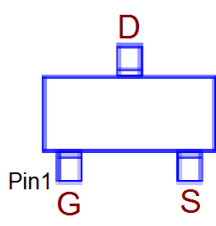
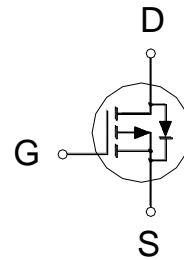




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-20V	65mΩ	-3.8A



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.

**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		$V_{DS}$	-20	V
Gate-Source Voltage		$V_{GS}$	±8	V
Continuous Drain Current	$T_A = 25\text{ °C}$	$I_D$	-3.8	A
	$T_A = 70\text{ °C}$		-3	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-20	
Power Dissipation <sup>3</sup>	$T_A = 25\text{ °C}$	$P_D$	1.3	W
	$T_A = 70\text{ °C}$		0.88	
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>	$t \leq 10s$	$R_{\theta JA}$		90	°C / W
Junction-to-Ambient <sup>2</sup>	Steady-State	$R_{\theta JA}$		131	

<sup>1</sup>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.

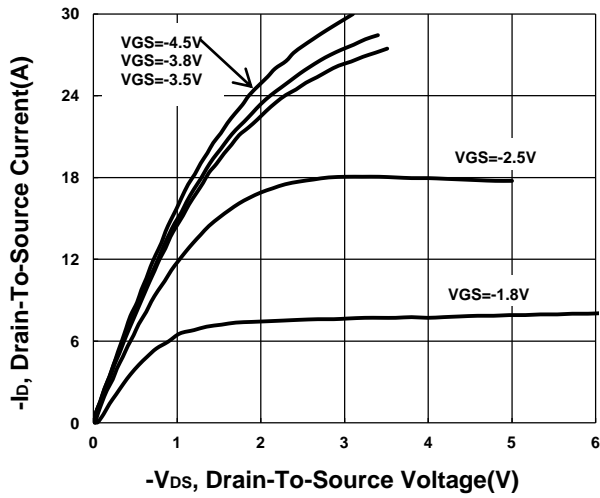
**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

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	-20			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-0.3	-0.5	-1	V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -16V, V <sub>GS</sub> = 0V			-1	μA
		V <sub>DS</sub> = -10V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 70 °C			-10	
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -1A		91	120	mΩ
		V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -2A		70	85	
		V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -2.5A		56	65	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -2.5A		11		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -10V, f = 1MHz		561		pF
Output Capacitance	C <sub>oss</sub>			65		
Reverse Transfer Capacitance	C <sub>rss</sub>			53		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = -10V, I <sub>D</sub> = -2.5A, V <sub>GS</sub> = -4.5V		7.3		nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			1		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			2		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = -10V I <sub>D</sub> ≅ -2.5 A V <sub>GS</sub> = -4.5V, R <sub>GEN</sub> = 6Ω		16		nS
Rise Time <sup>2</sup>	t <sub>r</sub>			38		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			53		
Fall Time <sup>2</sup>	t <sub>f</sub>			60		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				-0.75	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = -2.5A, V <sub>GS</sub> = 0V			-1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -2.5A, dI <sub>F</sub> /dt = 100A / μS		10		nS
Reverse Recovery Charge	Q <sub>rr</sub>				3	

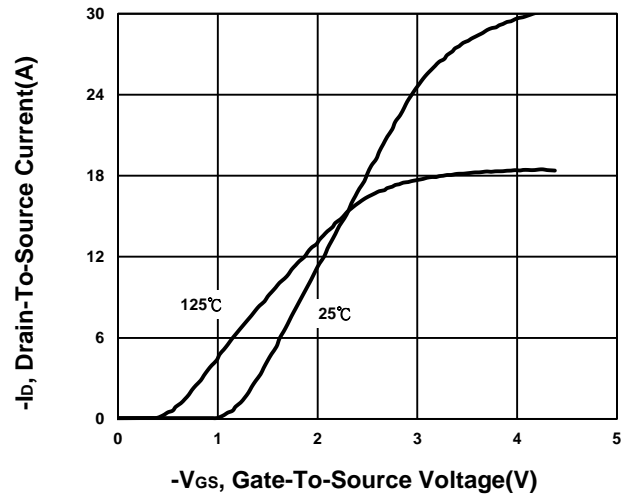
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

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

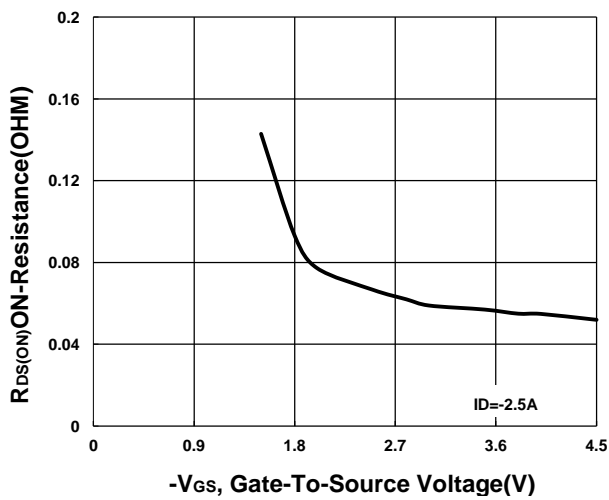
**Output Characteristics**



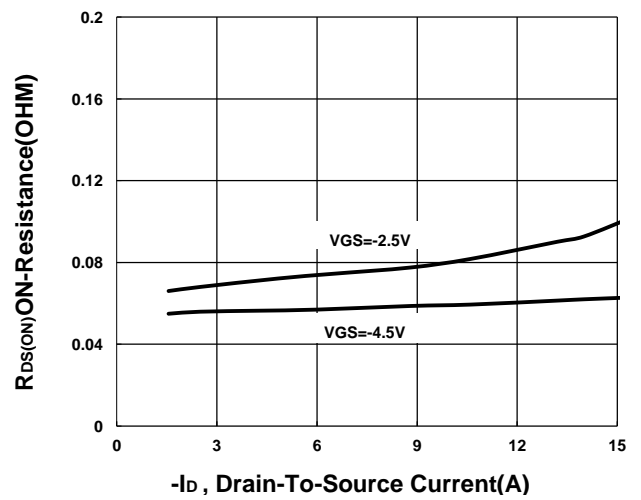
**Transfer Characteristics**



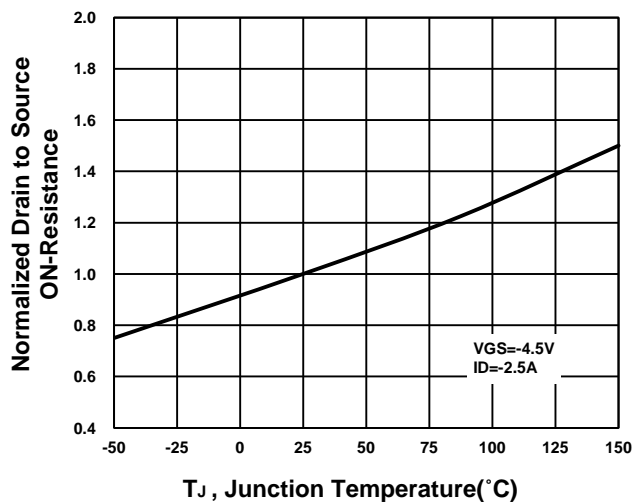
**On-Resistance VS Gate-To-Source**



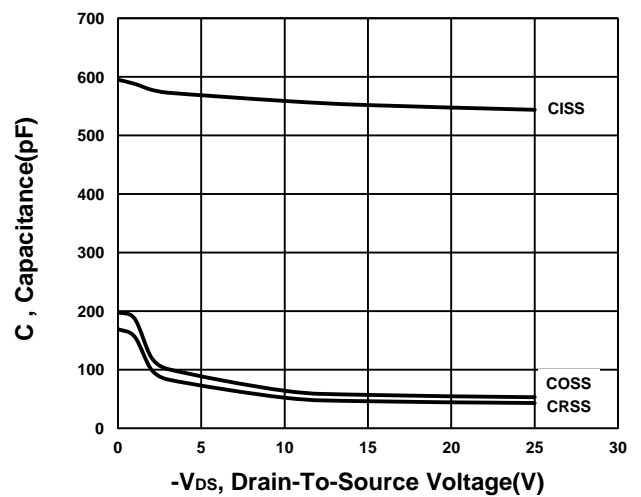
**On-Resistance VS Drain Current**



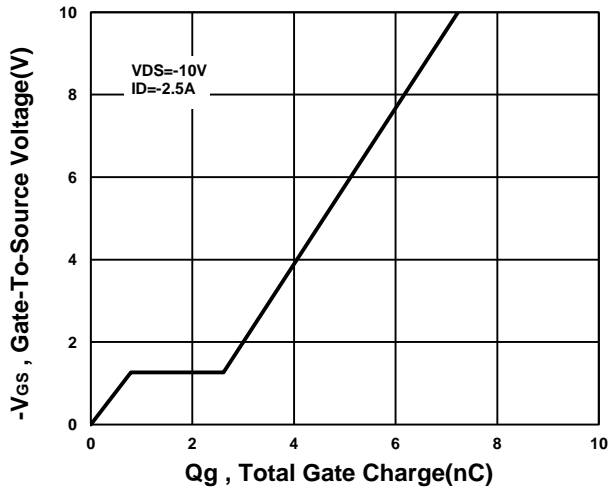
**On-Resistance VS Temperature**



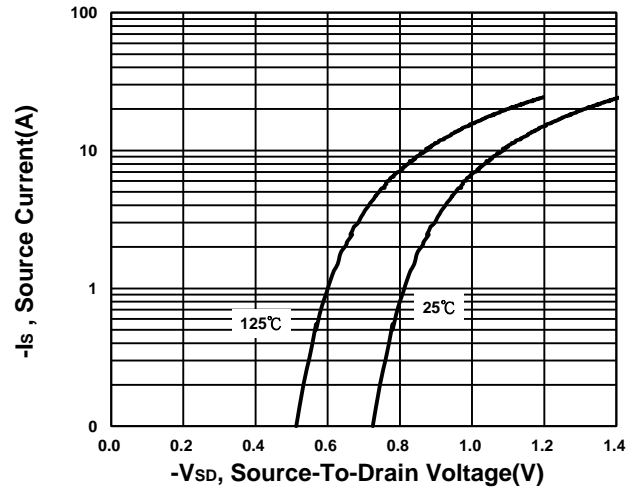
**Capacitance Characteristic**



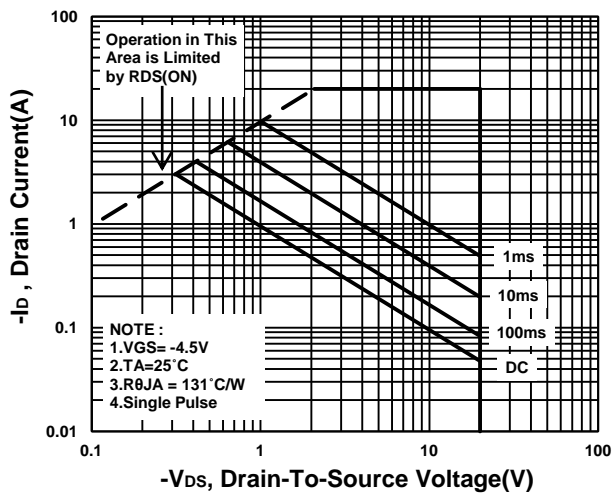
**Gate charge Characteristics**



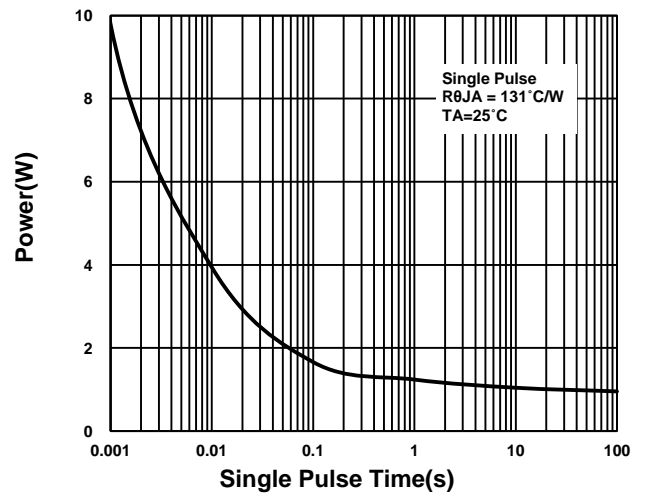
**Source-Drain Diode Forward Voltage**



**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**

