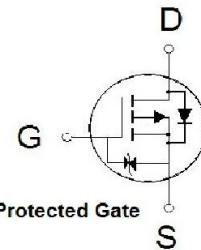


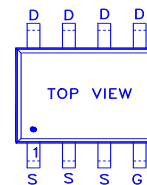


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-30V	8mΩ	-15A



ESD Protected Gate



G : GATE  
D : DRAIN  
S : SOURCE

100% UIS Tested  
100% Rg Tested

**Features**

- Pb-Free, Halogen Free and RoHS compliant.
- Low  $R_{DS(on)}$  to Minimize Conduction Losses.
- Ohmic Region Good  $R_{DS(on)}$  Ratio.
- Optimized Gate Charge to Minimize Switching Losses.
- Products Integrated ESD diode with ESD Protected.

**Applications**

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.

**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	$T_A = 25\text{ °C}$	$I_D$	-15	A
	$T_A = 70\text{ °C}$		-12	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-60	
Avalanche Current		$I_{AS}$	-67	
Avalanche Energy	L = 0.1mH	$E_{AS}$	224	mJ
Power Dissipation <sup>3</sup>	$T_A = 25\text{ °C}$	$P_D$	2.9	W
	$T_A = 70\text{ °C}$		1.8	
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>	$t \leq 10s$	$R_{\theta JA}$		43	°C / W
Junction-to-Ambient <sup>2</sup>	Steady-State	$R_{\theta JA}$		62	
Junction-to-Case	Steady-State	$R_{\theta JC}$		20	

<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  $R_{\theta JA} t \leq 10s$  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	-1.3	-1.75	-2.3	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±10	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -30V, V <sub>GS</sub> = 0V			-1	μA
		V <sub>DS</sub> = -30V, 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> = -10A		8.6	13.8	mΩ
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -15A		5.5	8	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -15A		52		S

<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1MHz		5270		pF
Output Capacitance	C <sub>oss</sub>			796		
Reverse Transfer Capacitance	C <sub>rss</sub>			702		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		1.9		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -15V, V <sub>GS</sub> = -10V, I <sub>D</sub> = -15A		119		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			16.4		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			27.8		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = -15V I <sub>D</sub> ≅ -15A, V <sub>GS</sub> = -10V, R <sub>GEN</sub> = 6Ω		24		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			88		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			154		
Fall Time <sup>2</sup>	t <sub>f</sub>			121		

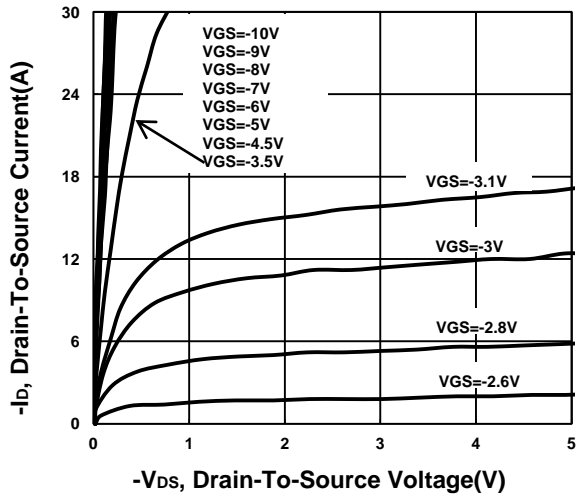
**SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)**

Continuous Current	I <sub>S</sub>				-2.4	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = -15A, V <sub>GS</sub> = 0V			-1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -15A, di/dt=100A/μs		27		nS
Reverse Recovery Charge	Q <sub>rr</sub>			22		nC

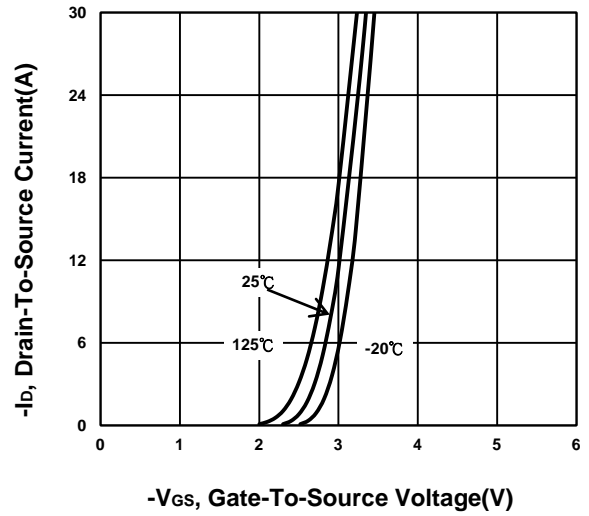
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

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

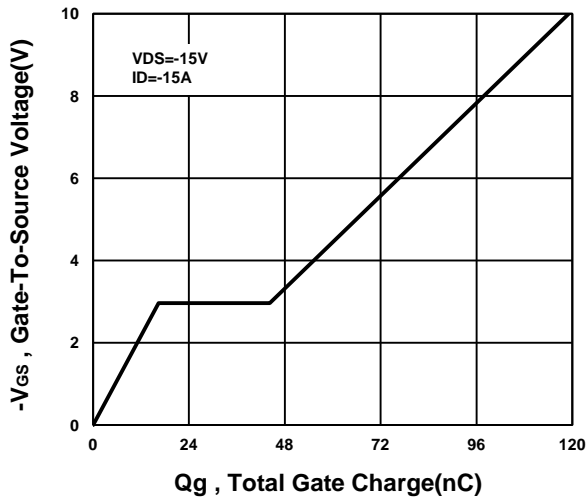
**Output Characteristics**



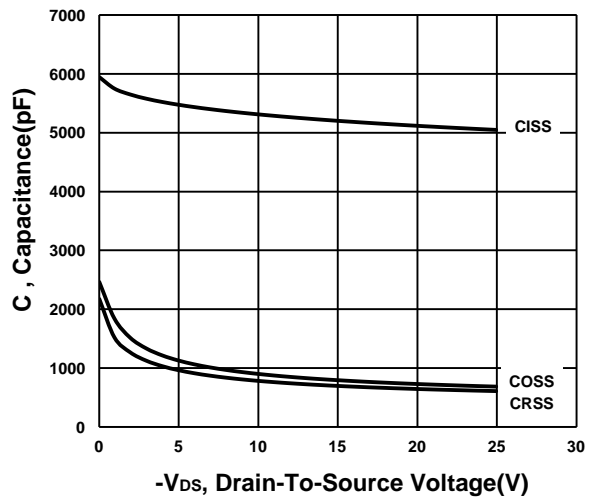
**Transfer Characteristics**



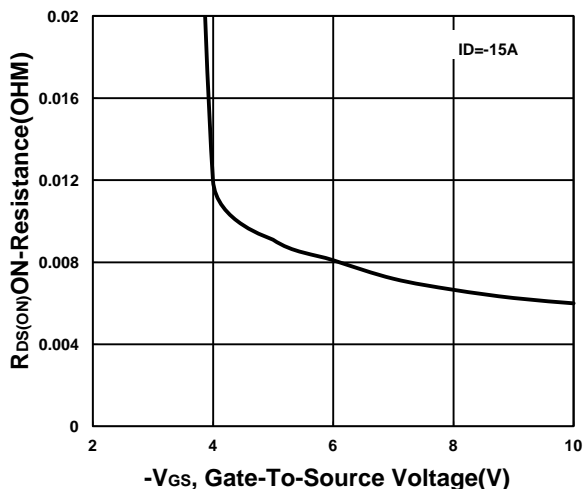
**Gate charge Characteristics**



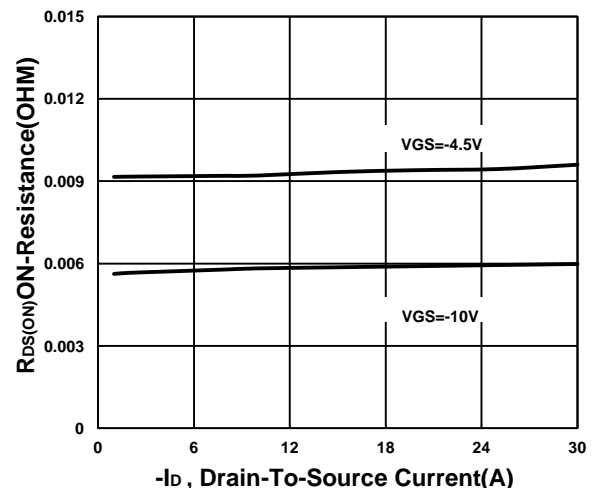
**Capacitance Characteristic**



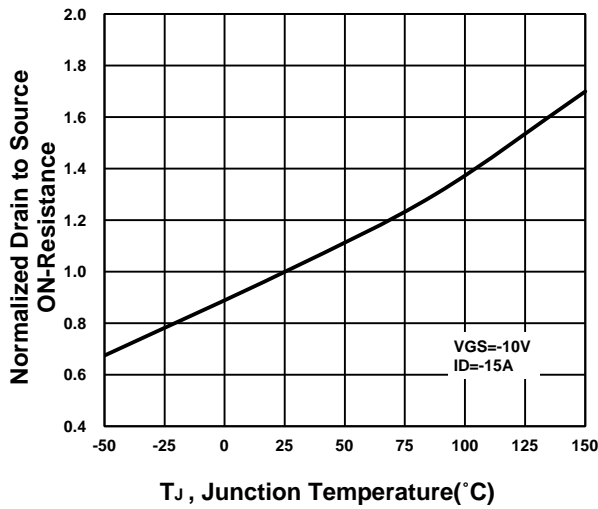
**On-Resistance VS Gate-To-Source Voltage**



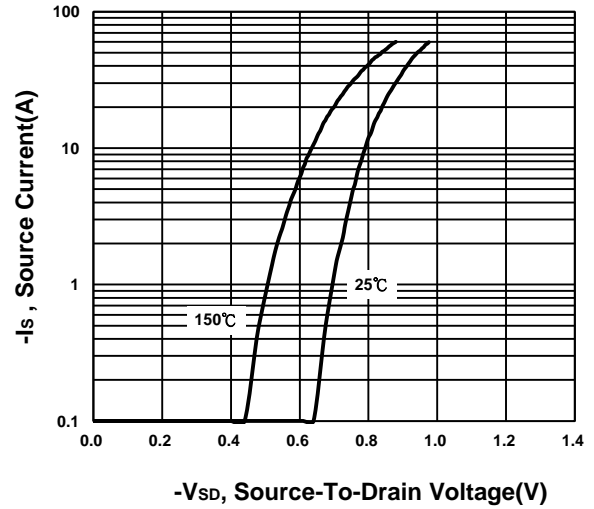
**On-Resistance VS Drain Current**



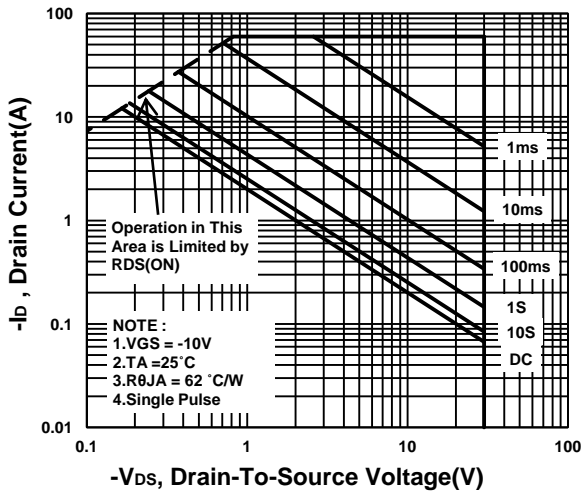
**On-Resistance VS Temperature**



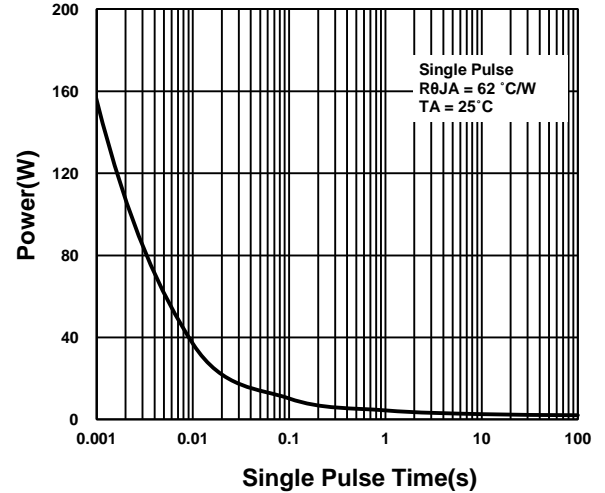
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

