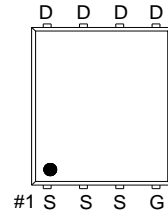
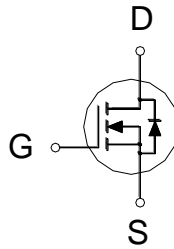




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
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 <sup>1</sup>		$I_{DM}$	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 <sup>3</sup>	$T_A = 25\text{ °C}$	$P_D$	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 <sup>2</sup>	$t \leq 10\text{s}$	$R_{\theta JA}$		30	°C / W
Junction-to-Ambient <sup>2</sup>	Steady-State	$R_{\theta JA}$		57	
Junction-to-Case	Steady-State	$R_{\theta JC}$		4	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25\text{ °C}$ .

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

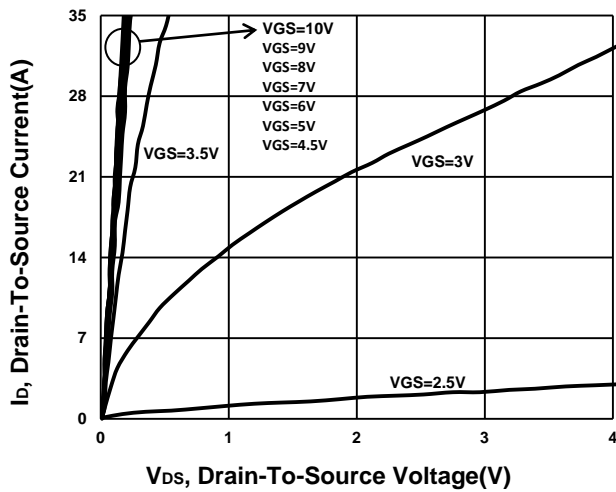
**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
<b>STATIC</b>							
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.35	1.7	3		
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA	
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA	
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55 °C			10		
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 13A		6.3	9.5	mΩ	
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 13A		4.8	7		
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 13A		60		S	
<b>DYNAMIC</b>							
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz		847		pF	
Output Capacitance	C <sub>oss</sub>			163			
Reverse Transfer Capacitance	C <sub>rss</sub>			97			
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		2.3		Ω	
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>GS</sub> = 10V	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 13A	17.5		nC	
		V <sub>GS</sub> = 4.5V		9.3			
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>	2.1					
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>	5.4					
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> ≅ 13A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> = 6Ω		27			nS
Rise Time <sup>2</sup>	t <sub>r</sub>			23			
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			51			
Fall Time <sup>2</sup>	t <sub>f</sub>		24				
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>							
Continuous Current	I <sub>S</sub>				25.8	A	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 13A, V <sub>GS</sub> = 0V			1.2	V	
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 13A, di <sub>F</sub> /dt = 100A / μS		10.8		nS	
Reverse Recovery Charge	Q <sub>rr</sub>			2.3		nC	

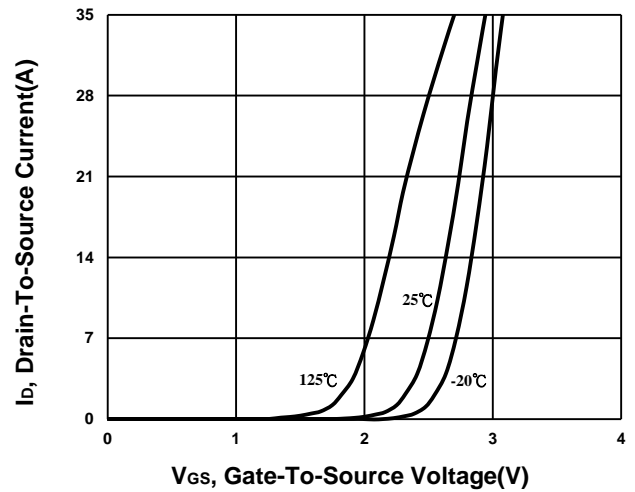
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

<sup>2</sup>Independent of operating temperature.

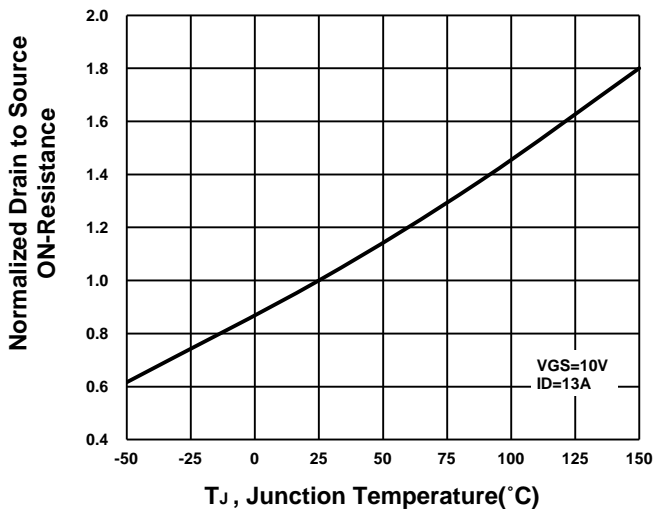
**Output Characteristics**



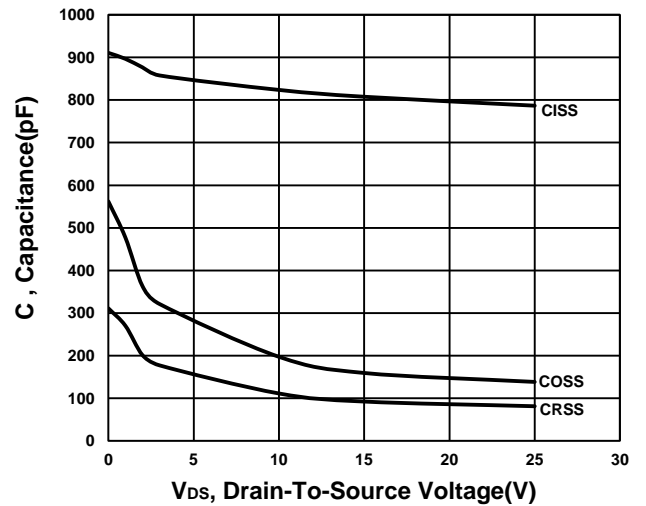
**Transfer Characteristics**



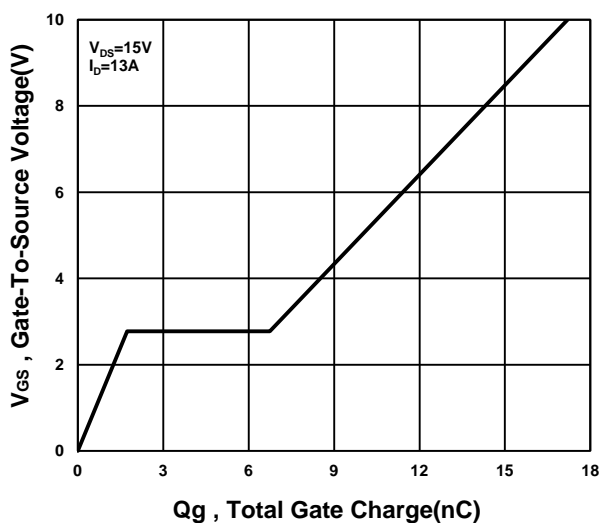
**On-Resistance VS Temperature**



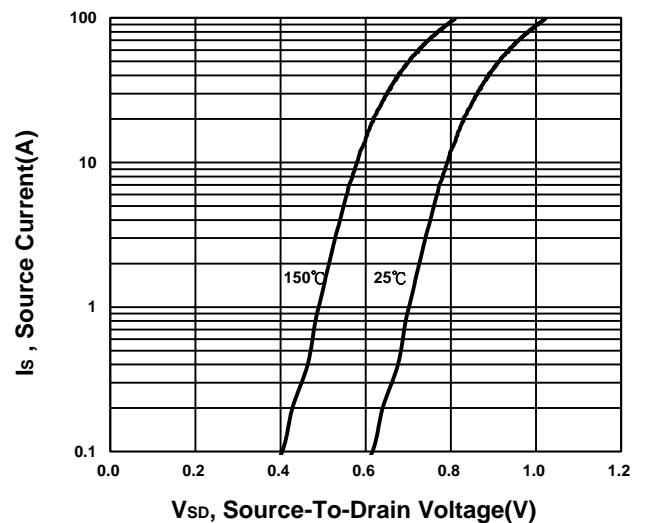
**Capacitance Characteristic**



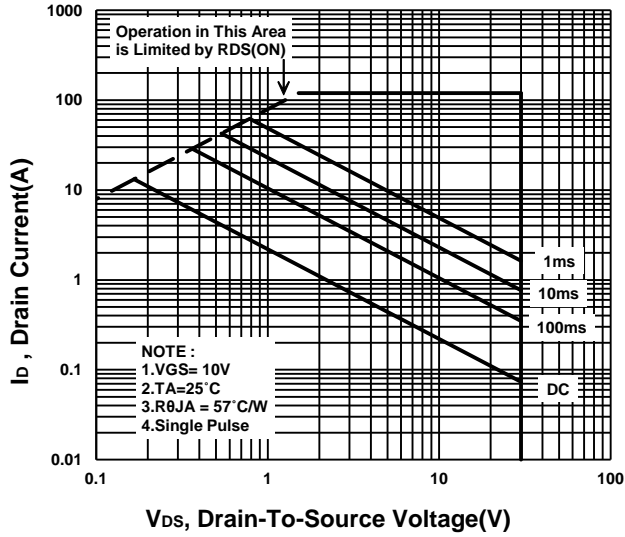
**Gate charge Characteristics**



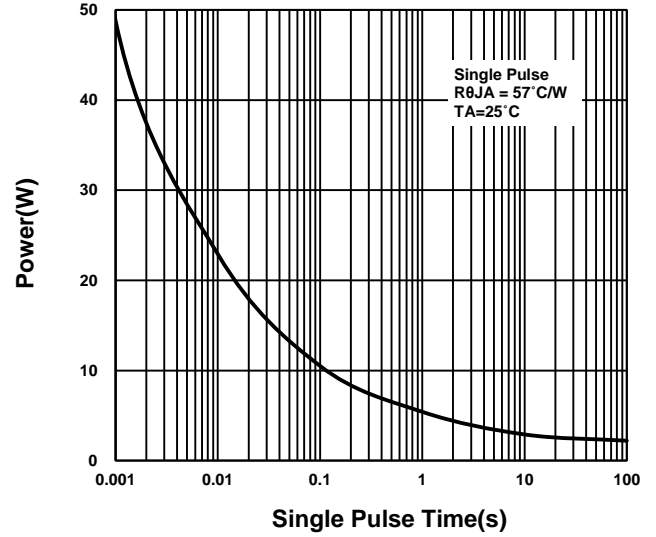
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

