

Electrical Characteristics

T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

B _V DSS	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 uA	20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 20 V, V _{GS} = 0 V	--	--	1	uA
		V _{DS} = 16V, T _C = 125°C	--	--	10	uA
I _{GSSF}	Gate-Body Leakage Current, Forward	V _{GS} = 10V, V _{DS} = 0 V	--	--	100	nA
I _{GSSR}	Gate-Body Leakage Current, Reverse	V _{GS} = -10 V, V _{DS} = 0 V	--	--	-100	nA

On Characteristics

V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 uA	0.45	0.7	1.1	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} = 4.5 V, I _D = 3.5A	--	35	55	mΩ
		V _{GS} = 2.5 V, I _D = 2.0A	-	55	70	

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{DS} = 10V, V _{GS} = 0 V, f = 1.0 MHz	--	180	-	pF
C _{oss}	Output Capacitance		--	37	-	pF
C _{rss}	Reverse Transfer Capacitance		--	34	-	pF

Switching Characteristics

t _{d(on)}	Turn-On Delay Time	V _{GS} =5 V, V _{DS} =10V, I _D =3A, R _G = 6 Ω ,R _L = 2.7 Ω	--	4.5	--	ns
t _r	Turn-On Rise Time		--	31	--	ns
t _{d(off)}	Turn-Off Delay Time		--	12	--	ns
t _f	Turn-Off Fall Time		--	4.0	--	ns
Q _g	Total Gate Charge	V _{DS} = 10 V, I _D =3A, V _{GS} = 5V	--	6.23	--	nC
Q _{gs}	Gate-Source Charge		--	6	--	nC
Q _{gd}	Gate-Drain Charge		--	0.5	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-Source Diode Forward Current	--	--	3.8	A
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current	--	--	14	A
V _{SD}	Drain to Source Diode Forward Voltage, V _{GS} = 0V, I _{SD} = 3.5A, T _J = 25°C	--	--	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Device mounted on FR-4 PCB, 1inch x 0.85inch x 0.062 inch
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Performance Characteristics

N- Channel Typical Characteristics

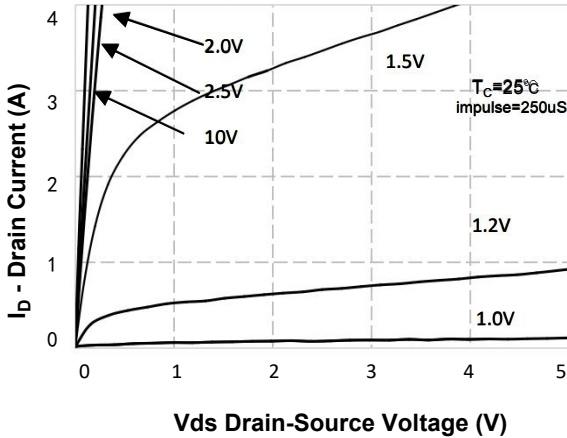


Figure 1. On-Region Characteristics

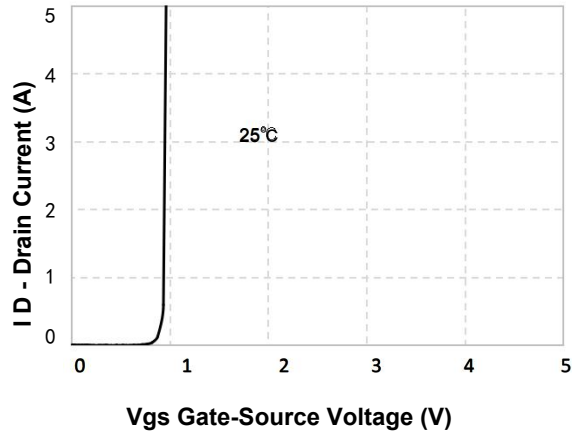


Figure 2. Transfer Characteristics

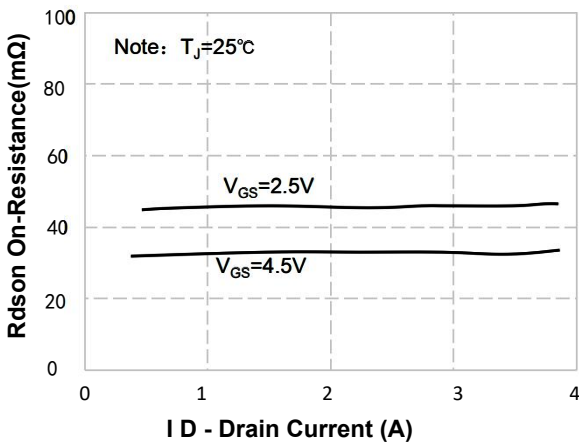


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

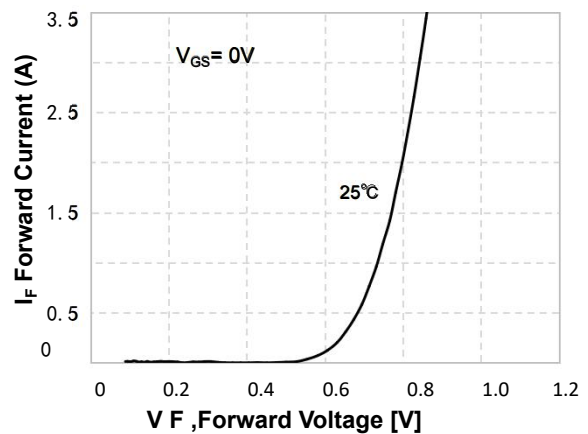


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

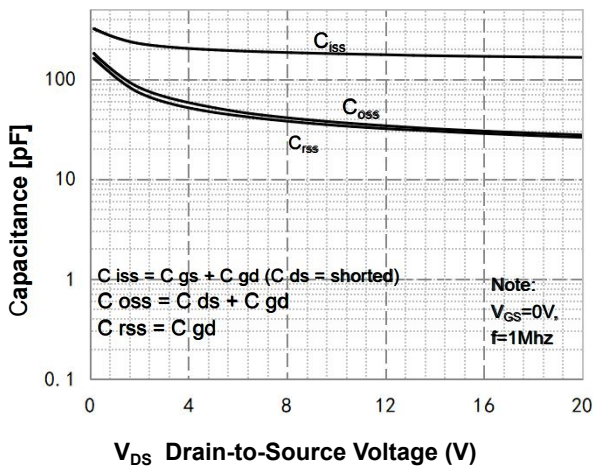


Figure 5. Capacitance Characteristics

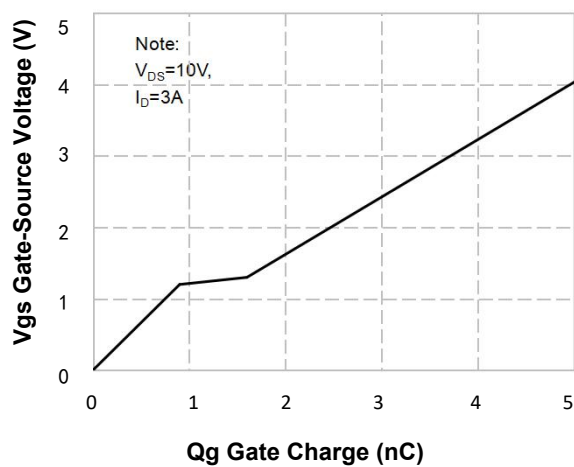


Figure 6. Gate Charge Characteristics

N- Channel Typical Characteristics (Continued)

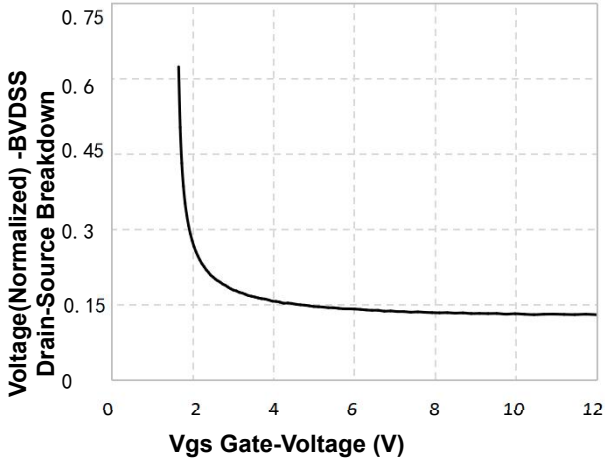


Figure 7. Breakdown Voltage Variation vs Gate-Voltage

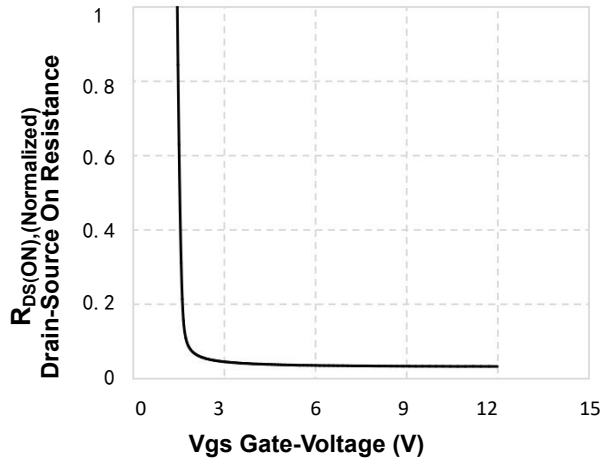


Figure 8. On-Resistance Variation vs Gate Voltage

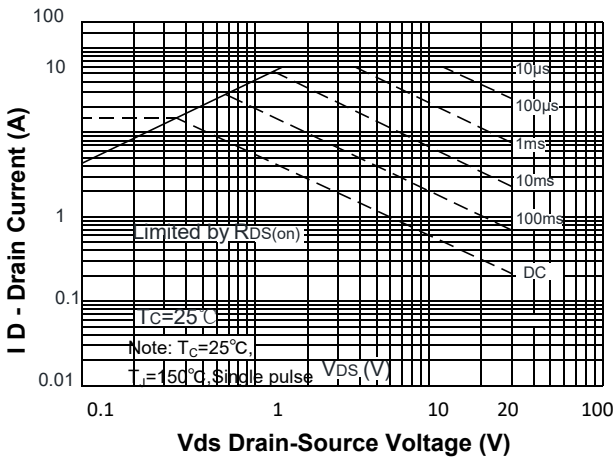


Figure 9. Maximum Safe Operating Area

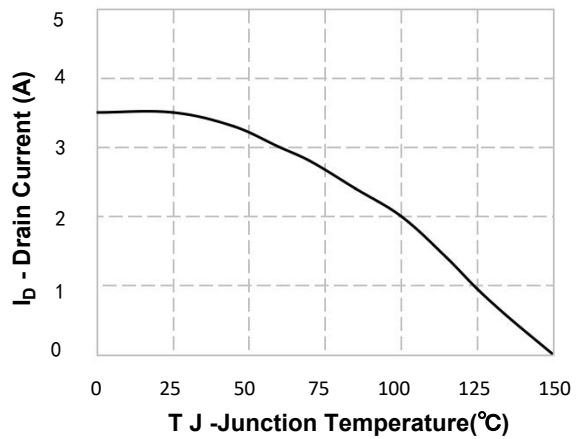


Figure 10. Maximum Continuous Drain Current vs Case Temperature

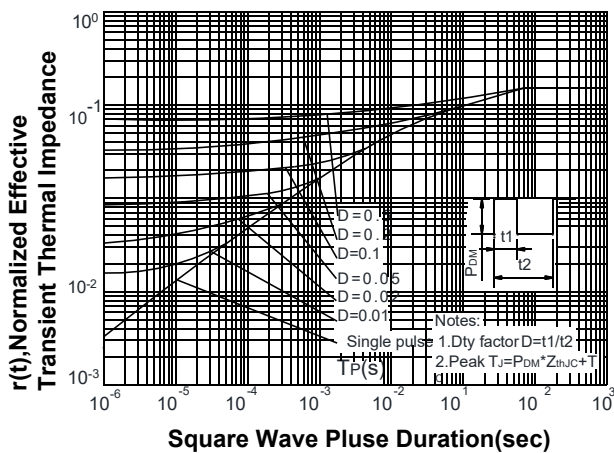


Figure 11. Transient Thermal Response Curve

Package Mechanical Data SOT23

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