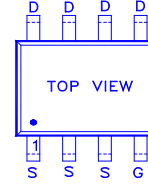
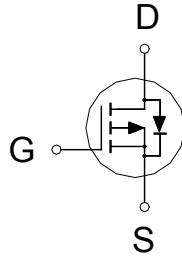


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-40V	15m $\Omega$	-9.5A



G : GATE  
D : DRAIN  
S : SOURCE

**ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	-40	V
Gate-Source Voltage		$V_{GS}$	$\pm 25$	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	$I_D$	-9.5	A
	$T_A = 70^\circ\text{C}$		-7.6	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-40	
Avalanche Current		$I_{AS}$	-32	
Avalanche Energy	$L = 0.1\text{mH}$	$E_{AS}$	53	mJ
Power Dissipation <sup>3</sup>	$T_A = 25^\circ\text{C}$	$P_D$	3	W
	$T_A = 70^\circ\text{C}$		2	
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 <sup>2</sup>	$t \leq 10\text{s}$	$R_{\theta JA}$		40	$^\circ\text{C} / \text{W}$
Junction-to-Ambient <sup>2</sup>	Steady-State	$R_{\theta JA}$		75	
Junction-to-Case	Steady-State	$R_{\theta JC}$		24	

<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  $T_A = 25^\circ\text{C}$ .

<sup>3</sup>The 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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.3	-1.5	-3	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 25V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -32V, V_{GS} = 0V$			-1	$\mu A$
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			-10	
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -9.5A$		17	29	$m\Omega$
		$V_{GS} = -10V, I_D = -9.5A$		13	15	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -9.5A$		20		S

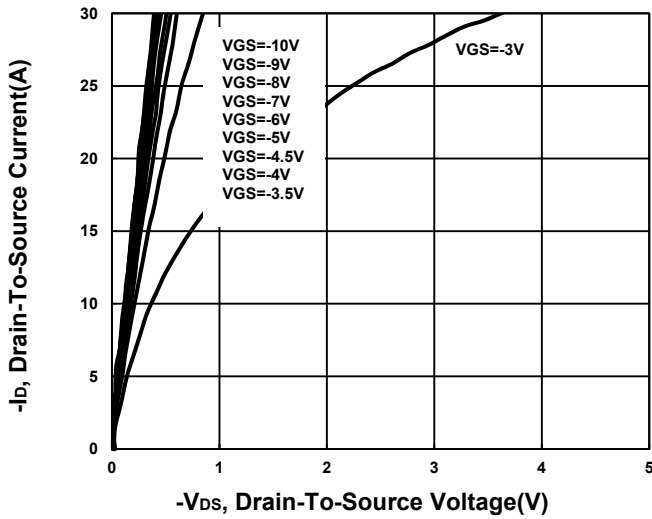
DYNAMIC						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -20V, f = 1MHz$		1883		pF
Output Capacitance	$C_{oss}$			255		
Reverse Transfer Capacitance	$C_{rss}$			213		
Gate Resistance	$R_g$	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		4		$\Omega$
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = -20V, V_{GS} = -10V, I_D = -9.5A$		41.2		nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			4.2		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			14		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = -20V, I_D \cong -9.5A, V_{GS} = -10V, R_{GEN} = 3\Omega$		9.4		nS
Rise Time <sup>2</sup>	$t_r$			20		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			55		
Fall Time <sup>2</sup>	$t_f$			30		

SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_J = 25\text{ }^{\circ}\text{C}$ )

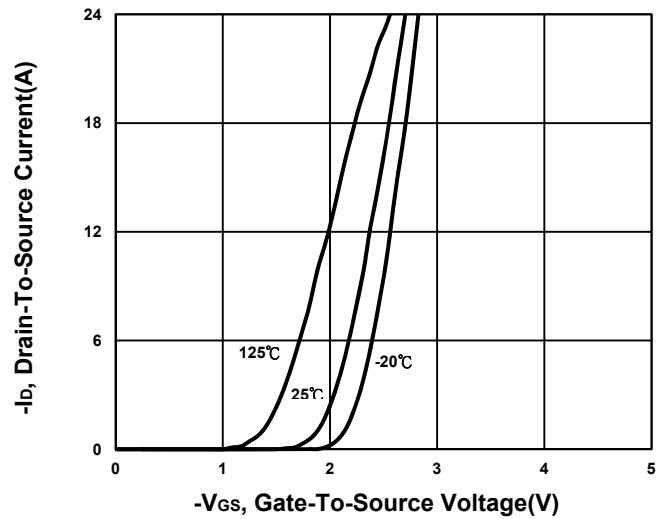
Continuous Current	$I_S$				-2.3	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = -9.5A, V_{GS} = 0V$			-1.3	V
Reverse Recovery Time	$t_{rr}$	$I_F = -9.5A, dI/dt = 100A/\mu s$		20		nS
Reverse Recovery Charge	$Q_{rr}$			6		nC

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

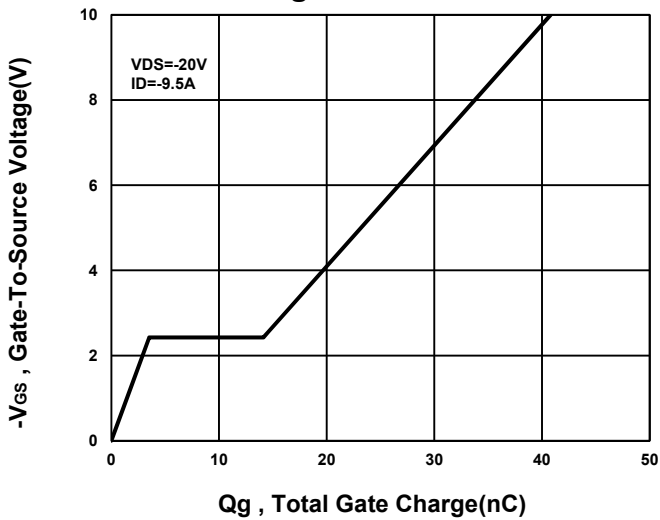
**Output Characteristics**



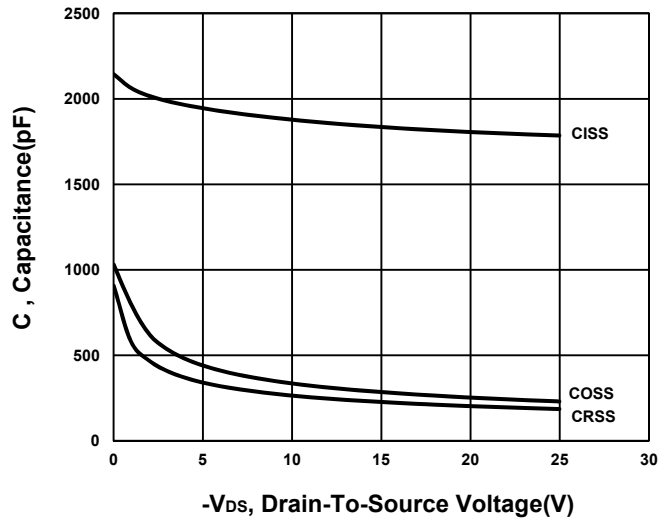
**Transfer Characteristics**



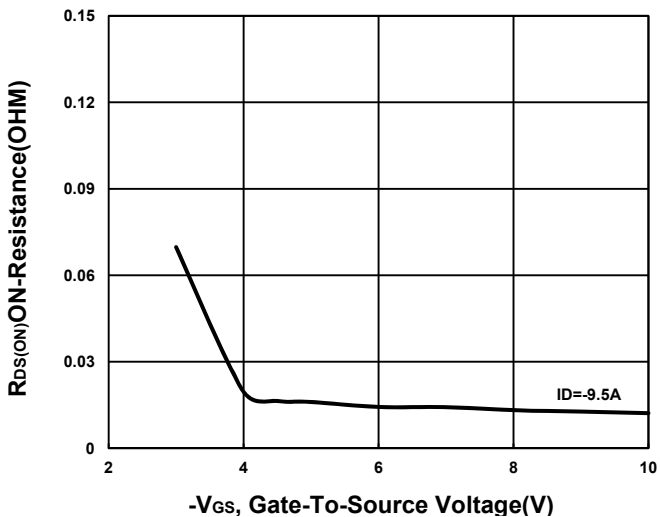
**Gate charge Characteristics**



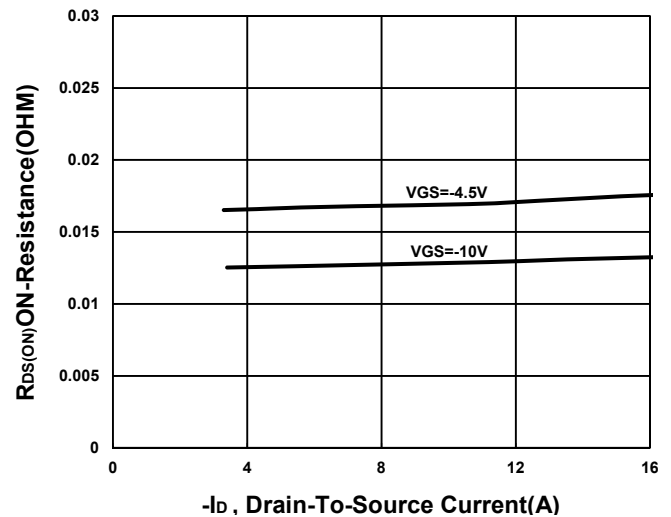
**Capacitance Characteristic**



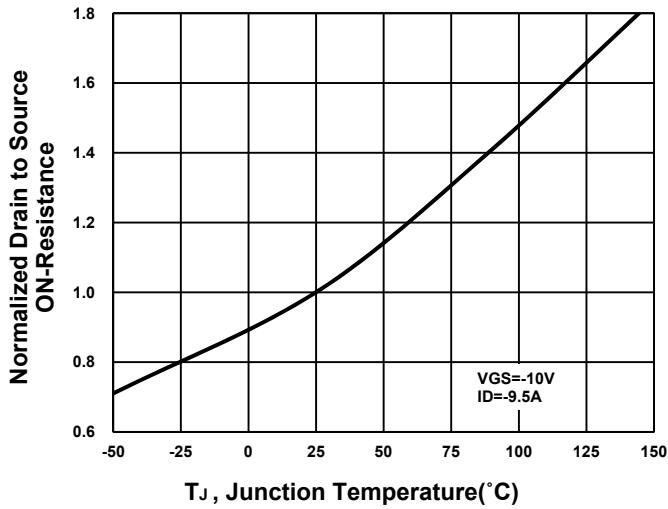
**On-Resistance VS Gate-To-Source**



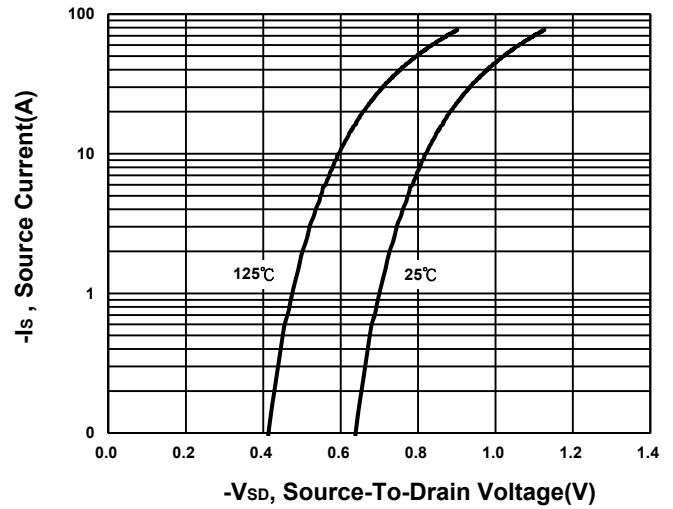
**On-Resistance VS Drain Current**



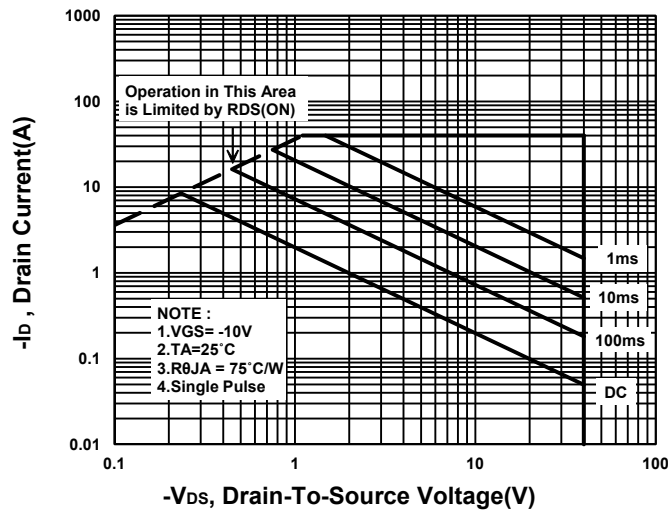
**On-Resistance VS Temperature**



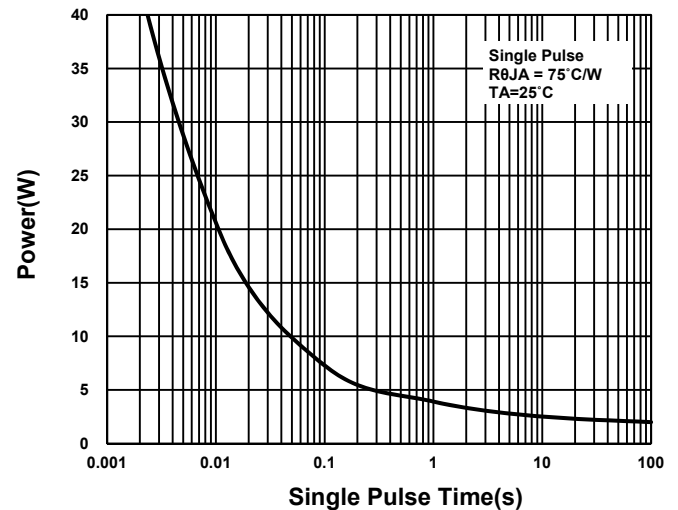
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

