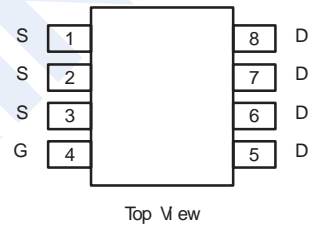
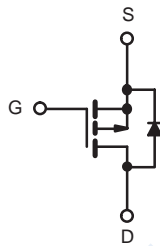
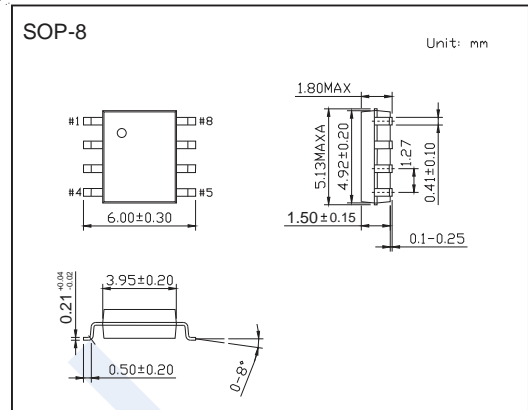


P-Channel MOSFET

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■ Features

- $V_{DS} = -30V$
- $R_{DS(on)} = 0.02 \Omega @ V_{GS} = -10V$
- $R_{DS(on)} = 0.035 \Omega @ V_{GS} = -4.5V$

■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-8.8	A
Pulsed Drain Current	I_{DM}	-50	A
Maximum Power Dissipation	P_D	2.5	W
Maximum Junction-to-Ambient	R_{thJA}	50	$^\circ C/W$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _D = -250 μA	-30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -30V, V _{GS} = 0V			-1	μA
		V _{DS} = -15V, V _{GS} = 0V, T _J = 70°C			-5	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-1.7	-3	V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Drain-Source On-State Resistance *	r _{DS(on)}	V _{GS} = -10V, I _D = -8.0A		0.015	0.02	Ω
		V _{GS} = -4.5V, I _D = -5.0A		0.022	0.035	
On-State Drain Current	I _{D(on)}	V _{DS} = -5V, V _{GS} = -10V	-40			A
Forward Transconductance*	g _{fs}	V _{DS} = -15V, I _D = -8A		11		S
Total Gate Charge	Q _g	V _{DS} = -15V, V _{GS} = -10V, I _D = -4.6A		47	60	nC
Gate-Source Charge	Q _{gs}			7.1		
Gate-Drain Charge	Q _{gd}			8		
Turn-On Delay Time	t _{d(on)}			16	24	
Rise Time	t _r	V _{DD} = -15V, R _L = 15 Ω, I _D = -1A, V _{GEN} = -10V, R _G = 6 Ω		76	110	ns
Turn-Off Delay Time	t _{d(off)}			130	200	
Fall Time	t _f			90	140	
Source-Drain Reverse Recovery Time	t _{rr}	I _F = -2.5A, di/dt = 100A/us		34	51	ns
Continuous Source Current (Diode Conduction)	I _S			-2.5		A
Diode Forward Voltage*	V _{SD}	I _S = -2.5 A, V _{GS} = 0 V			-1.2	V

* Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.

■ Marking

Marking	4435
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■ Typical Characteristics

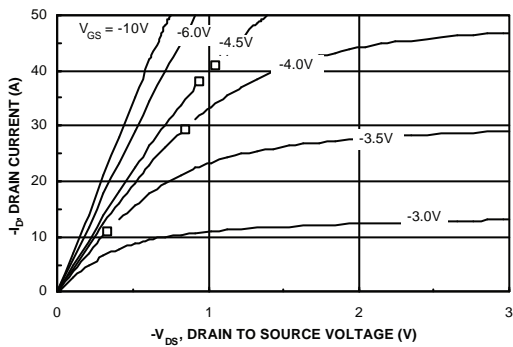


Figure 1. On-Region Characteristics.

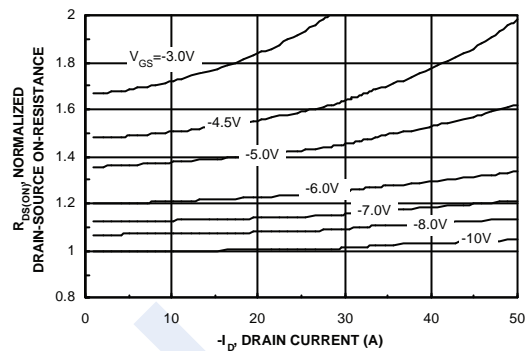


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

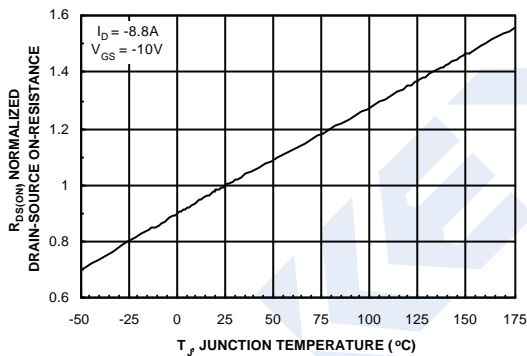


Figure 3. On-Resistance Variation with Temperature.

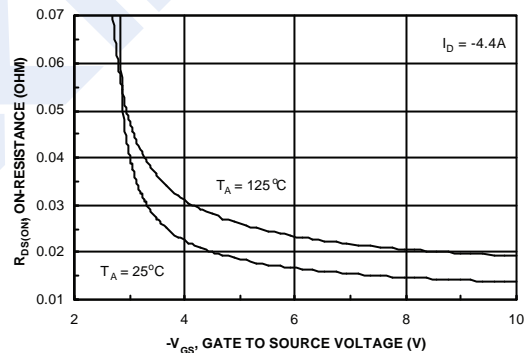


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

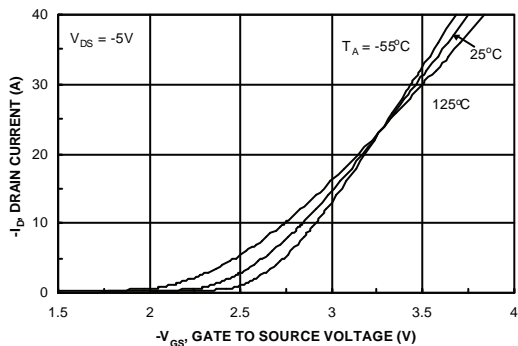


Figure 5. Transfer Characteristics.

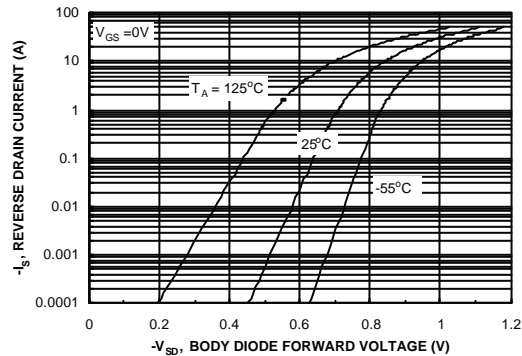


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

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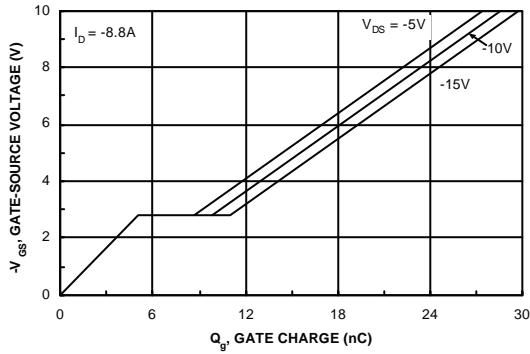


Figure 7. Gate Charge Characteristics.

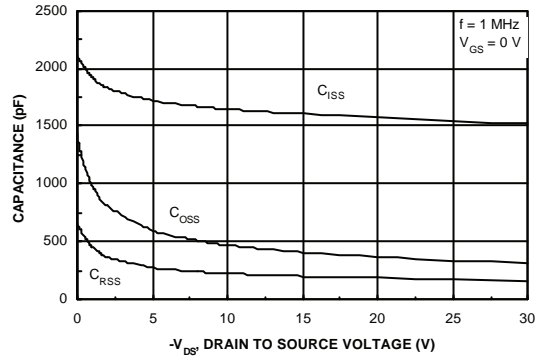


Figure 8. Capacitance Characteristics.

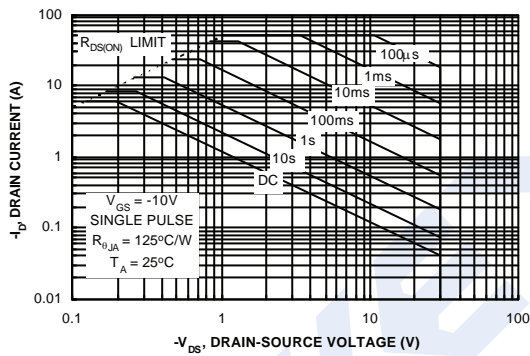


Figure 9. Maximum Safe Operating Area.

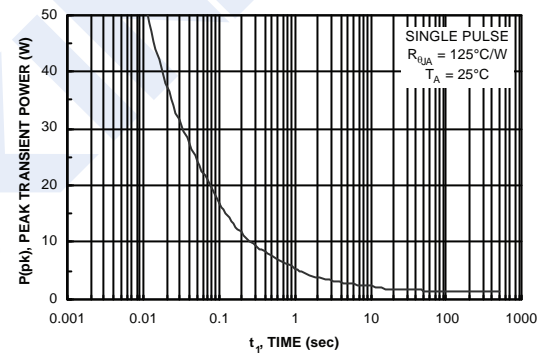


Figure 10. Single Pulse Maximum Power Dissipation.

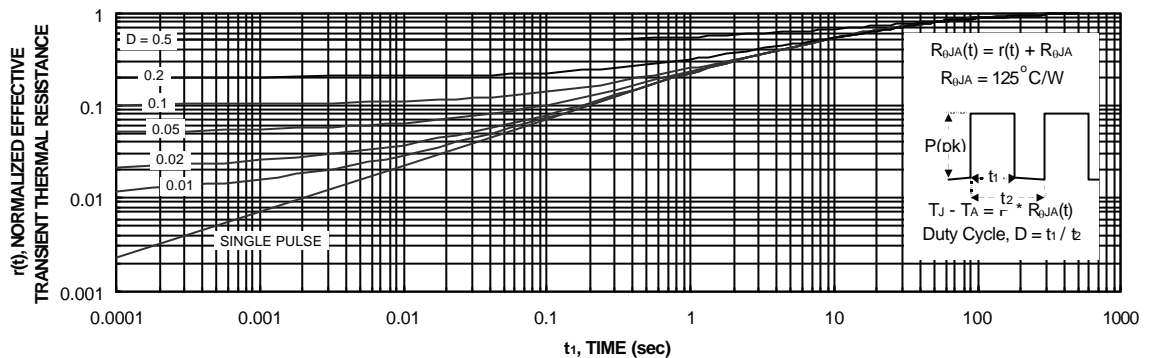


Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in Note 1c. Transient thermal response will change depending on the circuit board design.