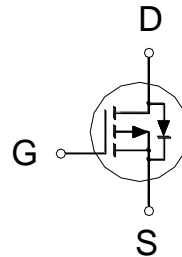




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	50mΩ	-4A

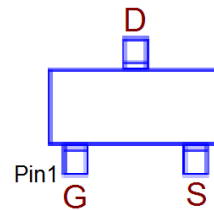


Features

- 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.



G: GATE
D: DRAIN
S: SOURCE

100% UIS Tested
100% Rg Tested

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}	±12	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	-4	A
	$T_A = 70\text{ °C}$		-3.2	
Pulsed Drain Current ¹		I_{DM}	-20	
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	1.4	W
	$T_A = 70\text{ °C}$		0.9	
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	$t \leq 10s$	$R_{\theta JA}$		88	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		130	

¹limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25\text{ °C}$.

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

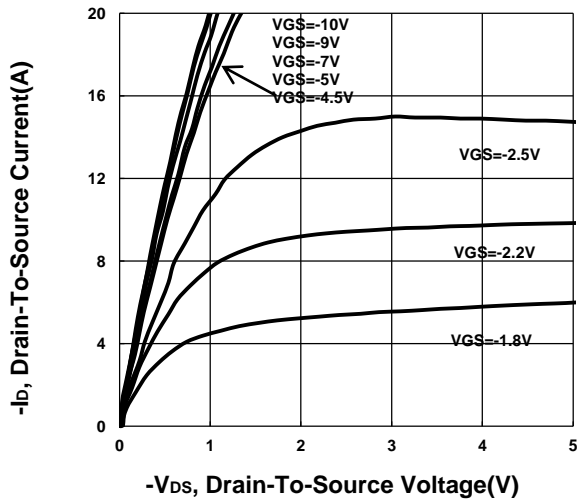
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.6	-0.8	-1.2	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1	μA
		V _{DS} = -20V, V _{GS} = 0V, T _J = 70 °C			-10	
Drain-Source On-State Resistance ¹	R _{DS(on)}	V _{GS} = -10V, I _D = -3.5A		41	50	mΩ
		V _{GS} = -4.5V, I _D = -3.5A		50	65	
		V _{GS} = -2.5V, I _D = -3.5A		73	120	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -3.5A		9		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		425		pF
Output Capacitance	C _{oss}			62		
Reverse Transfer Capacitance	C _{rss}			49		
Total Gate Charge ²	Q _g	V _{DS} = -10V, I _D = -3.5A, V _{GS} = -10V		9.8		nC
Gate-Source Charge ²	Q _{gs}			0.6		
Gate-Drain Charge ²	Q _{gd}			1.5		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = -10V I _D ≅ -3.5A V _{GS} = -10V, R _{GEN} = 6Ω		5		nS
Rise Time ²	t _r			25		
Turn-Off Delay Time ²	t _{d(off)}			28		
Fall Time ²	t _f			38		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				-1	A
Forward Voltage ¹	V _{SD}	I _F = -3.5A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -3.5A, dI _F /dt = 100A / μS		6.8		nS
Reverse Recovery Charge	Q _{rr}				2.2	

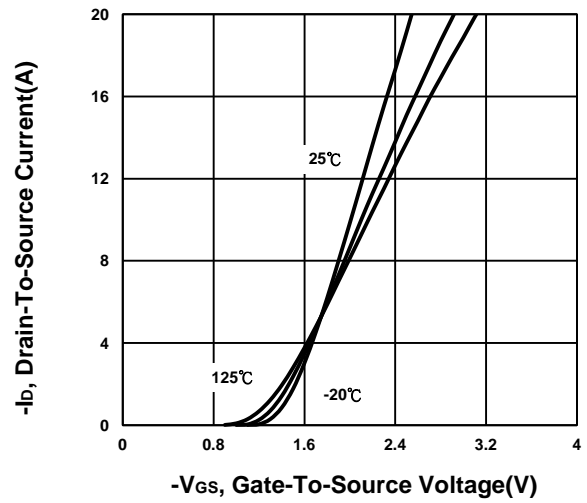
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

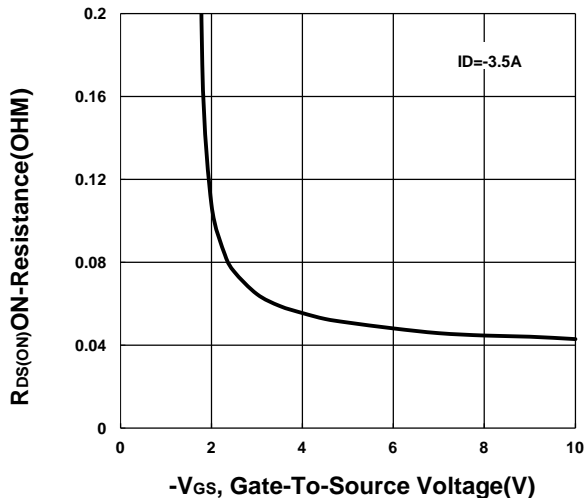
Output Characteristics



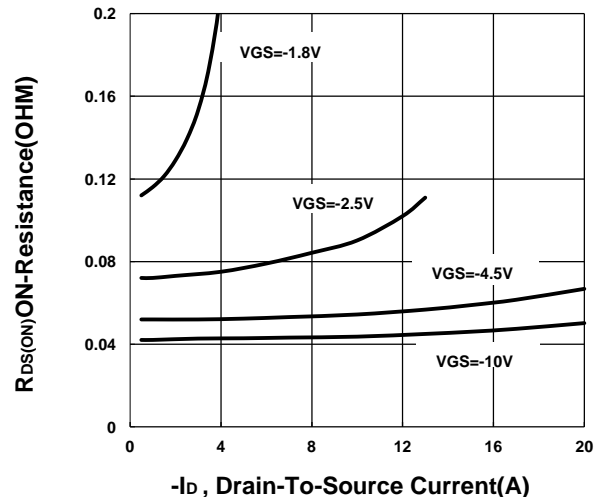
Transfer Characteristics



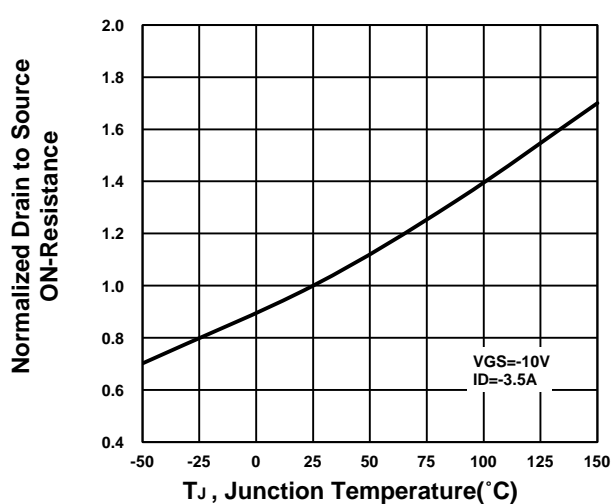
On-Resistance VS Gate-To-Source Voltage



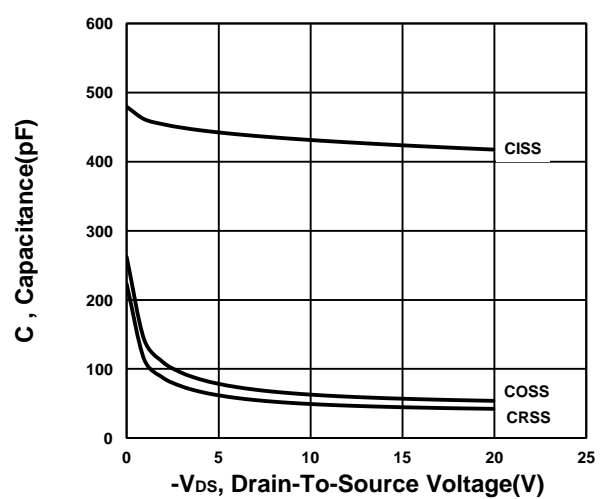
On-Resistance VS Drain Current



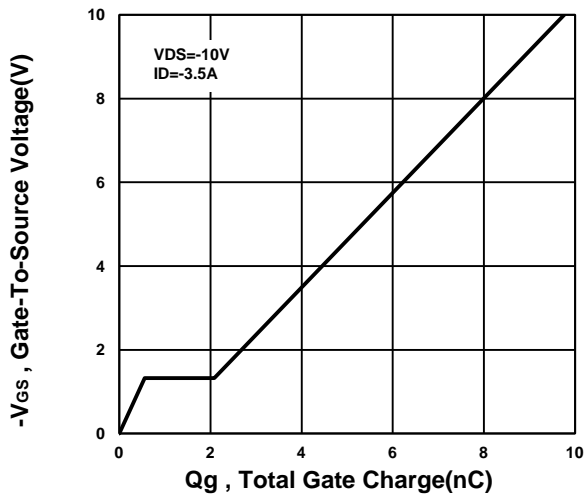
On-Resistance VS Temperature



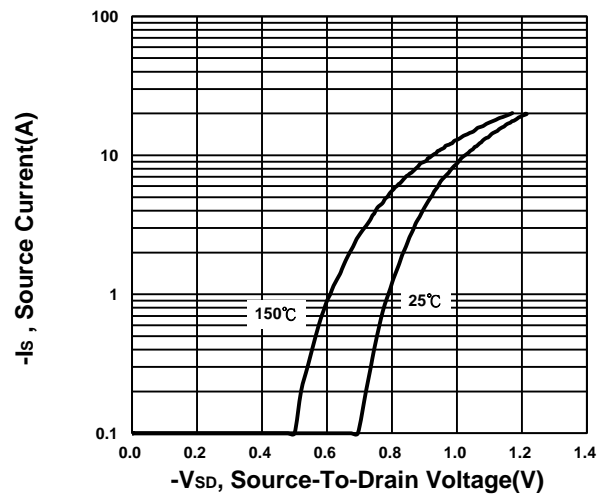
Capacitance Characteristic



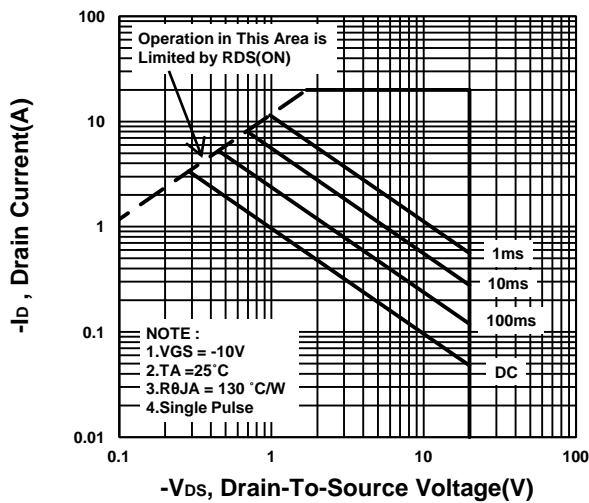
Gate charge Characteristics



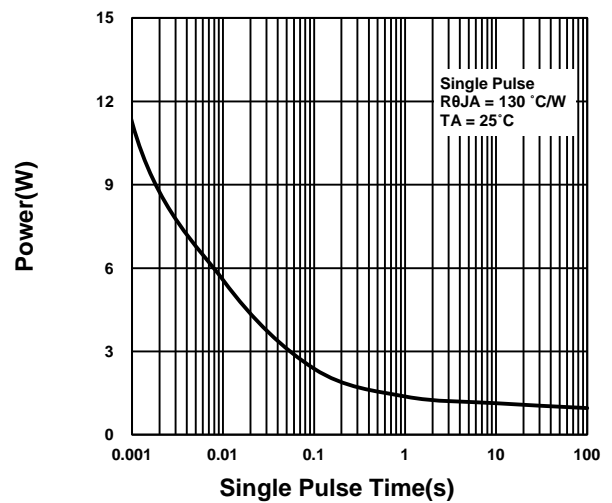
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

