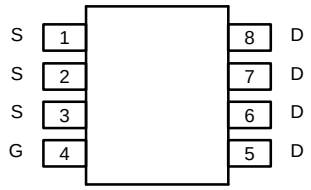
P-Channel Reduced Q_g, Fast Switching MOSFET

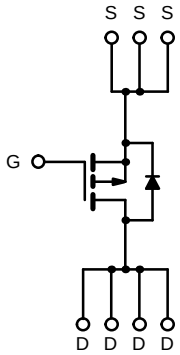
High-Efficiency PWM Optimized

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
–25	0.040 @ V_{GS} = –4.5 V	±5.9
	0.060 @ V_{GS} = –3.0 V	±4.8

SO-8



Top View



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)				
Parameter		**Symbol**	**Limit**	**Unit**
Drain-Source Voltage		V_{DS}	–25	V
Gate-Source Voltage		V_{GS}	±12	
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	±5.9	A
	T_A = 70°C		±4.7	
Pulsed Drain Current		I_{DM}	±40	
Continuous Source Current (Diode Conduction)[a]		I_S	–2.1	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	2.5	W
	T_A = 70°C		1.6	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	–55 to 150	°C

THERMAL RESISTANCE RATINGS			
Parameter	**Symbol**	**Limit**	**Unit**
Maximum Junction-to-Ambient[a]	R_{thJA}	50	°C/W

Notes
a. Surface Mounted on FR4 Board, t ≤ 10 sec.

SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

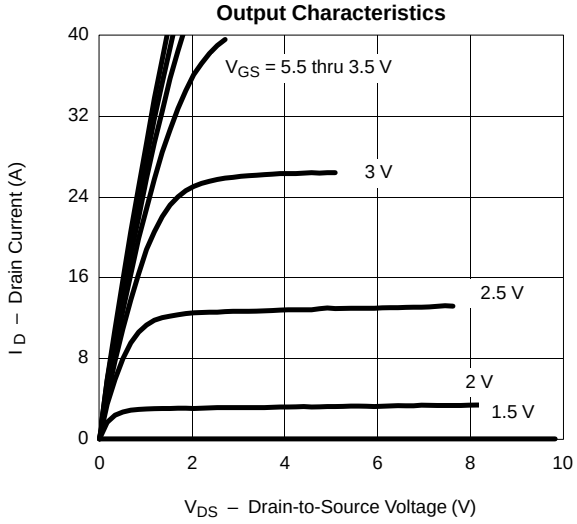
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = –250 μA	–0.6			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±12 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –25 V, V_{GS} = 0 V			–1	μA
		V_{DS} = –25 V, V_{GS} = 0 V, T_J = 70°C			–5	
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} ≤ –5 V, V_{GS} = –4.5 V	–40			A
Drain-Source On-State Resistance[b]	$r_{DS(on)}$	V_{GS} = –4.5 V, I_D = –5.9 A		0.033	0.040	Ω
		V_{GS} = –3.0 V, I_D = –4.8 A		0.044	0.060	
Forward Transconductance[b]	g_{fs}	V_{DS} = –9 V, I_D = –5.9 A		18		S
Diode Forward Voltage[b]	V_{SD}	I_S = –2.1 A, V_{GS} = 0 V		–0.75	–1.2	V
Dynamic[a]						
Total Gate Charge	Q_g	V_{DS} = –10 V, V_{GS} = –4.5 V, I_D = –5.9 A		15.8	25	nC
Gate-Source Charge	Q_{gs}			3.0		
Gate-Drain Charge	Q_{gd}			5.4		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = –10 V, R_L = 10 Ω I_D ≅ –1 A, V_{GEN} = –4.5 V, R_G = 6 Ω		20	40	ns
Rise Time	t_r			30	60	
Turn-Off Delay Time	$t_{d(off)}$			53	100	
Fall Time	t_f			31	60	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = –2.6, di/dt = 100 A/μs		80	120	

Notes

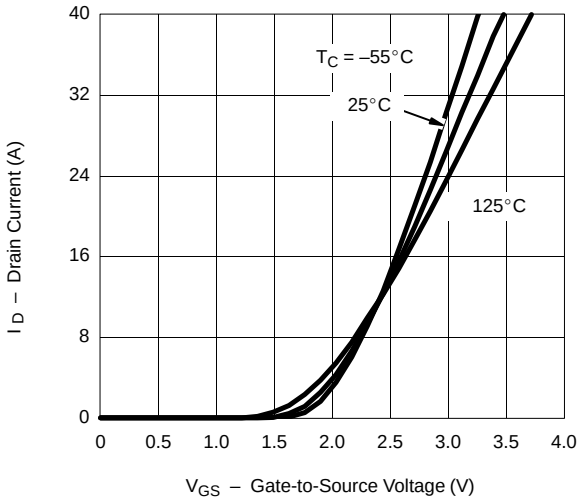
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. For design aid only; not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

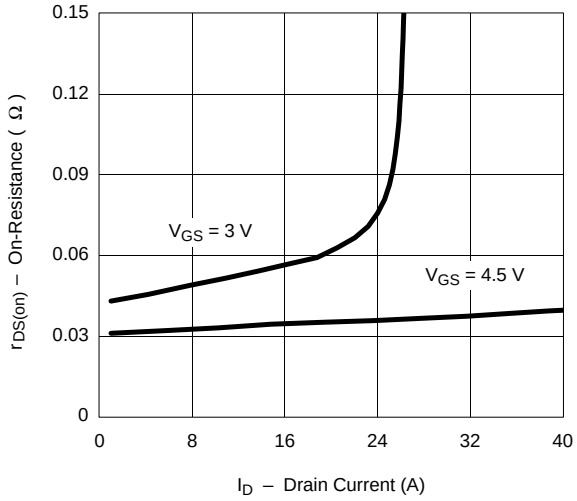
Output Characteristics



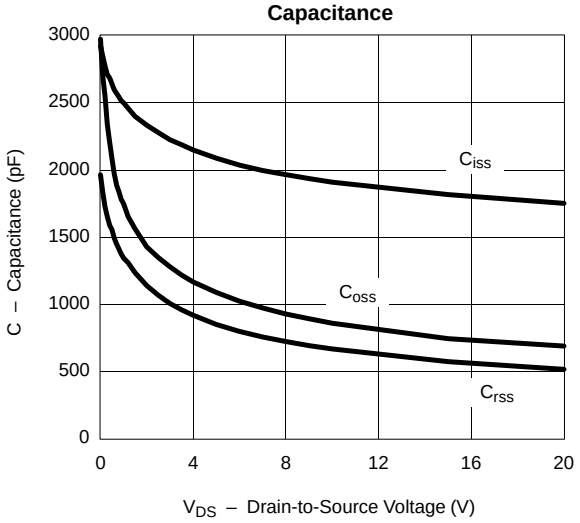
Transfer Characteristics



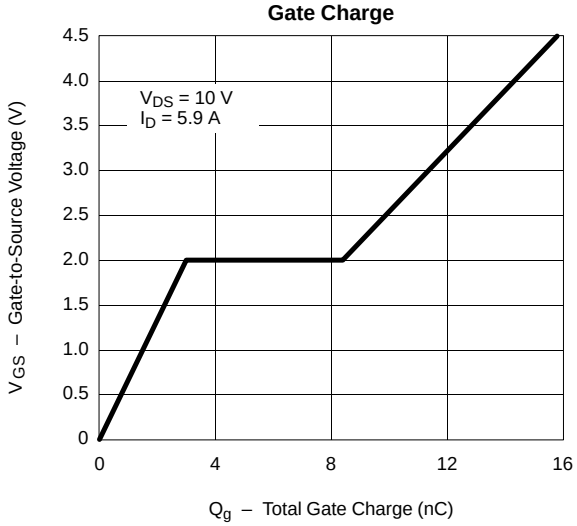
On-Resistance vs. Drain Current



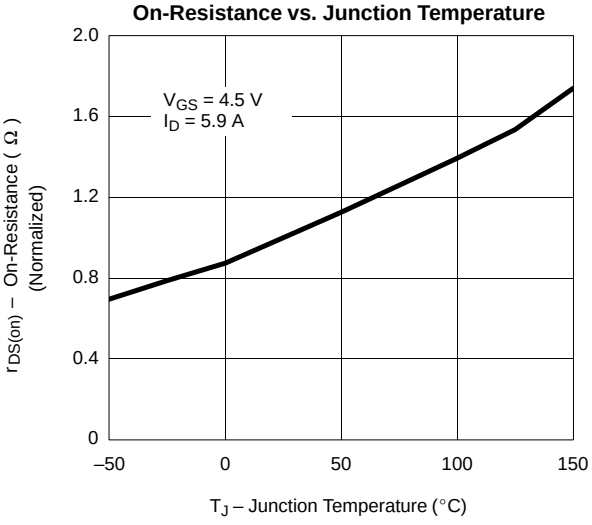
Capacitance



Gate Charge

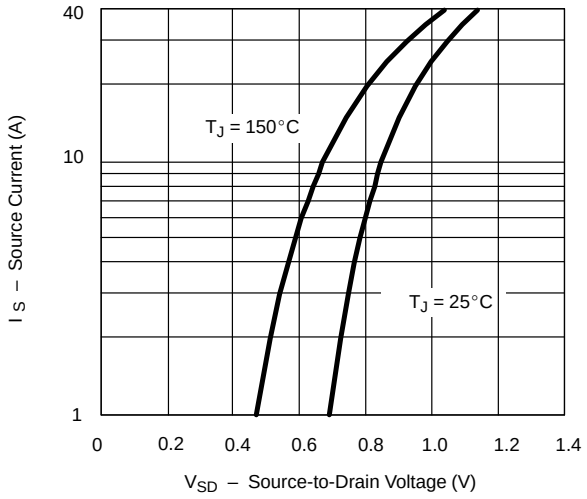


On-Resistance vs. Junction Temperature

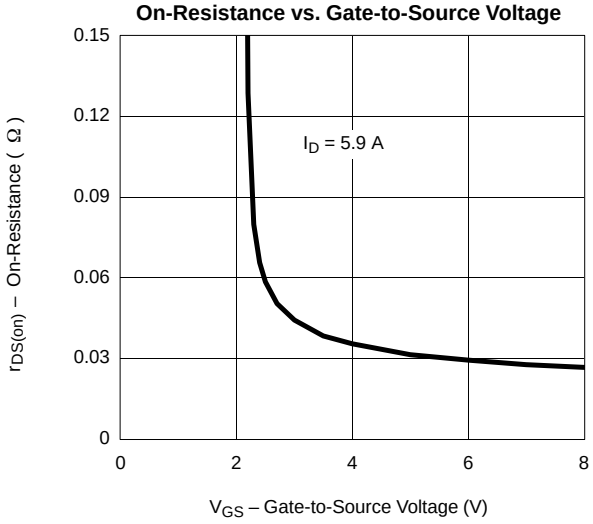


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

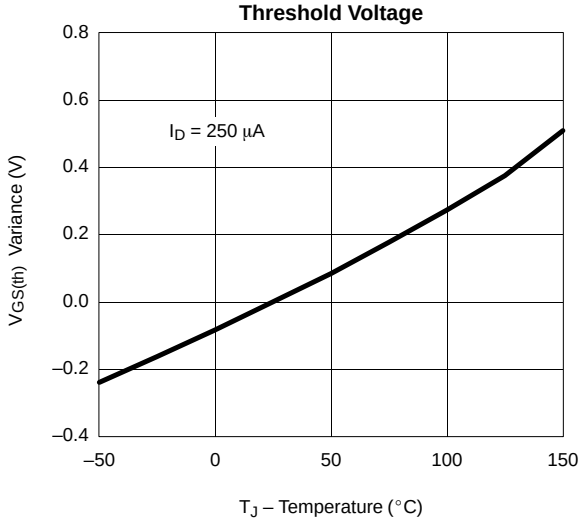
Source-Drain Diode Forward Voltage



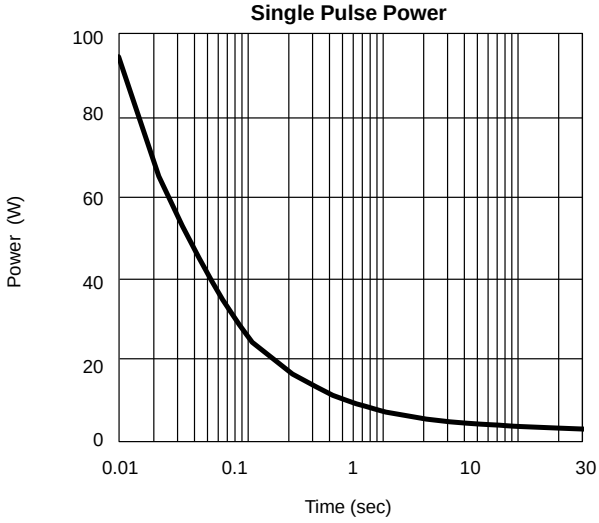
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient