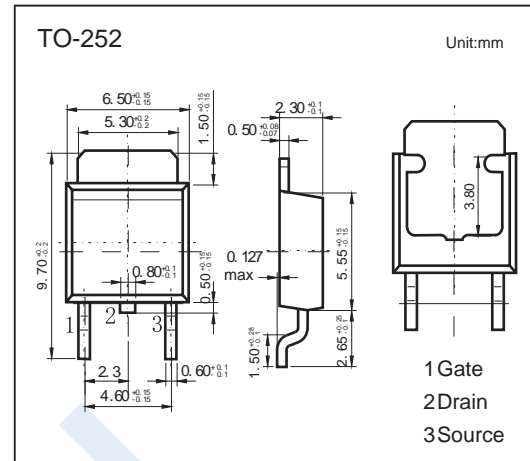
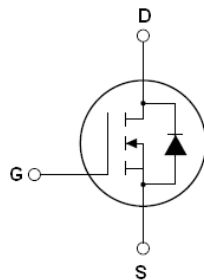


N-Channel MOSFET

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■ Features

- $V_{DS} (V) = 100 V$
- $I_D = 41 A$
- $R_{DS(ON)} (at V_{GS} = 10 V) < 20 m\Omega$
- $R_{DS(ON)} (at V_{GS} = 4.5 V) < 23 m\Omega$

■ Absolute Maximum Ratings ($T_J = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current (Note 1)	I_D	$T_C = 25^\circ C$	41
		$T_C = 100^\circ C$	29
Pulsed Drain Current (Note 1)	I_{DM}	238	A
Power Dissipation (Note 1,2)	P_D	$T_C = 25^\circ C$	3.9
		$T_C = 100^\circ C$	1.9
Single Pulse Avalanche Energy (Note 3)	E_{AS}	80	mJ
Thermal Resistance, Junction- to-Case	$R_{\theta JC}$	1.7	$^\circ C/W$
Thermal Resistance, Junction- to-Ambient	$R_{\theta JA}$	39	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Notes:

1. The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2. Surface-mounted on FR4 board using a 650 mm², 2 oz. Cu pad.
3. $T_J = 25^\circ C$, $V_{GS} = 10 V$, $I_{L(pk)} = 40 A$, $L = 0.1 mH$, $R_G = 25\Omega$

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■ Electrical Characteristics (T_J = 25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D = 250 μA, V _{GS} = 0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100 V, V _{GS} = 0 V			1	μA
		V _{DS} = 100 V, V _{GS} = 0 V, T _J = 125°C			100	
Gate to Source Leakage Current	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
On Characteristics (Note 1)						
Gate to Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10 V, I _D = 20 A		16.5	20	mΩ
		V _{GS} = 4.5 V, I _D = 20 A		18.5	23	
Forward Transconductance	g _{FS}	V _{DS} = 15 V, I _D = 20 A		18		S
Dynamic Characteristics (Note 1)						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		3468		pF
Output Capacitance	C _{oss}			187		
Reverse Transfer Capacitance	C _{rss}			133		
Switching Characteristics (Note 1)						
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 80 V, I _D = 20 A		3.5		nC
Gate Source Charge	Q _{gs}			9		
Gate Drain Charge	Q _{gd}			18		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 80 V, I _D = 20A, R _G = 2.5 Ω		15		ns
Turn-On Rise Time	t _r			55		
Turn-Off Delay Time	t _{d(off)}			31		
Turn-Off Fall Time	t _f			42		
Drain-Source Diode Characteristics						
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20 A, di/dt = 100 A/μs, V _{GS} = 10V		38		ns
Body Diode Reverse Recovery Charge	Q _{rr}			59		nC
Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 20 A			1.2	V

Notes:

1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

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Typical Characteristics

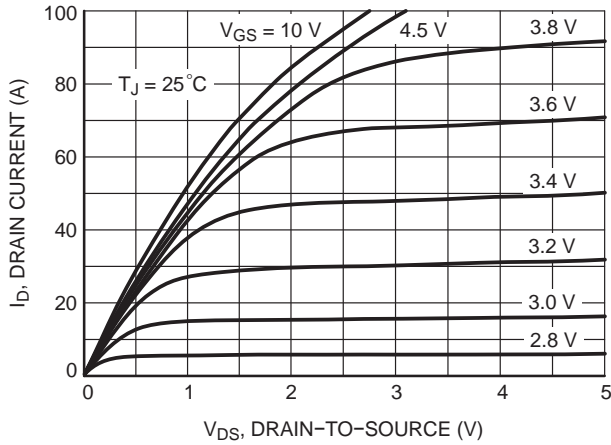


Figure 1. On-Region Characteristics

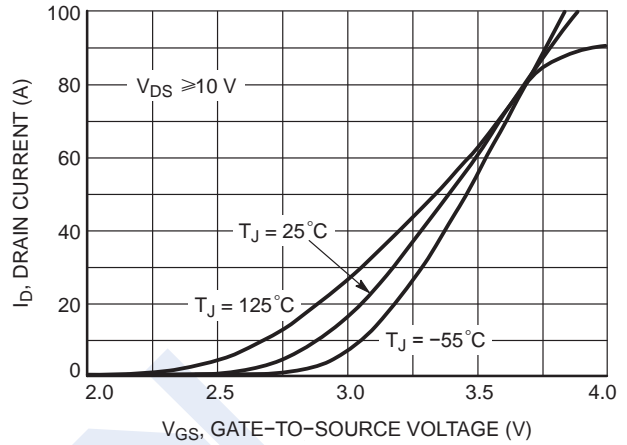


Figure 2. Transfer Characteristics

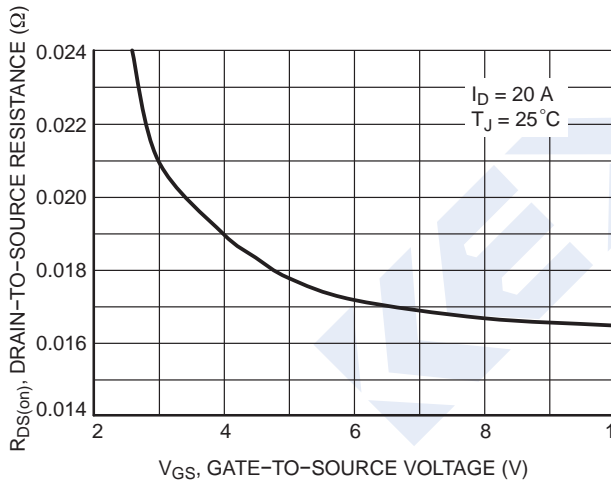


Figure 3. On-Resistance vs. Gate Voltage

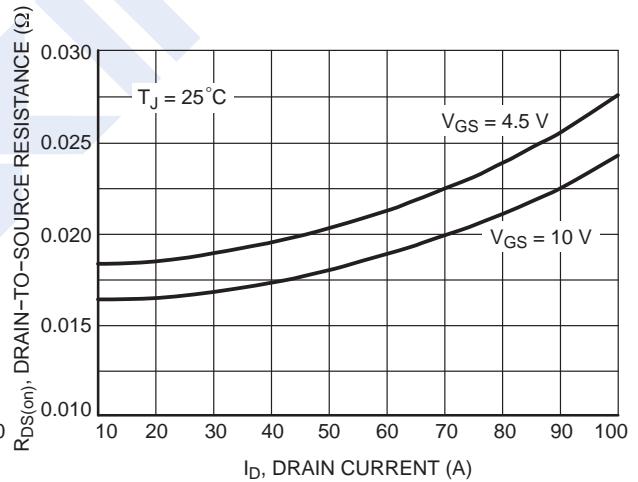


Figure 4. On-Resistance vs. Drain Current and Gate Voltage

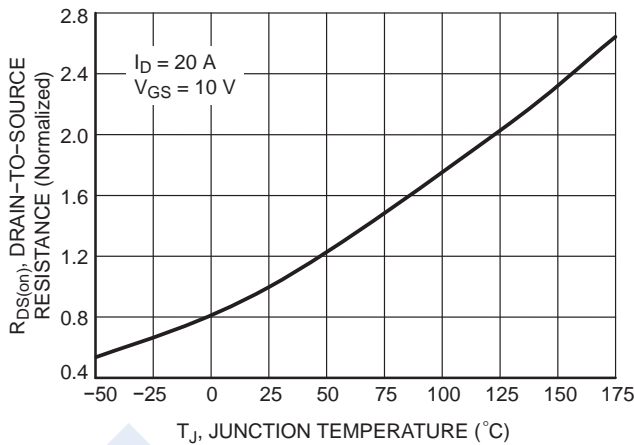


Figure 5. On-Resistance Variation with Temperature

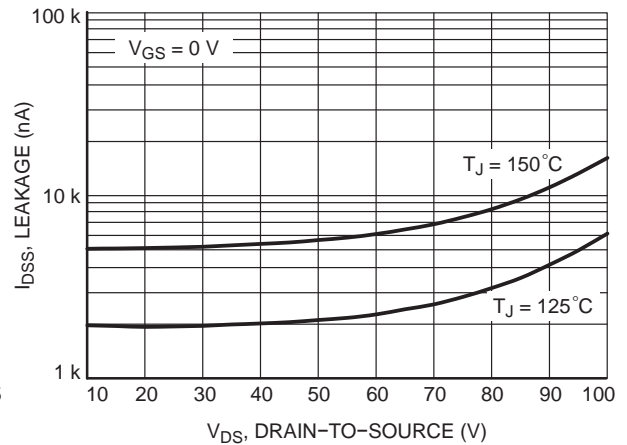


Figure 6. Drain-to-Source Leakage Current vs. Voltage

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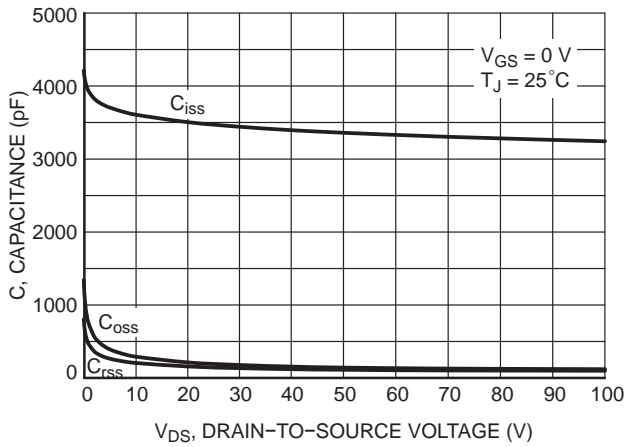


Figure 7. Capacitance Variation

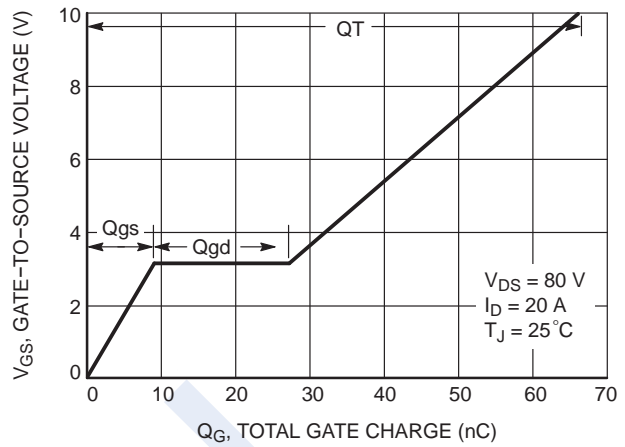


Figure 8. Gate-to-Source Voltage vs. Total Gate Charge

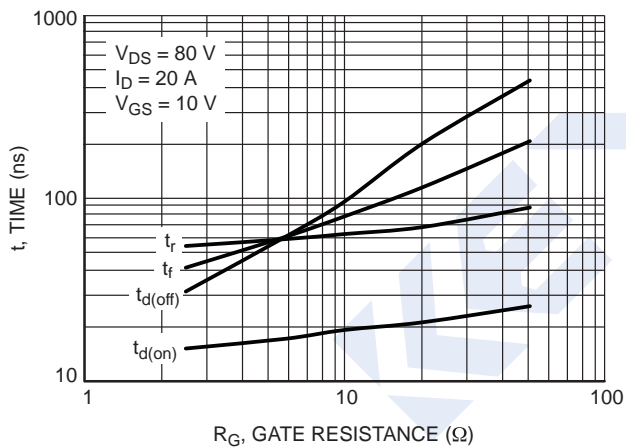


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

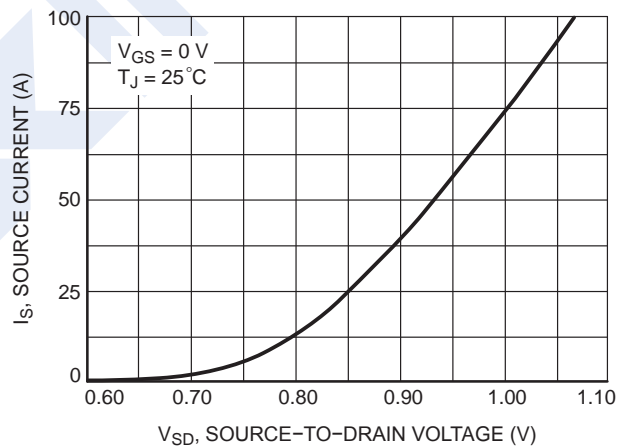


Figure 10. Diode Forward Voltage vs. Current

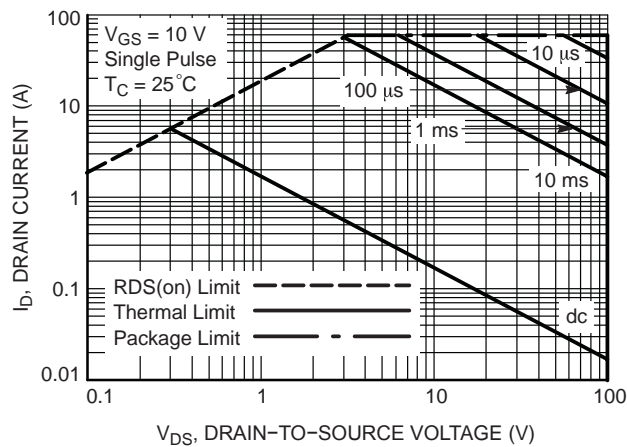


Figure 11. Maximum Rated Forward Biased Safe Operating Area