



N-Channel 2.5-V (G-S) MOSFET

PRODUCT SUMMARY

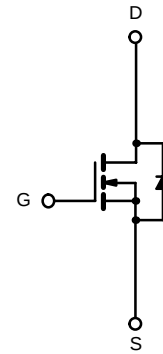
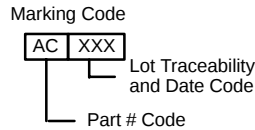
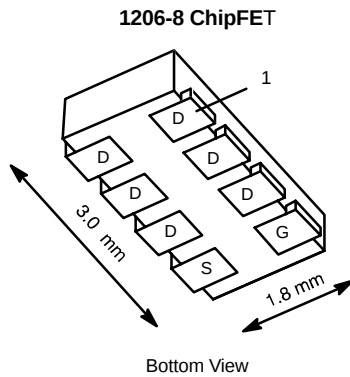
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
12	0.020 @ $V_{GS} = 4.5$ V	9.5
	0.025 @ $V_{GS} = 2.5$ V	8.5

FEATURES

- TrenchFET® Power MOSFETs: 2.5-V Rated
- Low Thermal Resistance

APPLICATIONS

- Load/Power Switching for Cell Phones and Pagers
- PA Switch in Cellular Devices
- Battery Operated Systems



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	12		V
Gate-Source Voltage		V _{GS}	± 8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	9.5	6.9	A
	T _A = 85°C		6.8	4.9	
Pulsed Drain Current		I _{DM}	20		
Continuous Source Current (Diode Conduction) ^a		I _S	2.1	1.1	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	2.5	1.3	W
	T _A = 85°C		1.3	0.7	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}	40	50	$^\circ\text{C/W}$
	Steady State		80	95	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	15	20	

Notes

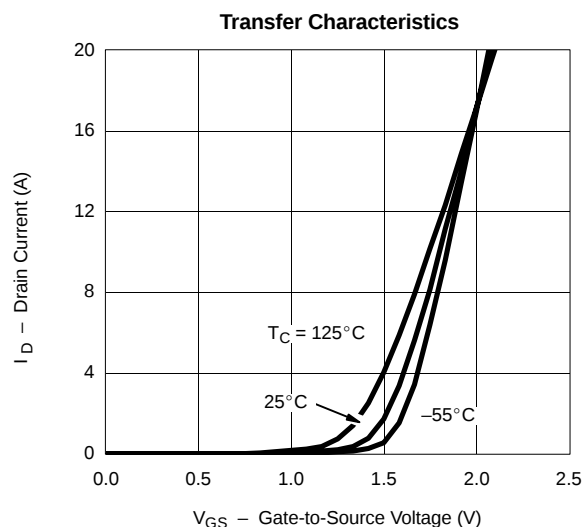
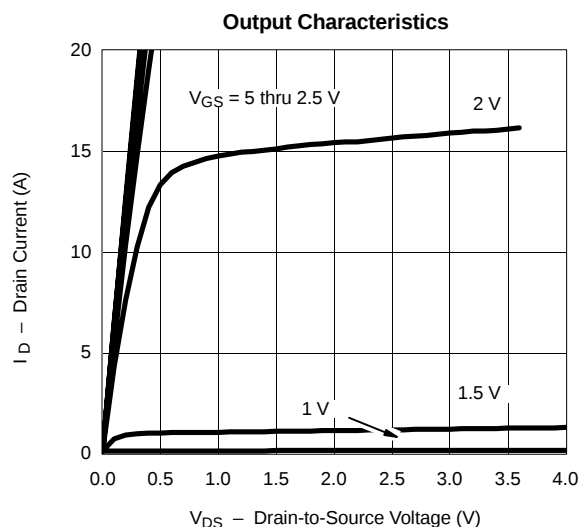
a. Surface Mounted on 1" x 1" FR4 Board.

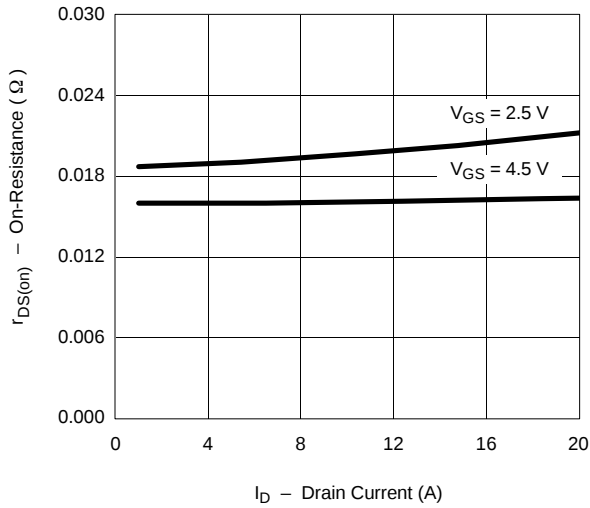
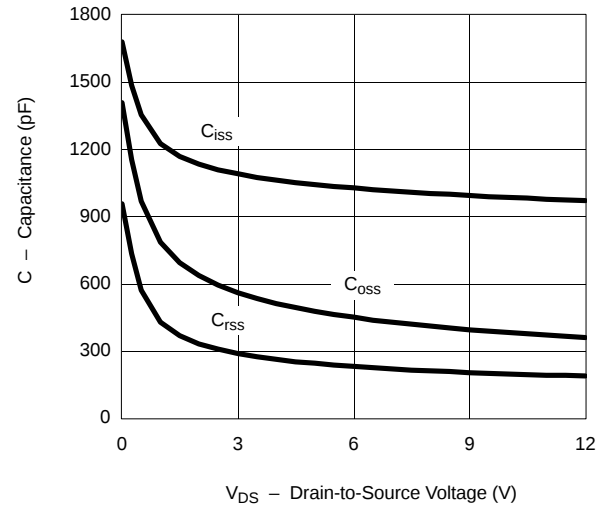
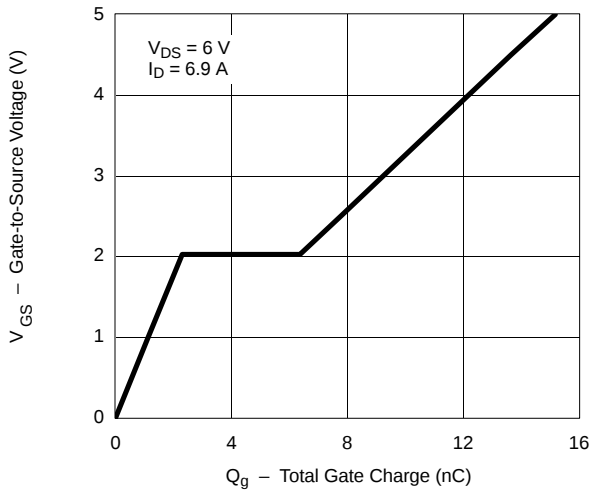
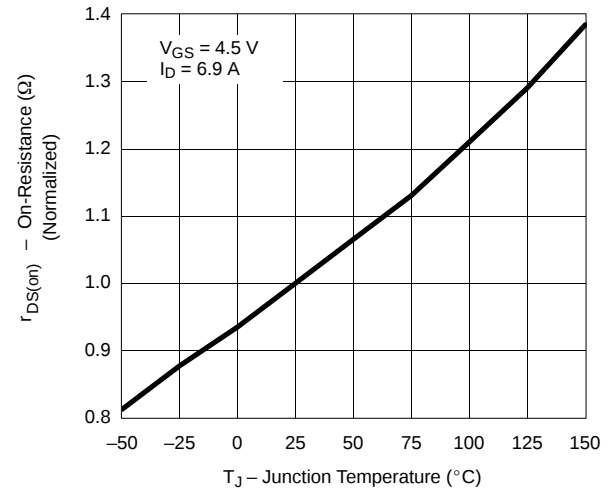
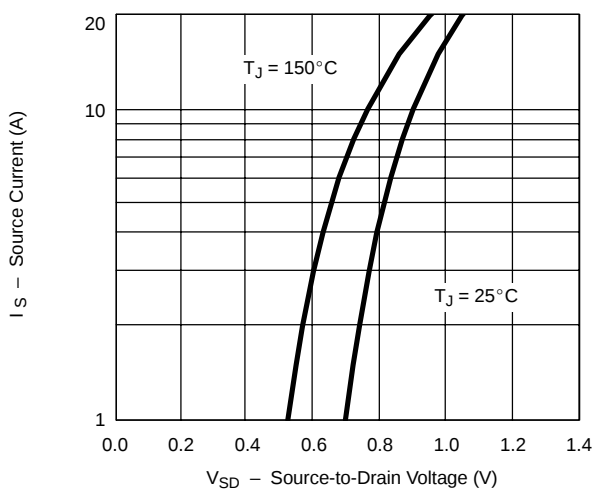
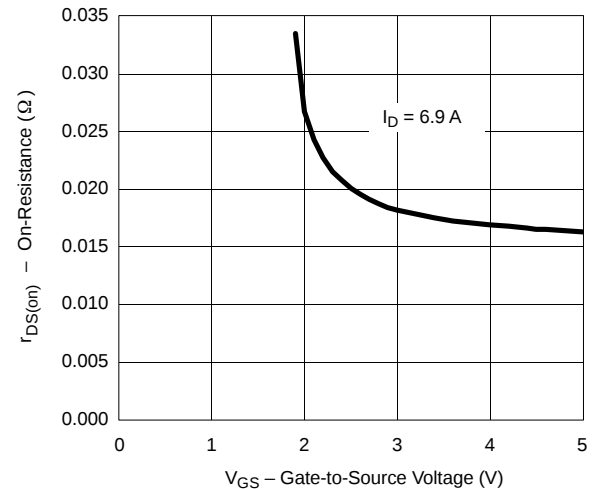
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 1.2\text{ mA}$	0.6			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 8\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 9.6\text{ V}$, $V_{GS} = 0\text{ V}$			1	μA
		$V_{DS} = 9.6\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 85^\circ\text{C}$			5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq 5\text{ V}$, $V_{GS} = 4.5\text{ V}$	20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = 4.5\text{ V}$, $I_D = 6.9\text{ A}$		0.017	0.020	Ω
		$V_{GS} = 2.5\text{ V}$, $I_D = 2\text{ A}$		0.021	0.025	
Forward Transconductance ^a	g_{fs}	$V_{DS} = 10\text{ V}$, $I_D = 6.9\text{ A}$		30		S
Diode Forward Voltage ^a	V_{SD}	$I_S = 1.1\text{ A}$, $V_{GS} = 0\text{ V}$		0.7	1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = 6\text{ V}$, $V_{GS} = 4.5\text{ V}$, $I_D = 6.9\text{ A}$		13.7	20	nC
Gate-Source Charge	Q_{gs}			2.3		
Gate-Drain Charge	Q_{gd}			4.1		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 6\text{ V}$, $R_L = 6\text{ }\Omega$ $I_D \cong 1\text{ A}$, $V_{GEN} = 4.5\text{ V}$, $R_G = 6\text{ }\Omega$		17	25	ns
Rise Time	t_r			46	70	
Turn-Off Delay Time	$t_{d(off)}$			54	80	
Fall Time	t_f			29	45	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 1.1\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$		35	70	

Notes

- a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)****On-Resistance vs. Drain Current****Capacitance****Gate Charge****On-Resistance vs. Junction Temperature****Source-Drain Diode Forward Voltage****On-Resistance vs. Gate-to-Source Voltage**

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)