



P-Channel 1.8-V (G-S) MOSFET

PRODUCT SUMMARY

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.195 @ $V_{GS} = -4.5$ V	-0.84
	0.260 @ $V_{GS} = -2.5$ V	-0.73
	0.350 @ $V_{GS} = -1.8$ V	-0.64

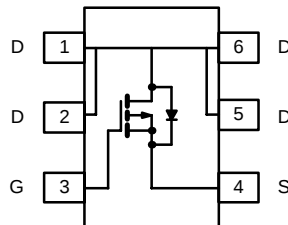
FEATURES

- TrenchFET® Power MOSFET
- Low Threshold
- Smallest LITTLE FOOT® Package: 1.6 mm x 1.6 mm
- Low 0.6-mm Profile

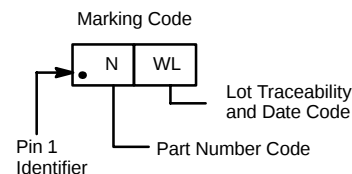
APPLICATIONS

- Cell Phones and Pagers
 - Load Switch
- Battery Operated Systems

SC-89 (6-LEADS)



Top View

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

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−20		V
Gate-Source Voltage		V _{GS}	± 8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	−0.84	−0.77	A
	T _A = 70°C		−0.68	−0.62	
Pulsed Drain Current		I _{DM}	−4		
Continuous Diode Current (Diode Conduction) ^a		I _S	−0.18	−0.14	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	0.21	0.17	W
	T _A = 70°C		0.13	0.10	
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}	500	600	$^\circ\text{C/W}$
	Steady State		600	720	

Notes

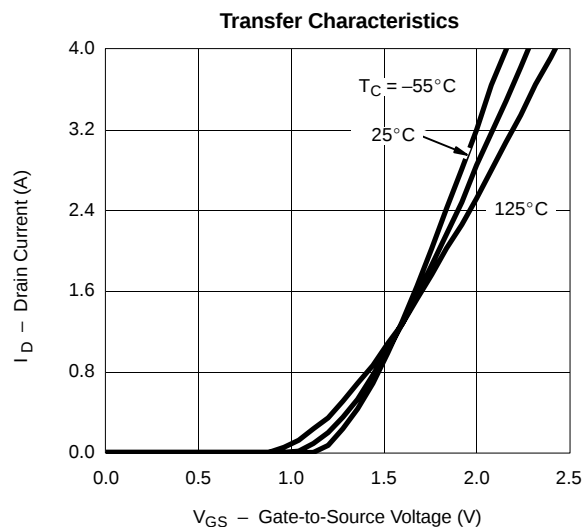
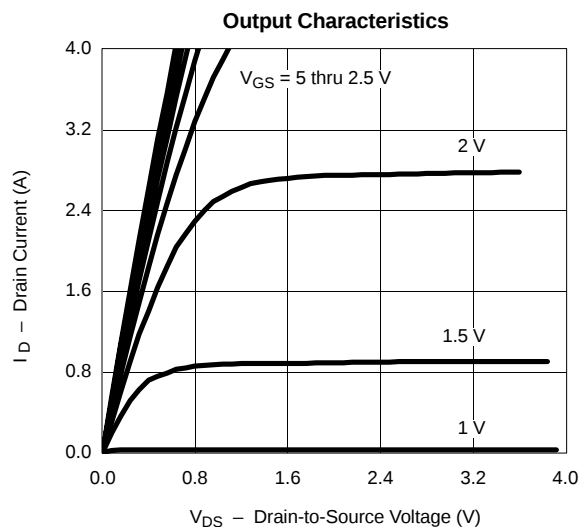
a. Surface Mounted on 1" x 1" FR4 Board with minimum copper.

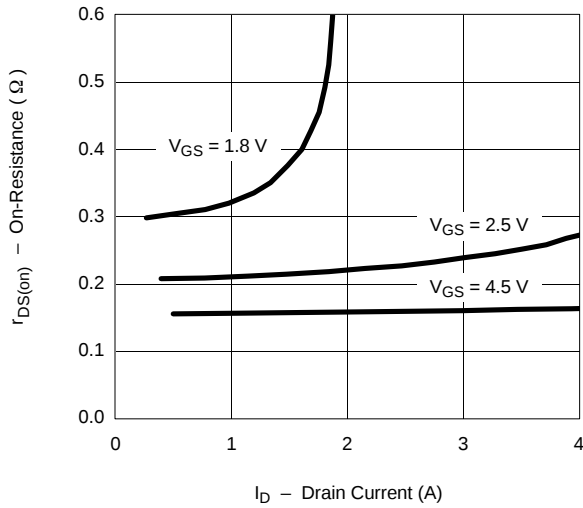
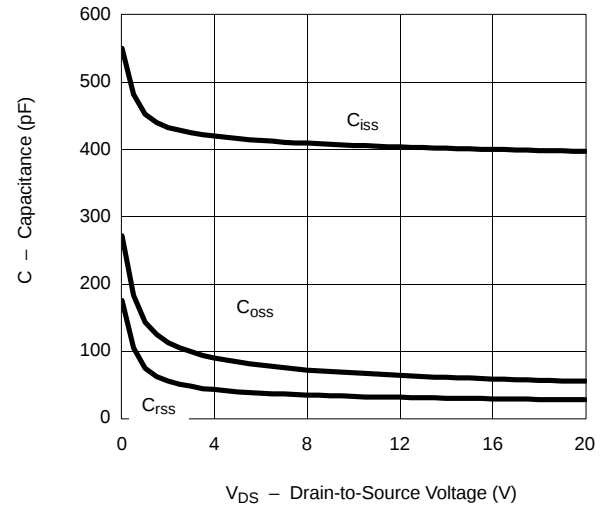
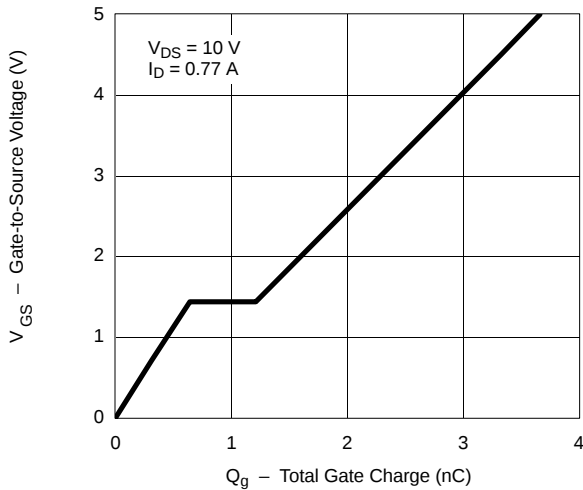
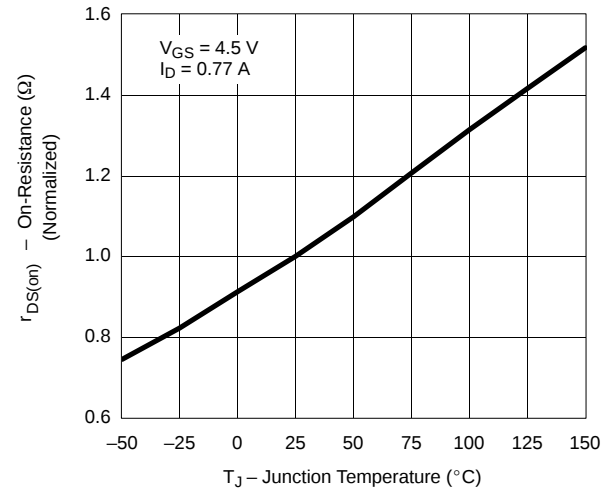
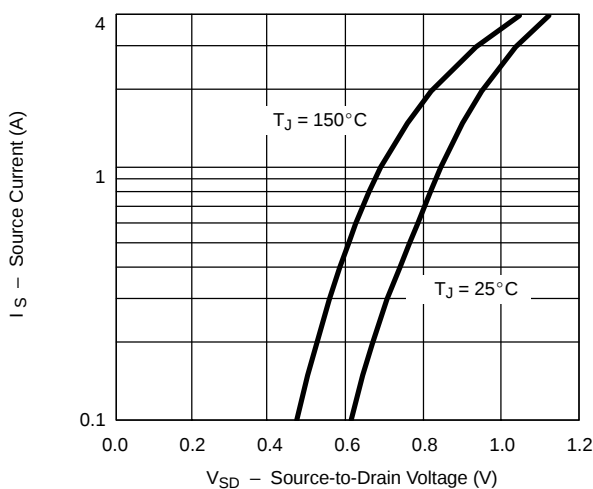
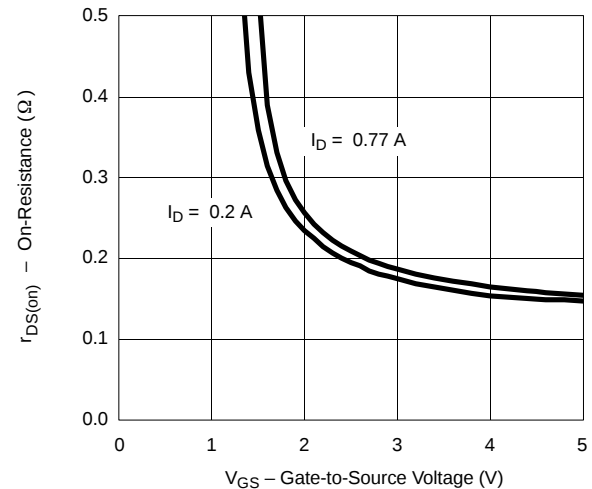
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-0.45			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}	$V_{DS} = -16\ \text{V}, V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -16\ \text{V}, V_{GS} = 0\ \text{V}, T_J = 70^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\ \text{V}, V_{GS} = -4.5\ \text{V}$	-4			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}, I_D = -0.77\ \text{A}$		0.160	0.195	Ω
		$V_{GS} = -2.5\ \text{V}, I_D = -0.67\ \text{A}$		0.212	0.260	
		$V_{GS} = -1.8\ \text{V}, I_D = -0.2\ \text{A}$		0.290	0.350	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\ \text{V}, I_D = -0.77\ \text{A}$		3.1		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -0.14\ \text{A}, V_{GS} = 0\ \text{V}$		-0.78	-1.2	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}, V_{GS} = -4.5\ \text{V}, I_D = -0.77\ \text{A}$		3.5	5.5	nC
Gate-Source Charge	Q_{gs}			0.65		
Gate-Drain Charge	Q_{gd}			0.60		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}, R_L = 20\ \Omega$ $I_D \approx -0.5\ \text{A}, V_{GEN} = -4.5\ \text{V}, R_G = 6\ \Omega$		10	20	ns
Rise Time	t_r			15	30	
Turn-Off Delay Time	$t_{d(off)}$			30	60	
Fall Time	t_f			10	20	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -0.14\ \text{A}, di/dt = 100\ \text{A}/\mu\text{s}$		20	40	

Notes

- a. Pulse test; pulse width $\leq 300\ \mu\text{s}$, 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)
