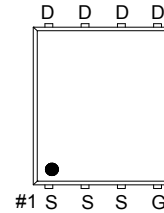
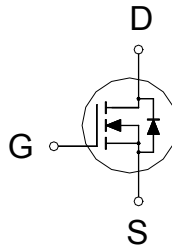




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	7m Ω	51A



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}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ³	$T_C = 25\text{ }^\circ\text{C}$	I_D	51	A
	$T_C = 100\text{ }^\circ\text{C}$		32	
Pulsed Drain Current ¹		I_{DM}	120	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	14	
	$T_A = 70\text{ }^\circ\text{C}$		11	
Avalanche Current		I_{AS}	27	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	36	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	P_D	31	W
	$T_C = 100\text{ }^\circ\text{C}$		12	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	2.4	W
	$T_A = 70\text{ }^\circ\text{C}$		1.5	
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	$R_{\theta JA}$		51	$^\circ\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		4	

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 40A.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

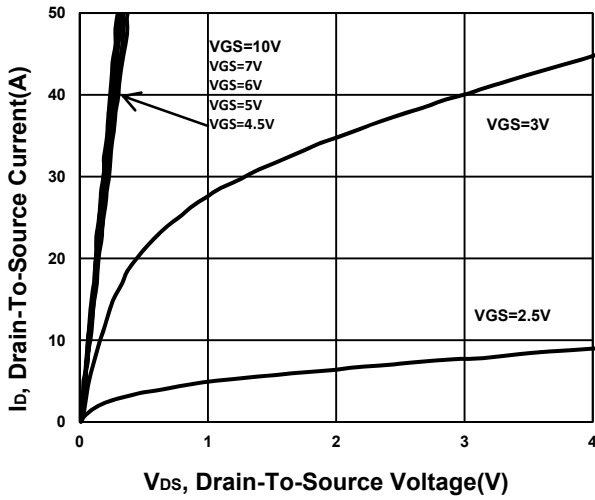
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.5	1.75	2.35		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA	
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			10		
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 15A		7	9.5	mΩ	
		V _{GS} = 10V, I _D = 20A		5.5	7		
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 20A		60		S	
DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		968		pF	
Output Capacitance	C _{oss}			162			
Reverse Transfer Capacitance	C _{rss}			116			
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.8		Ω	
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V, V _{GS} = 10V, I _D = 20A	22		nC	
		V _{GS} = 4.5V		12			
Gate-Source Charge ²	Q _{gs}	2.4					
Gate-Drain Charge ²	Q _{gd}	7.1					
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, I _D ≅ 20A, V _{GS} = 10V, R _{GEN} = 6Ω		19			nS
Rise Time ²	t _r			15			
Turn-Off Delay Time ²	t _{d(off)}		35				
Fall Time ²	t _f		16				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current ³	I _S				25	A	
Forward Voltage ¹	V _{SD}	I _F = 20A, V _{GS} = 0V			1.2	V	
Reverse Recovery Time	t _{rr}	I _F = 20A, di _F /dt = 100A / μS		16		nS	
Reverse Recovery Charge	Q _{rr}			6		nC	

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

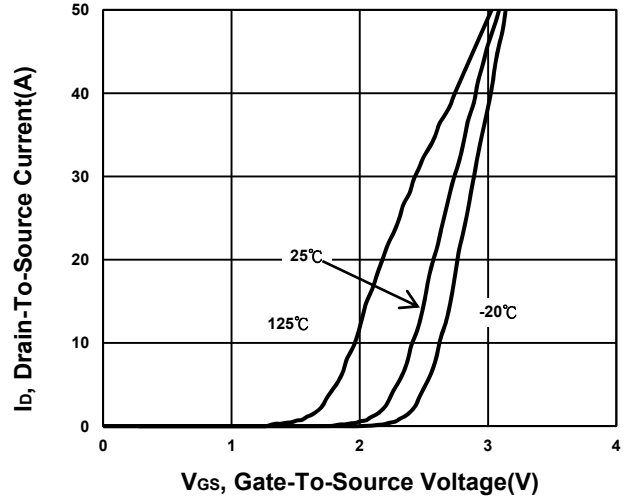
²Independent of operating temperature.

³Package limitation current is 40A.

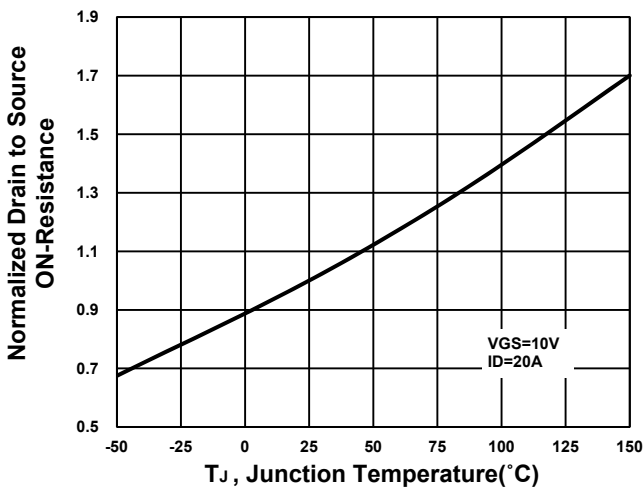
Output Characteristics



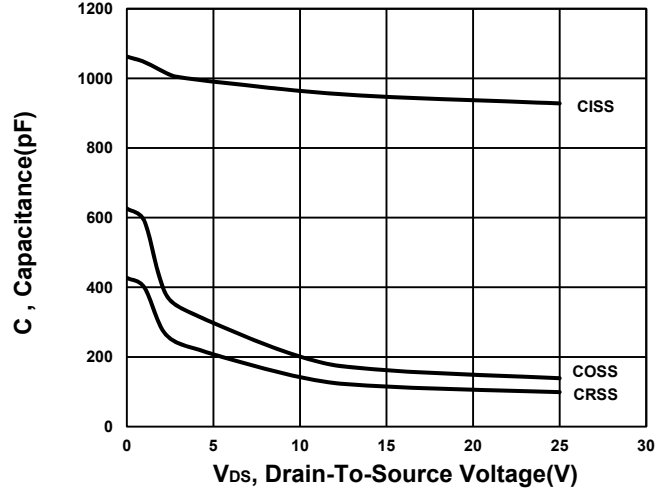
Transfer Characteristics



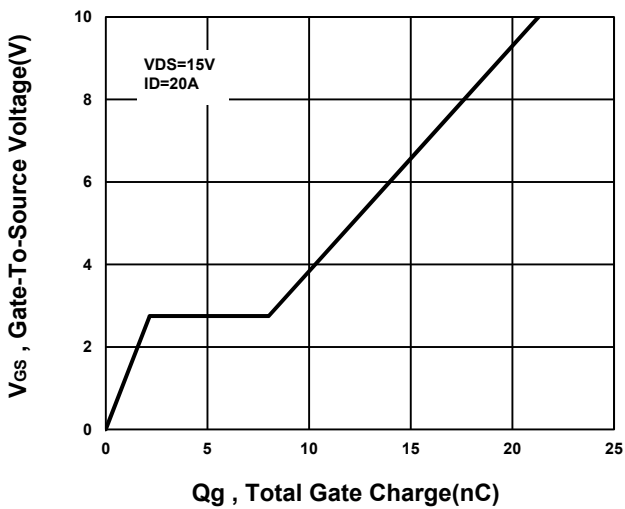
On-Resistance VS Temperature



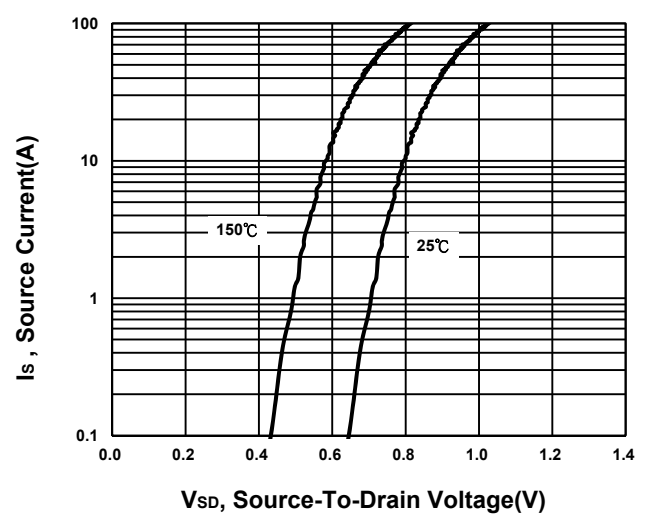
Capacitance Characteristic



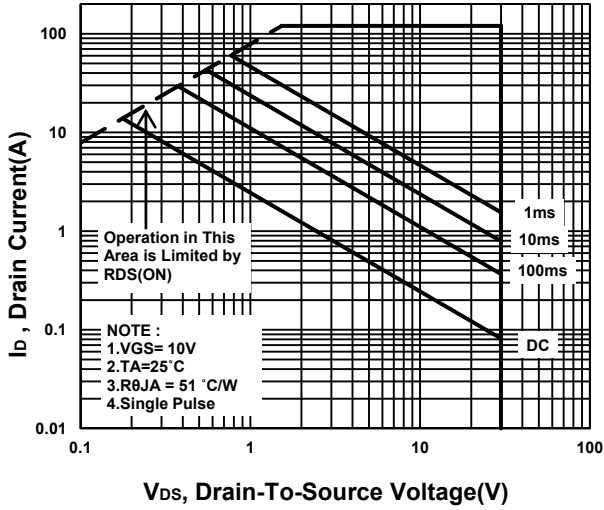
Gate charge Characteristics



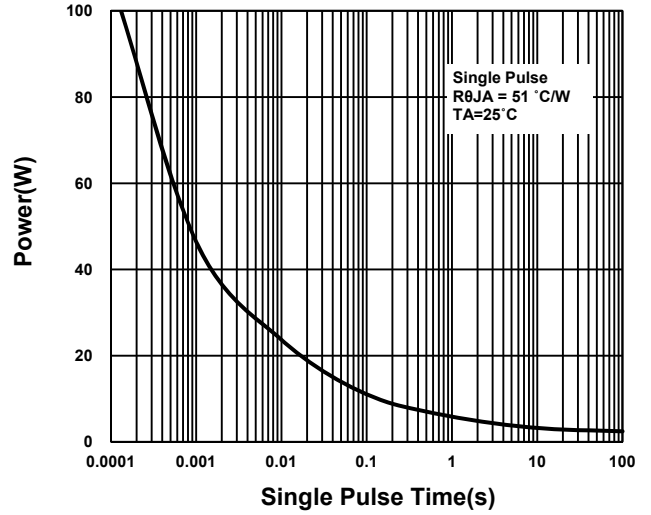
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

