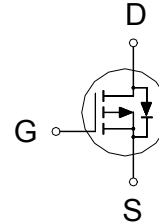




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	30m Ω	-5.3A

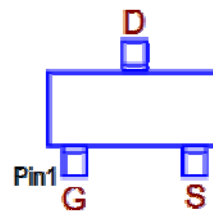


Features

- 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

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 12	V
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	-5.3	A
	$T_A = 70\text{ }^\circ\text{C}$		-4.3	
Pulsed Drain Current ¹		I_{DM}	-16	
Power Dissipation ³	$T_A = 25\text{ }^\circ\text{C}$	P_D	1.4	W
	$T_A = 70\text{ }^\circ\text{C}$		0.9	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$t \leq 10\text{s}$	$R_{\theta JA}$		90	$^\circ\text{C/W}$
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		130	

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.

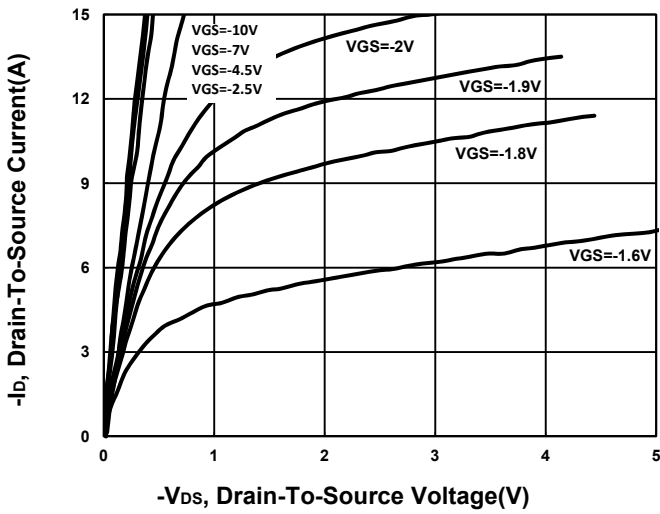
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT		
			MIN	TYP	MAX			
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.7	-0.8	-1.3			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V			±100	nA		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA		
		V _{DS} = -10V, V _{GS} = 0V, T _J = 55 °C			-10			
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -2.5V, I _D = -3.5A		40	58	mΩ		
		V _{GS} = -4.5V, I _D = -3.5A		30	43			
		V _{GS} = -10V, I _D = -3.5A		25	30			
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -3.5A		16		S		
DYNAMIC								
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		801		pF		
Output Capacitance	C _{oss}			115				
Reverse Transfer Capacitance	C _{rss}			92				
Total Gate Charge ²	Q _{g(VGS=4.5V)}	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -3.5A		8.7		nC		
	Q _{g(VGS=2.5V)}			5.4				
Gate-Source Charge ²	Q _{gs}			1.2				
Gate-Drain Charge ²	Q _{gd}			2.6				
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = -10V, V _{GS} = -4.5V I _D ≅ -3.5A, R _G = 6Ω		19			nS
Rise Time ²	t _r				30			
Turn-Off Delay Time ²	t _{d(off)}			55				
Fall Time ²	t _f			20				
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		24		nS		
Reverse Recovery Charge	Q _{rr}			6		nC		

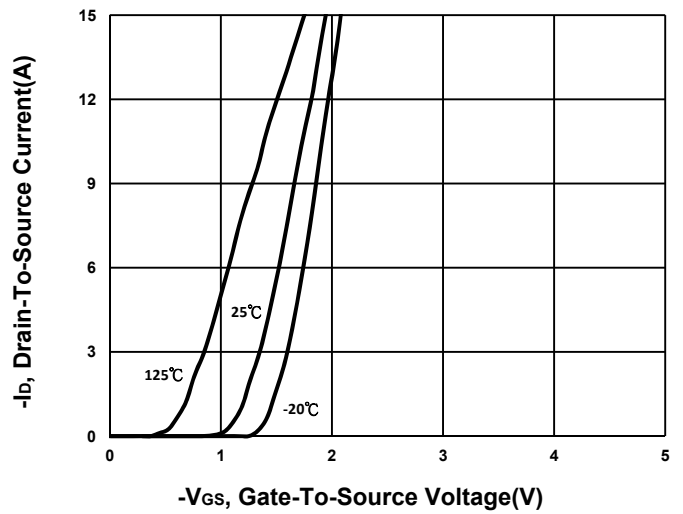
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

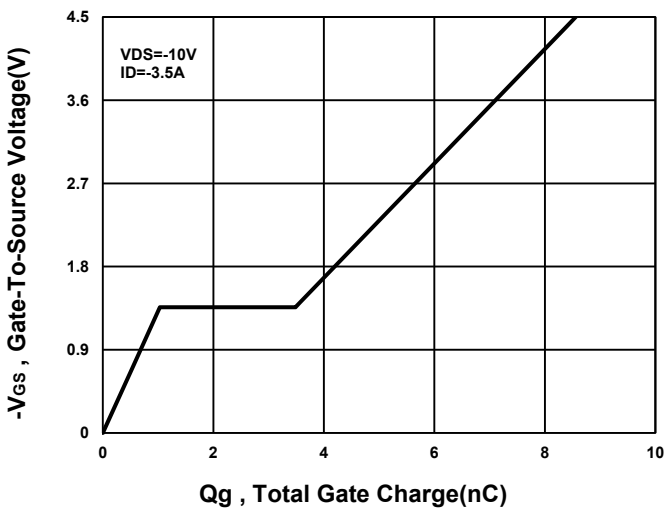
Output Characteristics



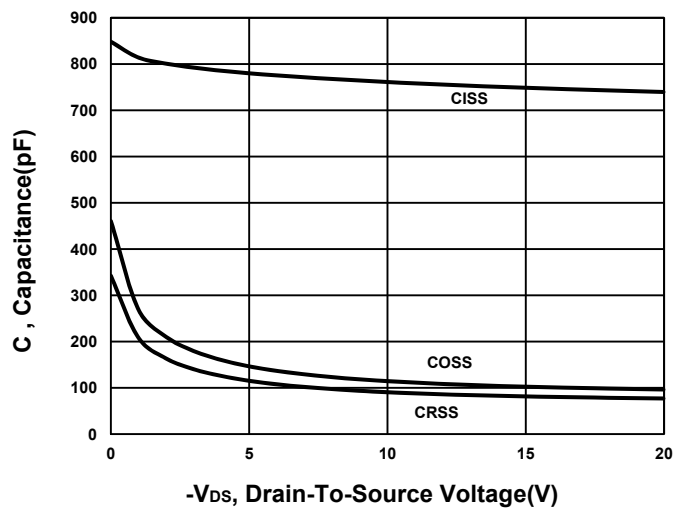
Transfer Characteristics



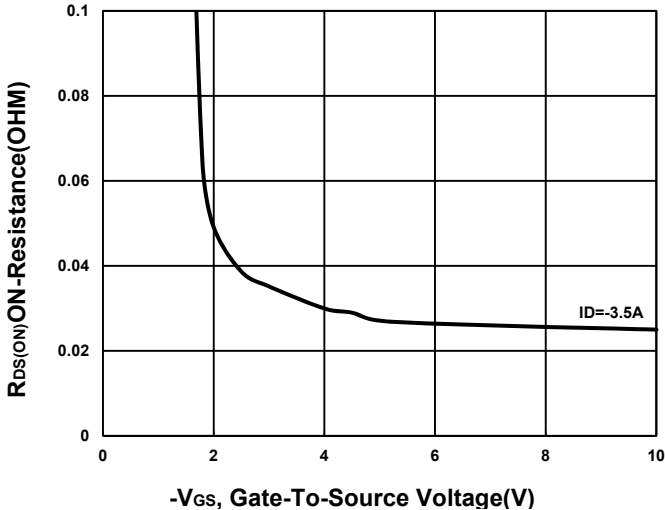
Gate charge Characteristics



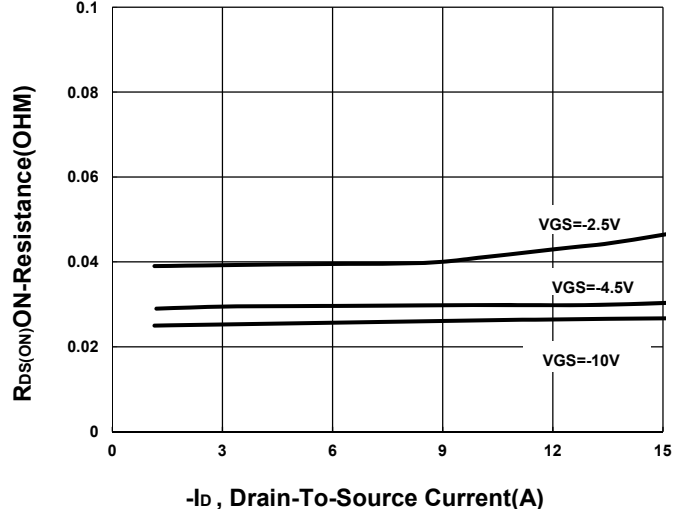
Capacitance Characteristic



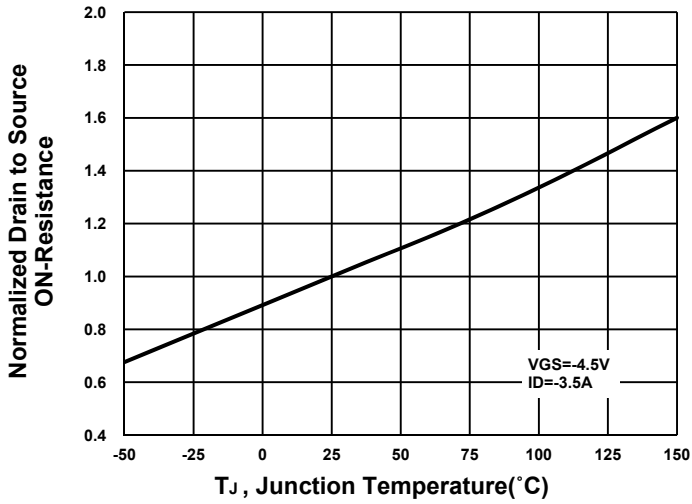
On-Resistance VS Gate-To-Source



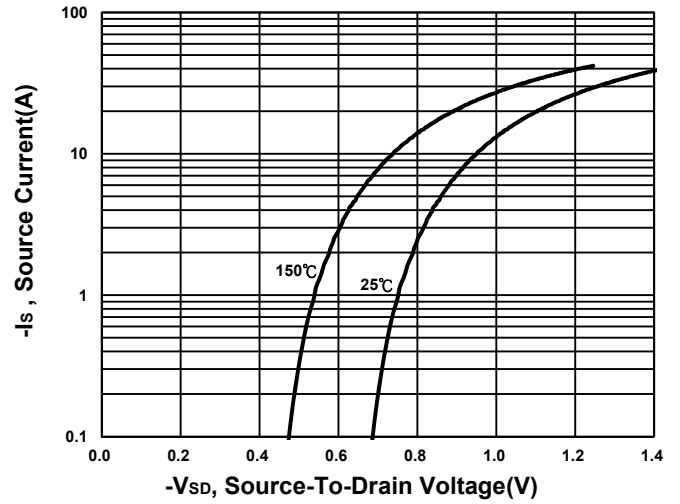
On-Resistance VS Drain Current



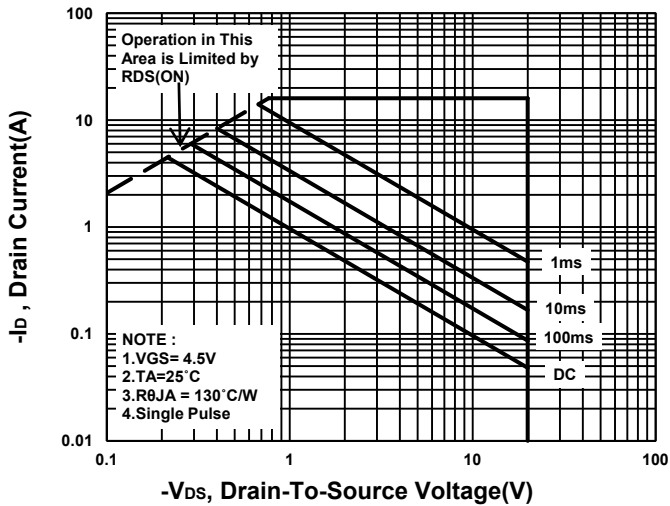
On-Resistance VS Temperature



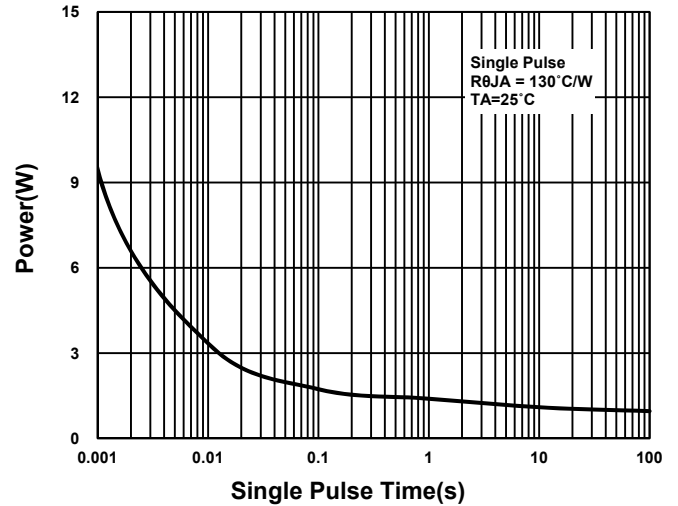
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

