

N-Channel MOSFET

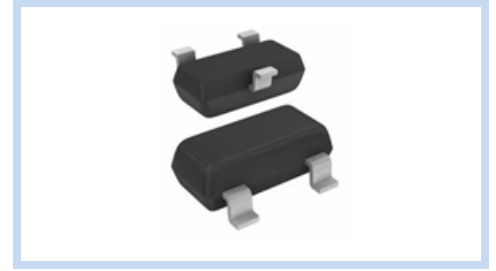
60V 3A 1.25W SOT-23

MFT6N3A0S23

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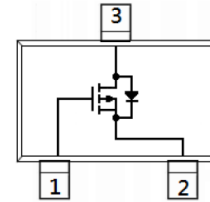
FEATURE

- $R_{DS(ON)} < 80m\Omega$, $V_{GS}=10V$, $I_D=3A$
- $R_{DS(ON)} < 100m\Omega$, $V_{GS}=4.5V$, $I_D=2.4A$
- High Dense Cell Design for Extremely Low $R_{DS(ON)}$
- Rugged and reliable



MECHANICAL DATA

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

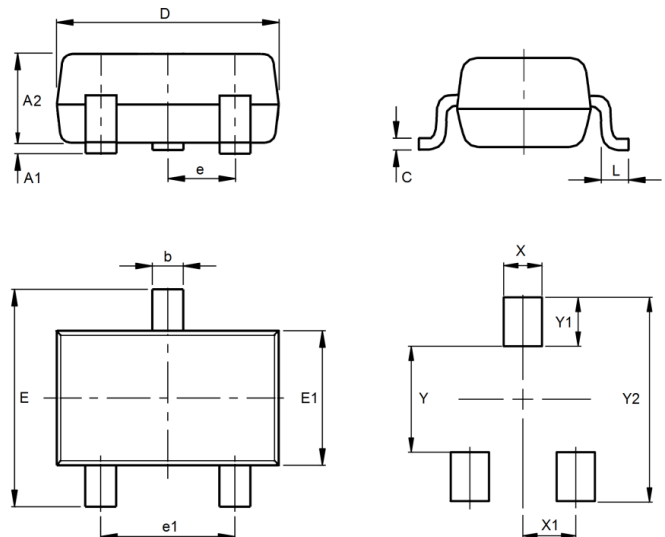


MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current – Continuous	I_D	3	A
Drain Current – Pulsed	I_{DM}	12	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	0.00	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



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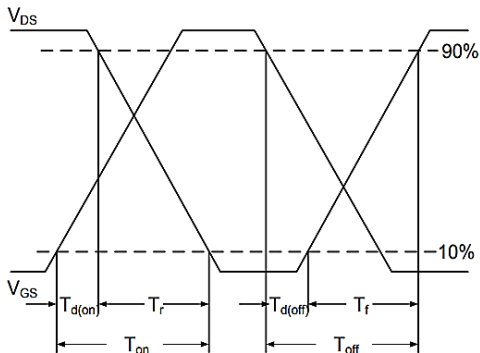
ELECTRICAL CHARACTERISTICS

Off Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	60	--	--	V
Drain-Source Leakage Current	$V_{DS}=60V, V_{GS}=0V$	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	nA
On Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=3A$	$R_{DS(ON)}$	--	61	80	m Ω
	$V_{GS}=4.5V, I_D=2.4A$		--	77	100	m Ω
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	$V_{DS}=30V, V_{GS}=10V, I_D=3A$	Q_g	--	13	16.9	nC
Gate-Source Charge		Q_{gs}	--	1	--	nC
Gate-Drain Charge		Q_{gd}	--	4	--	nC
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=6\Omega, I_D=1A$	$T_{d(on)}$	--	11	22	ns
Rise Time		T_r	--	3	6	ns
Turn-Off Delay Time		$T_{d(off)}$	--	28	56	ns
Fall Time		T_f	--	3	6	ns
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	C_{iss}	--	560	--	pF
Output Capacitance		C_{oss}	--	70	--	pF
Reverse Transfer Capacitance		C_{rss}	--	40	--	pF
Diode Forward Voltage	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

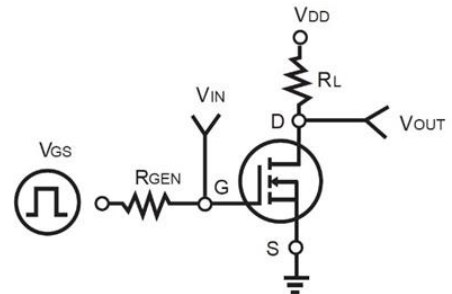
Note:

1. Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
2. Maximum current rating is package limited
3. Essentially independent of operating temperature typical characteristics
4. Repetitive rating, pulse width limited by junction temperature $T_{J(MAX)} = 150^\circ C$. Rating are based on low frequency and duty cycle to initial $T_J=25^\circ C$

Switching Time Waveform



Switching Test Circuit



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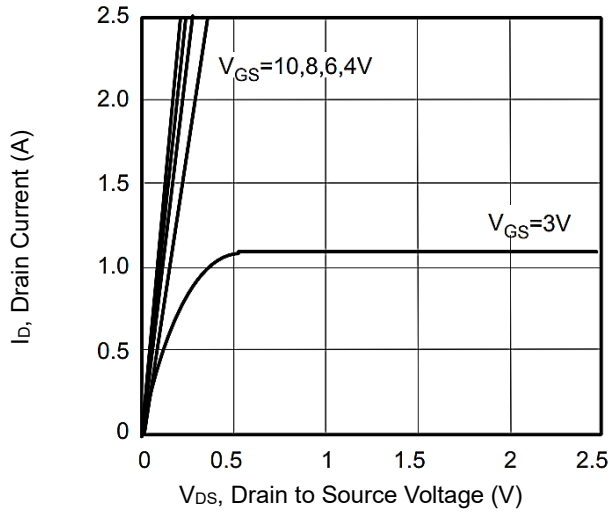
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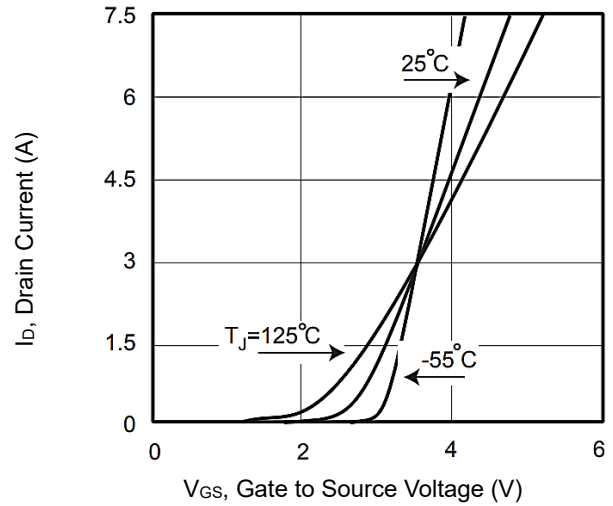
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CHARACTERISTIC CURVES

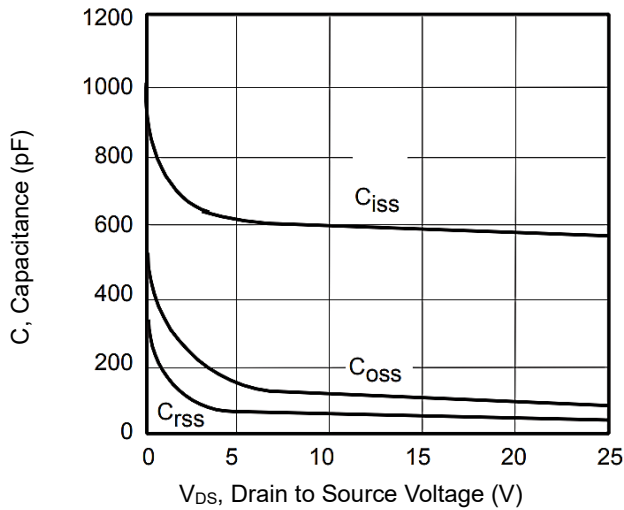
Output Characteristics



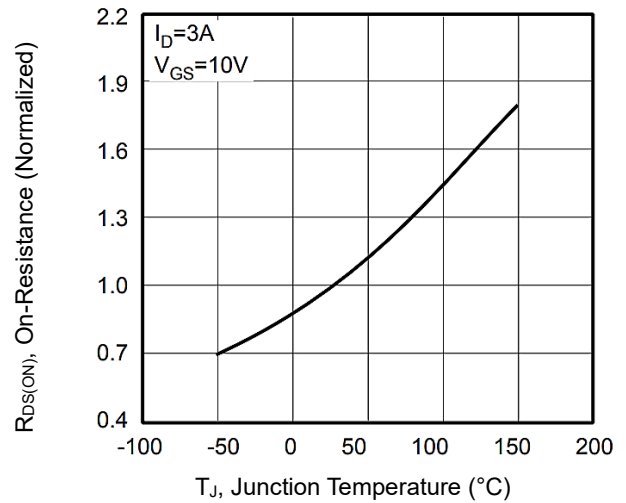
Transfer Characteristics



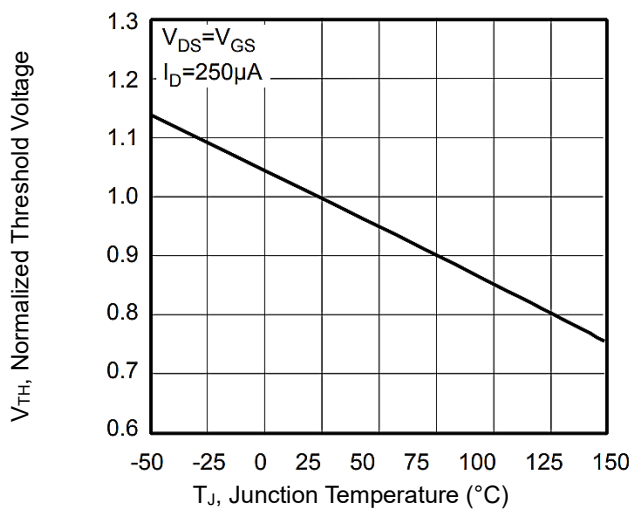
Capacitance



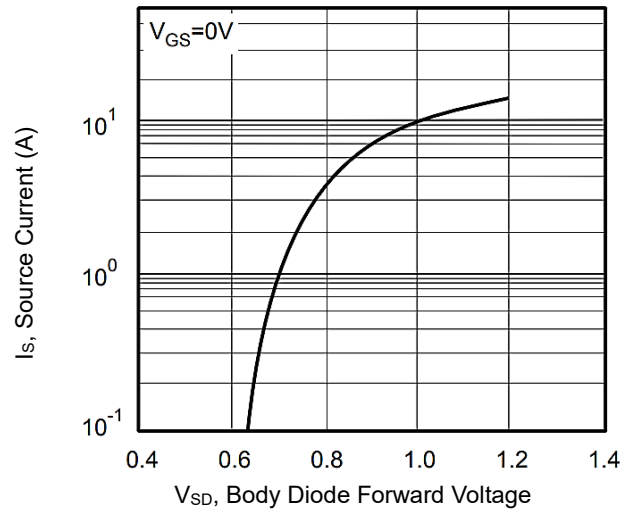
On-Resistance vs. Junction Temperature



Gate Threshold Variation with Temperature



Body Diode Characteristics



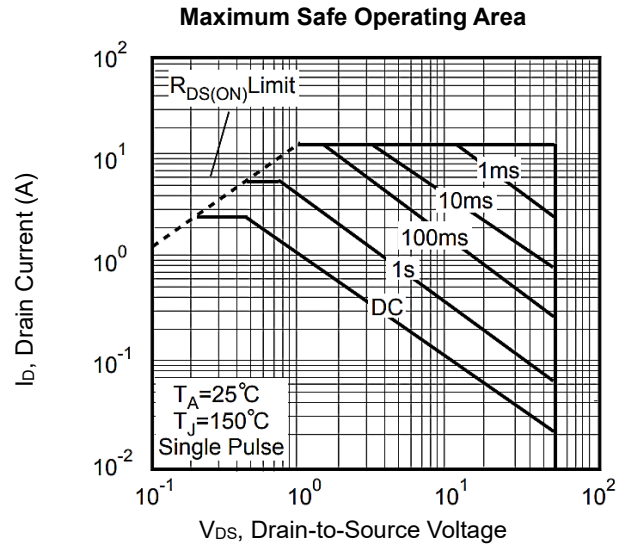
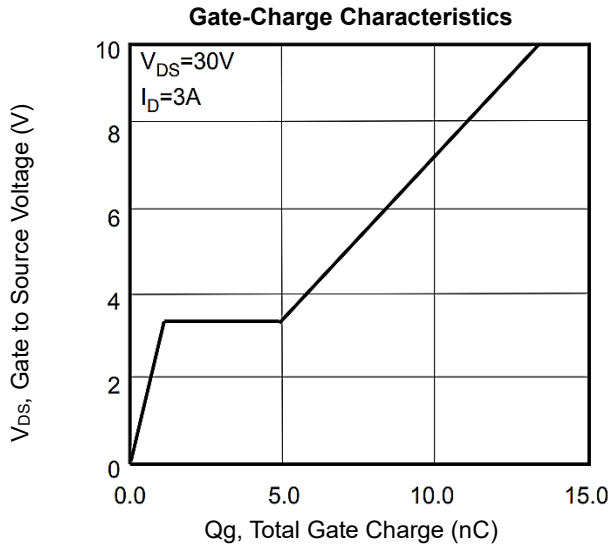
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CHARACTERISTICS CURVES



Normalized Thermal Transient Impedance Curve

