

SPECIFICATIONS $T_J = 25\text{ }^{\circ}\text{C}$, 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	8			V
V _{DS} Temperature Coefficient	ΔV _{DS} /T _J	I _D = 250 μA		8.32		mV/°C
V _{GS(th)} Temperature Coefficient	ΔV _{GS(th)} /T _J			- 2.7		
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	0.3		1	V
Gate-Source Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 5 V			± 100	ns
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 8 V, V _{GS} = 0 V			1	μA
		V _{DS} = 8 V, V _{GS} = 0 V, T _J = 55 °C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} ≤ 5 V, V _{GS} = 4.5 V	15			A
Drain-Source On-State Resistance ^a	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 4.0 A		0.039	0.047	Ω
		V _{GS} = 2.5 V, I _D = 4.0 A		0.042	0.051	
		V _{GS} = 1.8 V, I _D = 4.0 A		0.048	0.058	
		V _{GS} = 1.5 V, I _D = 1.28 A		0.053	0.069	
Forward Transconductance ^a	g _{fs}	V _{DS} = 4 V, I _D = 4.0 A		15.5		S
Dynamic ^b						
Input Capacitance	C _{iss}	V _{DS} = 4 V, V _{GS} = 0 V, f = 1 MHz		535		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			61		
Total Gate Charge	Q _g	V _{DS} = 4 V, V _{GS} = 5 V, I _D = 4.0 A		4.7	7.05	nC
Gate-Source Charge	Q _{gs}	V _{DS} = 4 V, V _{GS} = 4.5 V, I _D = 4.0 A		4.24	6.4	
Gate-Drain Charge	Q _{gd}			1.2		
				0.810		
Gate Resistance	R _g	f = 1 MHz		7.3	11	Ω
Turn-On Delay Time	t _{d(on)}	V _{DD} = 4 V, R _L = 1.11 Ω I _D ≅ 3.6 A, V _{GEN} = 4.5 V, R _g = 1 Ω		8	12	ns
Rise Time	t _r			73	110	
Turn-Off Delay Time	t _{d(off)}			18	27	
Fall Time	t _f			5	7.5	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I _S	T _C = 25 °C			2.6	A
Pulse Diode Forward Current	I _{SM}				15	
Body Diode Voltage	V _{SD}	I _S = 2.6 A, V _{GS} = 0 V		0.8	1.2	V
Body Diode Reverse Recovery Time	t _{rr}	I _F = 2.6 A, di/dt = 100 A/μs, T _J = 25 °C		14.3	21.45	ns
Body Diode Reverse Recovery Charge	Q _{rr}			3.6	5.4	nC
Reverse Recovery Fall Time	t _a			6.8		ns
Reverse Recovery Rise Time	t _b			7.5		

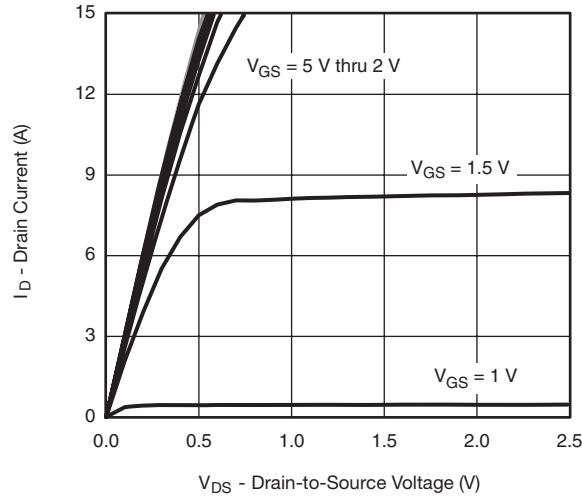
Notes:

a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.

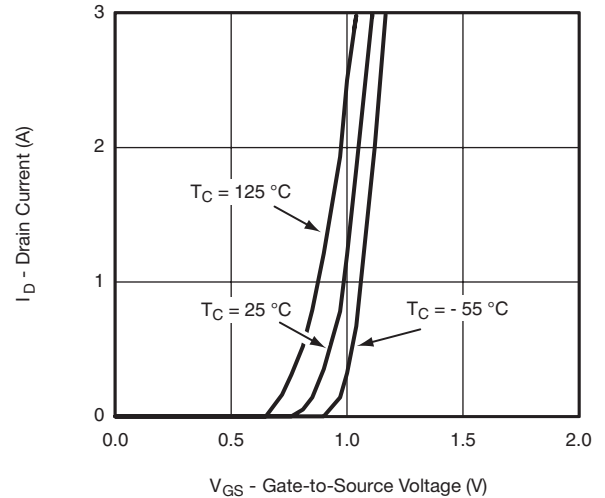
b. Guaranteed by design, not subject to production testing.

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.

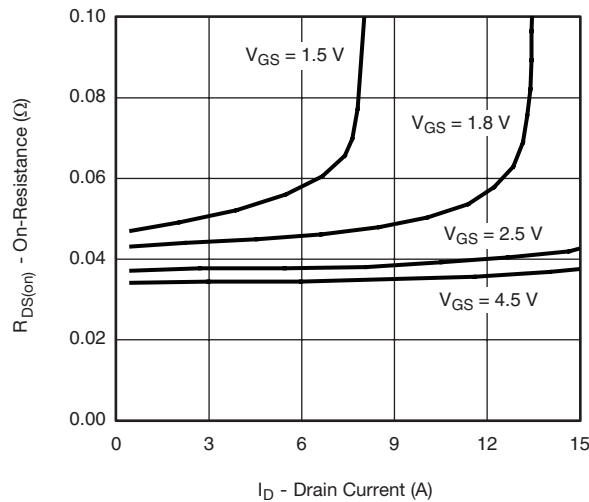
TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



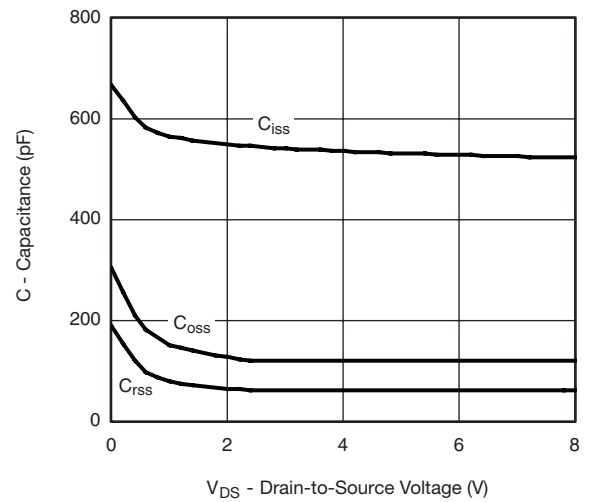
Output Characteristics



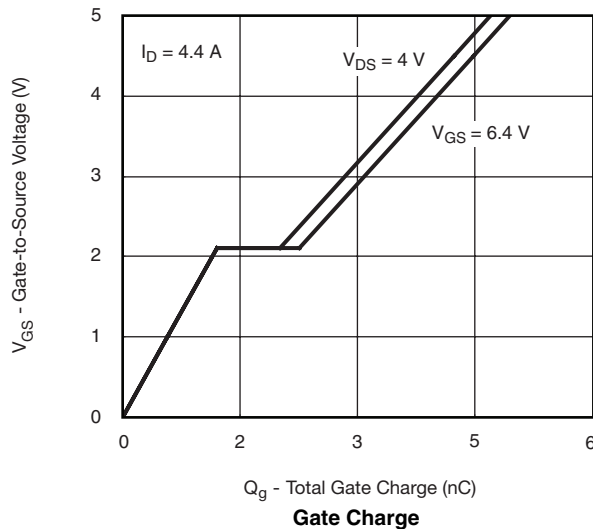
Transfer Characteristics



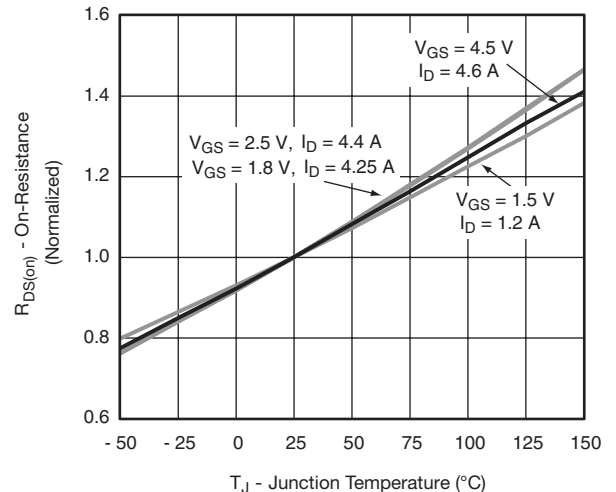
$R_{DS(on)}$ vs. Drain Current



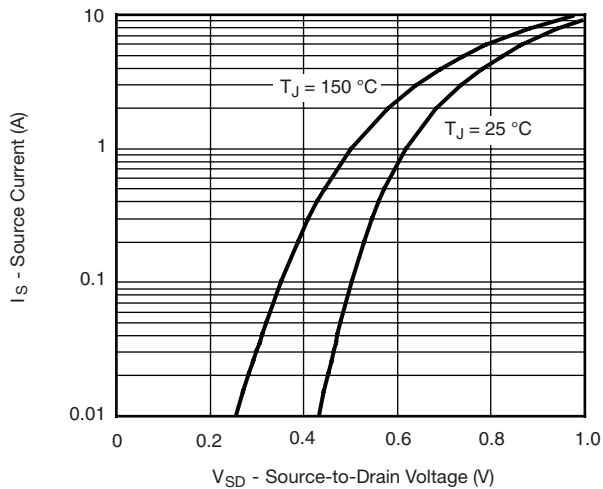
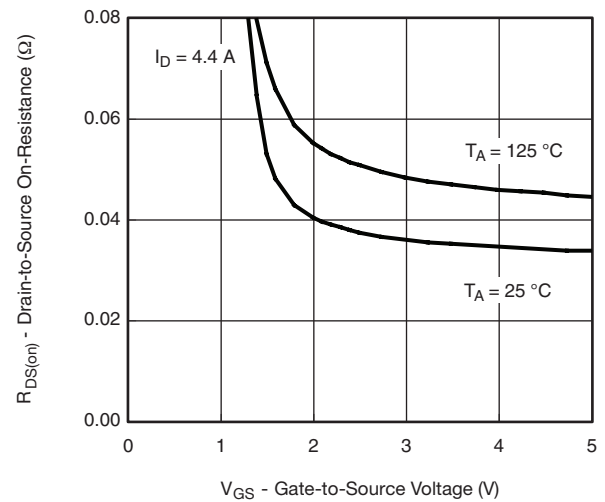
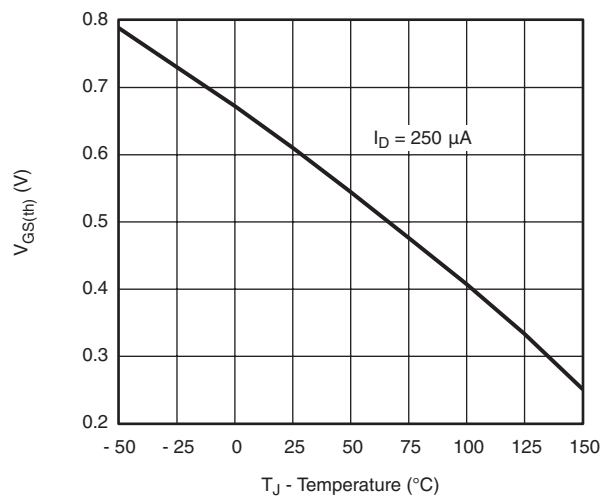
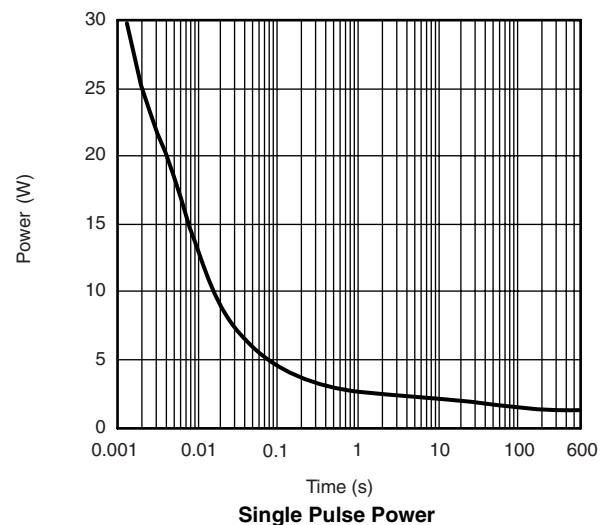
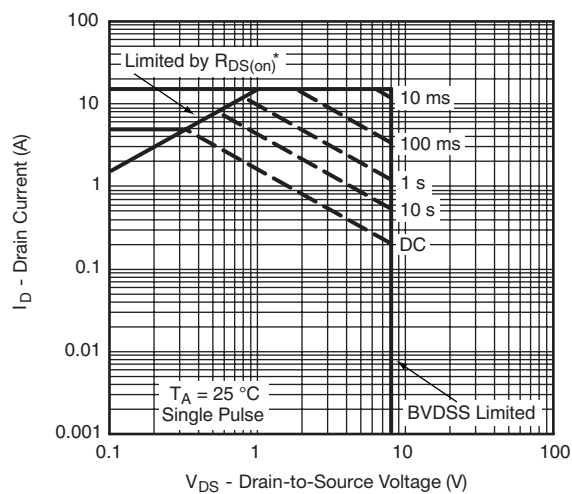
Capacitance



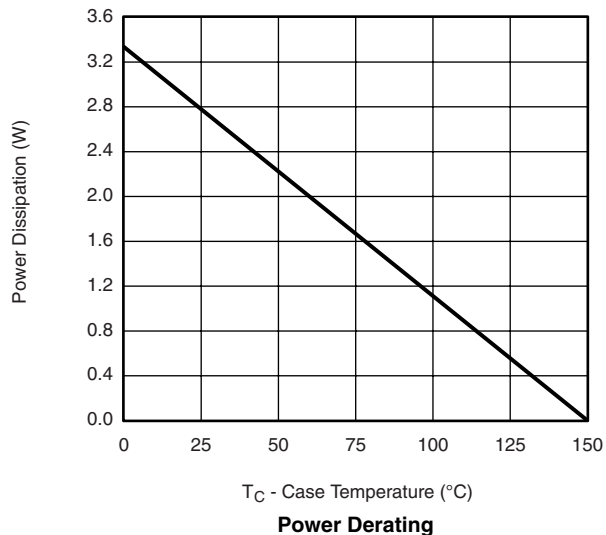
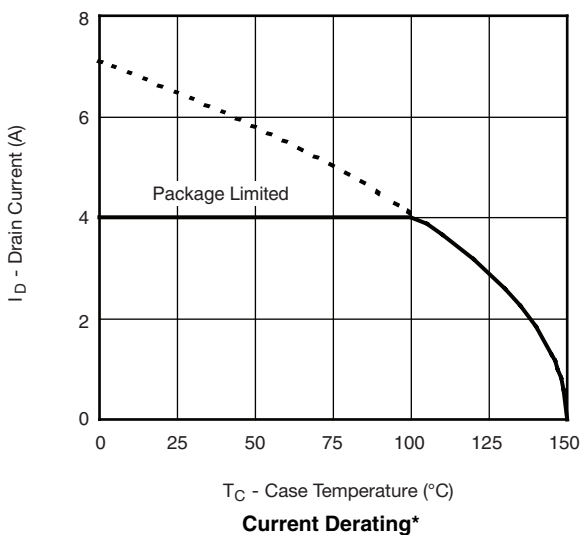
Gate Charge



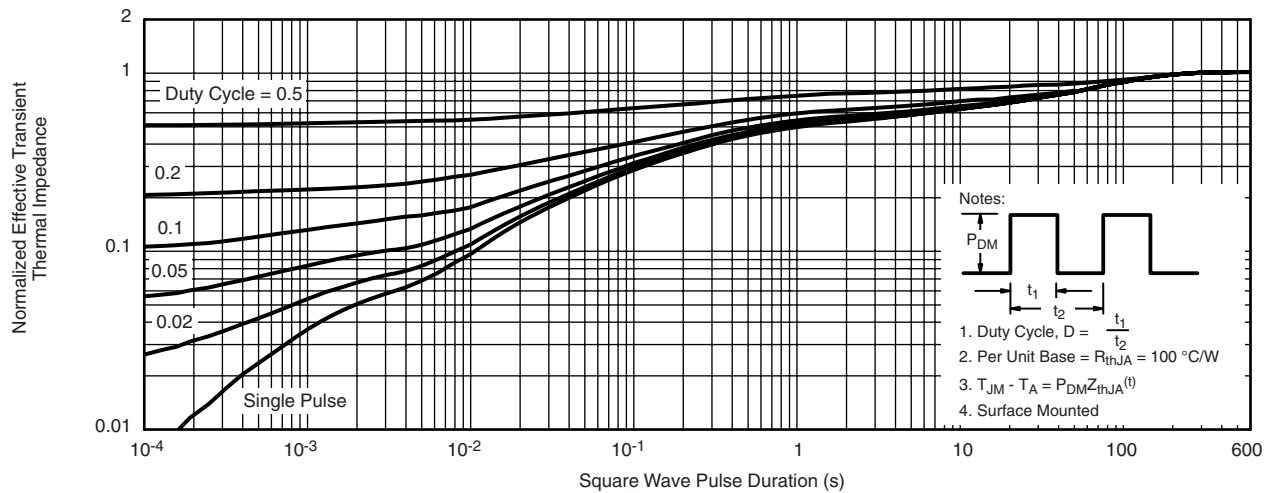
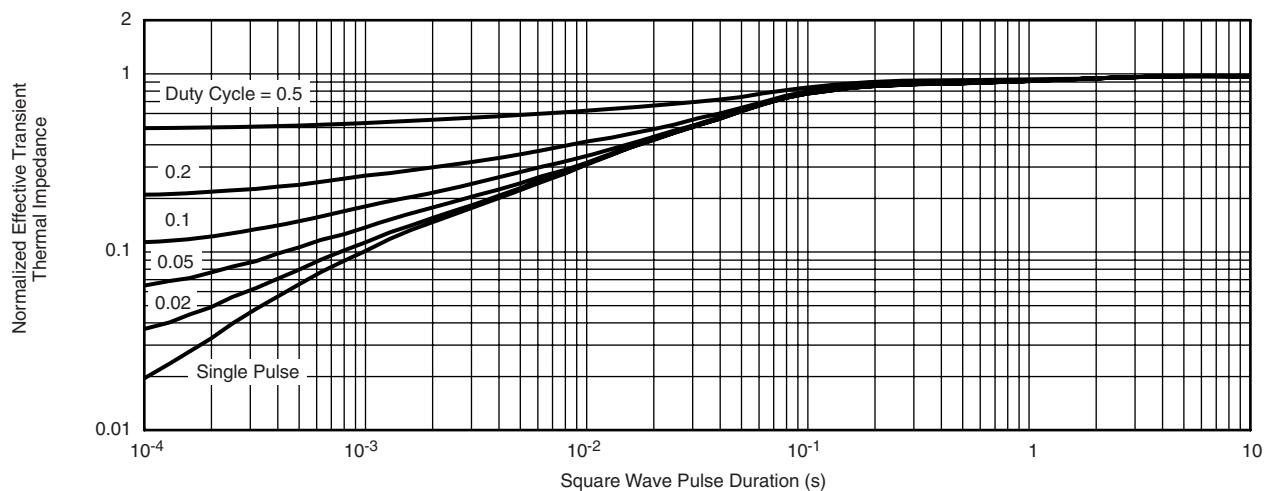
On-Resistance vs. Junction Temperature

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted**Forward Diode Voltage vs. Temperature** **$R_{DS(on)}$ vs. V_{GS} vs. Temperature****Threshold Voltage****Single Pulse Power*** $V_{GS} >$ minimum V_{GS} at which $R_{DS(on)}$ is specified**Safe Operating Area, Junction-to-Case**

TYPICAL CHARACTERISTICS 25 °C, unless otherwise noted



* 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-Foot**

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