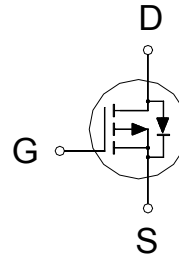


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-40V	8mΩ	-74A

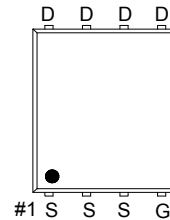


Features

- Pb-Free, Halogen Free and RoHS compliant.
- Low $R_{DS(on)}$ to Minimize Conduction Losses.
- Ohmic Region Good $R_{DS(on)}$ Ratio.
- Optimized Gate Charge to Minimize Switching Losses.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



G. GATE
D. DRAIN
S. SOURCE

100% UIS Tested
100% Rg Tested

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-40	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current ⁴	$T_C = 25\text{ °C}$	I_D	-74	A
	$T_C = 100\text{ °C}$		-46	
	$T_A = 25\text{ °C}$		-12	
	$T_A = 70\text{ °C}$		-9.6	
Pulsed Drain Current ¹		I_{DM}	-100	
Avalanche Current		I_{AS}	-49.8	
Avalanche Energy	L = 0.1mH	E_{AS}	124	mJ
Power Dissipation ³	$T_C = 25\text{ °C}$	P_D	83	W
	$T_C = 100\text{ °C}$		33	
	$T_A = 25\text{ °C}$		2.2	
	$T_A = 70\text{ °C}$		1.4	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10s$	$R_{\theta JA}$		35	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		56	
Junction-to-Case	Steady-State	$R_{\theta JC}$		1.5	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$. The value in any given application depends on the user's specific board design.

³The Power dissipation is based on $R_{\theta JA} t \leq 10s$ value.

⁴Package limitation current is -51A.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ C$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.6	-3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -32V, V_{GS} = 0V$			-1	uA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 125^\circ C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -20A$		6.2	8	mΩ
		$V_{GS} = -4.5V, I_D = -15A$		8.4	14	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -20A$		60		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -20V, f = 1MHz$		3933		pF
Output Capacitance	C_{oss}			507		
Reverse Transfer Capacitance	C_{rss}			451		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		3.5		Ω
Total Gate Charge ²	Q_g	$V_{DS} = -20V,$ $V_{GS} = -10V, I_D = -20A$		84		nC
Gate-Source Charge ²	Q_{gs}			10		
Gate-Drain Charge ²	Q_{gd}			20		
Turn-On Delay Time ²	$t_{d(on)}$	$I_D \cong -20A, V_{GS} = -10V, R_{GS} = 6\Omega$		18		nS
Rise Time ²	t_r			45		
Turn-Off Delay Time ²	$t_{d(off)}$			173		
Fall Time ²	t_f			122		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

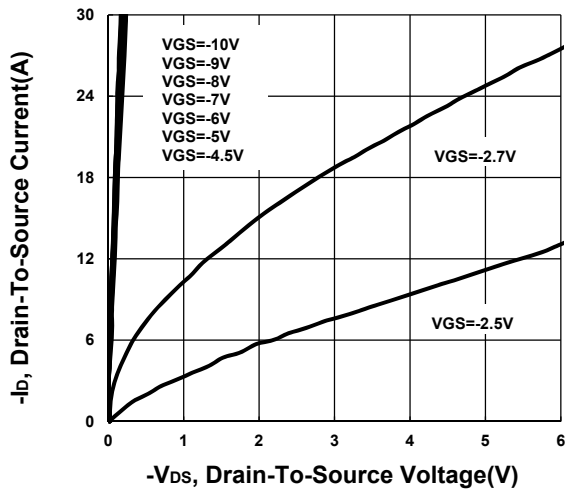
Continuous Current ³	I _S				-63	A
Forward Voltage ¹	V _{SD}	I _F = -20A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -20A , di _F /dt = 100 A / μS		31		nS
Reverse Recovery Charge	Q _{rr}			12		nC

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

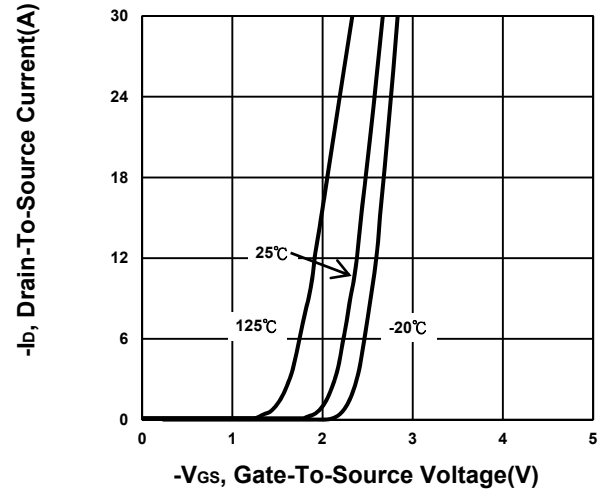
²Independent of operating temperature.

³Package limitation current is -51A.

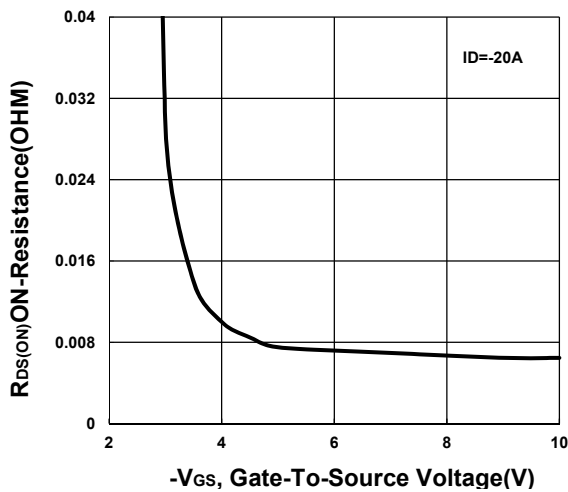
Output Characteristics



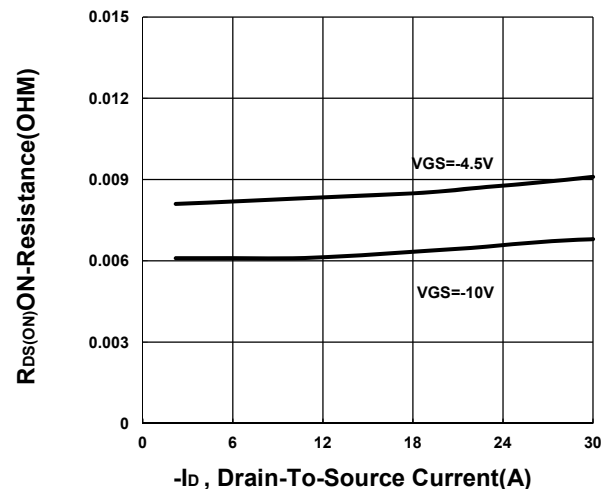
Transfer Characteristics



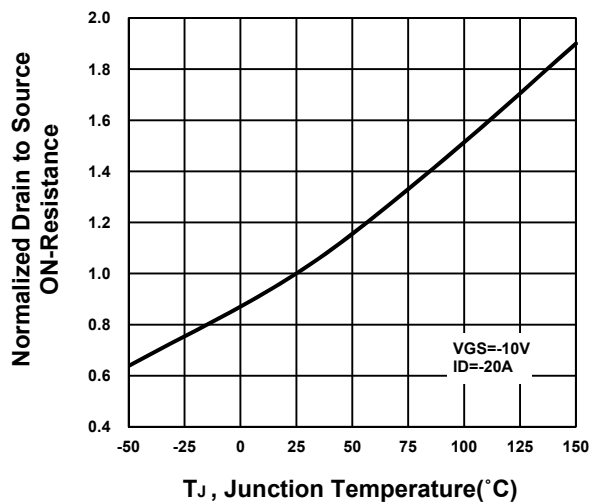
On-Resistance VS Gate-To-Source



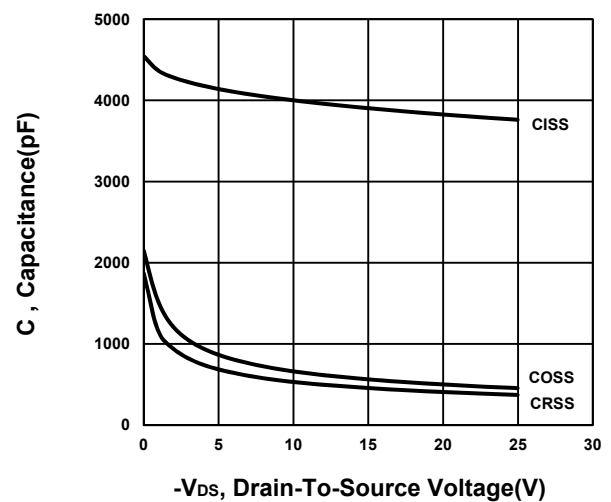
On-Resistance VS Drain Current



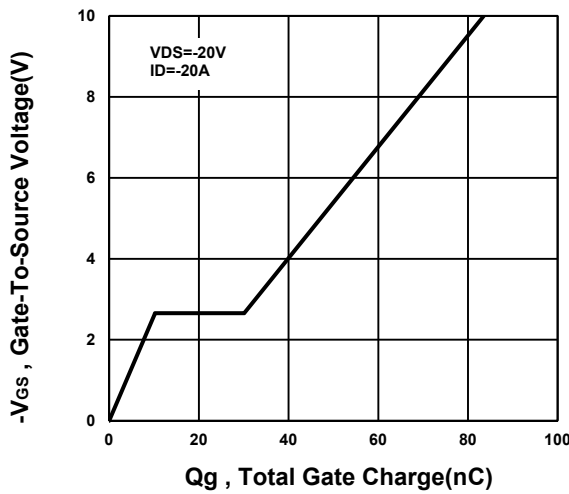
On-Resistance VS Temperature



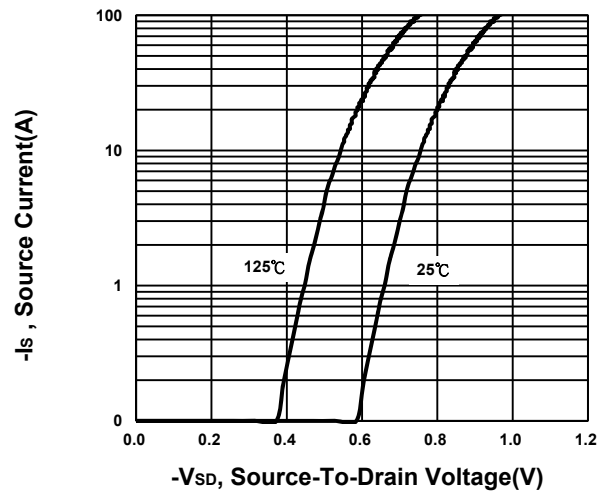
Capacitance Characteristic



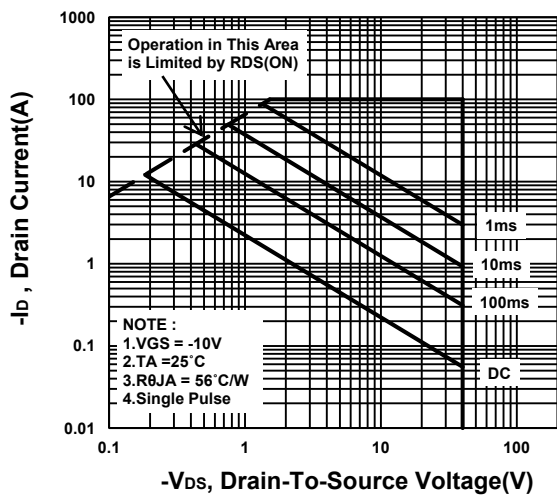
Gate charge Characteristics



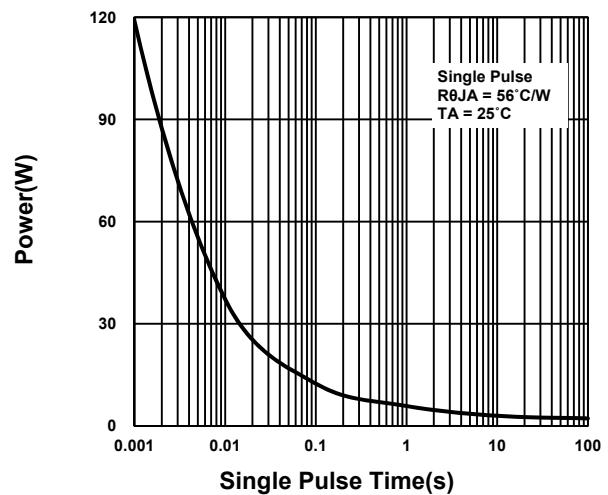
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

