

N-Channel MOSFET

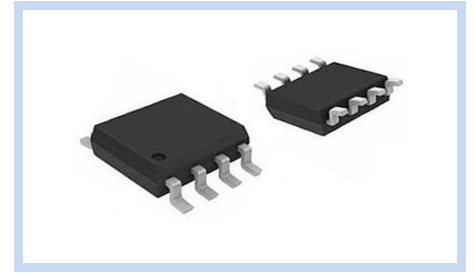
150V 4.0A SOP-8

MFT15N4A0S8

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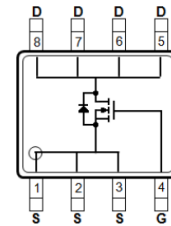
FEATURE

- Operating temperature: -55 ~ +150 °C
- $R_{DS(ON)} < 65m\Omega$, $V_{GS}=10V$, $I_D=4.0A$
- $R_{DS(ON)} < 85m\Omega$, $V_{GS}=6V$, $I_D=2.0A$
- High switching speed
- Improved dv/dt capability
- Low reverse transfer capacitance



MECHANICAL DATA

- Case: SOP-8 package
- Terminal: Solderable per MIL-STD-750, Method 2026

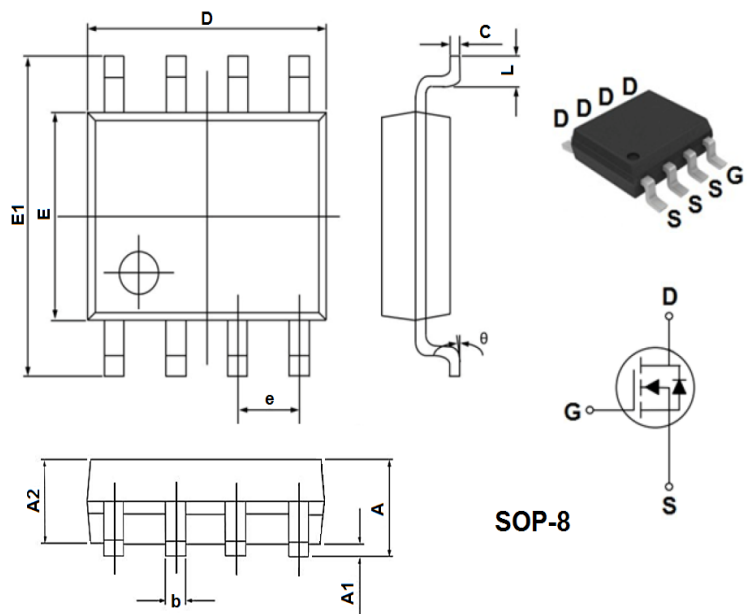


MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	± 25	V
Drain Current – Continuous	$T_C=25^{\circ}C$	I_D	4.0	A
	$T_C=70^{\circ}C$		3.2	A
Drain Current – Pulsed		I_{DM}	16	A
Power Dissipation	$T_C=25^{\circ}C$	P_D	2.5	W
	$T_C=70^{\circ}C$		1.6	W
Thermal Resistance Junction to Ambient, $t \leq 10s$		$R_{\theta JA}$	50	$^{\circ}C/W$
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	$^{\circ}C$

DIMENSIONS AND PIN LAYOUT

Item	Min. (mm)	Max. (mm)
A	1.35	1.75
A1	0.10	0.25
A2	1.30	1.50
b	0.31	0.51
c	0.17	0.25
D	4.80	5.00
E	3.80	4.00
E1	5.80	6.20
e	1.27 BSC	
L	0.40	1.27
θ	0°	8°



SOP-8

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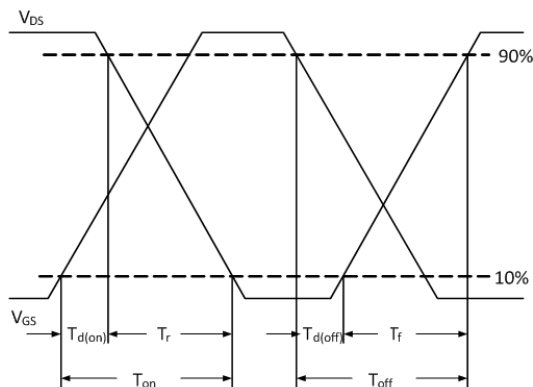
ELECTRICAL CHARACTERISTICS

Static Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	150	--	--	V
Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	$V_{GS(th)}$	2.0	2.7	4.0	V
Drain-Source On-Resistance	$V_{GS}=10V, I_D=4.0A$	$R_{DS(ON)}$	--	52	65	mΩ
Drain-Source On-Resistance	$V_{GS}=6V, I_D=2.0A$	$R_{DS(ON)}$	--	60	85	mΩ
Zero Gate Voltage Drain Current	$V_{DS}=150V, V_{GS}=0V$	I_{DSS}	--	--	1.0	μA
Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=\pm 25V$	I_{GSS}	--	--	±100	μA
Dynamic Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Input Capacitance	$V_{DS}=30V, V_{GS}=0V, F=1.0MHz$	C_{iss}	--	1764	--	pF
Output Capacitance		C_{oss}	--	148	--	
Reverse Transfer Capacitance		C_{rss}	--	62	--	
Switching Characteristics	Conditions	Symbol	Min	Typ.	Max	Unit
Total Gate Charge	$V_{DS}=75V, V_{GS}=10V, I_D=4.0A$	Q_g	--	29.5	--	nC
Gate-Source Charge		Q_{gs}	--	9.2	--	
Gate-Drain Charge		Q_{gd}	--	8.0	--	
Turn-On Delay Time	$V_{DD}=30V, V_{GS}=10V, R_G=6\Omega, I_D=1.0A$	$T_{d(on)}$	--	14	--	ns
Turn-On Rise Time		T_r	--	21	--	
Turn-Off Delay Time		$T_{d(off)}$	--	32	--	
Turn-Off Fall Time		T_f	--	23	--	
Drain-Source Body Diode	Conditions	Symbol	Min	Typ.	Max	Unit
Drain-Source Diode Forward Current	--	I_S	--	--	4.0	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=1.0A$	V_{SD}	--	0.7	1.0	V

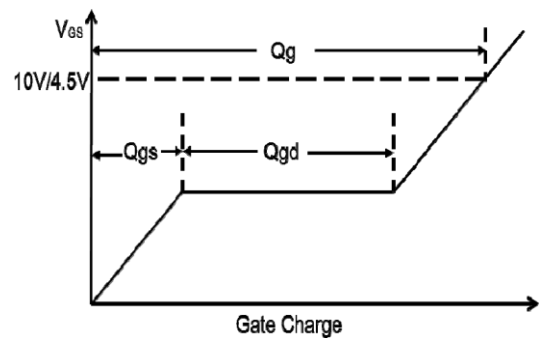
Note:

1. Pulse width ≤ 300μs, duty cycle ≤ 2%
2. Essentially independent of operating temperature typical characteristics
3. The maximum current rating is package limited.
4. Repetitive rating, pulse width limited by junction temperature $T_J(MAX)=150^{\circ}C$. Ratings are based on low frequency and duty cycles to keep initial $T_J=25^{\circ}C$.
5. The test condition is $L=0.1mH, I_{AS}=13A, V_{DD}=50V, V_{GS}=10V$
6. $R_{\theta JA}$ is the sum of the junction to case to ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins mounted on a 1inch FR-4 with 2oz. square pad of copper.
7. Guaranteed by design, not subject to production testing.

Switching Time Waveform



Gate Charge Waveform



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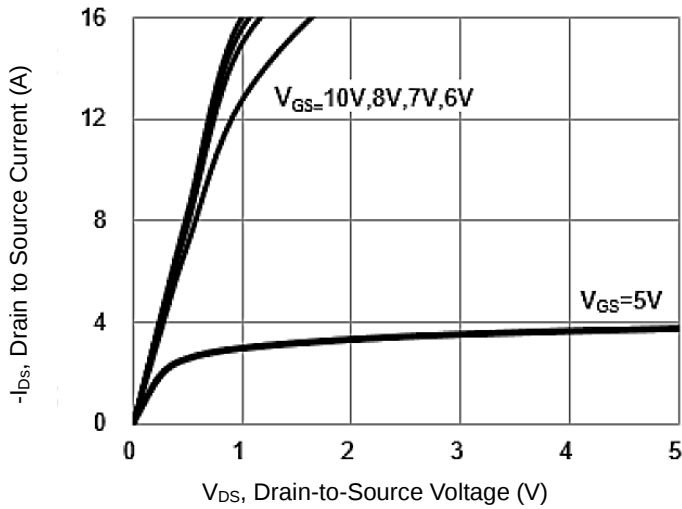
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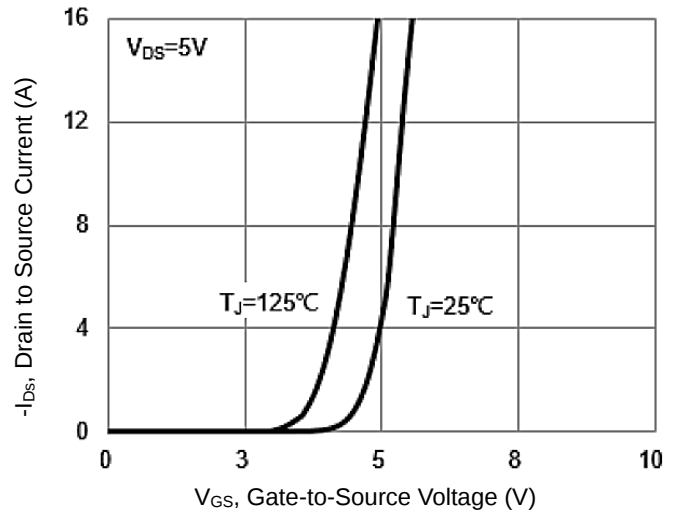
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CHARACTERISTIC CURVES

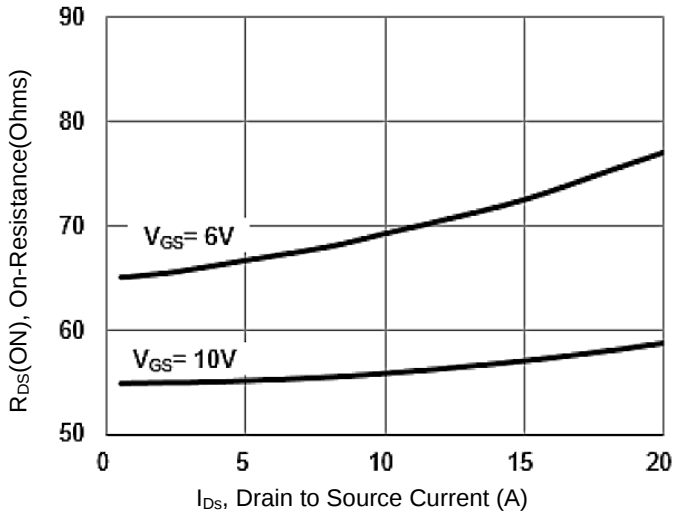
Output Characteristics



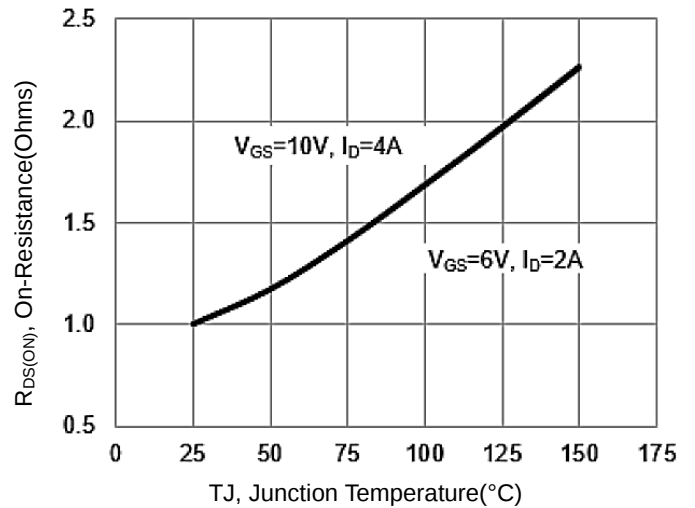
Transfer Characteristics



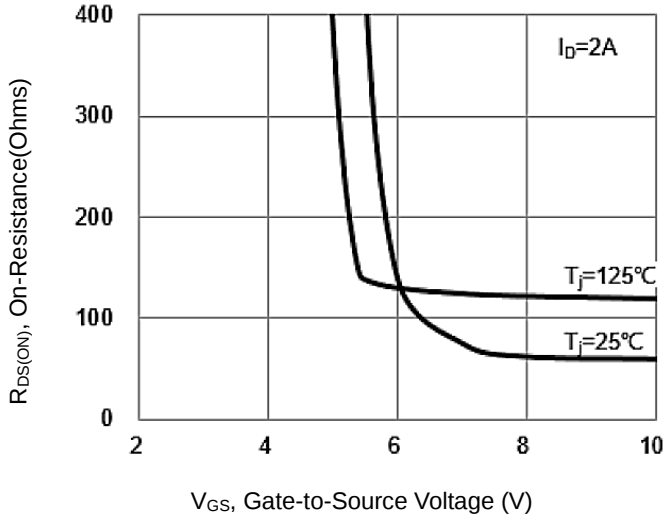
On-Resistance Variation vs. Drain Current



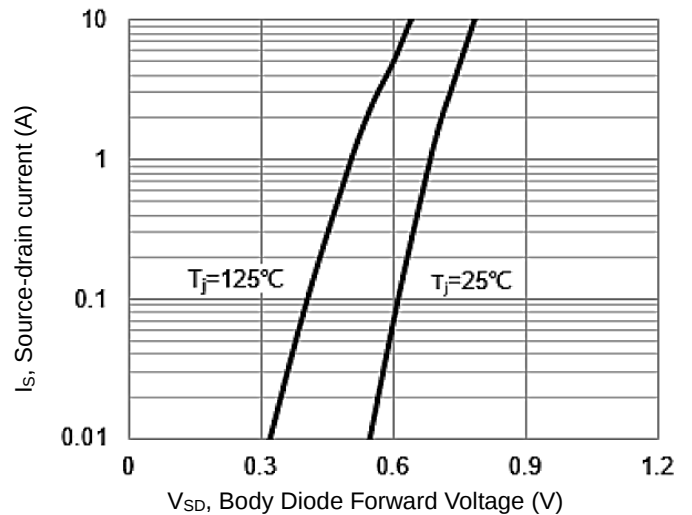
On-Resistance Variation vs. Junction Temperature



On-Resistance Variation vs. V_{GS}



Source-Drain Diode Forward Voltage



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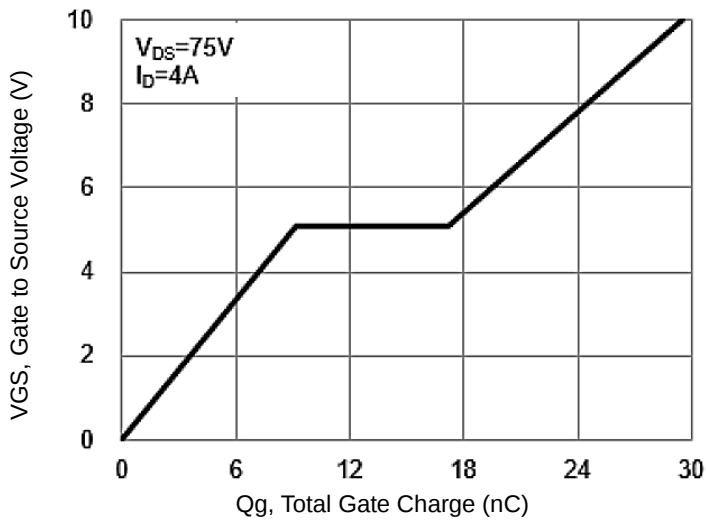
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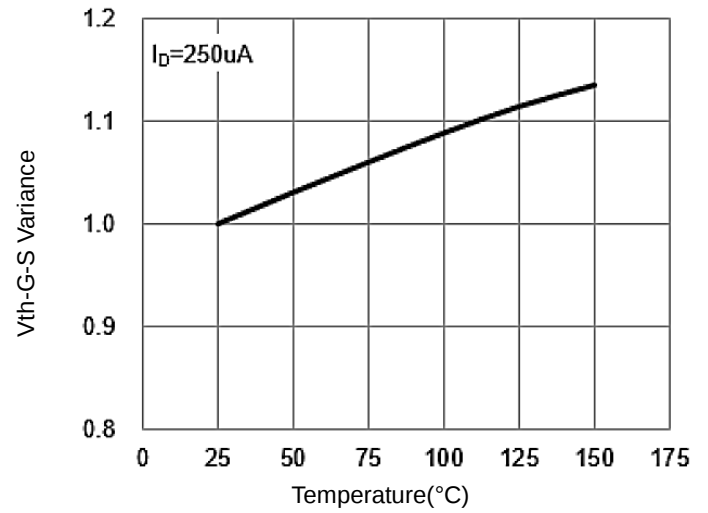
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CHARACTERISTICS CURVES (CONTINUED)

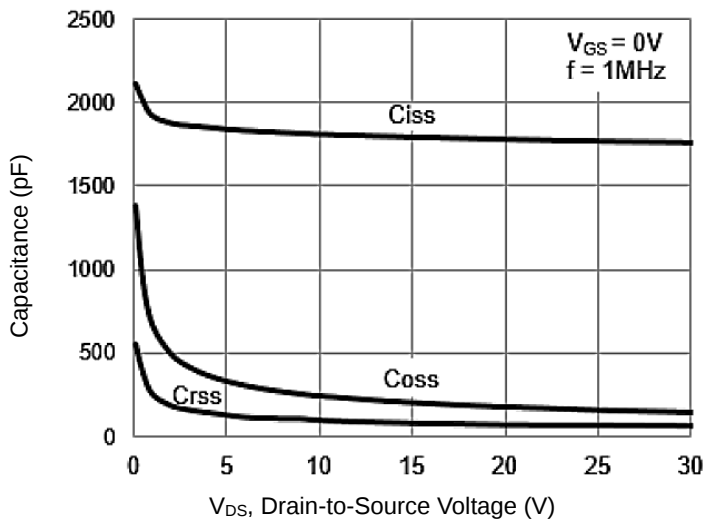
Gate-Charge Characteristics



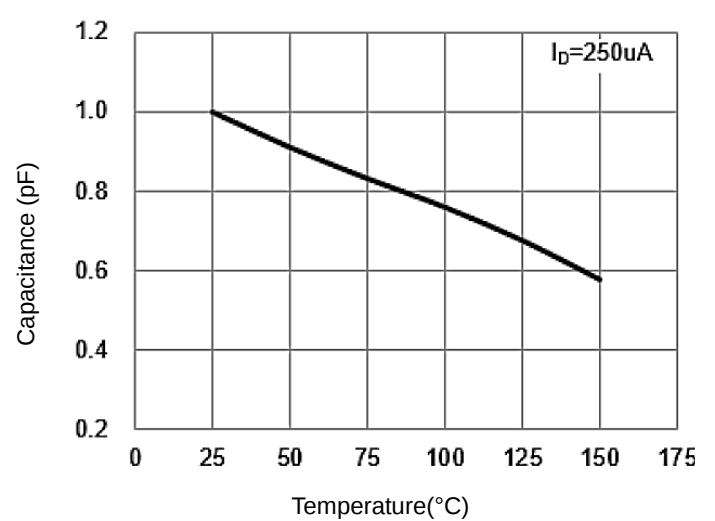
Breakdown Voltage Variation vs. Temperature



Capacitance vs. Drain Source Voltage



Threshold Voltage Variation with Temperature



*Specifications subject to change without notice.