SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static						
Drain-source breakdown voltage	V_{DS}	V_{GS} = 0 V, I_D = 250 µA	20	-	-	V
V_{DS} temperature coefficient	$\Delta V_{DS}/T_J$	I_D = 250 µA	-	18	-	mV/°C
$V_{GS(th)}$ temperature coefficient	$\Delta V_{GS(th)}/T_J$		-	-3.5	-	
Gate-source threshold voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1 mA	0.5	-	1.2	V
Gate-source leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 12 V	-	-	± 10	µA
		V_{DS} = 0 V, V_{GS} = ± 4.5 V	-	-	± 1	
Zero gate voltage drain current	I_{DSS}	V_{DS} = 20 V, V_{GS} = 0 V	-	-	1	
		V_{DS} = 20 V, V_{GS} = 0 V, T_J = 55 °C	-	-	10	
On-state drain current [a]	$I_{D(on)}$	V_{DS} ≥ 5 V, V_{GS} = 10 V	20	-	-	A
Drain-source on-state resistance [a]	$R_{DS(on)}$	V_{GS} = 4.5 V, I_D = 14 A	-	0.0032	0.0039	Ω
		V_{GS} = 3.7 V, I_D = 14 A	-	0.0035	0.0042	
		V_{GS} = 2.5 V, I_D = 13 A	-	0.0041	0.0058	
Forward transconductance [a]	g_{fs}	V_{DS} = 10 V, I_D = 14 A	-	50	-	S
Dynamic [b]						
Input capacitance	C_{iss}	V_{DS} = 10 V, V_{GS} = 0 V, f = 1 MHz	-	2060	-	pF
Output capacitance	C_{oss}		-	558	-	
Reverse transfer capacitance	C_{rss}		-	365	-	
Total gate charge	Q_g	V_{DS} = 10 V, V_{GS} = 10 V, I_D = 20 A	-	46	70	nC
		V_{DS} = 10 V, V_{GS} = 4.5 V, I_D = 20 A	-	22.5	34	
Gate-source charge	Q_{gs}		-	4.1	-	
Gate-drain charge	Q_{gd}		-	5.3	-	
Gate resistance	R_g	f = 1 MHz	0.2	1	2	Ω
Turn-on delay time	$t_{d(on)}$	V_{DD} = 10 V, R_L = 1 Ω I_D ≅ 10 A, V_{GEN} = 4.5 V, R_g = 1 Ω	-	16	24	ns
Rise time	t_r		-	65	98	
Turn-off delay time	$t_{d(off)}$		-	40	60	
Fall time	t_f		-	12	20	
Turn-on delay time	$t_{d(on)}$	V_{DD} = 10 V, R_L = 1 Ω I_D ≅ 10 A, V_{GEN} = 10 V, R_g = 1 Ω	-	9	18	
Rise time	t_r		-	5	10	
Turn-off delay time	$t_{d(off)}$		-	34	51	
Fall time	t_f		-	4	8	
Drain-Source Body Diode Characteristics						
Continuous source-drain diode current	I_S	T_C = 25 °C	-	-	50	A
Pulse diode forward current (t = 100 µs)	I_{SM}		-	-	200	
Body diode voltage	V_{SD}	I_S = 10 A, V_{GS} = 0 V	-	0.75	1.2	V
Body diode reverse recovery time	t_{rr}	I_F = 10 A, di/dt = 100 A/µs, T_J = 25 °C	-	22	44	ns
Body diode reverse recovery charge	Q_{rr}		-	10	20	nC
Reverse recovery fall time	t_a		-	11	-	ns
Reverse recovery rise time	t_b		-	11	-	

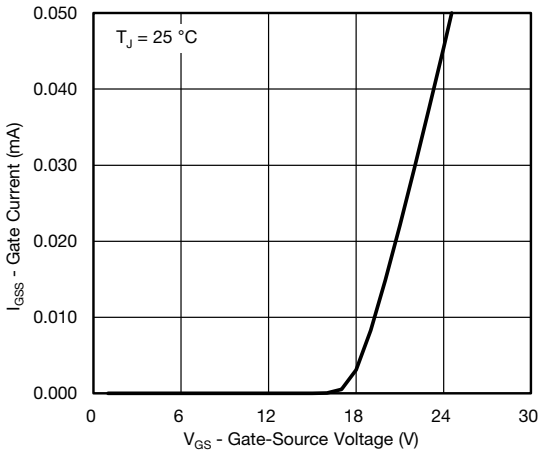
Notes

a. Pulse test: pulse width ≤ 300 µs, duty cycle ≤ 2 %

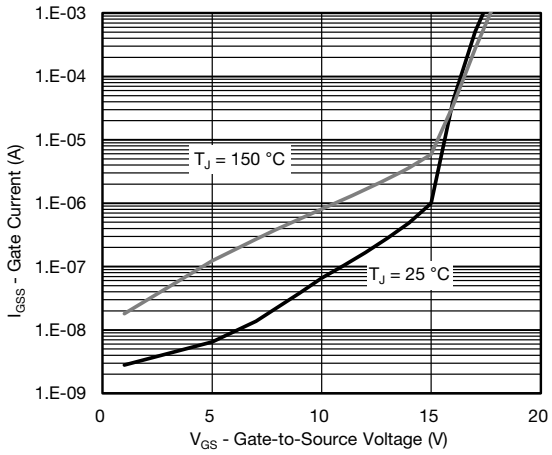
b. Guaranteed by design, not subject to production testing

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.

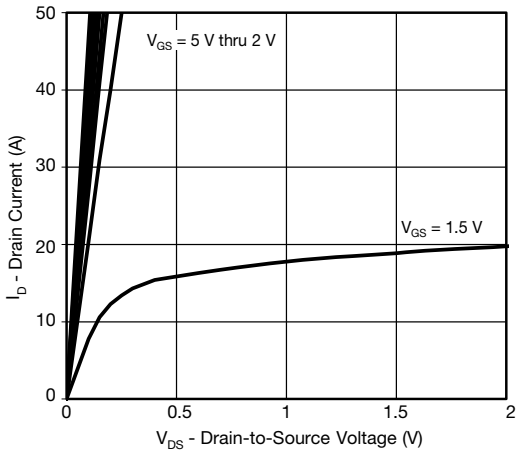
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



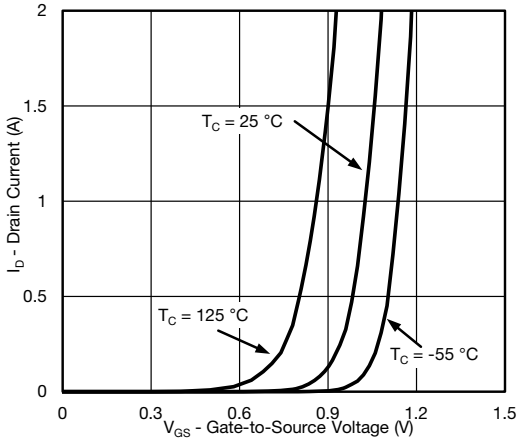
Gate Current vs. Gate-to-Source Voltage



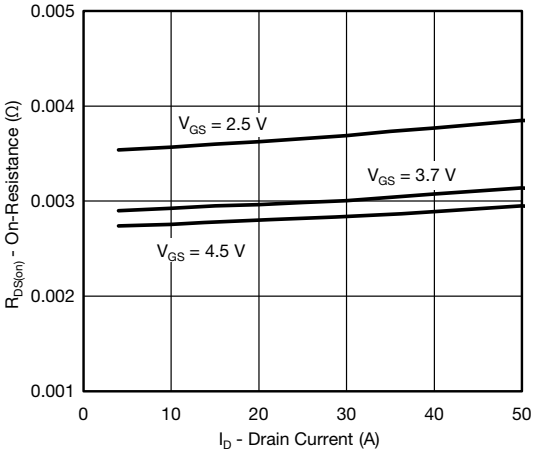
Gate Current vs. Gate-to-Source Voltage



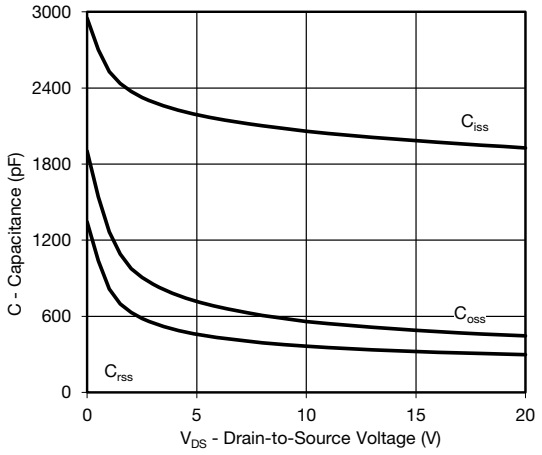
Output Characteristics



Transfer Characteristics

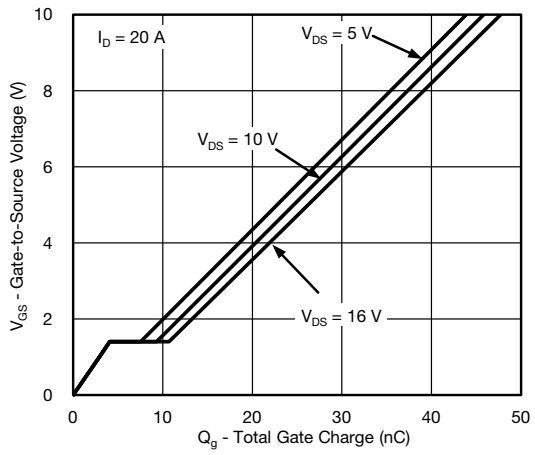


On-Resistance vs. Drain Current and Gate Voltage

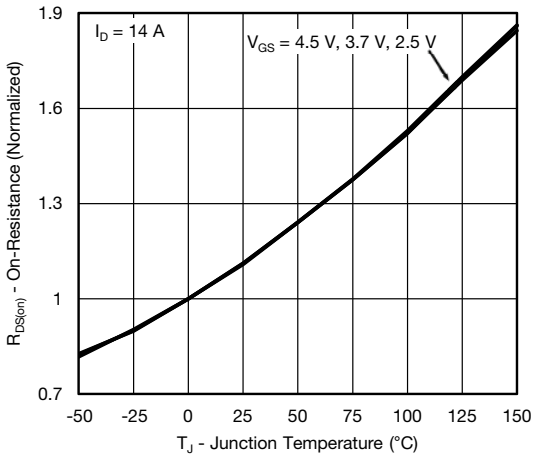


Capacitance

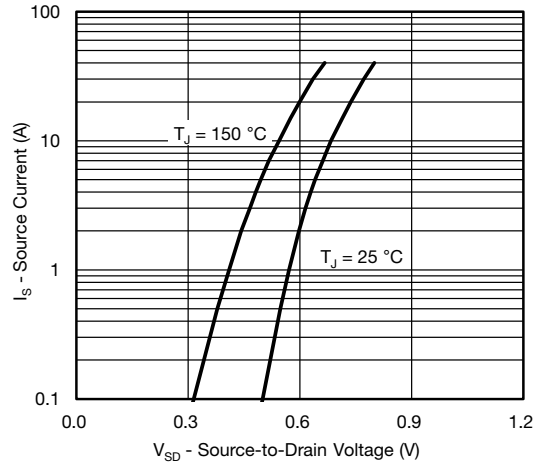
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



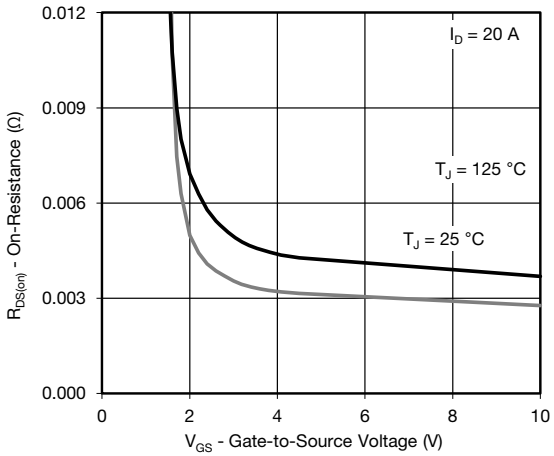
Gate Charge



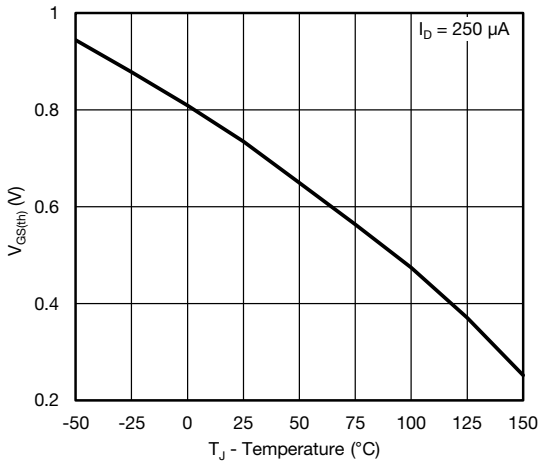
On-Resistance vs. Junction Temperature



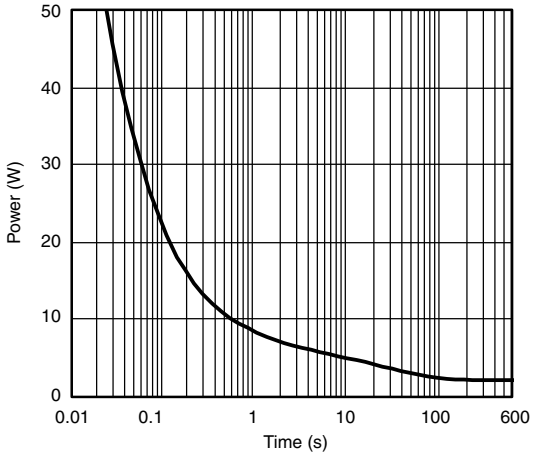
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage

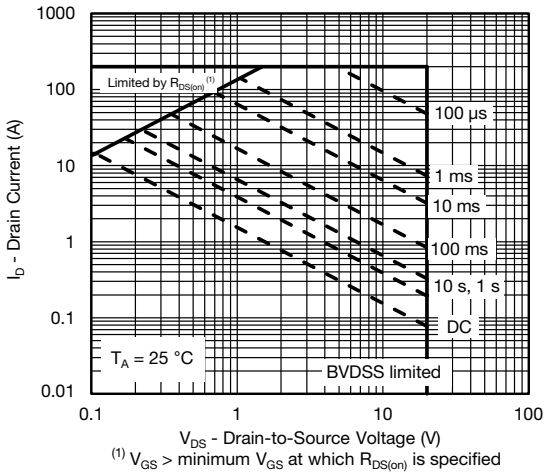


Threshold Voltage

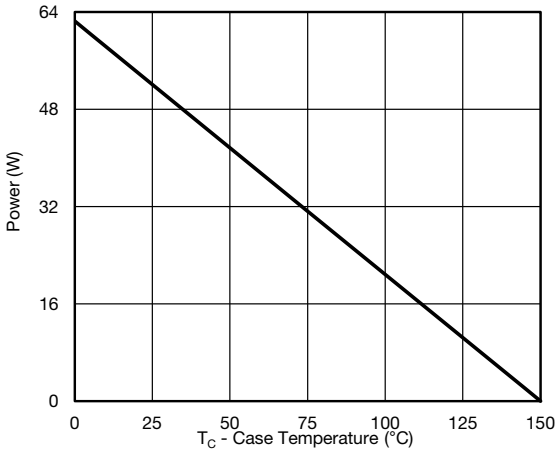


Single Pulse Power, Junction-to-Ambient

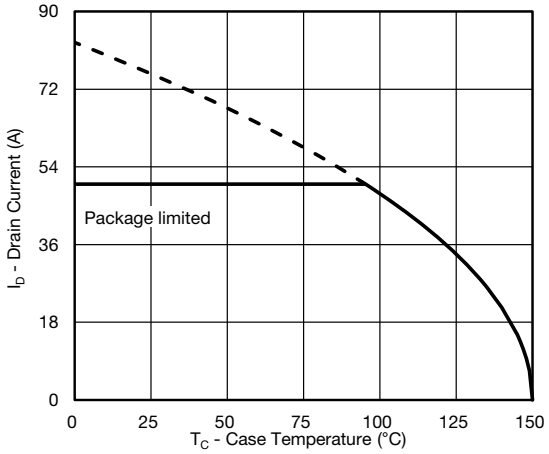
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Safe Operating Area



Power, Junction-to-Case

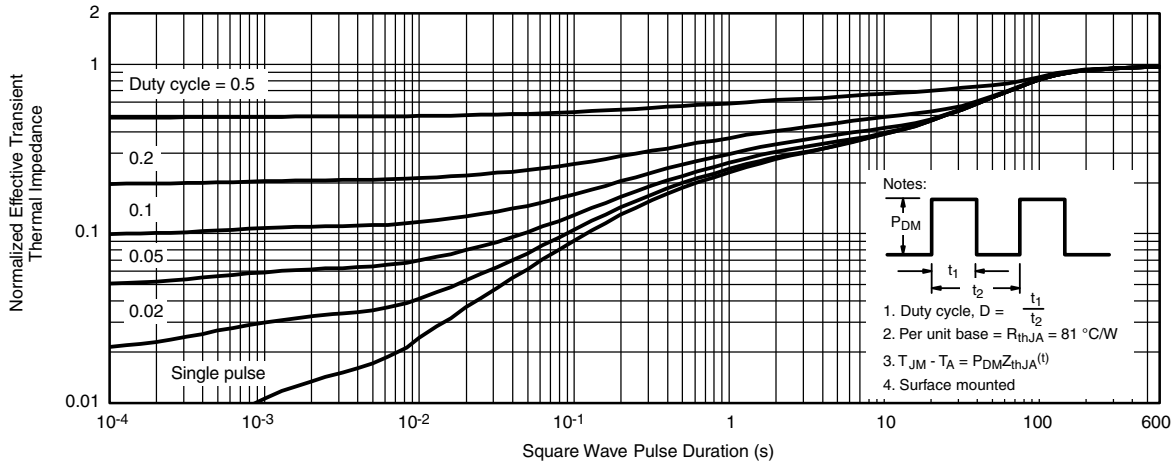


Current Derating [a]

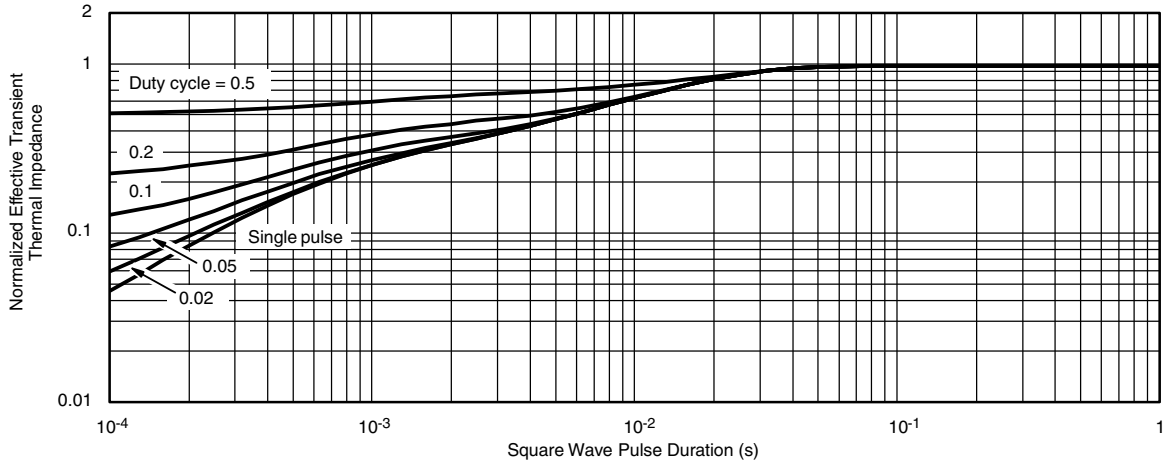
Note

a. The power dissipation P_D is based on T_J max. = 150 °C, using junction-to-case thermal resistance, and is more useful in settling the upper dissipation limit for cases where additional heatsinking is used. It is used to determine the current rating, when this rating falls below the package limit

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



Normalized Thermal Transient Impedance, Junction-to-Ambient



Normalized Thermal Transient Impedance, Junction-to-Case

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