fall Time		T_f	--	20	--	
Total Gate Charge	$V_{DS}=10V, V_{GS}=4.5V, I_D \equiv 300mA$	Q_g	--	1.7	--	nC
Gate-Source Charge		Q_{gs}	--	0.3	--	
Gate-Drain Charge		Q_{gd}	--	0.6	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Diode Forward Current	--	I_S	--	--	0.35	A
Diode Forward Voltage	$I_S=300mA, V_{GS}=0V$	V_{SD}	--	--	1.2	V

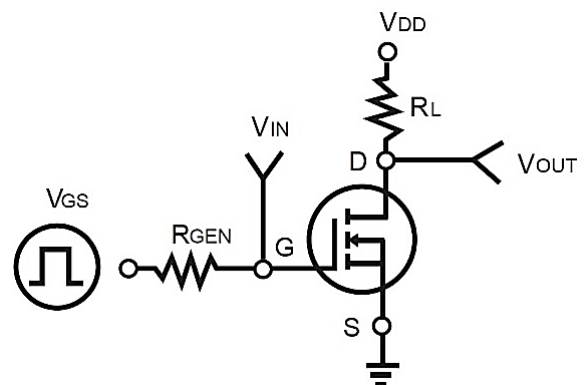
Note:

1. $T_A=25^\circ C$, unless otherwise noted
2. Pulse width $< 300\mu s$, Duty cycle $< 2\%$
3. The power dissipation is limited by $150^\circ C$ junction temperature.
4. The data tested by surface mounted on a 1 inch² FR-4 board with 2oz copper

Switching Time Waveform

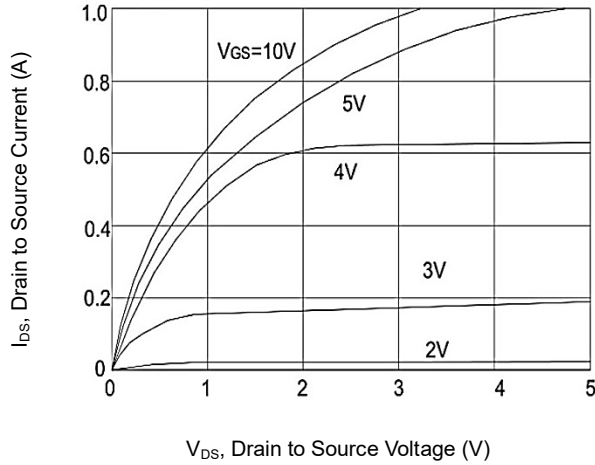


Switching Test Circuit

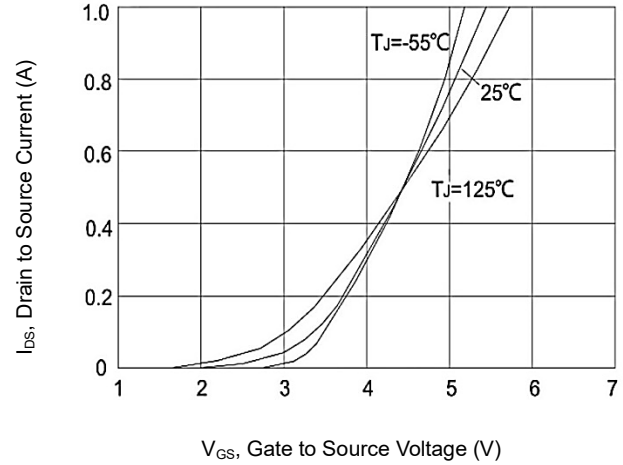


CHARACTERISTIC CURVES

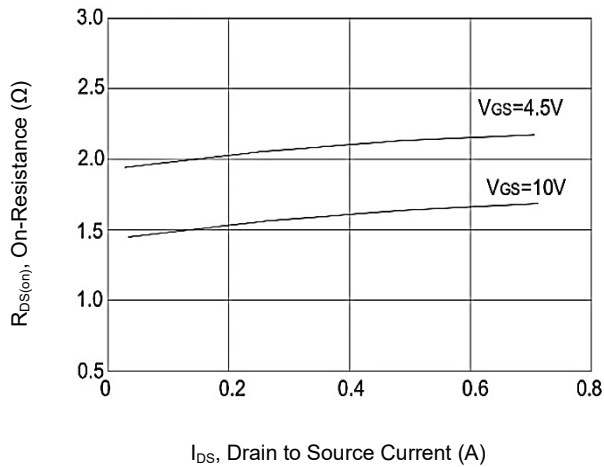
On-Region Characteristic



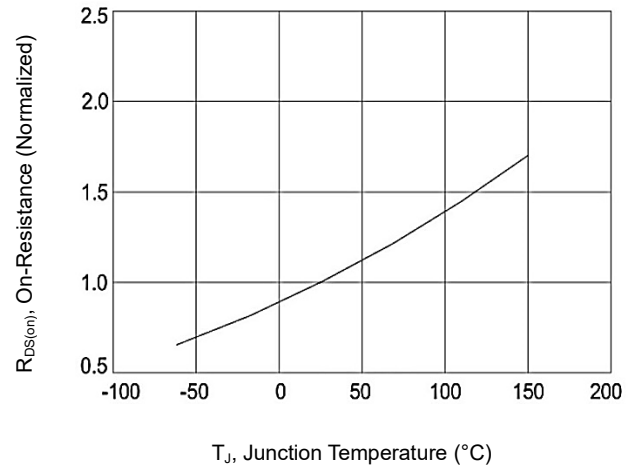
Transfer Characteristics



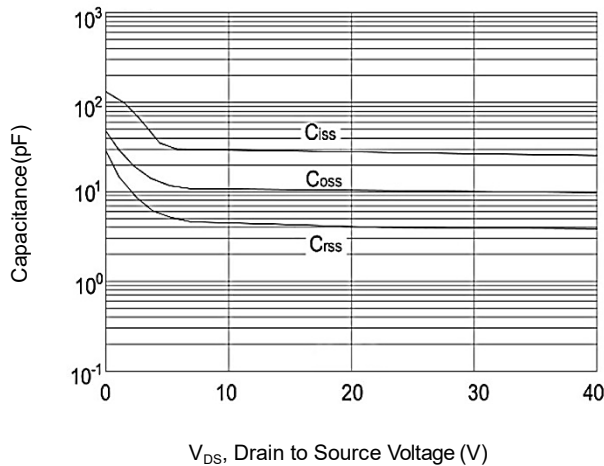
On-Resistance vs. Drain Current



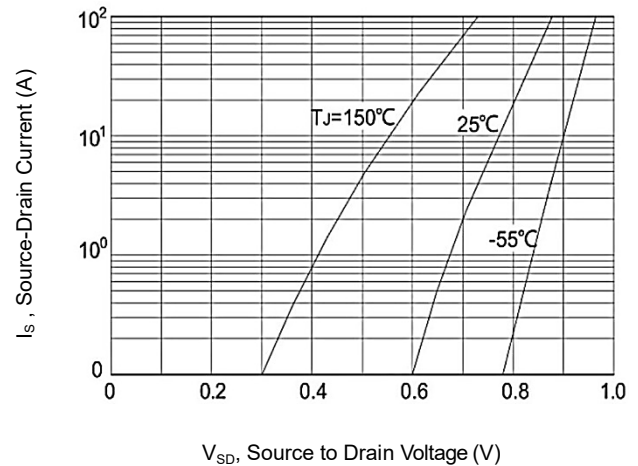
On-Resistance vs. Junction Temperature



Capacitance vs. Drain-Source Voltage

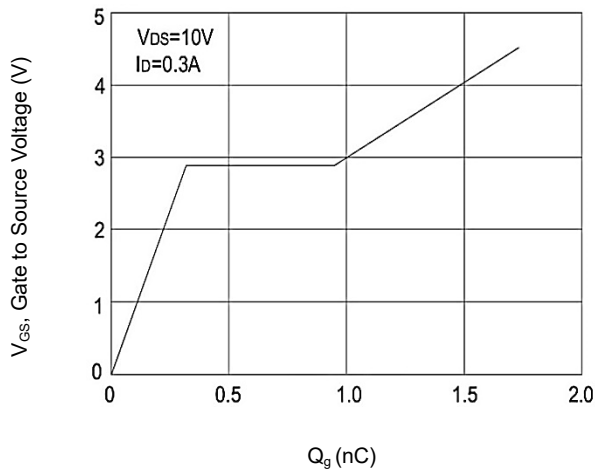


Source-Drain Diode Forward Voltage

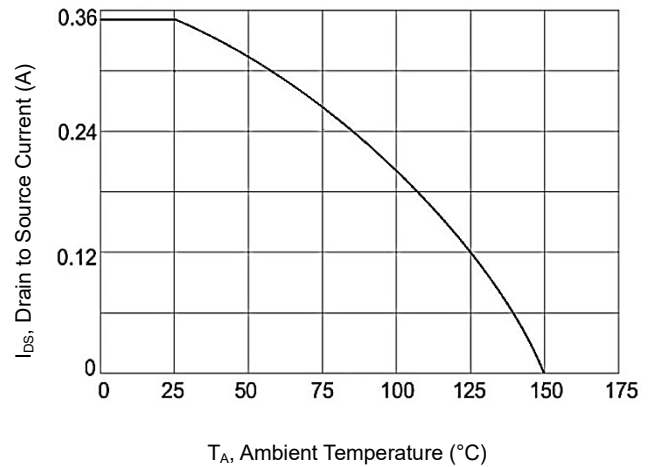


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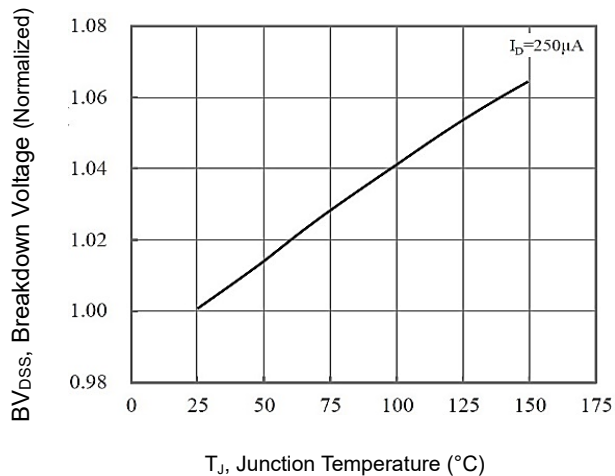
Gate-Charge Characteristics



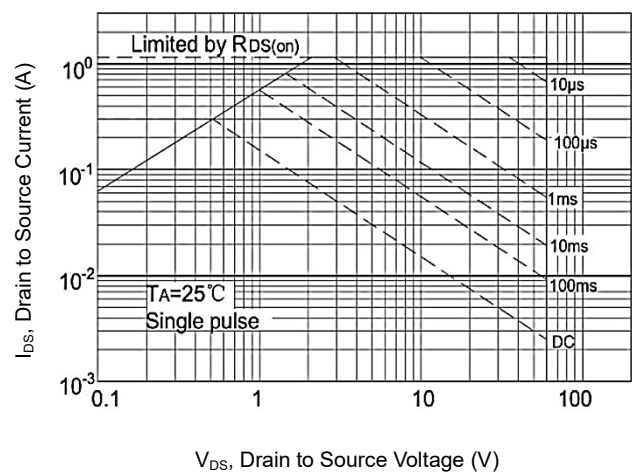
Drain Current



Breakdown Voltage vs Junction Temperature



Maximum Safe Operating Area



Normalized Transient Thermal Impedance

