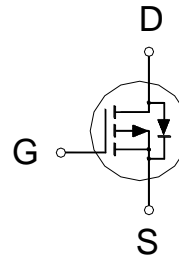


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	35mΩ	-17A

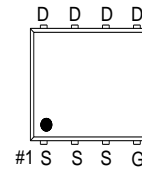


Features

- 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 ⁴	$T_C = 25\text{ °C}$	I_D	-17	A
	$T_C = 100\text{ °C}$		-11	
	$T_A = 25\text{ °C}$		-7	
	$T_A = 70\text{ °C}$		-6	
Pulsed Drain Current ¹		I_{DM}	-28	
Avalanche Current		I_{AS}	-14	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	10	mJ
Power Dissipation ³	$T_C = 25\text{ °C}$	P_D	16	W
	$T_C = 100\text{ °C}$		6	
	$T_A = 25\text{ °C}$		3	
	$T_A = 70\text{ °C}$		2	
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	$t \leq 10s$	$R_{\theta JA}$		40	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		75	
Junction-to-Case	Steady-State	$R_{\theta JC}$		8	

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 $T_A = 25^\circ C$.

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

⁴Package limitation current is 36A.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ C$, Unless Otherwise Noted)

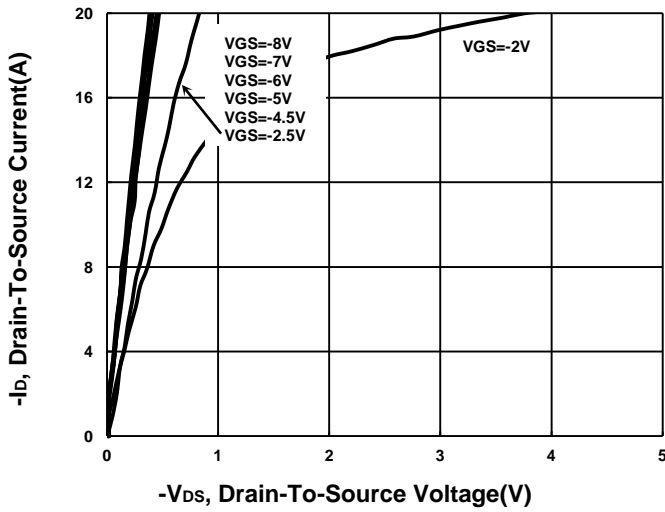
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.7	-0.8	-1.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -10V, V_{GS} = 0V, T_J = 55^\circ C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -3.5A$		22	35	$m\Omega$
		$V_{GS} = -2.5V, I_D = -3.5A$		32	55	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -3.5A$		16		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		767		pF
Output Capacitance	C_{oss}			117		
Reverse Transfer Capacitance	C_{rss}			93		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		13		Ω
Total Gate Charge ²	$Q_{g(VGS=-4.5V)}$	$V_{DS} = -10V, I_D = -3.5A$		8.8		nC
	$Q_{g(VGS=-2.5V)}$			5.5		
Gate-Source Charge ²	Q_{gs}			1		
Gate-Drain Charge ²	Q_{gd}			2.6		

Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -3.5A, V_{GS} = -4.5V, R_{GEN} = 6\Omega$		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 ($T_J = 25\text{ }^\circ\text{C}$)						
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}	$I_F = -3.5A, dI/dt = 100A/\mu s$		9.5		nS
Reverse Recovery Charge	Q_{rr}			3		nC

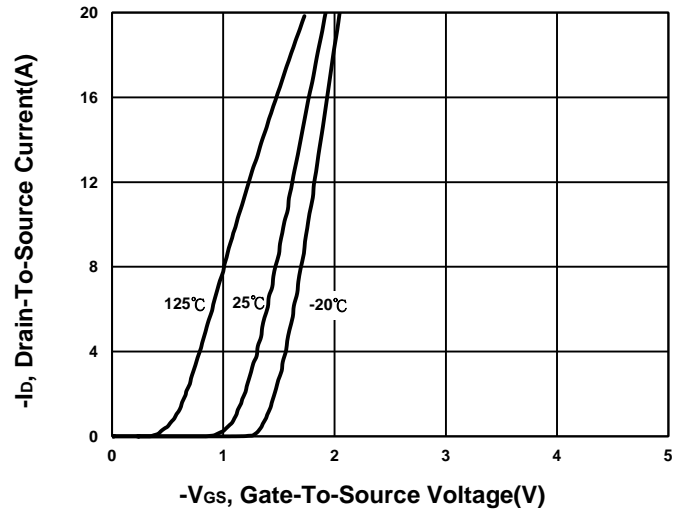
¹Pulse test : Pulse Width $\leq 300\ \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

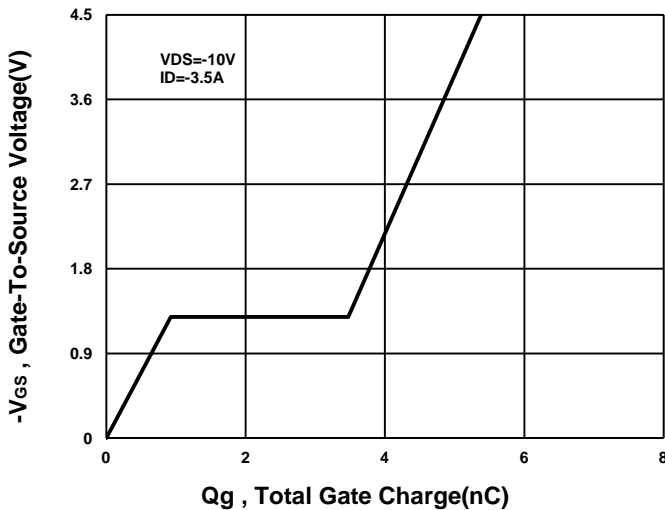
Output Characteristics



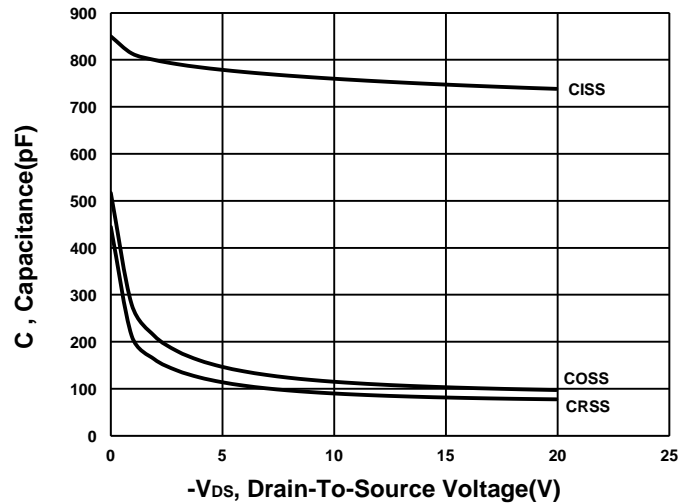
Transfer Characteristics



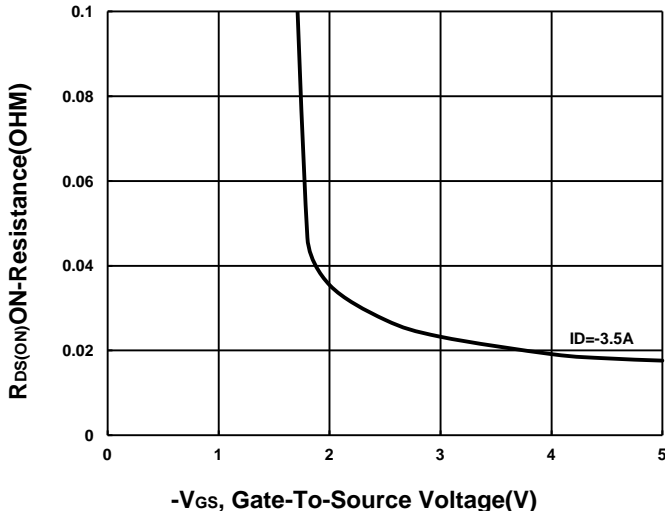
Gate charge Characteristics



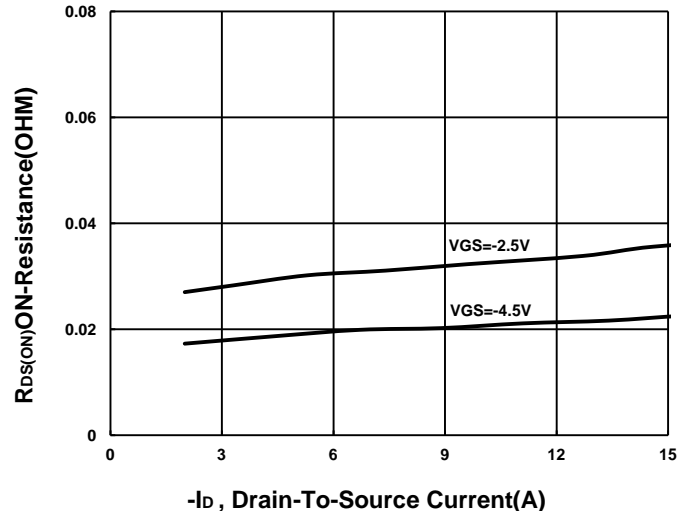
Capacitance Characteristic



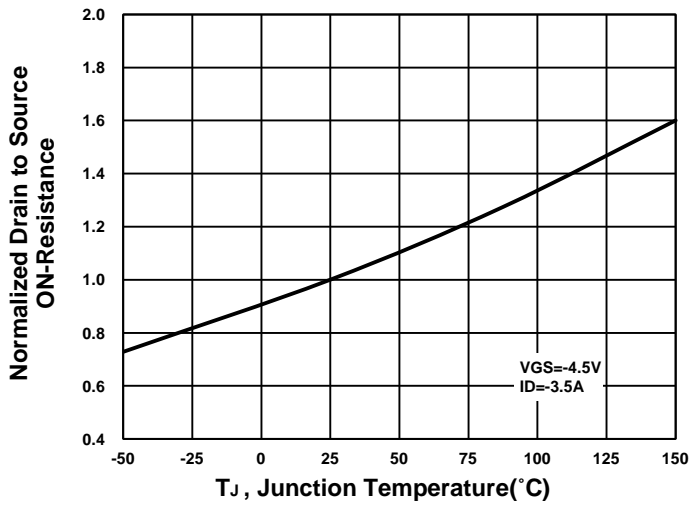
On-Resistance VS Gate-To-Source



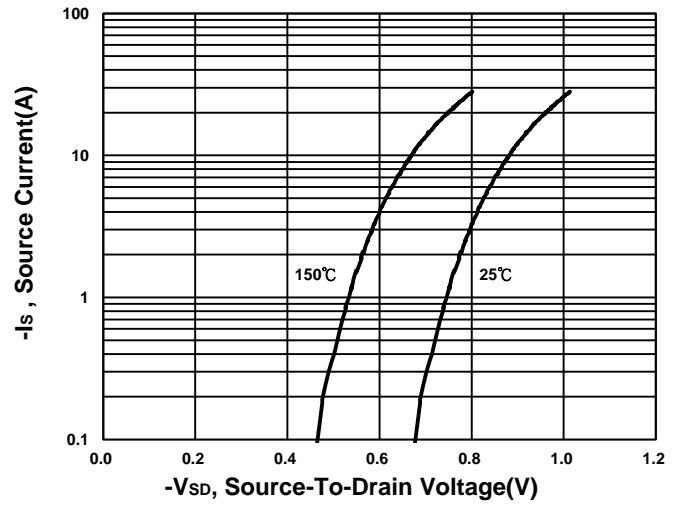
On-Resistance VS Drain Current



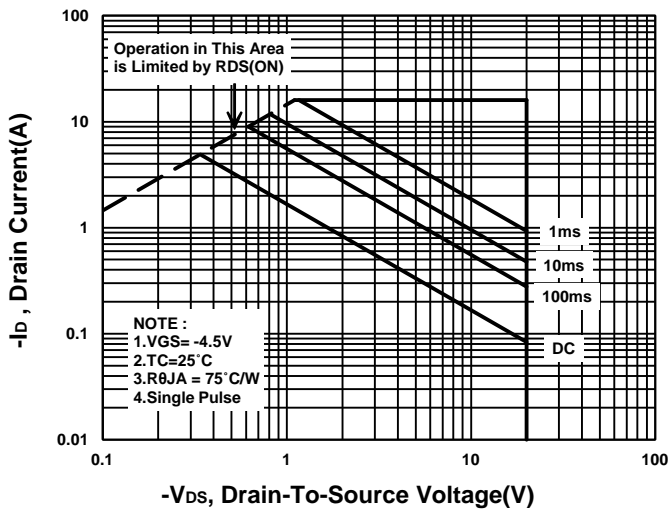
On-Resistance VS Temperature



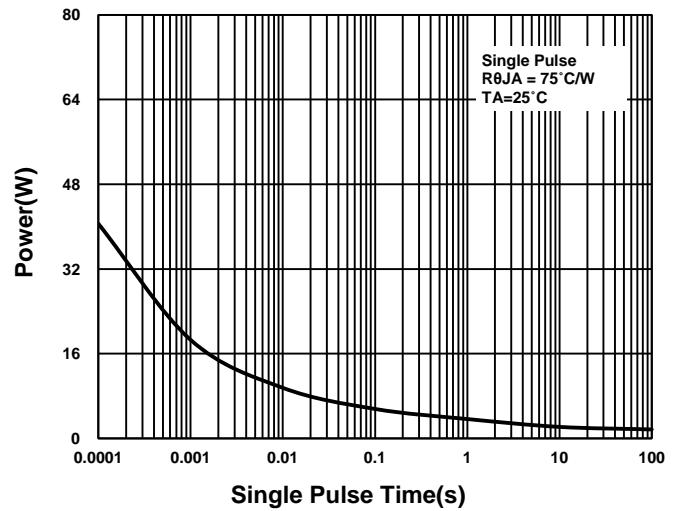
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

