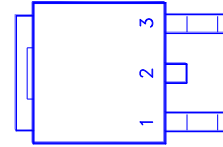
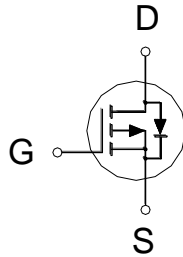


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-30V	12mΩ	-55A



- 1. GATE
- 2. DRAIN
- 3. SOURCE



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °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>2</sup>	T <sub>C</sub> = 25 °C	$I_D$	-55	A
	T <sub>C</sub> = 100 °C		-35	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-150	
Avalanche Current		$I_{AS}$	-38	
Avalanche Energy	L = 0.1mH	$E_{AS}$	72	mJ
Power Dissipation	T <sub>C</sub> = 25 °C	$P_D$	62	W
	T <sub>C</sub> = 100 °C		25	
Junction & Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

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

<sup>2</sup>Package limitation current is -40A.

**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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-3	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ °C}$			-10	

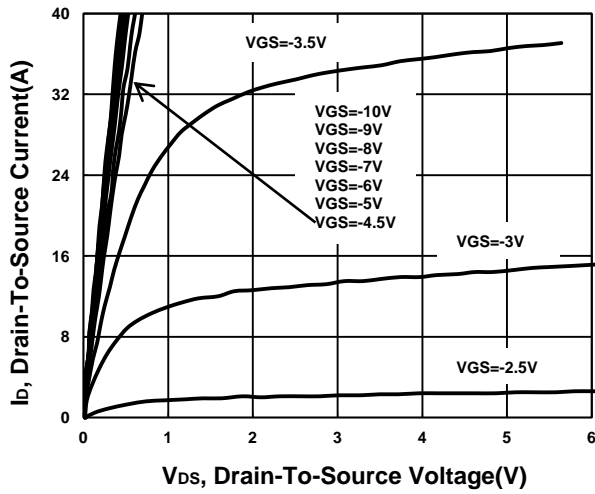
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -9A$	15.4	19	m $\Omega$
		$V_{GS} = -10V, I_D = -12A$	9.8	12	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -12A$	31		S
<b>DYNAMIC</b>					
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$	2740		pF
Output Capacitance	$C_{oss}$		376		
Reverse Transfer Capacitance	$C_{rss}$		321		
Gate Resistance	$R_g$	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$	2.6		$\Omega$
Total Gate Charge <sup>2</sup>	$Q_g(V_{GS}=-10V)$	$V_{DS} = -15V, V_{GS} = -10V, I_D = -12A$	55		nC
	$Q_g(V_{GS}=-4.5V)$		28		
Gate-Source Charge <sup>2</sup>	$Q_{gs}$		8.7		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$		13		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$		$V_{DS} = -15V, I_D \cong -12A, V_{GS} = -10V, R_{GEN} = 6\Omega$	15	
Rise Time <sup>2</sup>	$t_r$	18			
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$	38			
Fall Time <sup>2</sup>	$t_f$	22			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>					
Continuous Current <sup>3</sup>	$I_S$			-51	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = -12A, V_{GS} = 0V$		-1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F = -12A, di_F/dt = 100A / \mu S$	20		nS
Reverse Recovery Charge	$Q_{rr}$		12		nC

<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

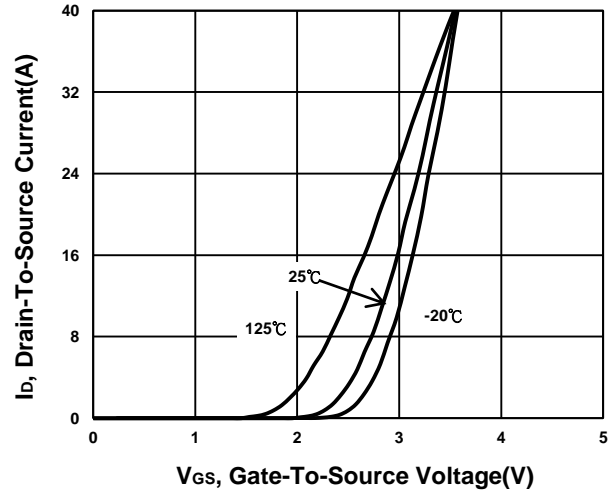
<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Package limitation current is -40A.

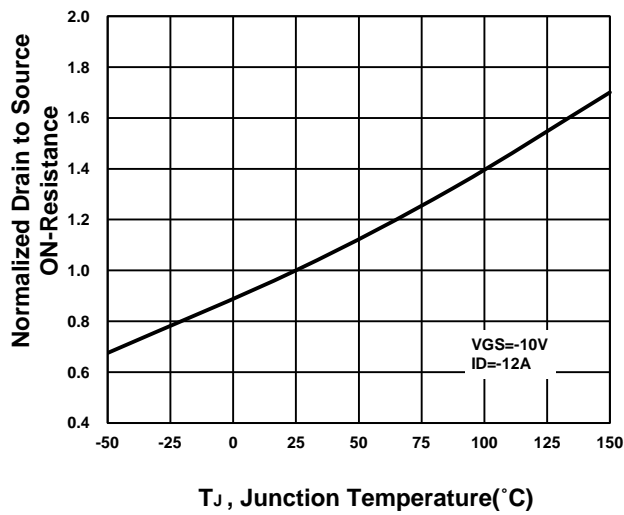
**Output Characteristics**



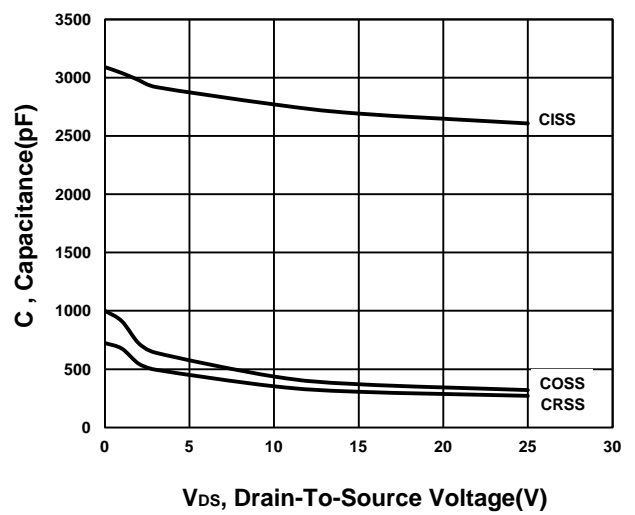
**Transfer Characteristics**



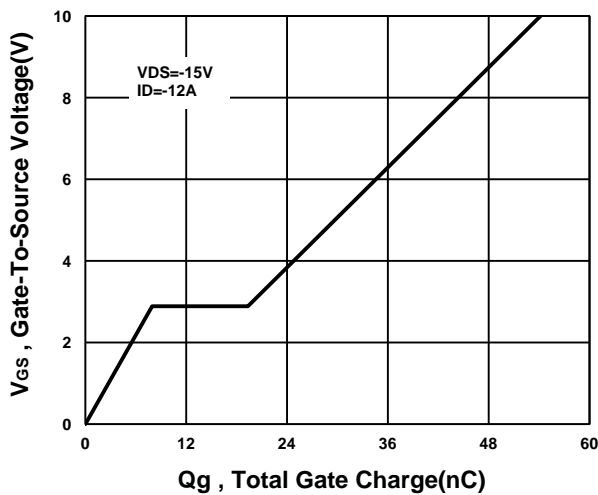
**On-Resistance VS Temperature**



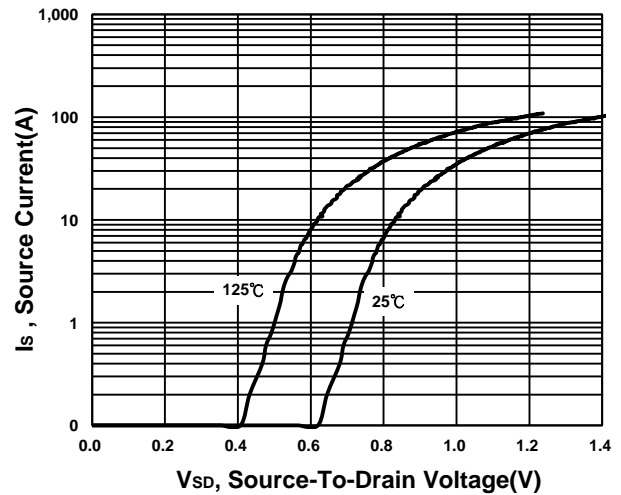
**Capacitance Characteristic**



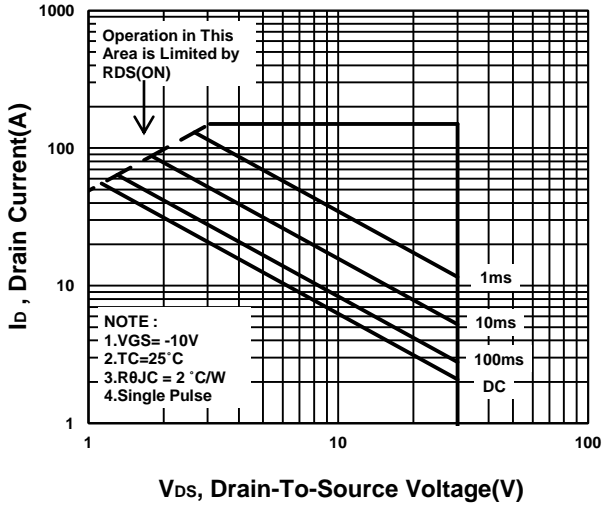
**Gate charge Characteristics**



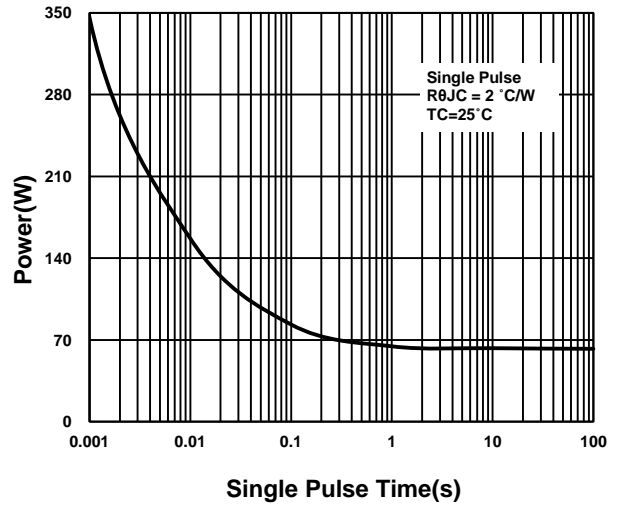
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

