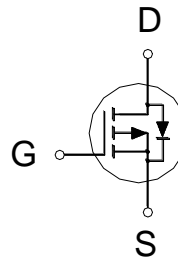




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	20mΩ	-8.5A

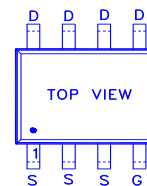


Features

- 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}	±8	V
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	-8.5	A
	$T_A = 70\text{ °C}$		-6.8	
Pulsed Drain Current ¹		I_{DM}	-40	
Avalanche Current		I_{AS}	-20	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	20	mJ
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	2.5	W
	$T_A = 70\text{ °C}$		1.6	
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	$R_{\theta JA}$		70	
Junction-to-Case	Steady-State	$R_{\theta JC}$		30	

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, in a still air environment with $T_A = 25\text{ °C}$.

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	-0.3	-0.66	-1	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±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} = -4.5V, I _D = -2.5A		15.7	20	mΩ
		V _{GS} = -2.5V, I _D = -2A		19.4	25	
		V _{GS} = -1.8V, I _D = -1A		25.2	35	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -2.5A		33		S

DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		1899		pF
Output Capacitance	C _{oss}			171		
Reverse Transfer Capacitance	C _{rss}			144		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		10		Ω
Total Gate Charge ²	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -2.5A		21		nC
Gate-Source Charge ²	Q _{gs}			2		
Gate-Drain Charge ²	Q _{gd}			4.5		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = -10V I _D ≅ -2.5A, V _{GS} = -4.5V, R _{GEN} = 6Ω		9		nS
Rise Time ²	t _r			35		
Turn-Off Delay Time ²	t _{d(off)}			177		
Fall Time ²	t _f			82		

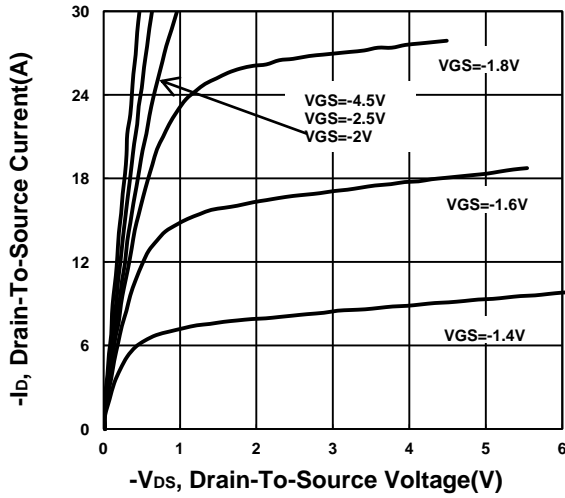
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

Continuous Current	I _S				-2.1	A
Forward Voltage ¹	V _{SD}	I _F = -2.5A, V _{GS} = 0V			-1.2	V
Reverse Recovery Time	t _{rr}	I _F = -2.5A, dI/dt=100A/μs		13		nS
Reverse Recovery Charge	Q _{rr}			5.8		nC

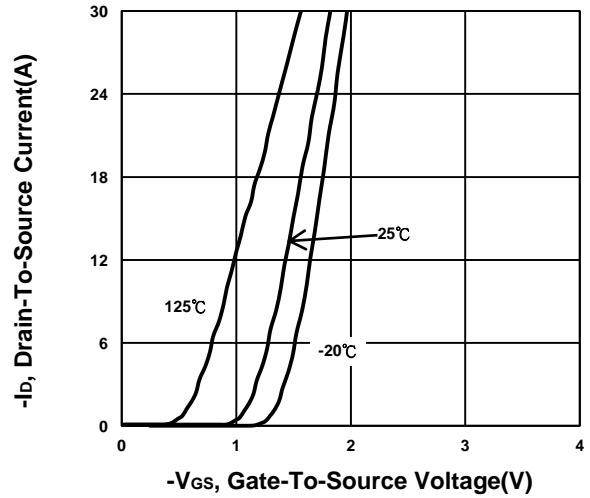
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

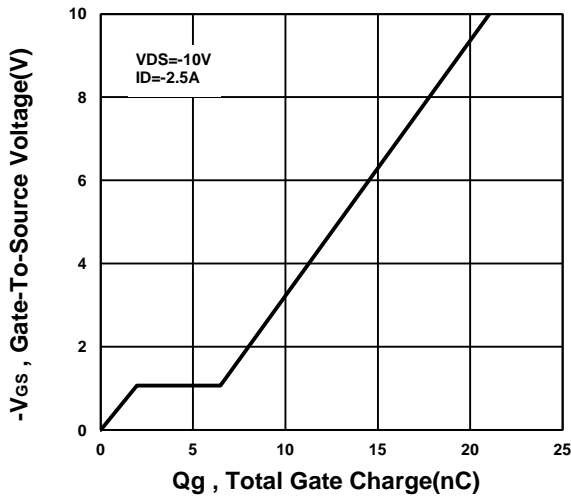
Output Characteristics



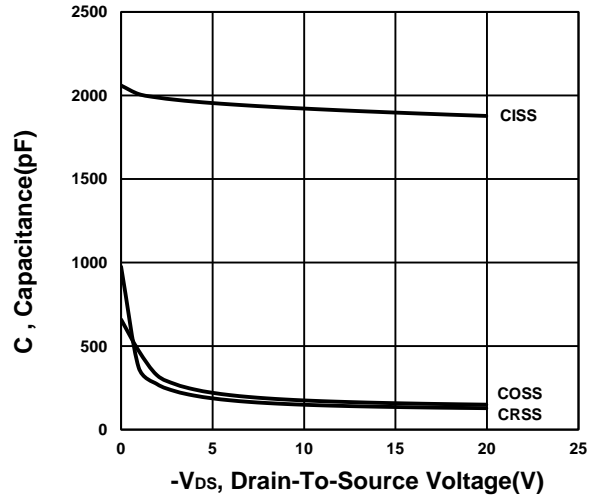
Transfer Characteristics



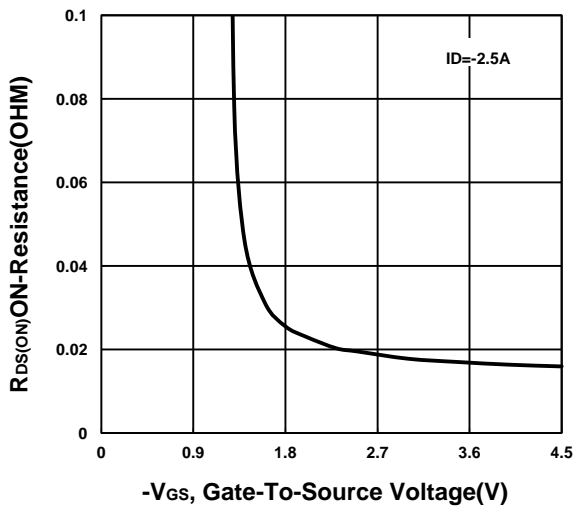
Gate charge Characteristics



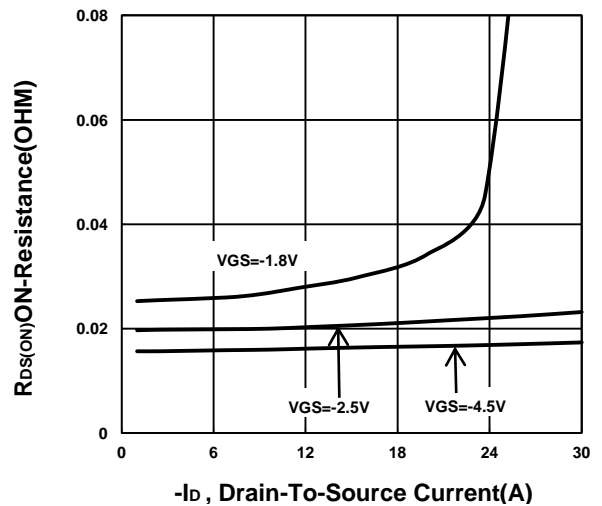
Capacitance Characteristic



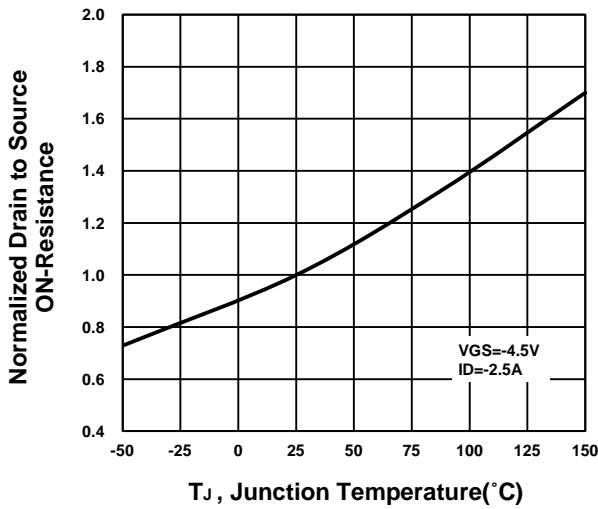
On-Resistance VS Gate-To-Source Voltage



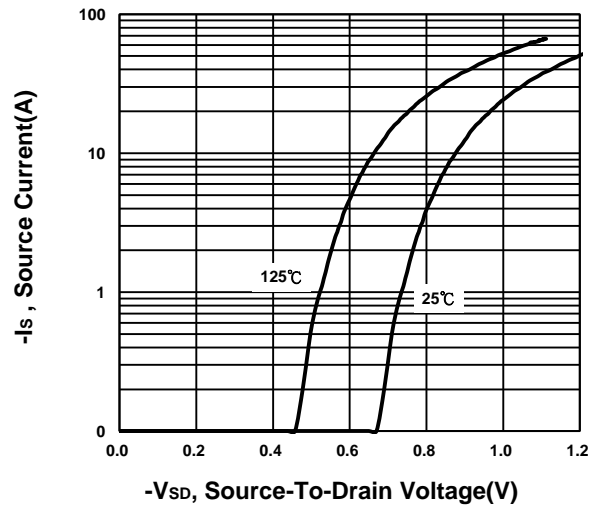
On-Resistance VS Drain Current



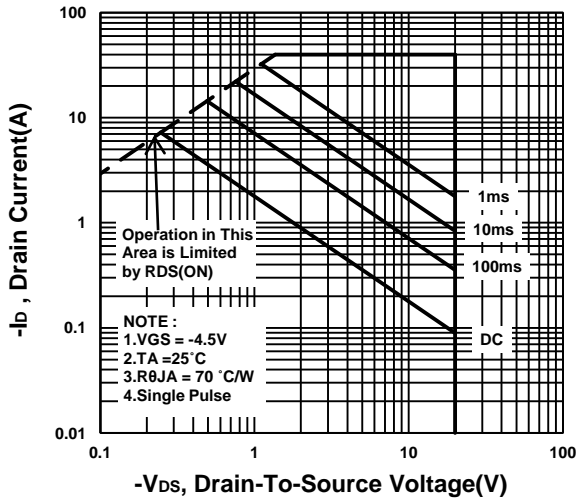
On-Resistance VS Temperature



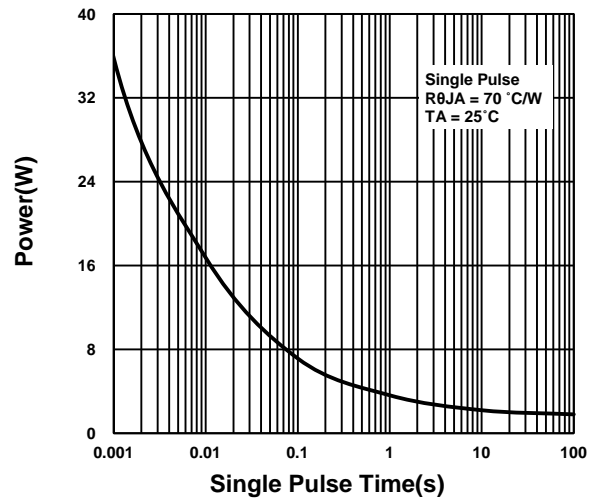
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

