Electrical Characteristics T_J = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
B_{VDSS}	Drain to Source Breakdown Voltage	I_D = 250μA, V_{GS} = 0V	40	-	-	V
I_{DSS}	Drain to Source Leakage Current	V_{DS}=40V, V_{GS} = 0V, T_J = 25°C	-	-	1	μA
		V_{DS}=40V, V_{GS} = 0V, T_J = 175°C(Note 4)	-	-	1	mA
I_{GSS}	Gate to Source Leakage Current	V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate to Source Threshold Voltage	V_{GS} = V_{DS}, I_D = 250uA	2.0	3.13	4.0	V
$r_{DS(on)}$	Drain to Source On Resistance	I_D = 80A, V_{GS}= 10V, T_J = 25°C	-	1.0	1.2	mΩ
		I_D = 80A, V_{GS}= 10V, T_J = 175°C(Note 4)	-	1.63	1.96	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	-	12700	-	pF
C_{oss}	Output Capacitance		-	3195	-	pF
C_{rss}	Reverse Transfer Capacitance		-	493	-	pF
R_g	Gate Resistance	f = 1MHz	-	2.9	-	Ω
$Q_{g(ToT)}$	Total Gate Charge at 10V	V_{GS} = 0 to 10V, V_{DD} = 20V, I_D = 80A	-	164	213	nC
$Q_{g(th)}$	Threshold Gate Charge	V_{GS} = 0 to 2V, V_{DD} = 20V, I_D = 80A	-	23	30	nC
Q_{gs}	Gate to Source Gate Charge	V_{DD} = 20V, I_D = 80A	-	59	-	nC
Q_{gd}	Gate to Drain “Miller“ Charge	V_{DD} = 20V, I_D = 80A	-	25	-	nC

Switching Characteristics

t_{on}	Turn-On Time	V_{DD} = 20V, I_D = 80A, V_{GS} = 10V, R_{GS} = 1.5Ω	-	-	56	ns
$t_{d(on)}$	Turn-On Delay Time		-	16	-	ns
t_r	Rise Time		-	19.5	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	61	-	ns
t_f	Fall Time		-	46	-	ns
t_{off}	Turn-Off Time		-	-	171	ns

Drain-Source Diode Characteristics

V_{SD}	Source to Drain Diode Voltage	I_{SD} = 35A, V_{GS} = 0V	-	-	0.85	V
		I_{SD} = 15A, V_{GS} = 0V	-	-	0.80	V
T_{rr}	Reverse Recovery Time	I_F = 80A, dI_{SD}/dt = 100A/μs	-	96	125	ns
Q_{rr}	Reverse Recovery Charge		-	149	194	nC

Notes:

4: The maximum value is specified by design at TJ = 175°C. Product is not tested to this condition in production.

Typical Characteristics

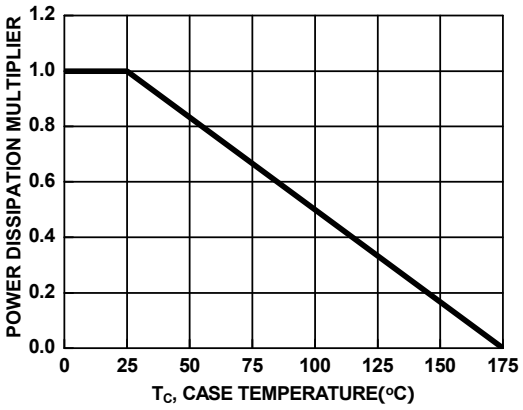
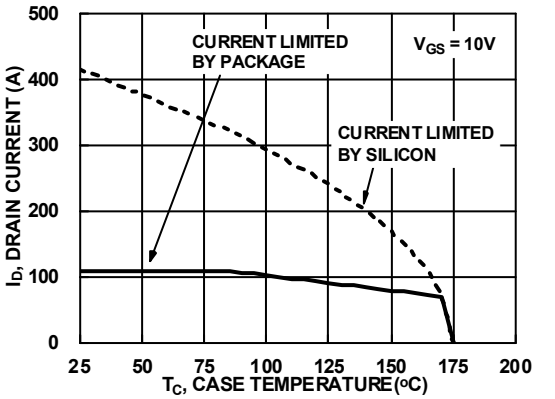


Figure 1. Normalized Power Dissipation vs Case Temperature



NOTE: Refer to ON Semiconductor Application Notes AN9757

Figure 2. Maximum Continuous Drain Current vs Case Temperature

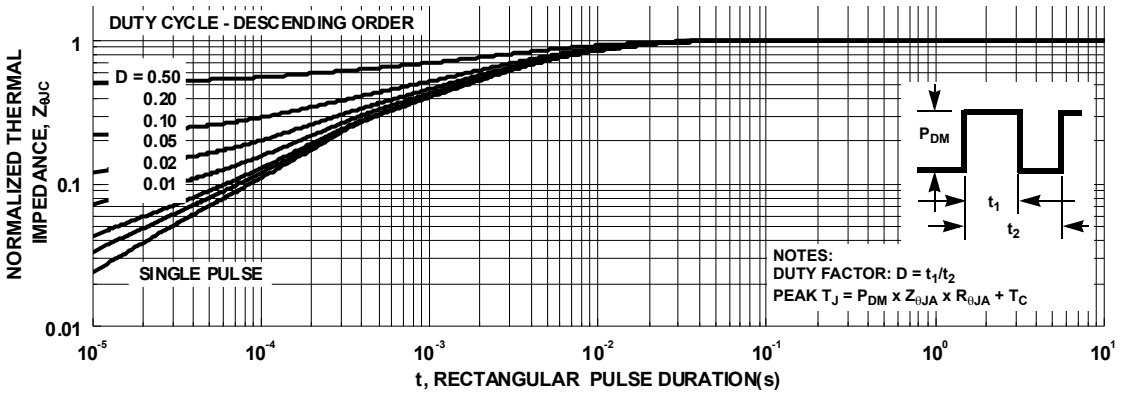


Figure 3. Normalized Maximum Transient Thermal Impedance

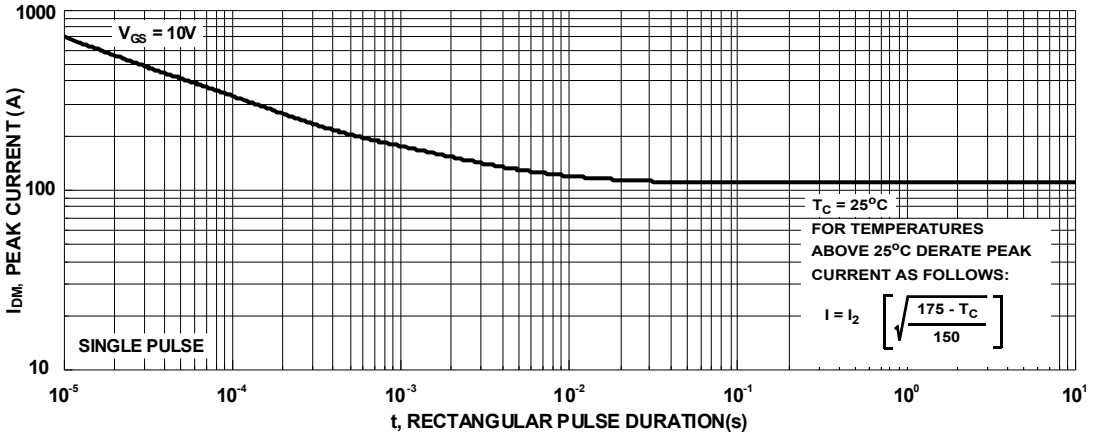


Figure 4. Peak Current Capability

Typical Characteristics

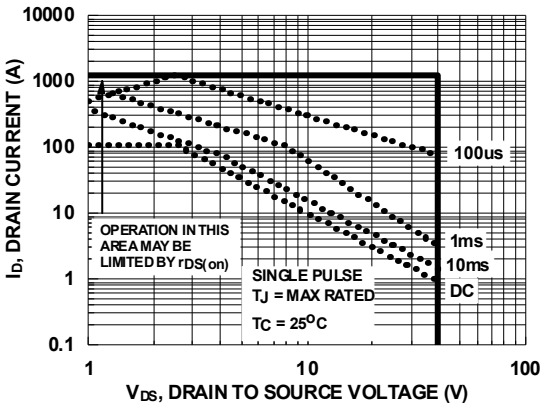
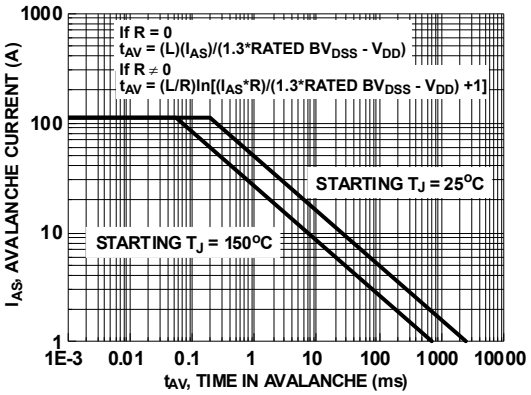


Figure 5. Forward Bias Safe Operating Area



NOTE: Refer to ON Semiconductor Application Notes AN7514 and AN7515

Figure 6. Unclamped Inductive Switching Capability

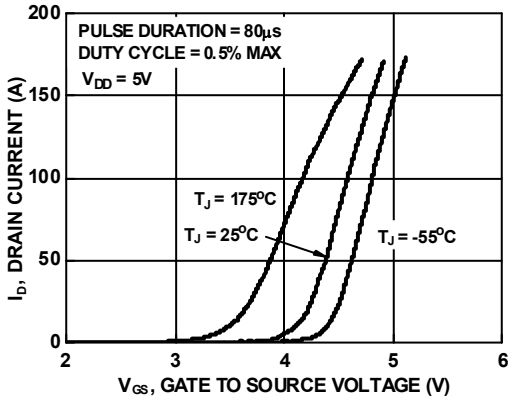


Figure 7. Transfer Characteristics

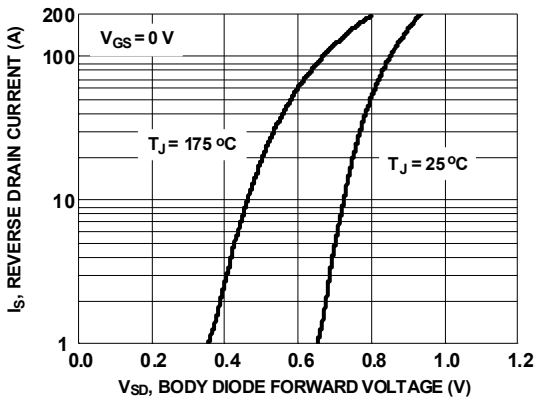


Figure 8. Forward Diode Characteristics

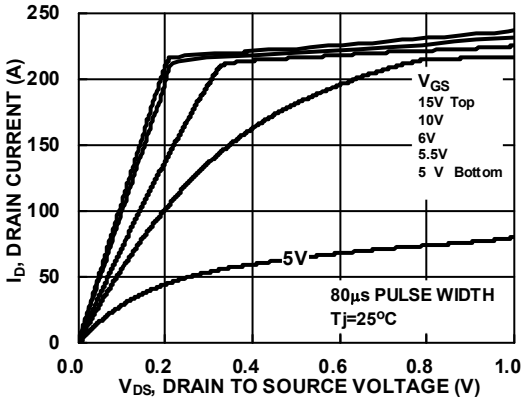


Figure 9. Saturation Characteristics

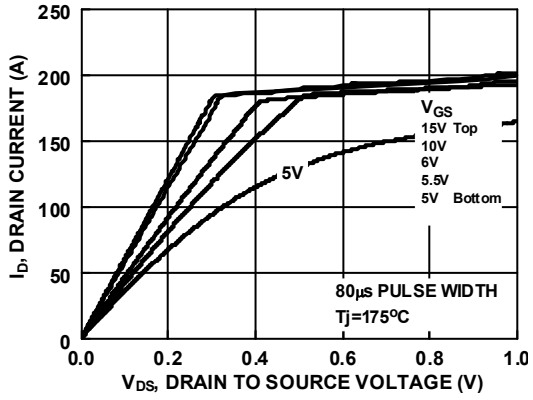


Figure 10. Saturation Characteristics

Typical Characteristics

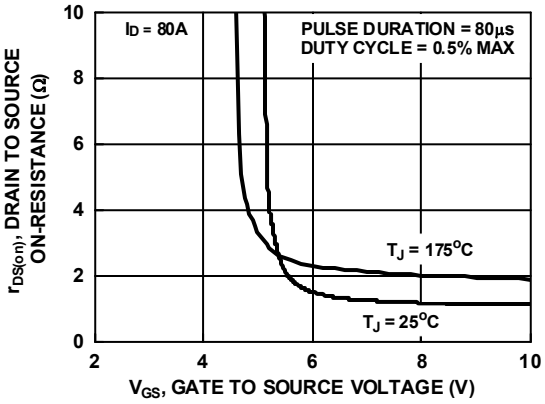


Figure 11. Rdson vs Gate Voltage

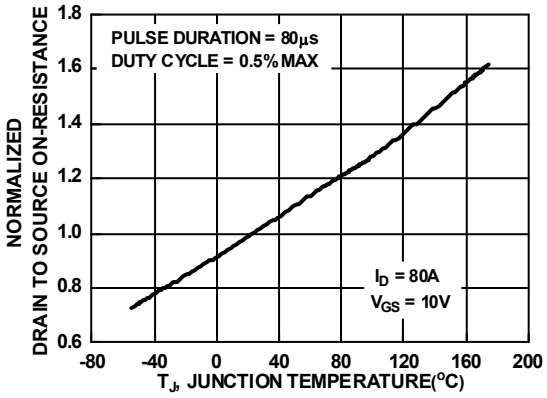


Figure 12. Normalized Rdson vs Junction Temperature

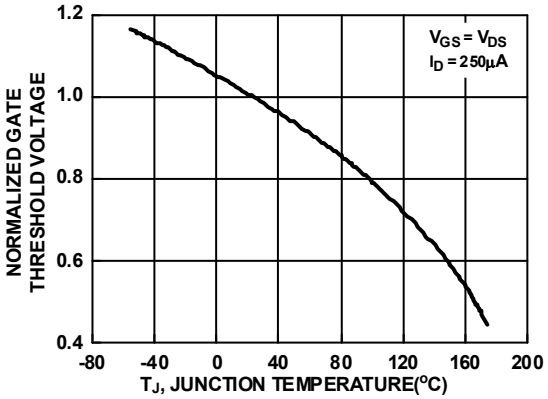


Figure 13. Normalized Gate Threshold Voltage vs Temperature

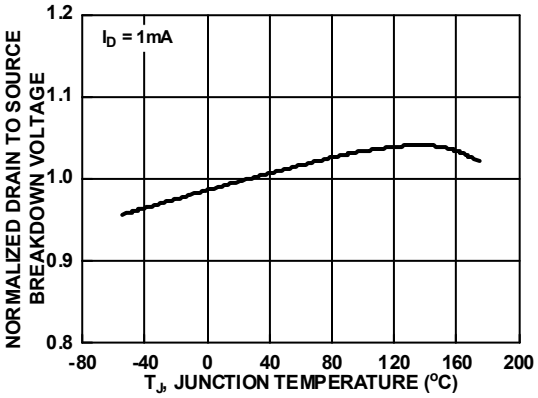


Figure 14. Normalized Drain to Source Breakdown Voltage vs Junction Temperature

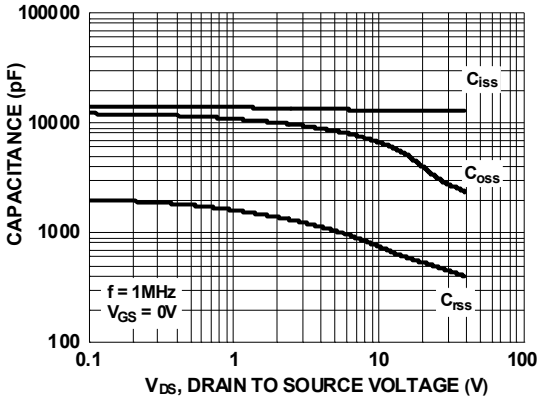


Figure 15. Capacitance vs Drain to Source Voltage

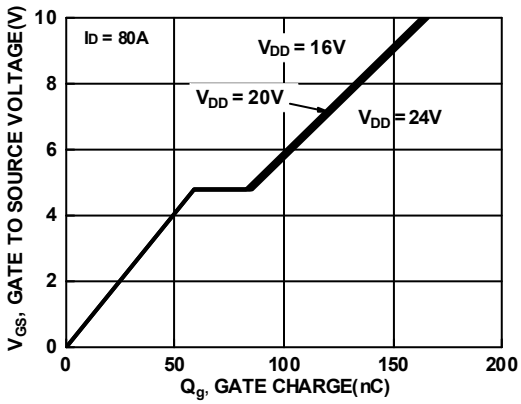


Figure 16. Gate Charge vs Gate to Source Voltage

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