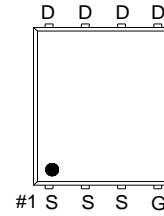
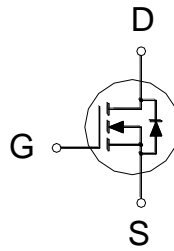




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30V	9.5mΩ	40A



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 <sup>3</sup>	$T_C = 25\text{ °C}$	$I_D$	40	A
	$T_C = 100\text{ °C}$		25	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	100	
Continuous Drain Current	$T_A = 25\text{ °C}$	$I_D$	10.7	
	$T_A = 70\text{ °C}$		8.6	
Avalanche Current		$I_{AS}$	18	
Avalanche Energy	$L = 0.1\text{mH}$	$E_{AS}$	16.2	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	27.8	W
	$T_C = 100\text{ °C}$		11	
Power Dissipation	$T_A = 25\text{ °C}$	$P_D$	2	W
	$T_A = 70\text{ °C}$		1.3	
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>	$R_{\theta JA}$		63	°C / W
Junction-to-Case	$R_{\theta JC}$		4.5	

<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>Package limitation current is 20A.

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

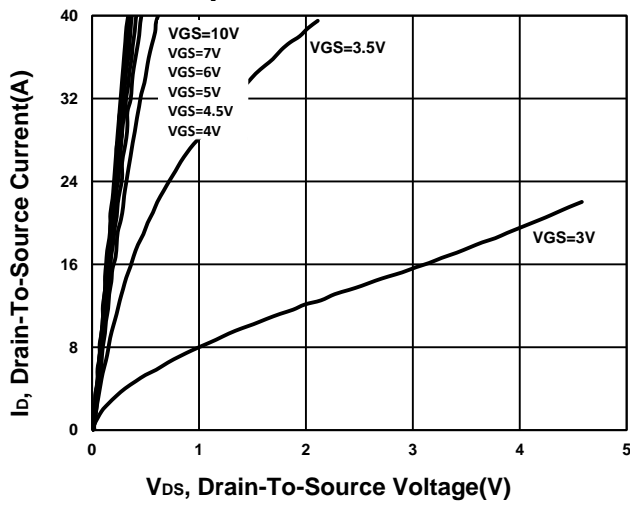
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
<b>STATIC</b>							
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V	
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.3	1.75	2.3		
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> = 9A		9.7	13.5	mΩ	
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 9.5A		7.4	9.5		
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 9.5A		62		S	
<b>DYNAMIC</b>							
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz	486	608	729	pF	
Output Capacitance	C <sub>oss</sub>		89	112	134		
Reverse Transfer Capacitance	C <sub>rss</sub>		44	74	104		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz	1.4	2.8	42	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> = 9.5A	11	14	17	nC
		V <sub>GS</sub> = 4.5V		5.8	7.3	8.8	
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>	1.6		2	2.4		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>	2.2		3.7	5.2		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 9.5A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> = 6Ω			13		
Rise Time <sup>2</sup>	t <sub>r</sub>			37			
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			48			
Fall Time <sup>2</sup>	t <sub>f</sub>			25			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>							
Continuous Current <sup>3</sup>	I <sub>S</sub>				25	A	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 9.5A, V <sub>GS</sub> = 0V			1.1	V	
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 9.5A, di <sub>F</sub> /dt = 100A / μS	5.9	11.7	18	nS	
Reverse Recovery Charge	Q <sub>rr</sub>		1.5	3	4.5	nC	

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

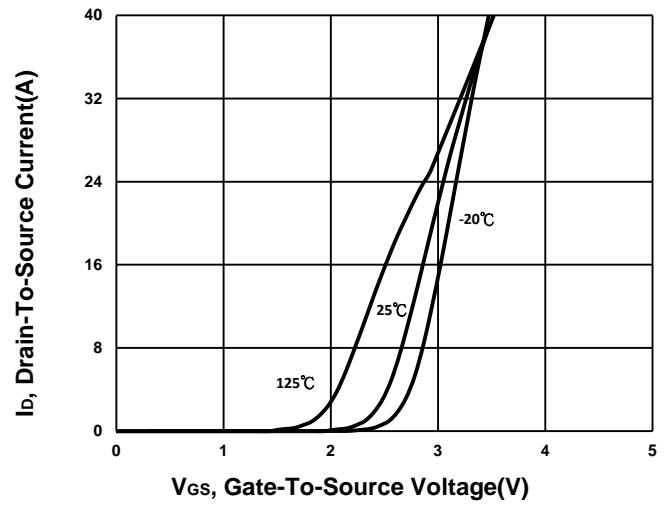
<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Package limitation current is 20A.

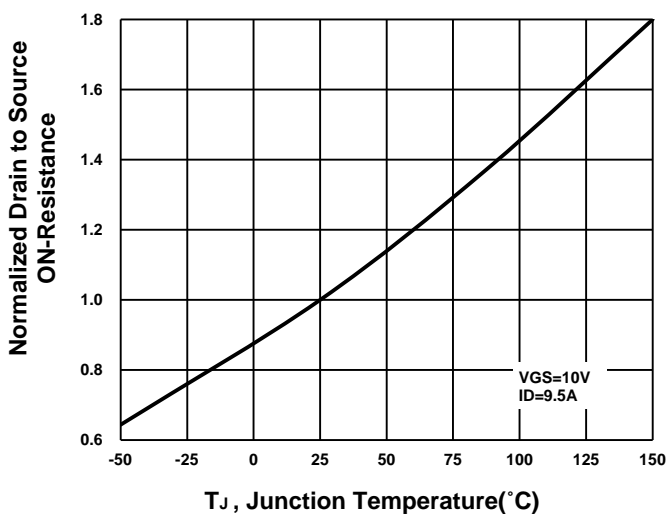
**Output Characteristics**



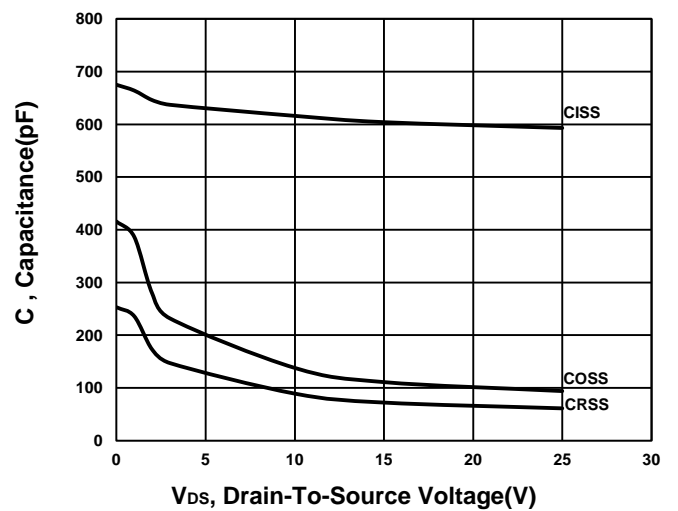
**Transfer Characteristics**



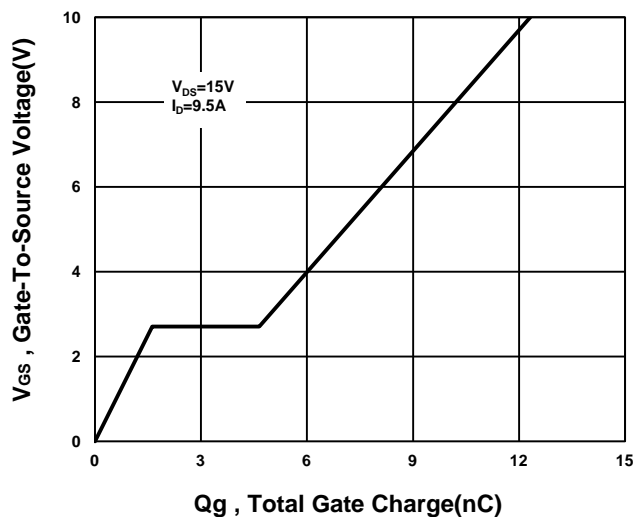
**On-Resistance VS Temperature**



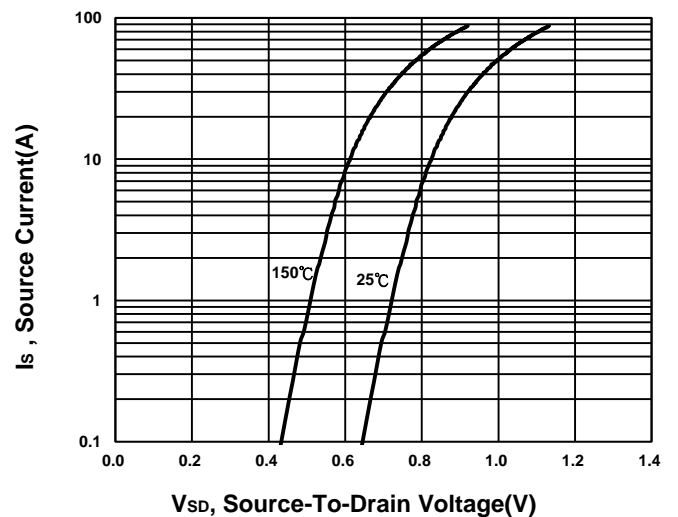
**Capacitance Characteristic**



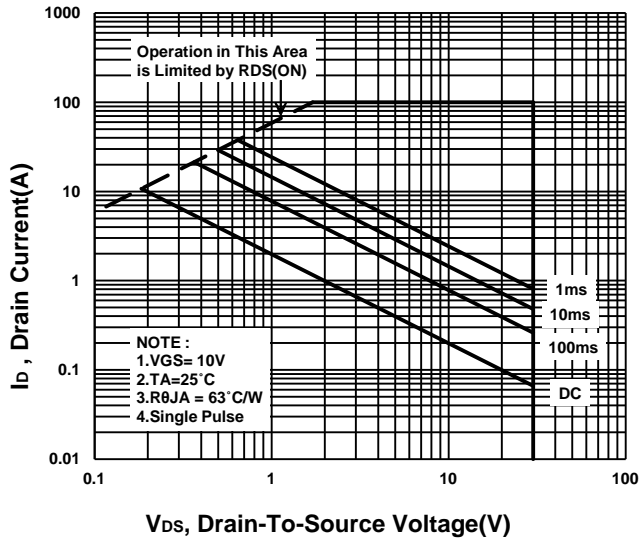
**Gate charge Characteristics**



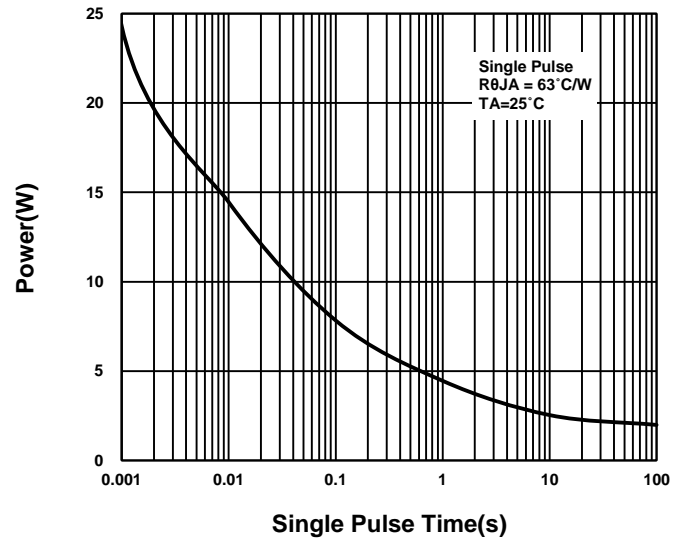
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

