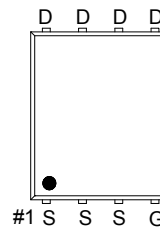
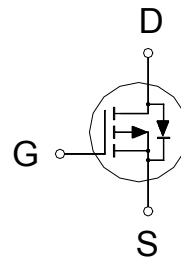




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-30V	7mΩ	-43A



G : GATE  
D : DRAIN  
S : SOURCE

**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.
- ESD Protected up to 2KV.

**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		$V_{GS}$	±25	V
Continuous Drain Current	$T_C = 25\text{ °C}$	$I_D$	-43	A
	$T_C = 100\text{ °C}$		-27	
	$T_A = 25\text{ °C}$		-13	
	$T_A = 70\text{ °C}$		-10	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-110	
Avalanche Current		$I_{AS}$	-38	
Avalanche Energy	L = 0.1mH	$E_{AS}$	72	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	25	W
	$T_C = 100\text{ °C}$		10	
	$T_A = 25\text{ °C}$		2.2	
	$T_A = 70\text{ °C}$		1.4	
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 <sub>θJA</sub>		56	°C / W
Junction-to-Case	R <sub>θJC</sub>		5	

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

<sup>2</sup>The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25° C. The value in any given application depends on the user's specific board design.

**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	-1.5	-3			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±25V			±100	nA		
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V			-1	uA		
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °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> = -13A		8.4	12	mΩ		
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -13A		5.7	7			
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -13A		40		S		
<b>DYNAMIC</b>								
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1MHz		2822		pF		
Output Capacitance	C <sub>oss</sub>			452				
Reverse Transfer Capacitance	C <sub>rss</sub>			364				
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		4		Ω		
Total Gate Charge <sup>2</sup>	Q <sub>g(VGS=-10V)</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -13A		60		nC		
	Q <sub>g(VGS=-4.5V)</sub>			30				
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			6.1				
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			14				
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>		V <sub>DS</sub> = -15V, I <sub>D</sub> ≅ -13A, V <sub>GS</sub> = -10V, R <sub>GS</sub> = 6Ω		39			nS
Rise Time <sup>2</sup>	t <sub>r</sub>				26			
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>				161			
Fall Time <sup>2</sup>	t <sub>f</sub>			100				

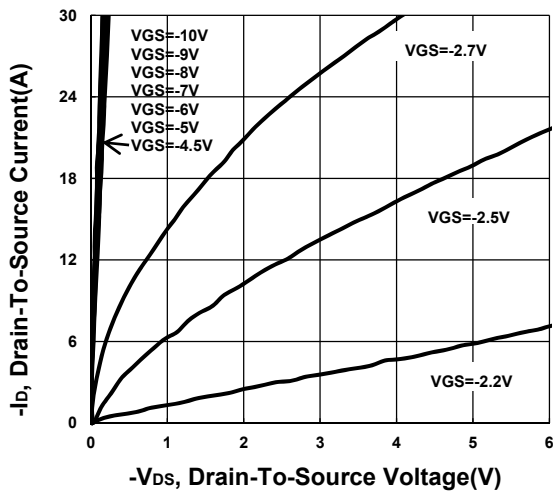
**SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)**

Continuous Current	I <sub>S</sub>				-19	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = -13A, V <sub>GS</sub> = 0V			-1.3	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -13A , di <sub>F</sub> /dt = 100 A / μS		23		nS
Reverse Recovery Charge	Q <sub>rr</sub>			6		nC

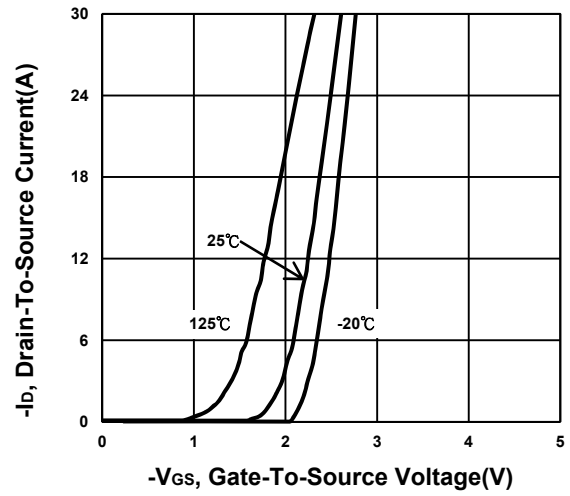
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

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

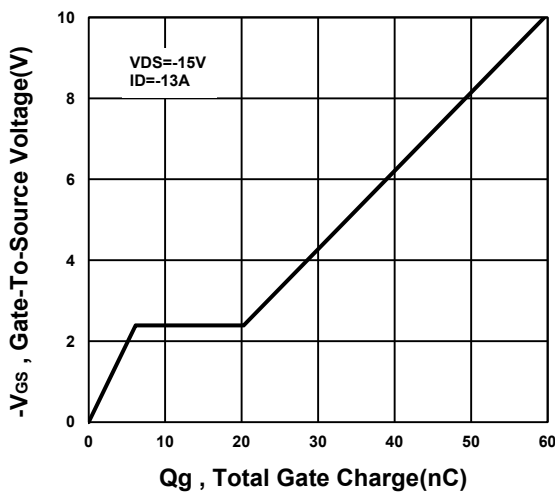
**Output Characteristics**



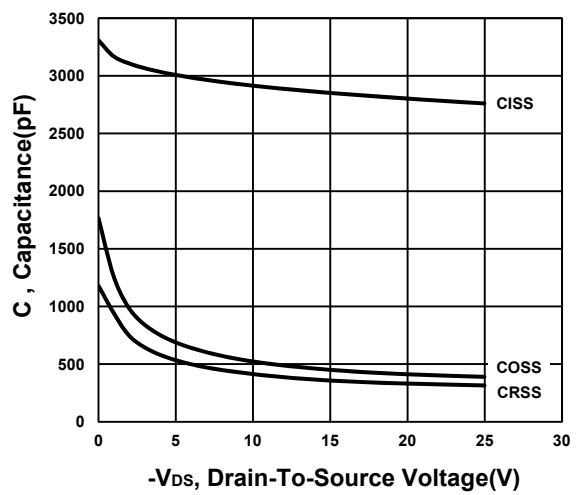
**Transfer Characteristics**



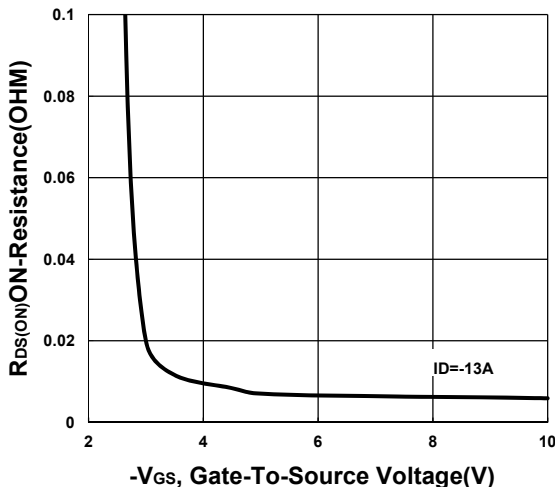
**Gate charge Characteristics**



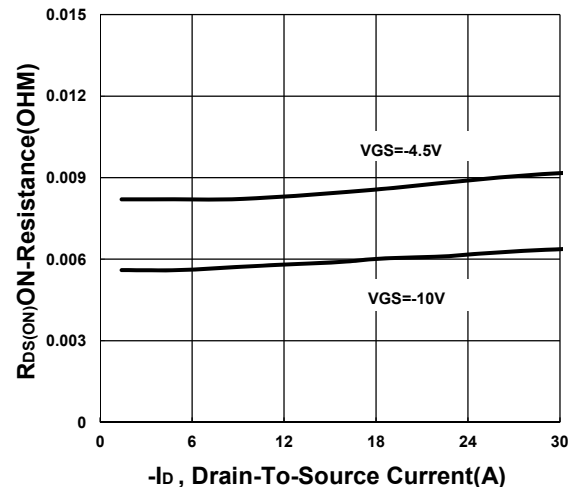
**Capacitance Characteristic**



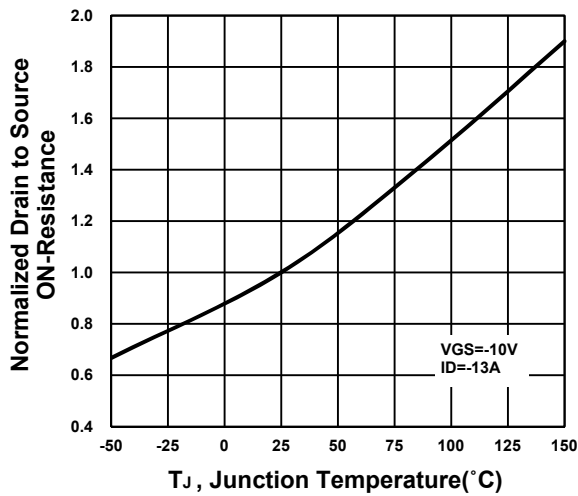
**On-Resistance VS Gate-To-Source**



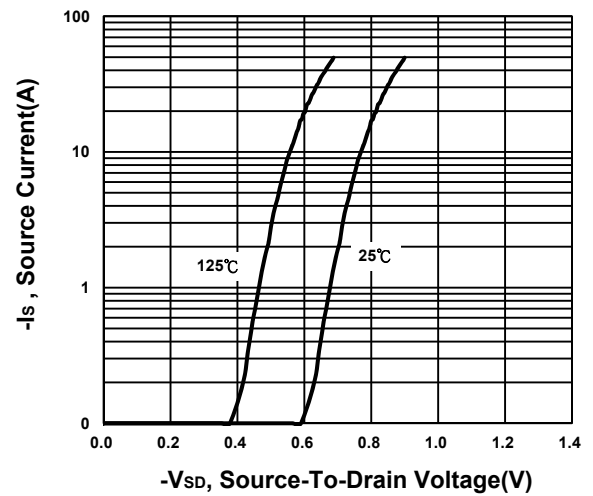
**On-Resistance VS Drain Current**



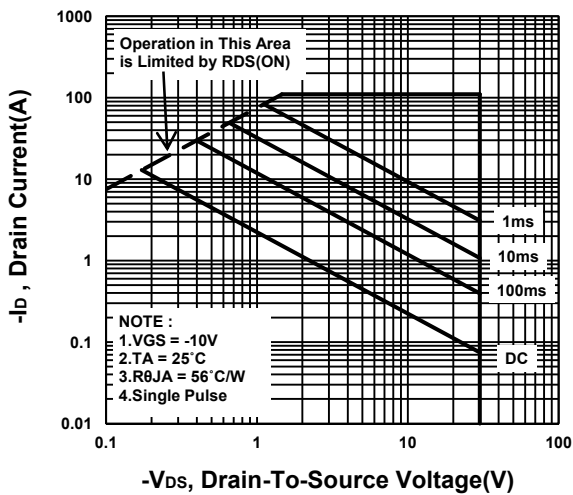
**On-Resistance VS Temperature**



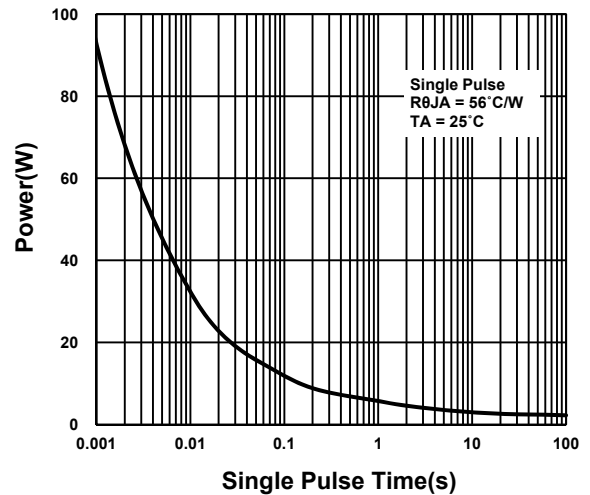
**Source-Drain Diode Forward Voltage**



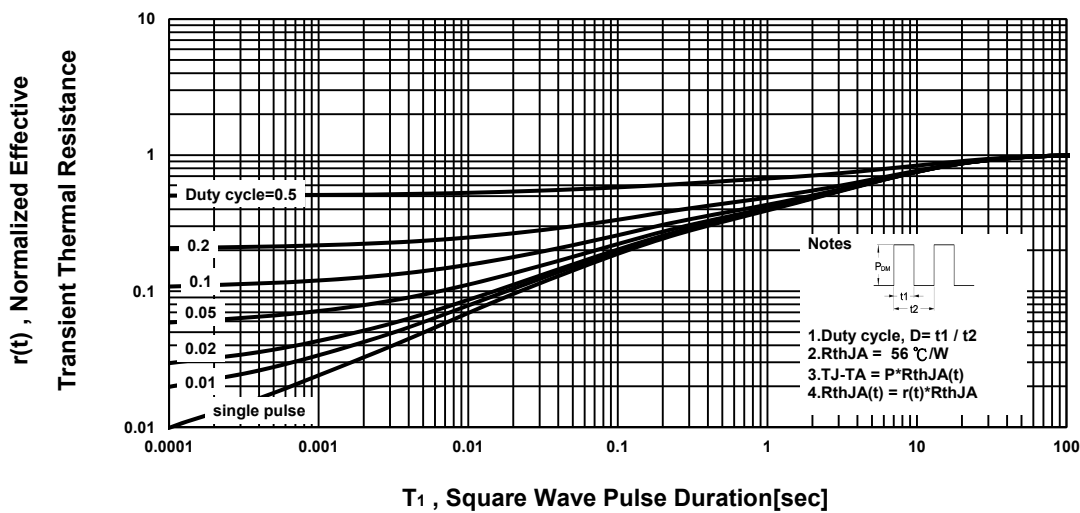
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



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