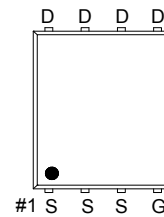
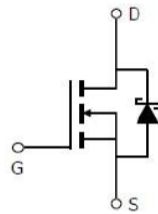


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	5mΩ	56A



G. GATE
D. DRAIN
S. SOURCE



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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	$T_C = 25\text{ °C}$	I_D	56	A
	$T_C = 100\text{ °C}$		35	
Pulsed Drain Current ¹		I_{DM}	100	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	20	
	$T_A = 70\text{ °C}$		16	
Avalanche Current		I_{AS}	26	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	33.8	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	31	W
	$T_C = 100\text{ °C}$		12	
Power Dissipation	$T_A = 25\text{ °C}$	P_D	4	W
	$T_A = 70\text{ °C}$		2.6	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		30	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		58	
Junction-to-Case	Steady-State	$R_{\theta JC}$		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 $T_A = 25\text{ °C}$.

³Package limitation current is 47A.

⁴The Power dissipation is based on $R_{\theta JA} t \leq 10\text{s}$ value.

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

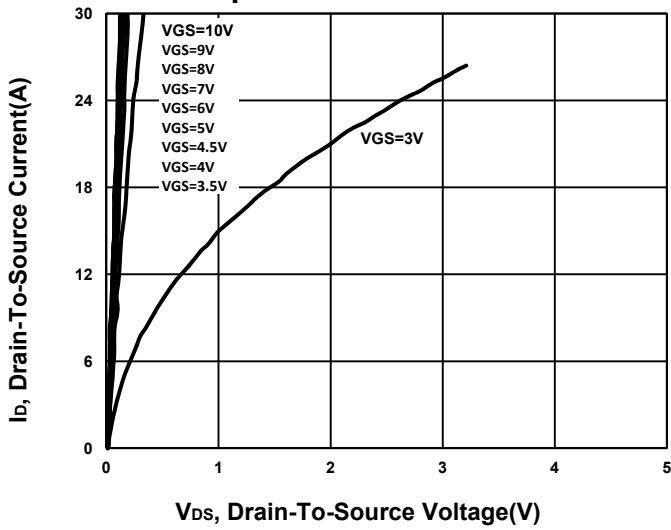
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 1mA	30			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.35	1.7	2.3		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			0.5	mA	
		V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			5		
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 16A		5.3	7	mΩ	
		V _{GS} = 10V, I _D = 19A		3.7	5		
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 19A		67		S	
DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1165		pF	
Output Capacitance	C _{oss}			227			
Reverse Transfer Capacitance	C _{rss}			146			
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2.6		Ω	
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V, V _{GS} = 10V, I _D = 19A	25		nC	
		V _{GS} = 4.5V		13			
Gate-Source Charge ²	Q _{gs}	3					
Gate-Drain Charge ²	Q _{gd}	7					
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, I _D ≅ 19A, V _{GS} = 10V, R _{GEN} = 6Ω		19			nS
Rise Time ²	t _r			10			
Turn-Off Delay Time ²	t _{d(off)}			40			
Fall Time ²	t _f		12				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current ³	I _S				31	A	
Forward Voltage ¹	V _{SD}	I _F = 19A, V _{GS} = 0V			1	V	
Reverse Recovery Time	t _{rr}	I _F = 19A, di _F /dt = 100A / μS		7.3		nS	
Reverse Recovery Charge	Q _{rr}			0.5		nC	

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

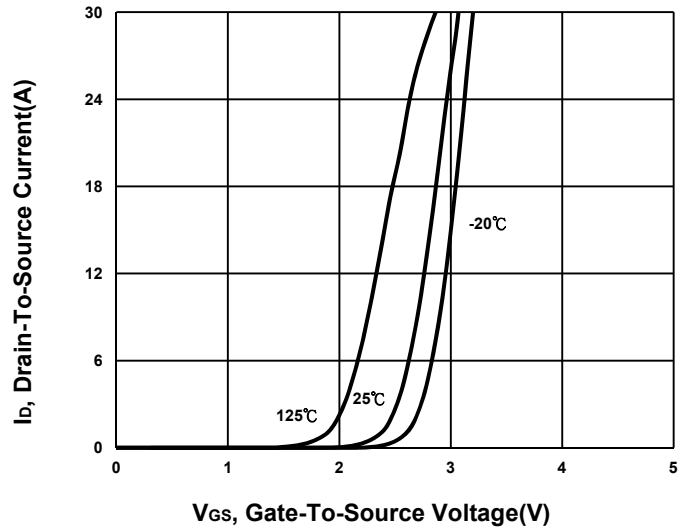
²Independent of operating temperature.

³Package limitation current is 47A.

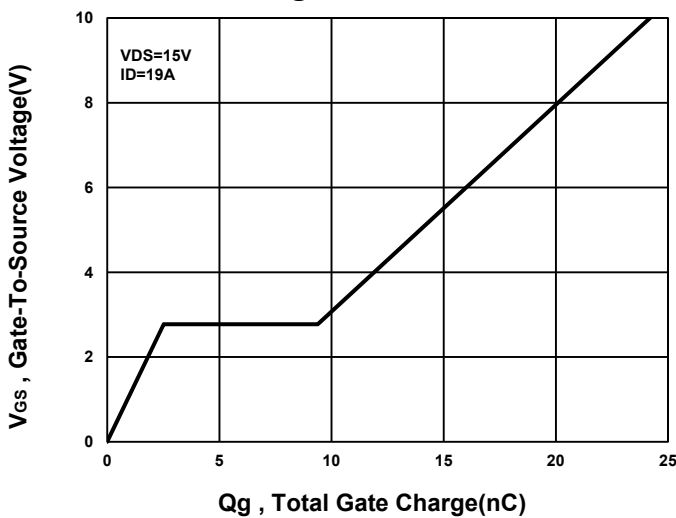
Output Characteristics



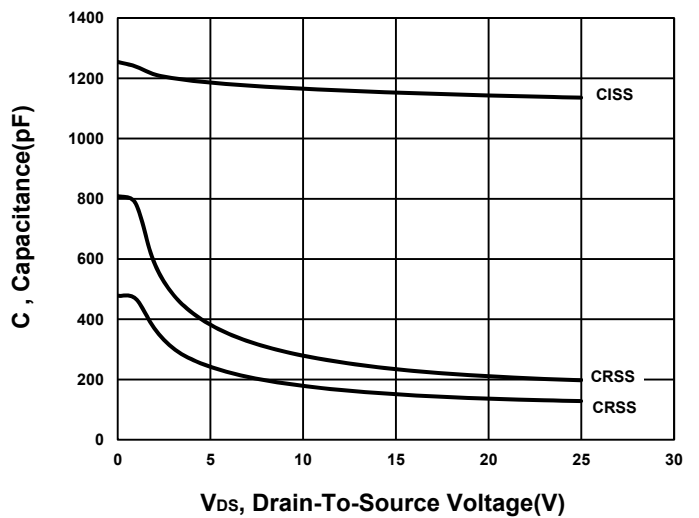
Transfer Characteristics



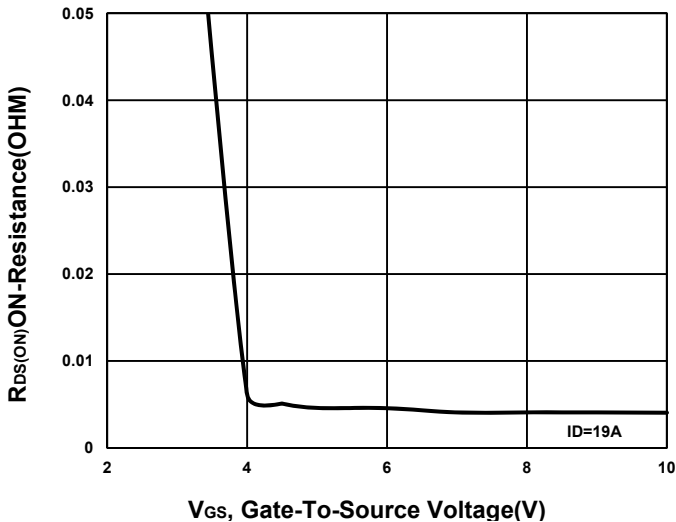
Gate charge Characteristics



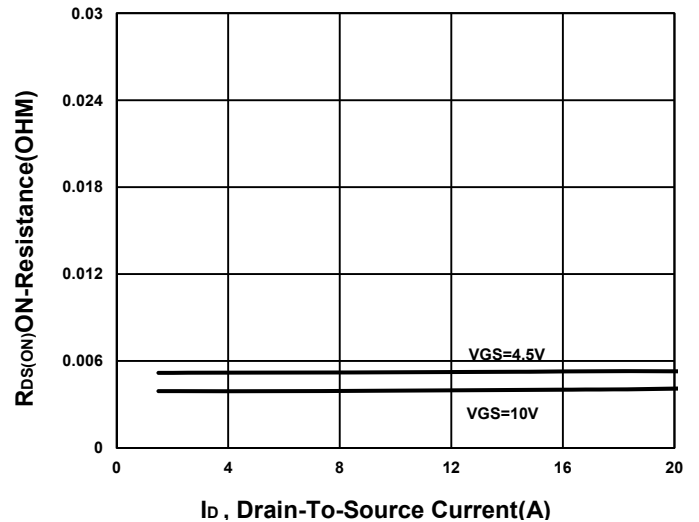
Capacitance Characteristic



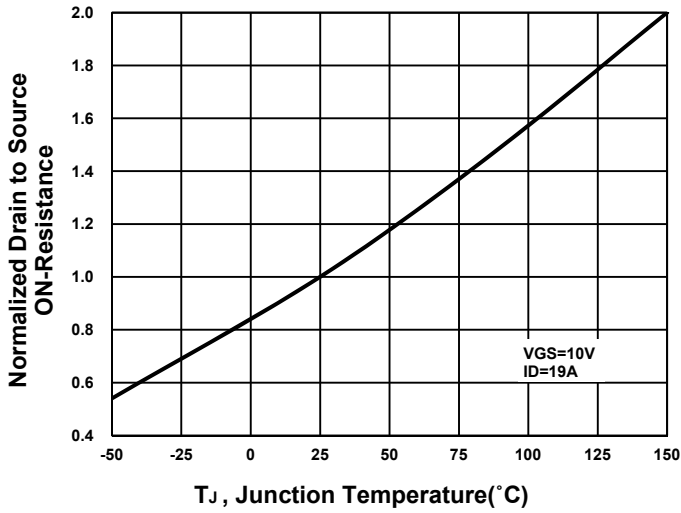
On-Resistance VS Gate-To-Source



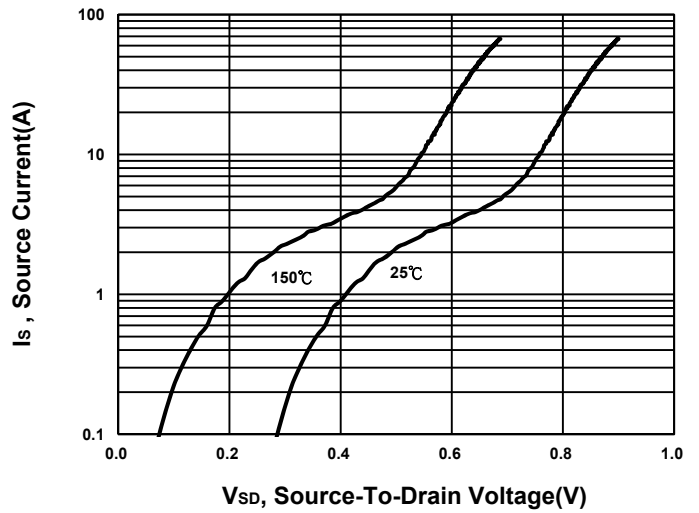
On-Resistance VS Drain Current



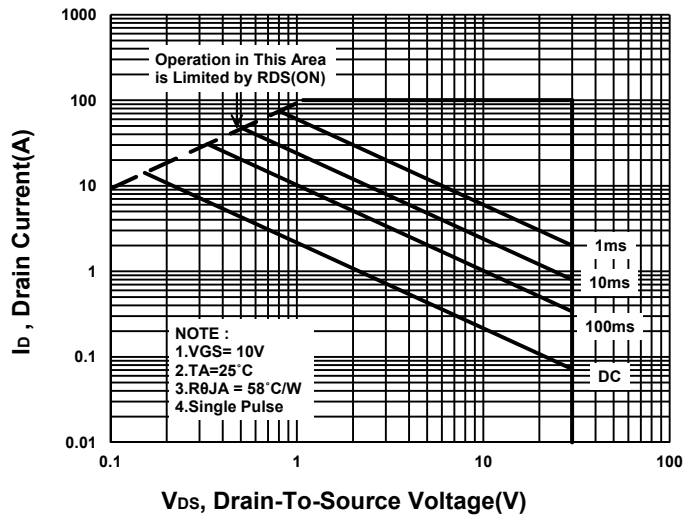
On-Resistance VS Temperature



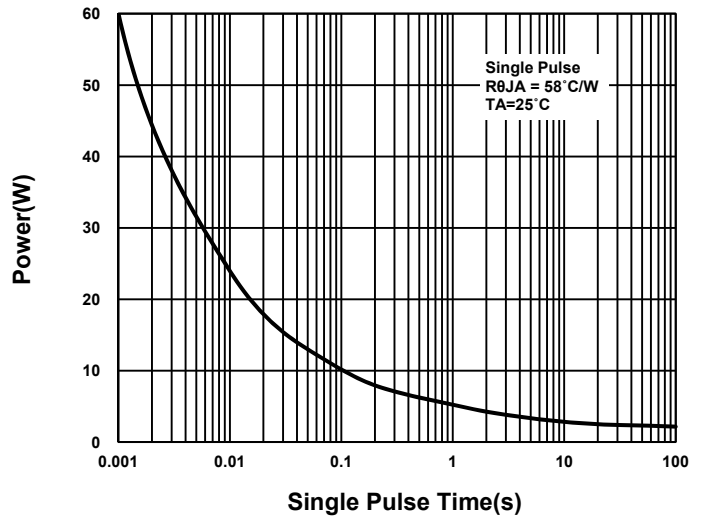
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

