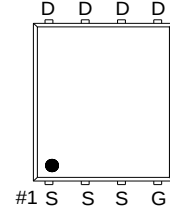
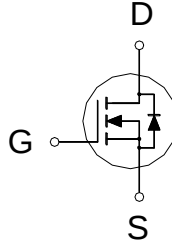




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	5.5m Ω	52A



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	52	A
	$T_C = 100\text{ }^{\circ}\text{C}$		33	
Pulsed Drain Current ¹		I_{DM}	100	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	19	
	$T_A = 70\text{ }^{\circ}\text{C}$		15	
Avalanche Current		I_{AS}	35	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	61	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	31	W
	$T_C = 100\text{ }^{\circ}\text{C}$		12.5	
Power Dissipation ⁴	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	4	W
	$T_A = 70\text{ }^{\circ}\text{C}$		2.6	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		30	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		53	
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 $T_A = 25^{\circ}\text{C}$.

³Package limitation current is 35A.

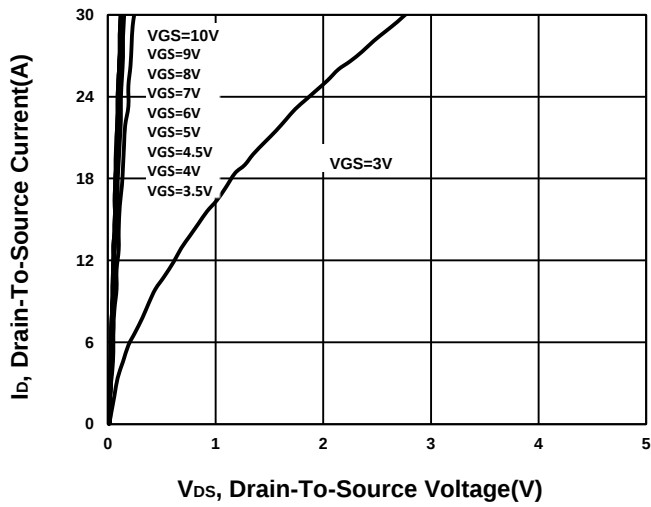
⁴The Power dissipation is based on $R_{\theta JA}$ $t \leq 10\text{s}$ value.

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

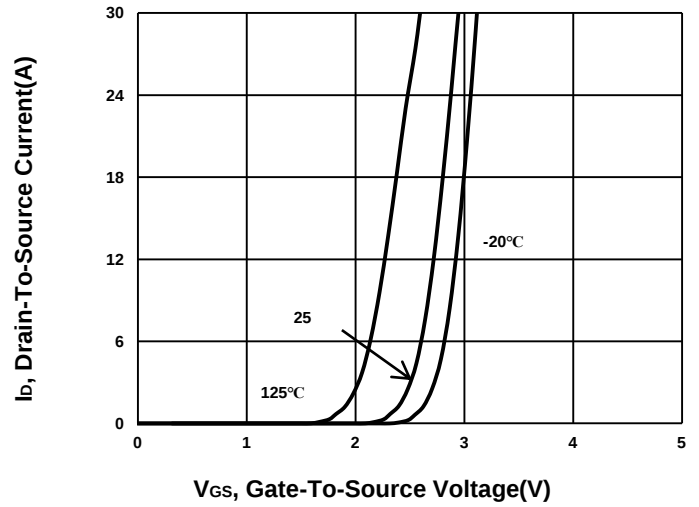
PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}		V _{GS} = 0V, I _D = 250μA	40			V
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.75	2.3	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	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 = 15A		4.2	7	mΩ
			V _{GS} = 10V, I _D = 19A		3.5	5.5	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 19A		80		S
DYNAMIC							
Input Capacitance	C _{iss}		V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		2131		pF
Output Capacitance	C _{oss}				272		
Reverse Transfer Capacitance	C _{rss}				162		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.7		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 20V , V _{GS} = 10V, I _D = 19A		42		nC
		V _{GS} = 4.5V			22		
Gate-Source Charge ²	Q _{gs}			7			
Gate-Drain Charge ²	Q _{gd}			10			
Turn-On Delay Time ²	t _{d(on)}			V _{DS} = 20V , I _D ≅ 19A, V _{GS} = 10V, R _{GEN} =6Ω		20	
Rise Time ²	t _r				13		
Turn-Off Delay Time ²	t _{d(off)}				58		
Fall Time ²	t _f				11		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _J = 25 °C)							
Continuous Current	I _S					24	A
Forward Voltage ¹	V _{SD}		I _F = 19A, V _{GS} = 0V			1.3	V
Reverse Recovery Time	t _{rr}		I _F = 19A, dI _F /dt = 100A / μS		17		nS
Reverse Recovery Charge	Q _{rr}				5		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.

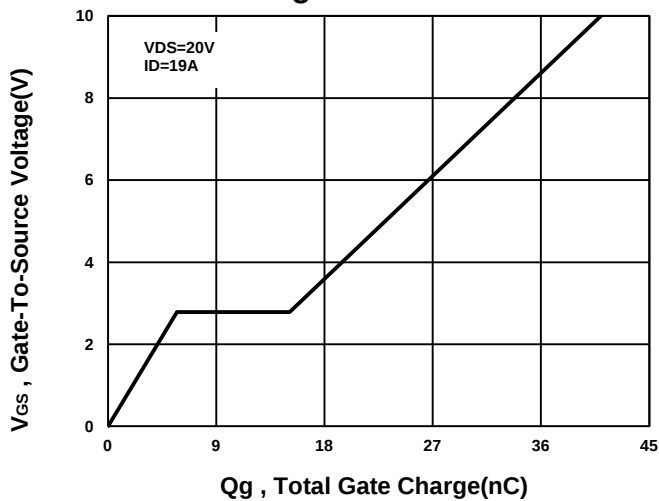
Output Characteristics



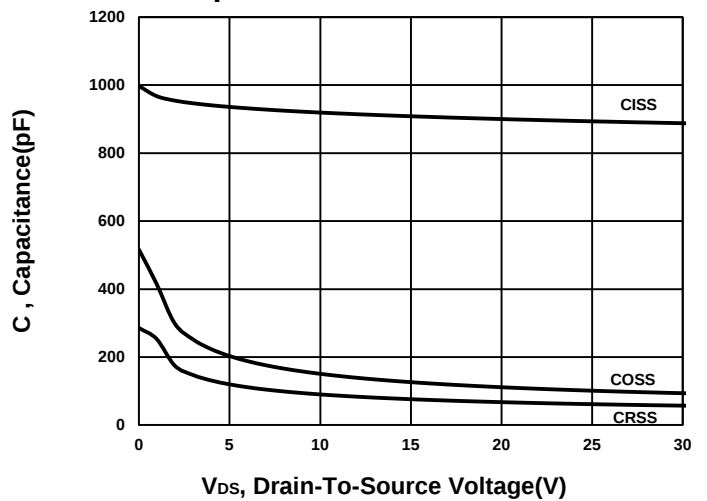
Transfer Characteristics



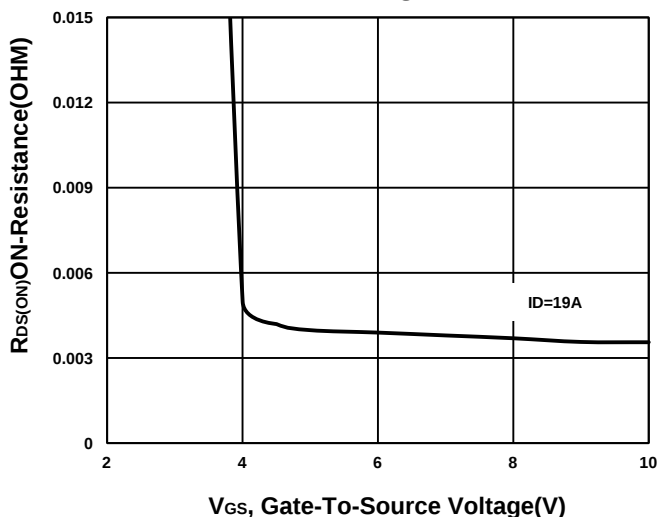
Gate charge Characteristics



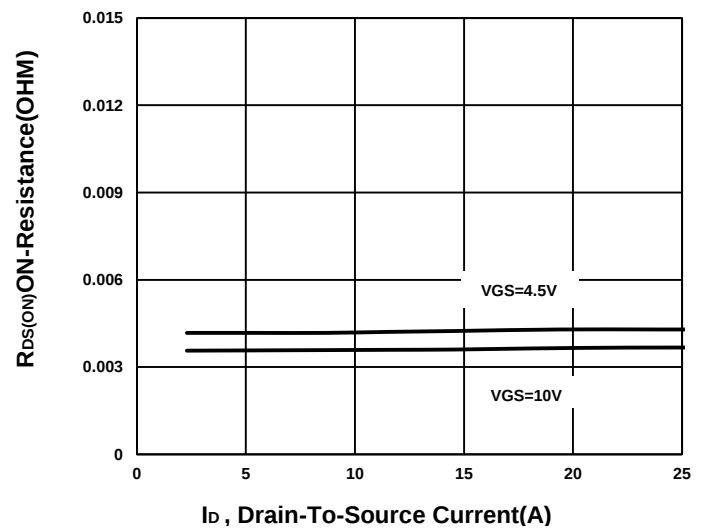
Capacitance Characteristic



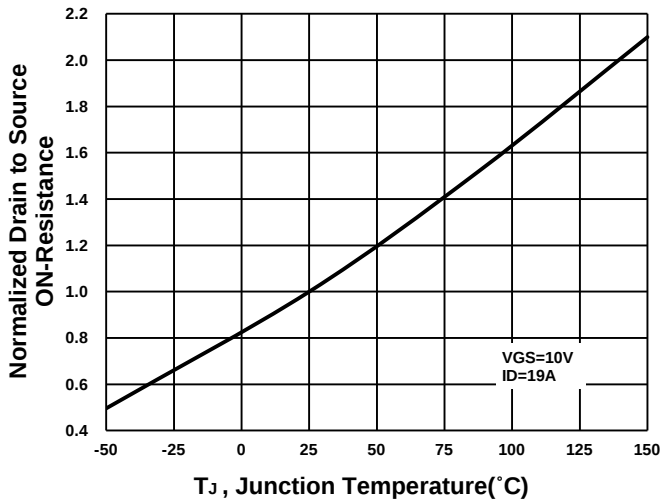
**On-Resistance VS Gate-To-Source
Voltage**



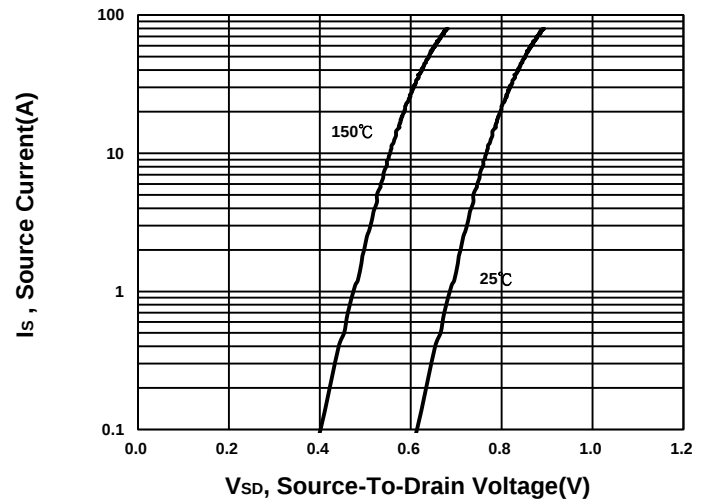
On-Resistance VS Drain Current



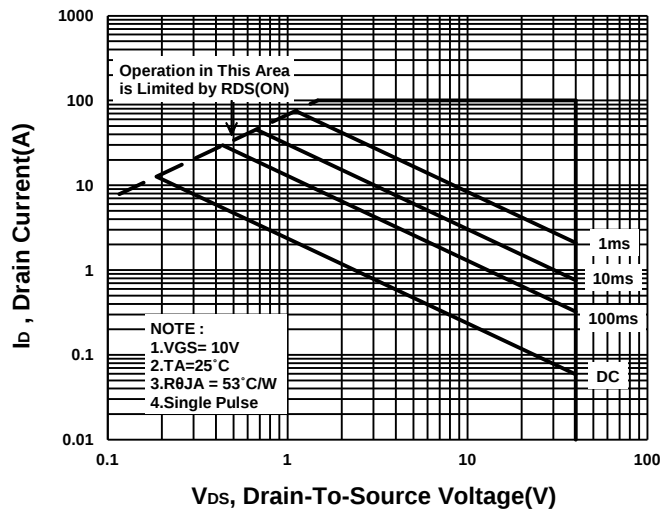
On-Resistance VS Temperature



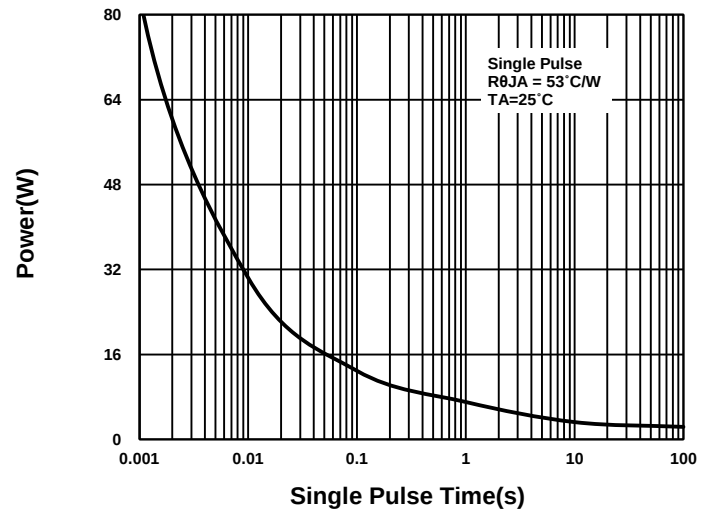
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

