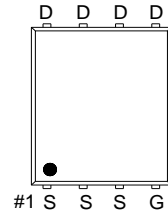
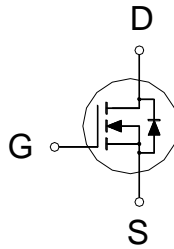




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	7mΩ	50A



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	$T_C = 25\text{ °C}$	I_D	50	A
	$T_C = 100\text{ °C}$		31.5	
Pulsed Drain Current ¹		I_{DM}	120	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	18	
	$T_A = 70\text{ °C}$		14	
Avalanche Current		I_{AS}	24	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	28.5	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	31	W
	$T_C = 100\text{ °C}$		12.5	
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	4.1	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	$R_{\theta JA}$		57	
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 $T_A = 25\text{ °C}$.

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

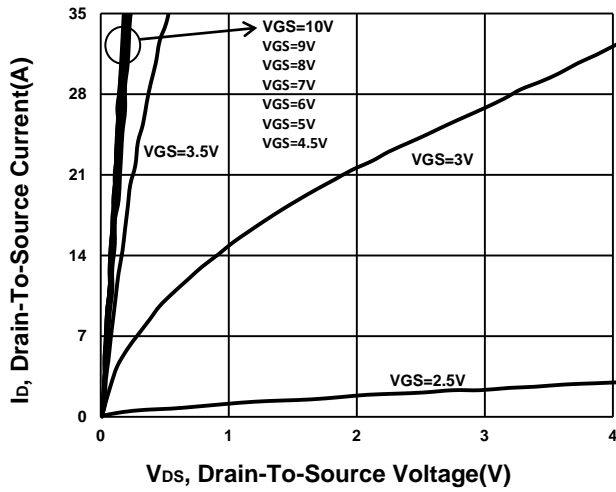
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.35	1.7	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			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 = 13A		6.3	9.5	mΩ
		V _{GS} = 10V, I _D = 13A		4.8	7	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 13A		60		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	678	847	1016	pF
Output Capacitance	C _{oss}		130	163	196	
Reverse Transfer Capacitance	C _{rss}		58	97	136	
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	0.1	2.3	4.6	Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	10.5	17.5	24.5	nC
		V _{GS} = 4.5V	7.4	9.3	11.2	
Gate-Source Charge ²	Q _{gs}	V _{DS} = 15V, V _{GS} = 10V, I _D = 13A	1.3	2.1	2.9	
Gate-Drain Charge ²	Q _{gd}		3.2	5.4	7.6	
Turn-On Delay Time ²	t _{d(on)}		V _{DS} = 15V, I _D ≅ 13A, V _{GS} = 10V, R _{GEN} = 6Ω		27	
Rise Time ²	t _r			23		
Turn-Off Delay Time ²	t _{d(off)}			51		
Fall Time ²	t _f			24		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				25.8	A
Forward Voltage ¹	V _{SD}	I _F = 13A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F = 13A, di _F /dt = 100A / μS		10.8		nS
Reverse Recovery Charge	Q _{rr}			2.3		nC

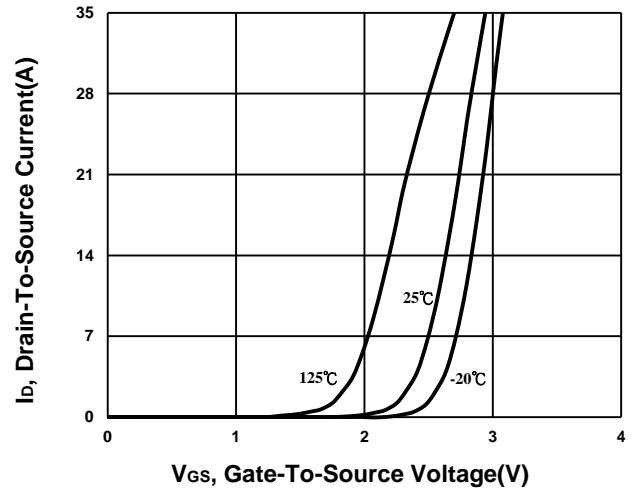
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

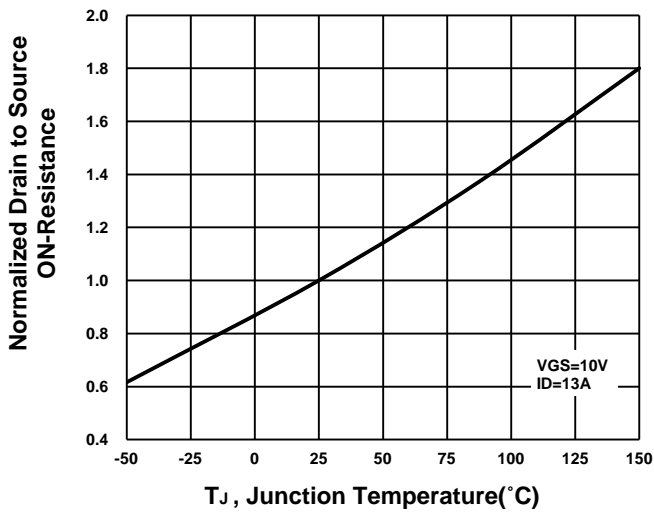
Output Characteristics



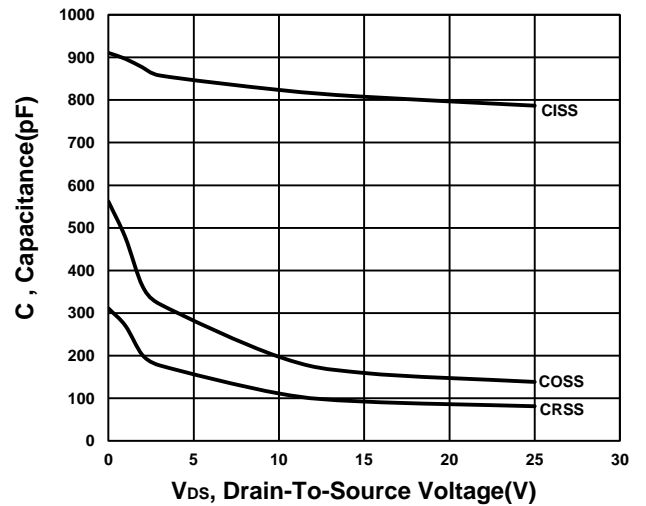
Transfer Characteristics



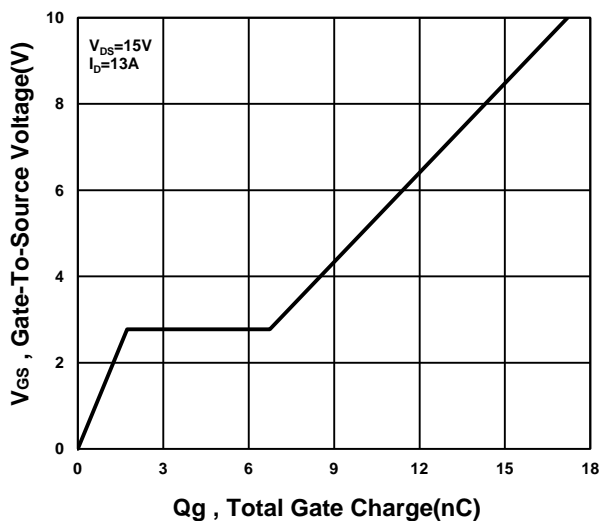
On-Resistance VS Temperature



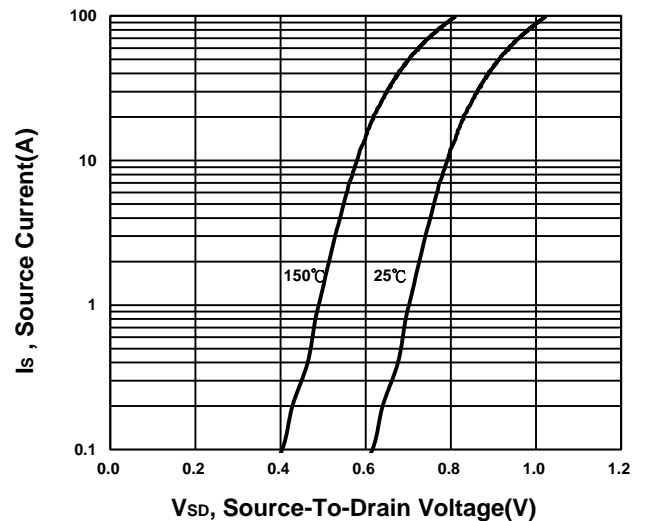
Capacitance Characteristic



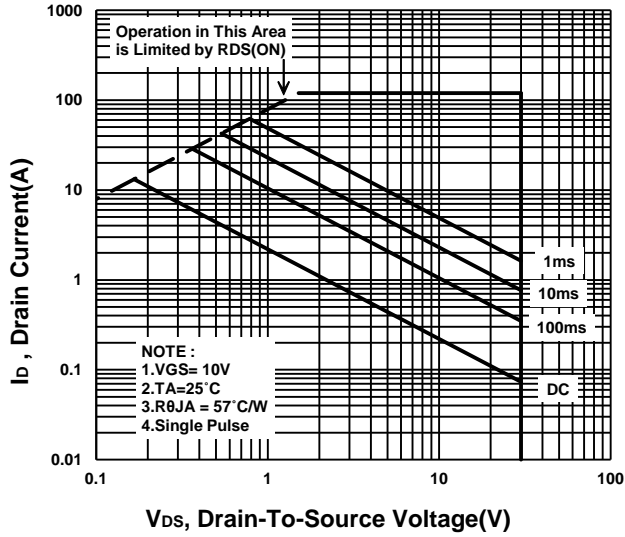
Gate charge Characteristics



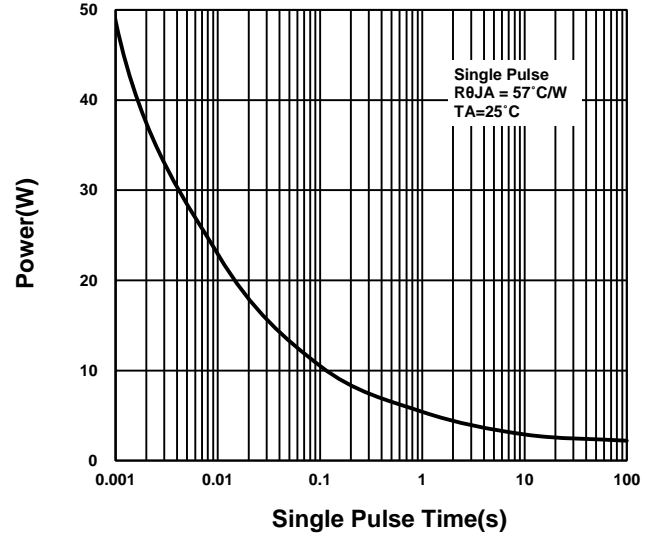
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

