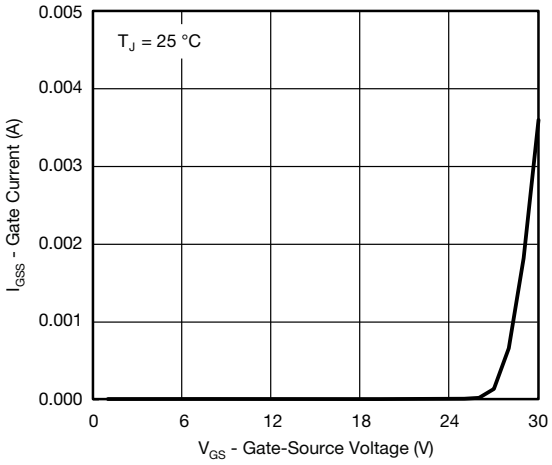
SPECIFICATIONS (T_C = 25 °C, unless otherwise noted)							
PARAMETER	**SYMBOL**	**TEST CONDITIONS**		**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static							
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0, I_D = 250 µA		40	-	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA		1.5	2.0	2.5	
Gate-Source Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 12 V		-	-	± 500	nA
		V_{DS} = 0 V, V_{GS} = ± 20 V		-	-	± 1	mA
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS} = 0 V	V_{DS} = 40 V	-	-	1	µA
		V_{GS} = 0 V	V_{DS} = 40 V, T_J = 125 °C	-	-	50	
		V_{GS} = 0 V	V_{DS} = 40 V, T_J = 175 °C	-	-	150	
On-State Drain Current[a]	$I_{D(on)}$	V_{GS} = 10 V	V_{DS} ≥ 5 V	10	-	-	A
Drain-Source On-State Resistance[a]	$R_{DS(on)}$	V_{GS} = 10 V	I_D = 5 A	-	0.026	0.032	Ω
		V_{GS} = 10 V	I_D = 5 A, T_J = 125 °C	-	-	0.050	
		V_{GS} = 10 V	I_D = 5 A, T_J = 175 °C	-	-	0.061	
		V_{GS} = 4.5 V	I_D = 4 A	-	0.040	0.048	
Forward Transconductance[b]	g_{fs}	V_{DS} = 15 V, I_D = 4 A		-	13	-	S
Dynamic[b]							
Input Capacitance	C_{iss}	V_{GS} = 0 V	V_{DS} = 25 V, f = 1 MHz	-	528	660	pF
Output Capacitance	C_{oss}			-	112	140	
Reverse Transfer Capacitance	C_{rss}			-	76	95	
Total Gate Charge[c]	Q_g	V_{GS} = 4.5 V	V_{DS} = 20 V, I_D = 4 A	-	7.1	11	nC
Gate-Source Charge[c]	Q_{gs}			-	1.7	-	
Gate-Drain Charge[c]	Q_{gd}			-	3.7	-	
Gate Resistance	R_g	f = 1 MHz		1.2	2.4	3.6	Ω
Turn-On Delay Time[c]	$t_{d(on)}$	V_{DD} = 20 V, R_L = 4 Ω I_D ≅ 5 A, V_{GEN} = 10 V, R_g = 1 Ω		-	8	12	ns
Rise Time[c]	t_r			-	8	12	
Turn-Off Delay Time[c]	$t_{d(off)}$			-	15	23	
Fall Time[c]	t_f			-	7	11	
Source-Drain Diode Ratings and Characteristics T_C = 25 °C[b]							
Pulsed Current[a]	I_{SM}			-	-	32	A
Forward Voltage	V_{SD}	I_F = 3 A, V_{GS} = 0		-	0.8	1.2	V

Notes

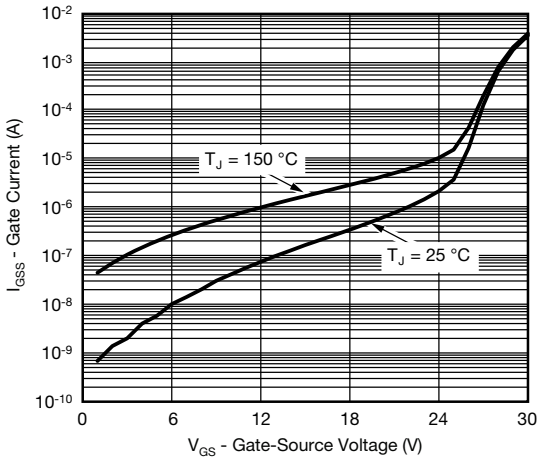
a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2 %.
b. Guaranteed by design, not subject to production testing.
c. Independent of operating temperature.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

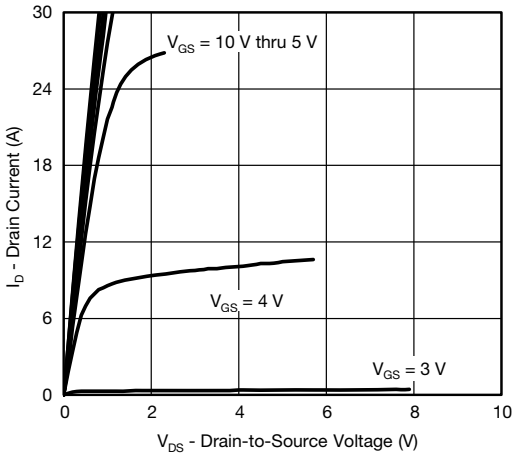
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



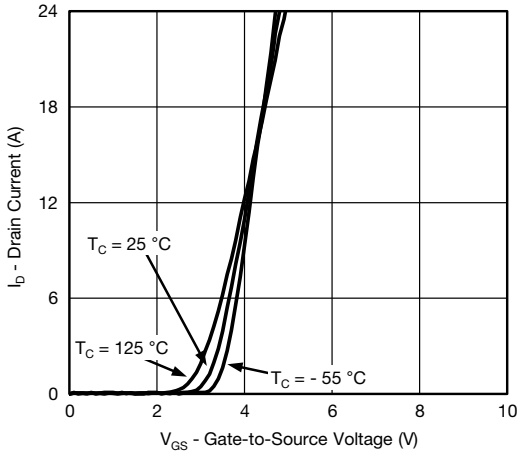
Gate Current vs. Gate-Source Voltage



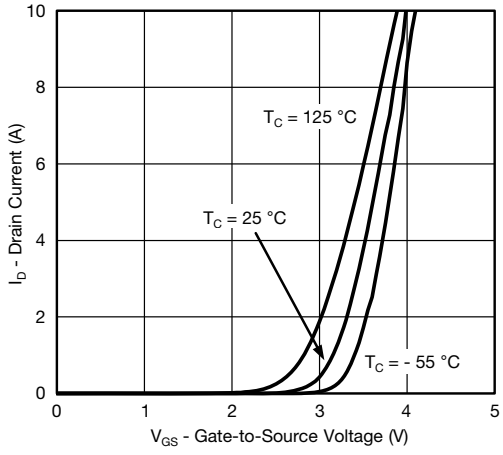
Gate Current vs. Gate-Source Voltage



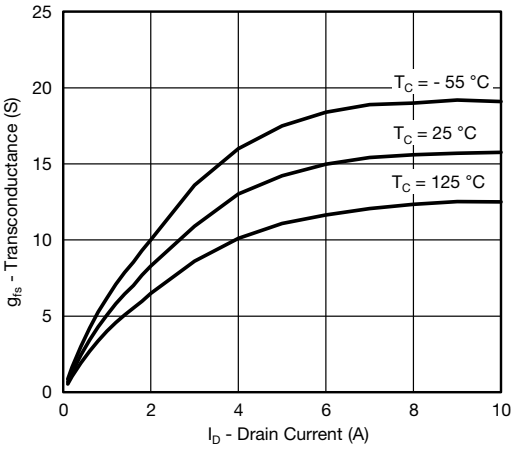
Output Characteristics



Transfer Characteristics

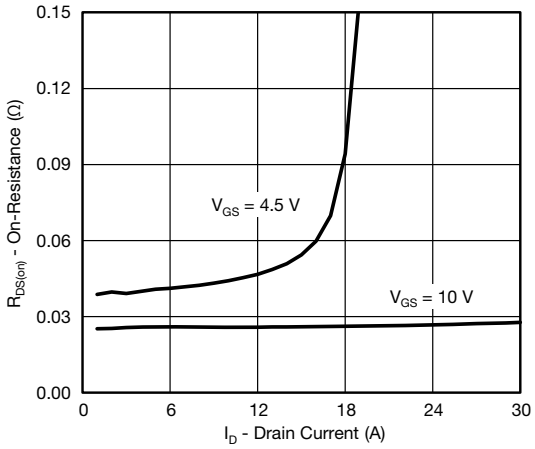


Transfer Characteristics

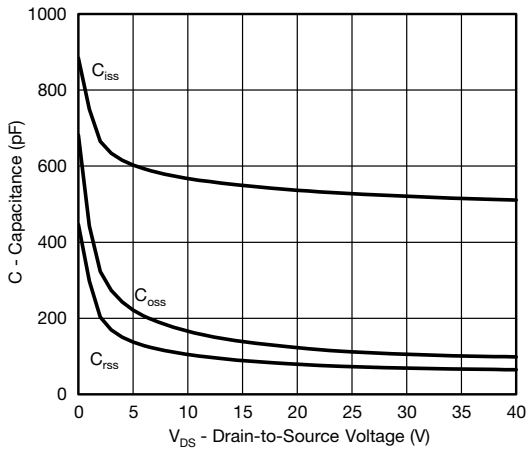


Transconductance

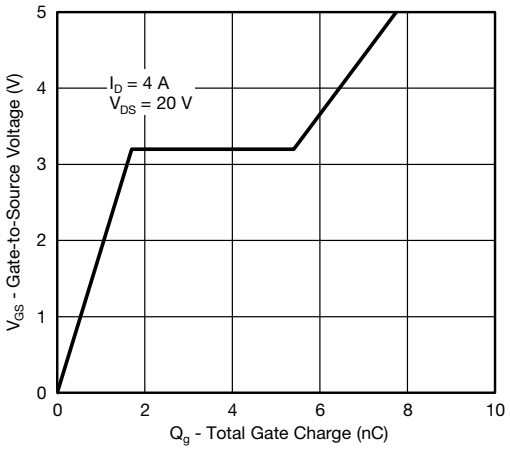
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



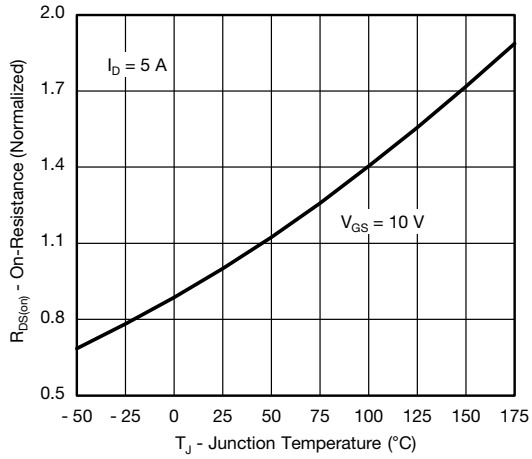
On-Resistance vs. Drain Current



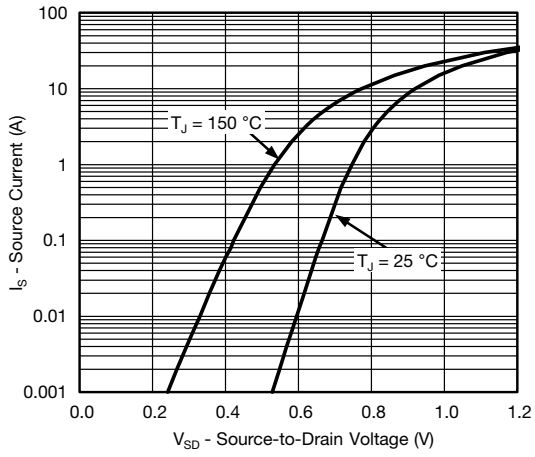
Capacitance



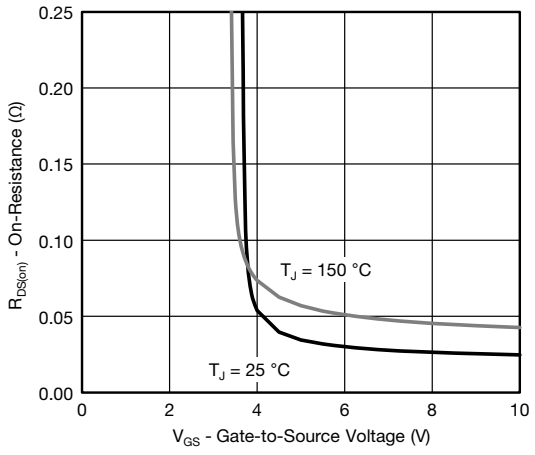
Gate Charge



On-Resistance vs. Junction Temperature

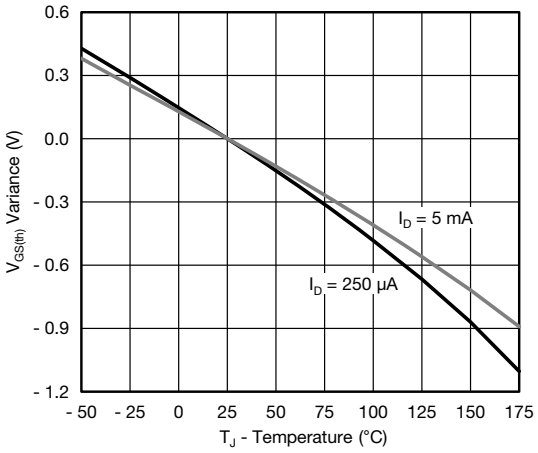


Source-Drain Diode Forward Voltage

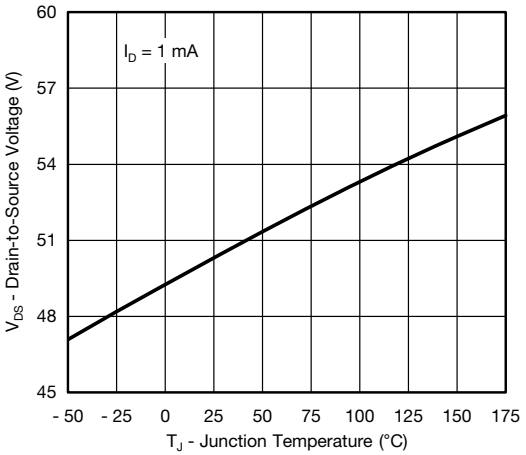


On-Resistance vs. Gate-Source Voltage

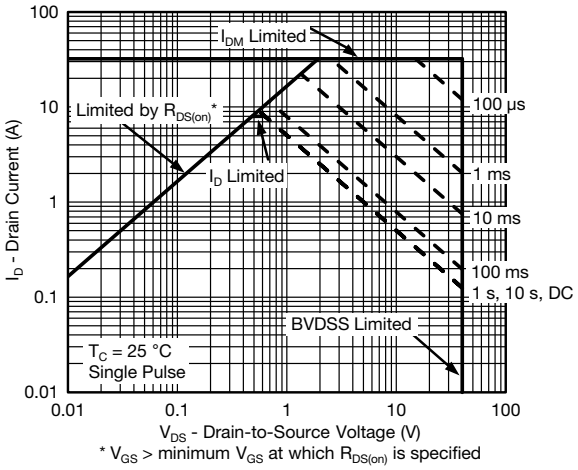
TYPICAL CHARACTERISTICS (T_A = 25 °C, unless otherwise noted)



Threshold Voltage

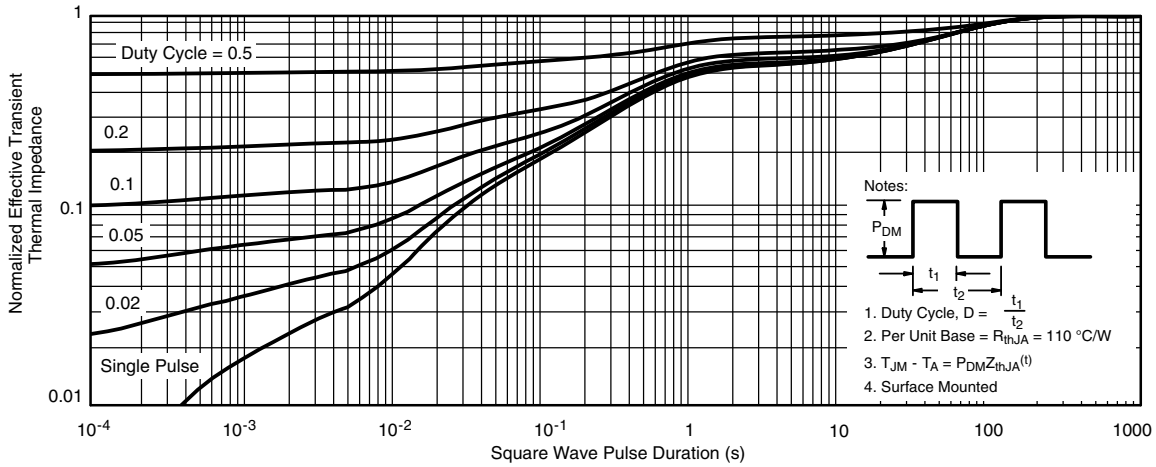


Drain-Source Breakdown vs. Junction Temperature

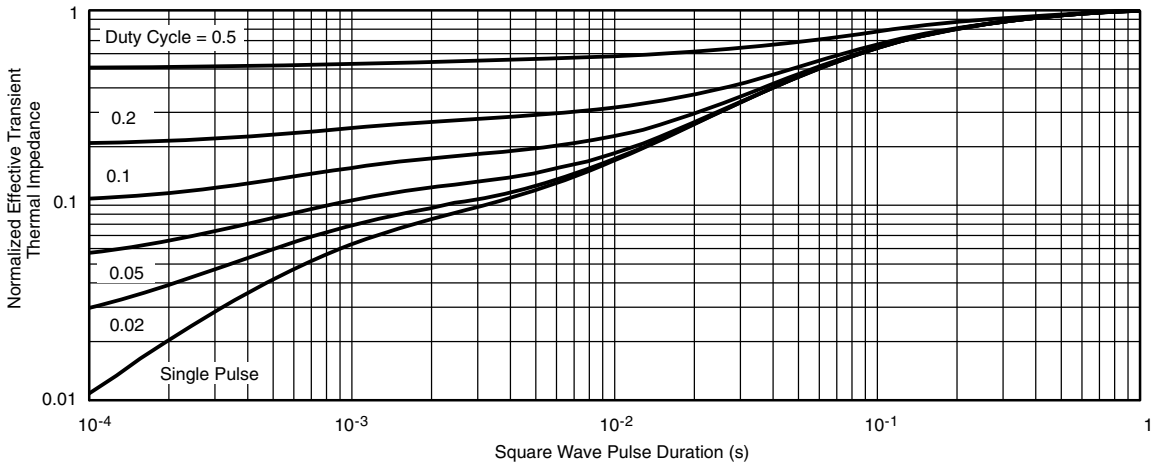


Safe Operating Area

THERMAL RATINGS (T_A = 25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Foot

Note

- The characteristics shown in the two graphs
  - Normalized Transient Thermal Impedance Junction-to-Ambient (25 °C)
  - Normalized Transient Thermal Impedance Junction-to-Foot (25 °C)

  are given for general guidelines only to enable the user to get a “ball park” indication of part capabilities. The data are extracted from single pulse transient thermal impedance characteristics which are developed from empirical measurements. The latter is valid for the part mounted on printed circuit board - FR4, size 1" x 1" x 0.062", double sided with 2 oz. copper, 100 % on both sides. The part capabilities can widely vary depending on actual application parameters and operating conditions.

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