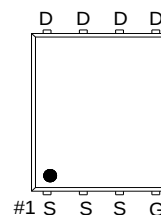
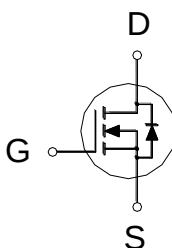




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	2m Ω	161A



G. GATE
D. DRAIN
S. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ³	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	161	A
	$T_C = 100\text{ }^{\circ}\text{C}$		102	
Pulsed Drain Current ¹		I_{DM}	380	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	25	
	$T_A = 70\text{ }^{\circ}\text{C}$		20	
Avalanche Current		I_{AS}	69	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	238	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	104	W
	$T_C = 100\text{ }^{\circ}\text{C}$		41	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.6	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.7	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		47	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		1.2	

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 $T_A = 25^{\circ}\text{C}$.

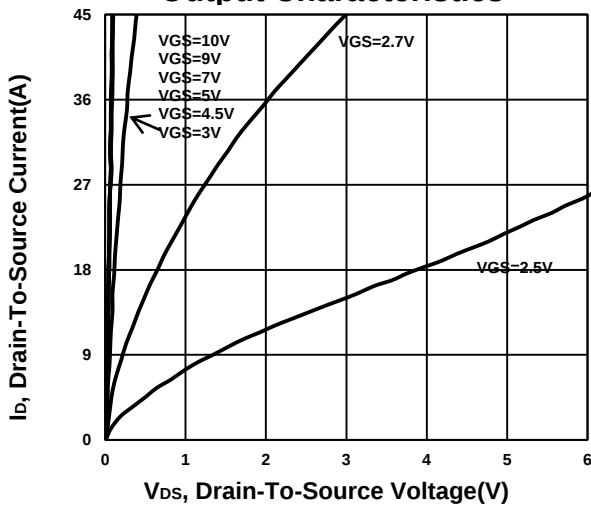
³Package limitation current is 100A.

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

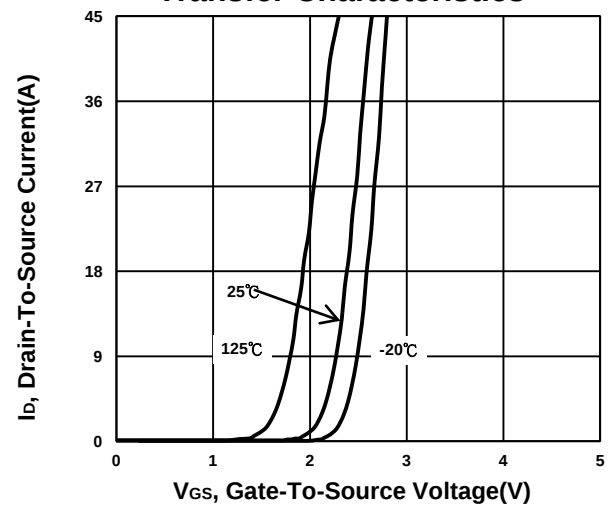
PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}		V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.75	2.3	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}		V _{DS} = 32V, V _{GS} = 0V			1	μA
			V _{DS} = 30V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}		V _{GS} = 4.5V, I _D = 16A		1.9	3	mΩ
			V _{GS} = 10V, I _D = 20A		1.6	2	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 20A		96		S
DYNAMIC							
Input Capacitance	C _{iSS}		V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		6194		pF
Output Capacitance	C _{oss}				712		
Reverse Transfer Capacitance	C _{rss}				474		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.6		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 20V, V _{GS} = 10V, I _D = 20A		125		nC
		V _{GS} = 4.5V			70		
Gate-Source Charge ²	Q _{gs}				18		
Gate-Drain Charge ²	Q _{gd}				30		
Turn-On Delay Time ²	t _{d(on)}			V _{DS} = 20V , I _D ≅ 20A, V _{GS} = 10V, R _{GEN} =6Ω		22	
Rise Time ²	t _r				24		
Turn-Off Delay Time ²	t _{d(off)}				88		
Fall Time ²	t _f				22		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)							
Continuous Current ³	I _S					41	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 = 100A / μS		38		nS
Reverse Recovery Charge	Q _{rr}				25		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Package limitation current is 51A.

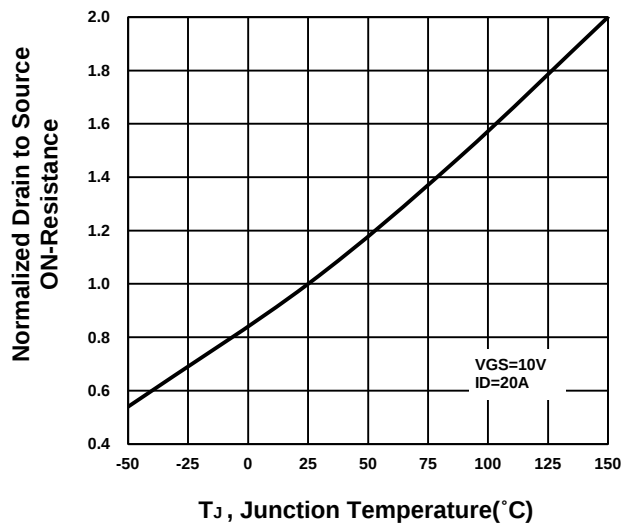
Output Characteristics



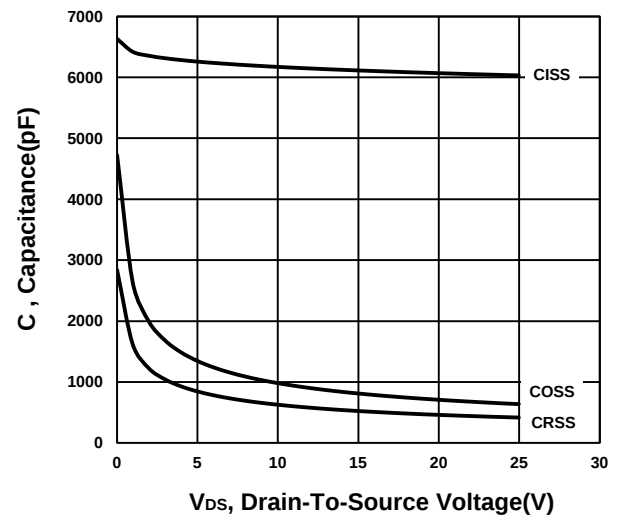
Transfer Characteristics



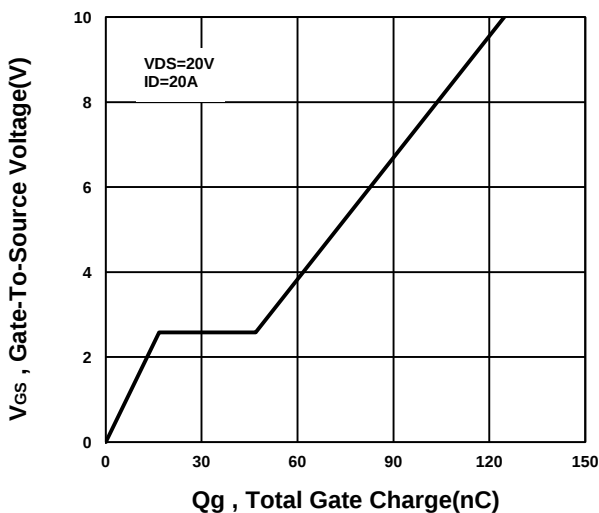
On-Resistance VS Temperature



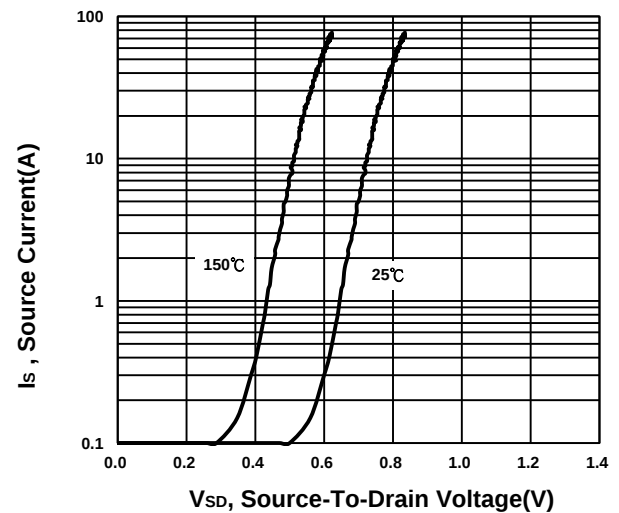
Capacitance Characteristic



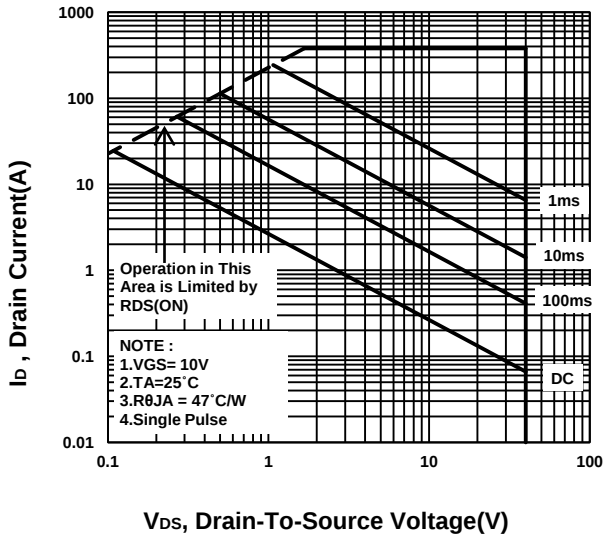
Gate charge Characteristics



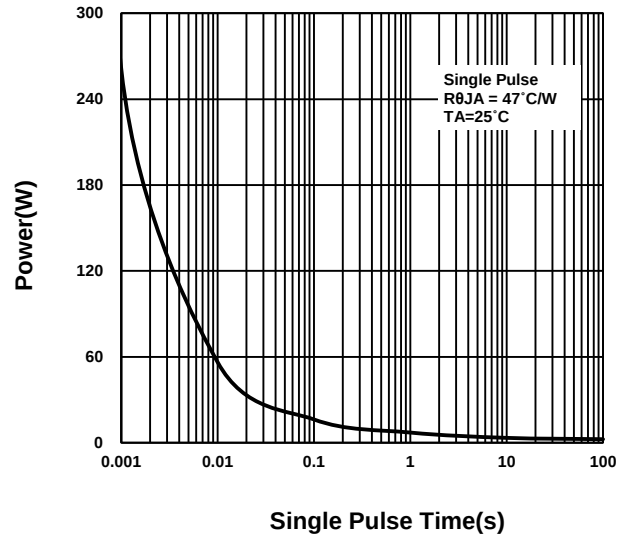
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

