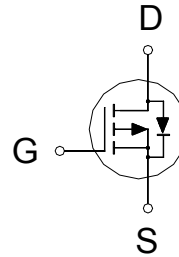


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	6.5mΩ	-43A

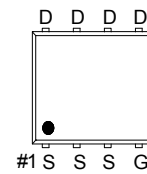


Features

- 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 ⁴	$T_C = 25\text{ °C}$	I_D	-43	A
	$T_C = 100\text{ °C}$		-27	
	$T_A = 25\text{ °C}$		-18	
	$T_A = 70\text{ °C}$		-14	
Pulsed Drain Current ¹		I_{DM}	-50	
Avalanche Current		I_{AS}	-39	
Avalanche Energy	L = 0.1mH	E_{AS}	76	mJ
Power Dissipation ³	$T_C = 25\text{ °C}$	P_D	20	W
	$T_C = 100\text{ °C}$		8	
	$T_A = 25\text{ °C}$		3.5	
	$T_A = 70\text{ °C}$		2.2	
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	$t \leq 10s$	$R_{\theta JA}$		35	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		60	
Junction-to-Case	Steady-State	$R_{\theta JC}$		6	

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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.45	-0.6	-0.9	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -10V, V_{GS} = 0V, T_J = 55^\circ C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -3.5A$		4.9	6.5	m Ω
		$V_{GS} = -2.5V, I_D = -3.5A$		6	8	
		$V_{GS} = -1.8V, I_D = -2A$		7.6	11	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -10V, I_D = -3.5A$		47		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		5926		pF
Output Capacitance	C_{oss}			551		
Reverse Transfer Capacitance	C_{rss}			424		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		4		Ω
Total Gate Charge ²	$Q_{g(VGS=-4.5V)}$	$V_{DS} = -10V, I_D = -3.5A$		64		nC
	$Q_{g(VGS=-2.5V)}$			38		
Gate-Source Charge ²	Q_{gs}			6.7		
Gate-Drain Charge ²	Q_{gd}			12.7		

Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -3.5A, V_{GS} = -4.5V, R_{GEN} = 6\Omega$		35		nS
Rise Time ²	t_r			53		
Turn-Off Delay Time ²	$t_{d(off)}$			190		
Fall Time ²	t_f			109		

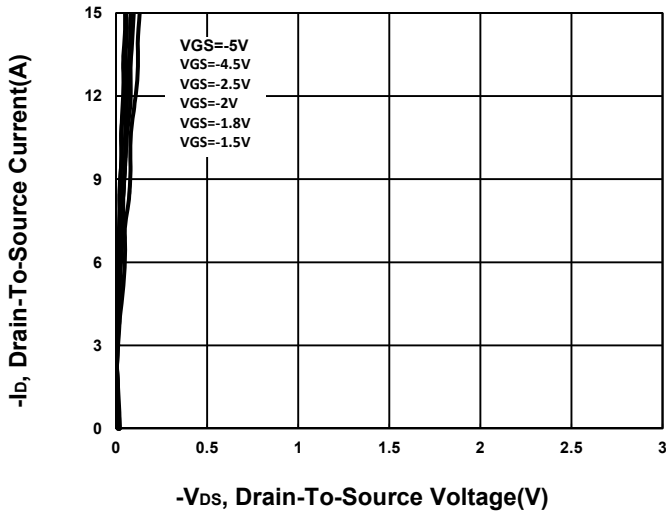
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

Continuous Current	I_S			-15	A
Forward Voltage ¹	V_{SD}	$I_F = -3.5A, V_{GS} = 0V$		-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = -3.5A, dI/dt = 100A/\mu s$		37	nS
Reverse Recovery Charge	Q_{rr}			26	nC

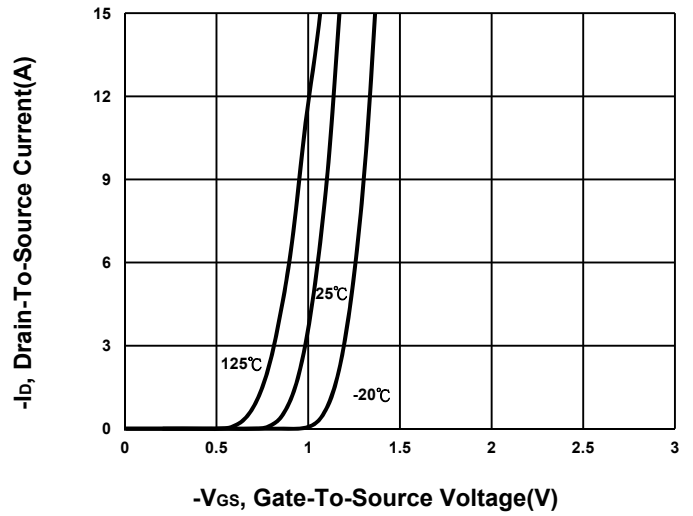
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

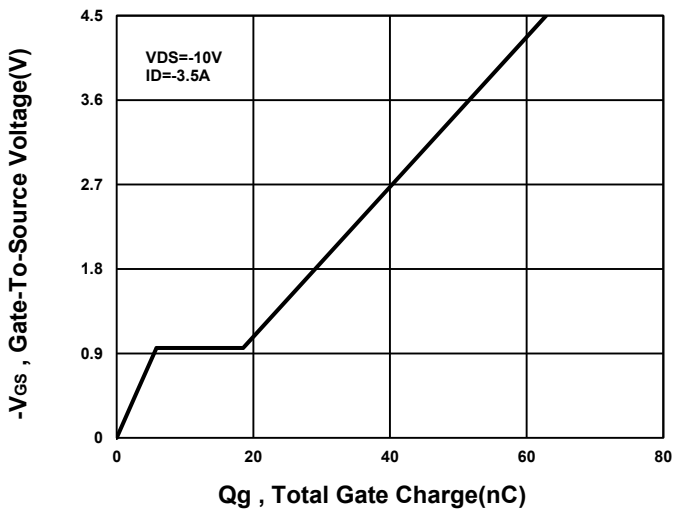
Output Characteristics



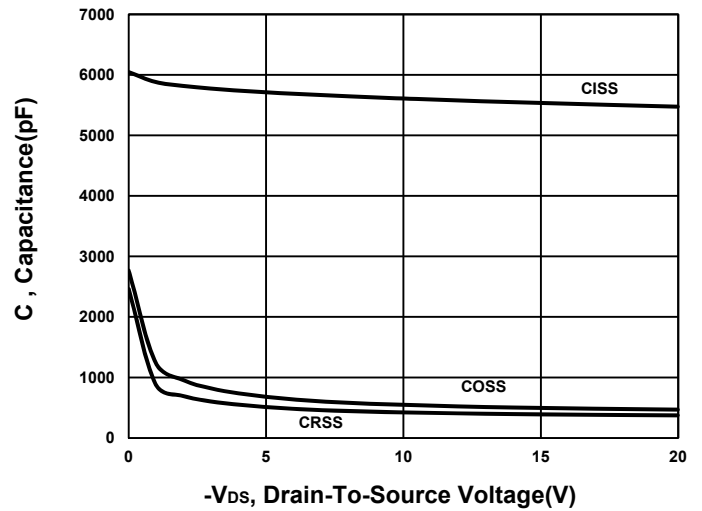
Transfer Characteristics



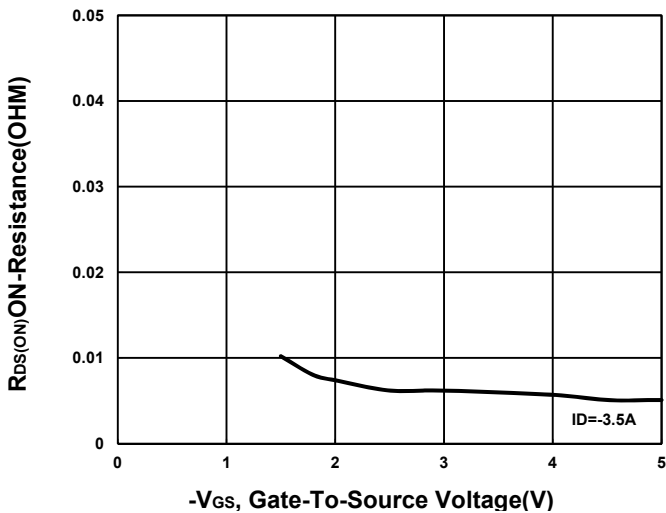
Gate charge Characteristics



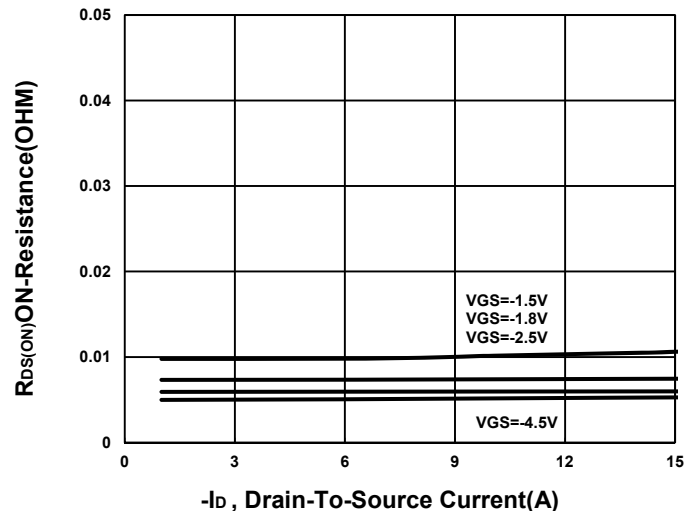
Capacitance Characteristic



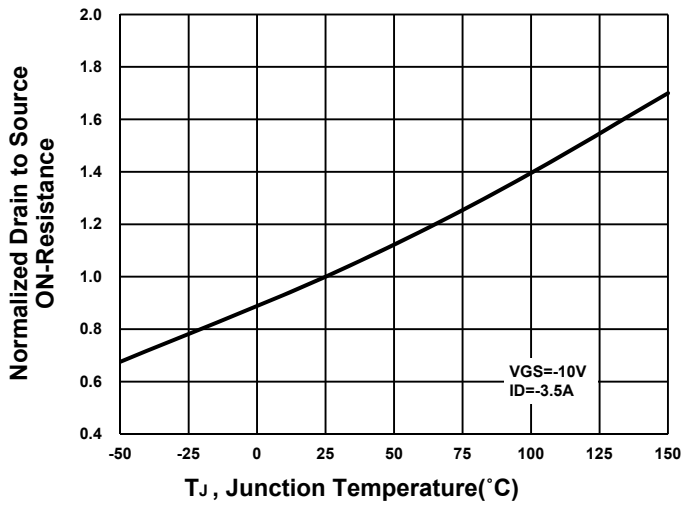
On-Resistance VS Gate-To-Source



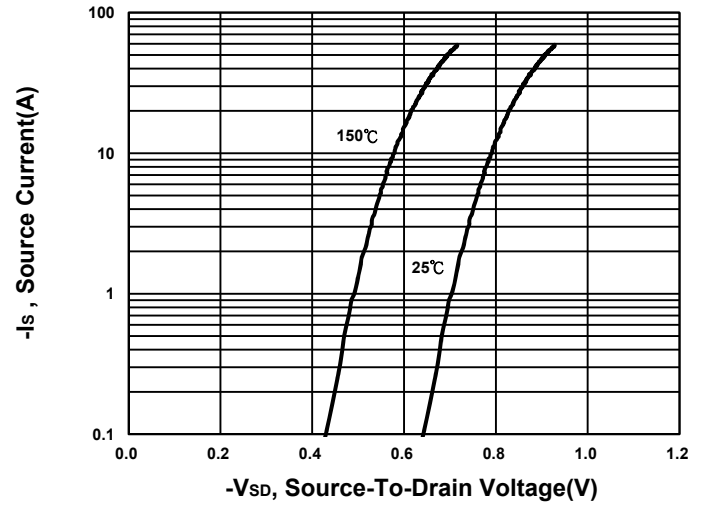
On-Resistance VS Drain Current



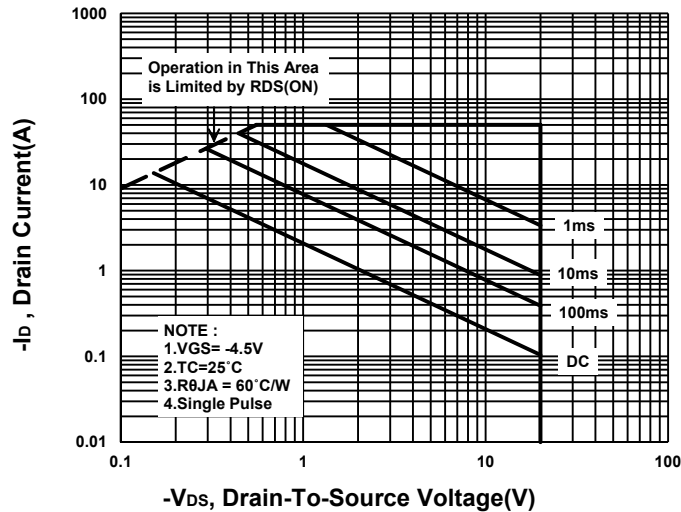
On-Resistance VS Temperature



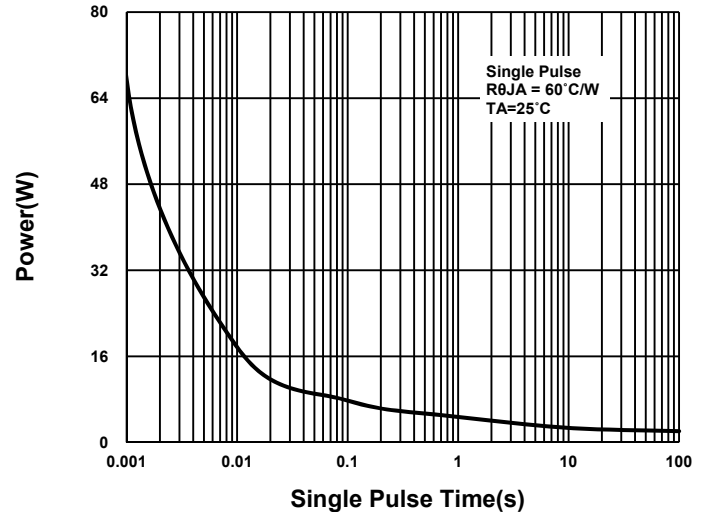
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

