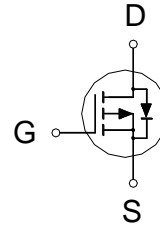




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	45mΩ	-5.7A

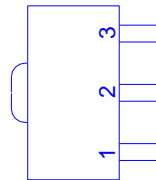


Features

- 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.



1. GATE
2. DRAIN
3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	-5.7	A
	$T_A = 70\text{ °C}$		-4.5	
Pulsed Drain Current ¹		I_{DM}	-20	
Avalanche Current		I_{AS}	-12	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	7	mJ
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	2.5	W
	$T_A = 70\text{ °C}$		1.6	
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 ²	$t \leq 10\text{s}$	$R_{\theta JA}$		50	°C/W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		73	
Junction-to-Case	Steady-State	$R_{\theta Jc}$		18	

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper.

³The Power dissipation is based on $R_{\theta JA} t \leq 10\text{s}$ value.

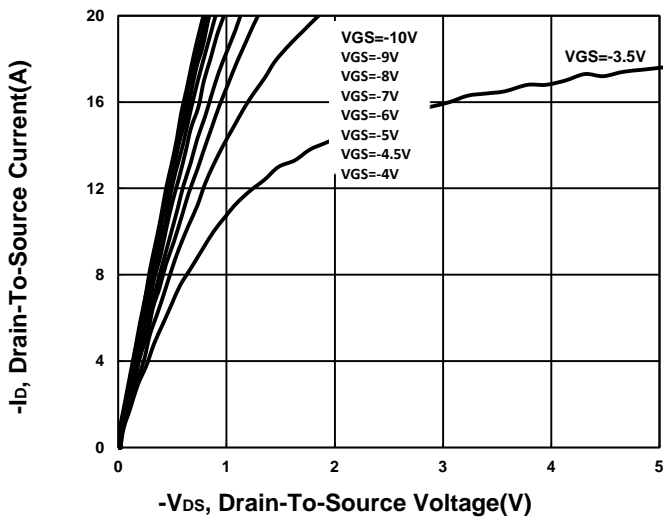
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT		
			MIN	TYP	MAX			
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.3	-1.6	-2.3			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±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 = 55 °C			-10			
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -4A		46	85	mΩ		
		V _{GS} = -10V, I _D = -4A		32	45			
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -4A		10		S		
DYNAMIC								
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		585		pF		
Output Capacitance	C _{oss}			90				
Reverse Transfer Capacitance	C _{rss}			67				
Total Gate Charge ²	Q _{g(VGS=-10V)}	V _{DS} = -15V, V _{GS} = -10V, I _D = -4A		12		nC		
	Q _{g(VGS=-4.5V)}			6				
Gate-Source Charge ²	Q _{gs}			1.5				
Gate-Drain Charge ²	Q _{gd}			3.3				
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = -15V, V _{GS} = -10V I _D ≅ -4A, R _G = 6Ω		17			nS
Rise Time ²	t _r				24			
Turn-Off Delay Time ²	t _{d(off)}			18				
Fall Time ²	t _f			39				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)								
Continuous Current	I _S				-2	A		
Forward Voltage ¹	V _{SD}	I _F = -4A, V _{GS} = 0V			-1.1	V		
Reverse Recovery Time	t _{rr}	I _F = -4A, dI _F /dt = 100A / μS		10		nS		
Reverse Recovery Charge	Q _{rr}			2		nC		

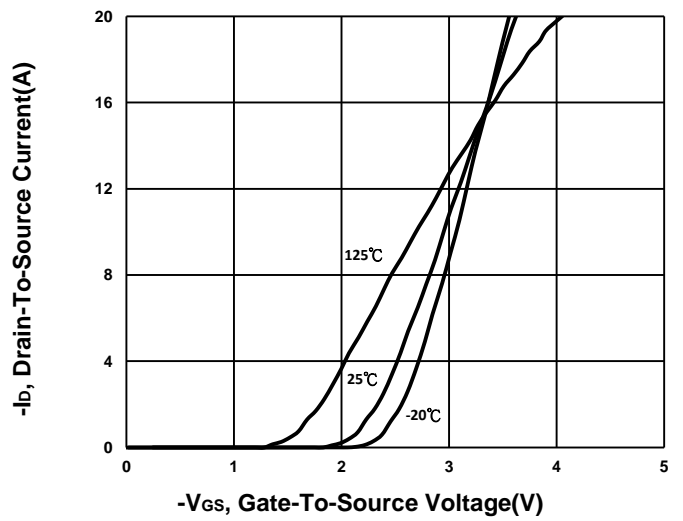
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

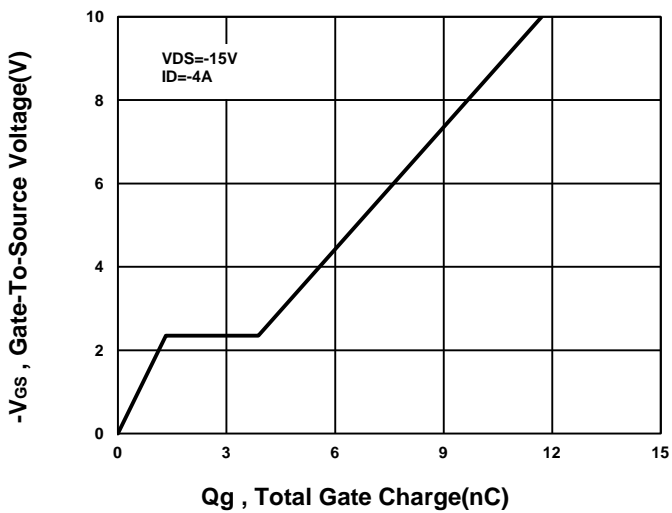
Output Characteristics



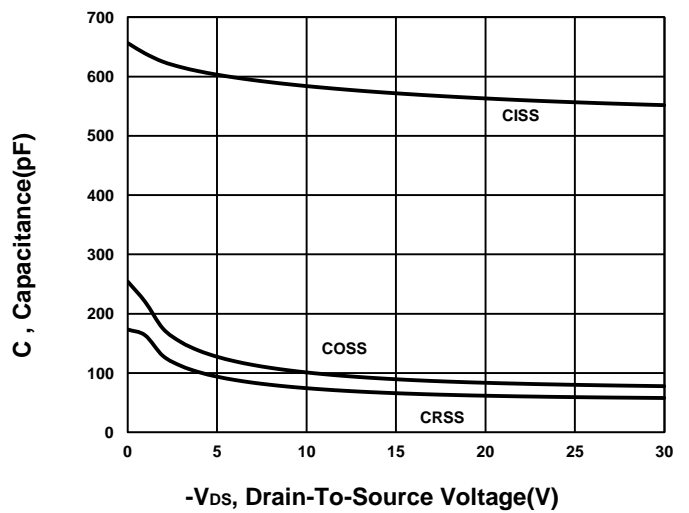
Transfer Characteristics



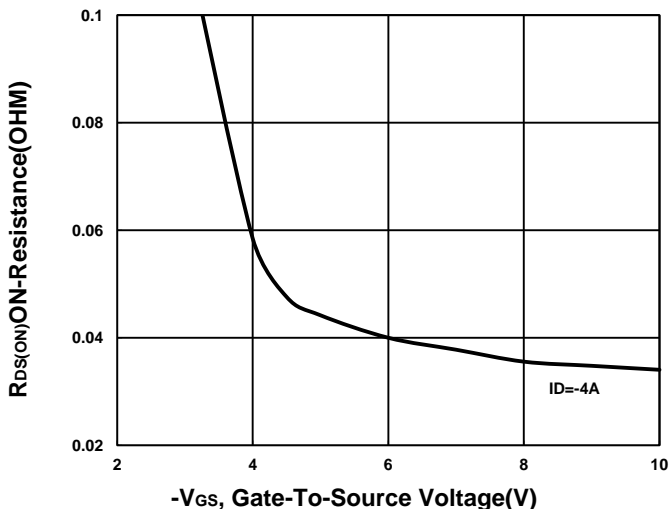
Gate charge Characteristics



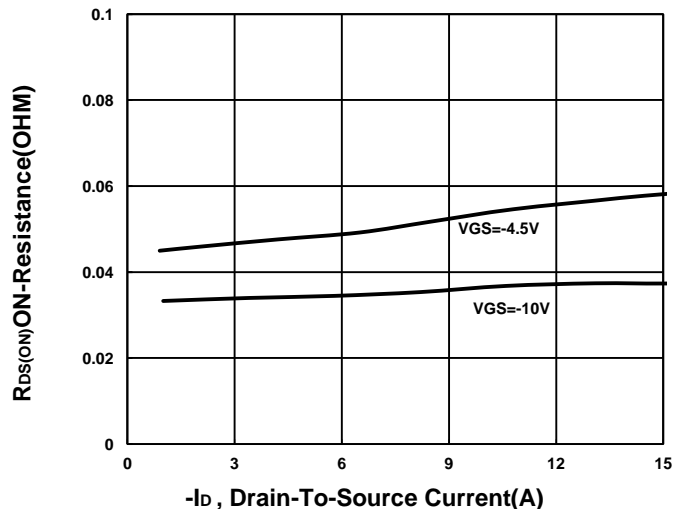
Capacitance Characteristic



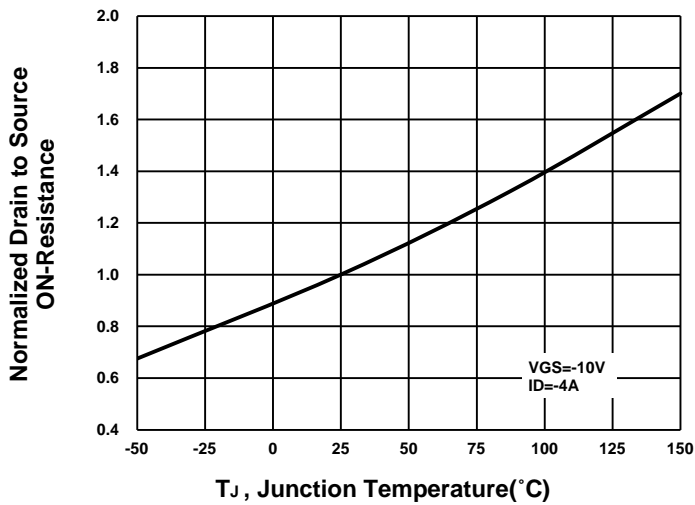
On-Resistance VS Gate-To-Source



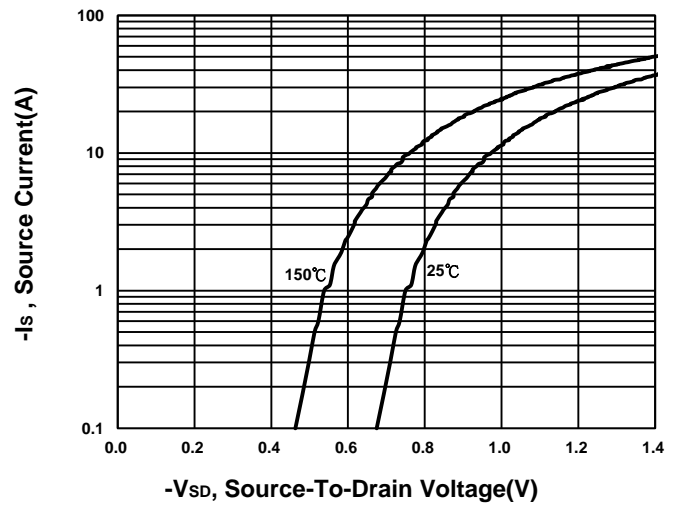
On-Resistance VS Drain Current



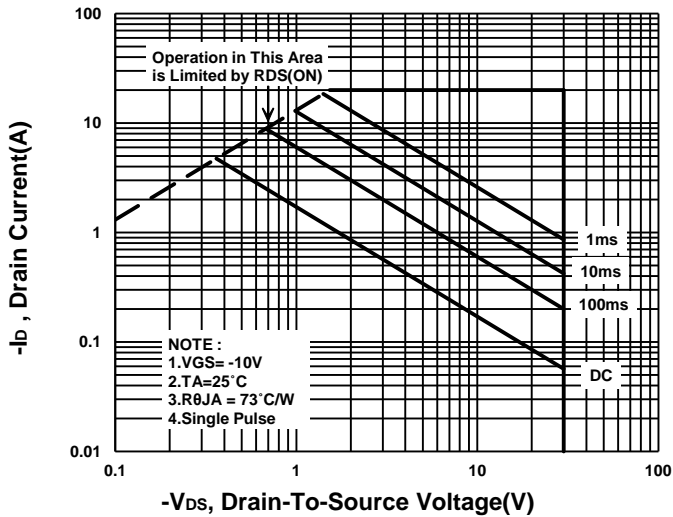
On-Resistance VS Temperature



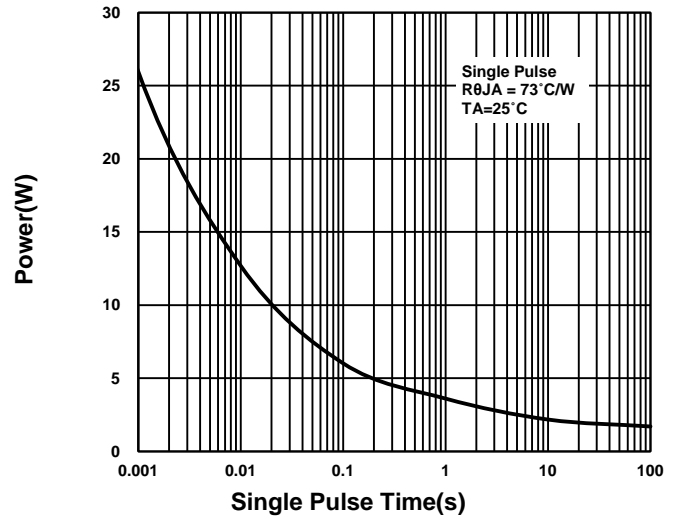
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

