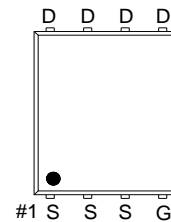
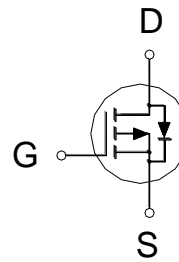


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	2.8mΩ	-118A



G. GATE
D. DRAIN
S. SOURCE

100% UIS Tested
100% Rg Tested

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.

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±25	V
Continuous Drain Current ⁴	$T_C = 25\text{ °C}$	I_D	-118	A
	$T_C = 100\text{ °C}$		-74	
	$T_A = 25\text{ °C}$		-30	
	$T_A = 70\text{ °C}$		-24	
Pulsed Drain Current ¹		I_{DM}	-280	
Avalanche Current ⁵		I_{AS}	-65	
Avalanche Energy ⁵	$L = 0.1\text{mH}$	E_{AS}	211	mJ
Power Dissipation ³	$T_C = 25\text{ °C}$	P_D	62.5	W
	$T_C = 100\text{ °C}$		25	
	$T_A = 25\text{ °C}$		4.1	
	$T_A = 70\text{ °C}$		2.6	
Operating 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	$t \leq 10s$	$R_{\theta JA}$		30	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		51	
Junction-to-Case	Steady-State	$R_{\theta JC}$		2	

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 $T_A = 25^\circ C$. The value in any given application depends on the user's specific board design.

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

⁴The maximum current rating is package limited.

⁵ $T_J = 25^\circ C, V_{DD} = 50V, V_{GS} = 10V, L = 0.1mH, I_{AS} = -65A, R_G = 25\Omega$.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.3	-1.8	-2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	uA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55^\circ C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -12A$		2.1	2.8	m Ω
		$V_{GS} = -4.5V, I_D = -12A$		3.5	5.8	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -12A$		53		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		6539		pF
Output Capacitance	C_{oss}			970		
Reverse Transfer Capacitance	C_{rss}			774		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		4.4		Ω
Total Gate Charge ²	Q_g	$V_{DS} = -15V, V_{GS} = -10V, I_D = -12A$		137		nC
Gate-Source Charge ²	Q_{gs}			19		
Gate-Drain Charge ²	Q_{gd}			30		
Turn-On Delay Time ²	$t_{d(on)}$	$I_D \cong -12A, V_{GS} = -10V, R_{GS} = 6\Omega$		17		nS
Rise Time ²	t_r			79		
Turn-Off Delay Time ²	$t_{d(off)}$			224		
Fall Time ²	t_f			133		

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

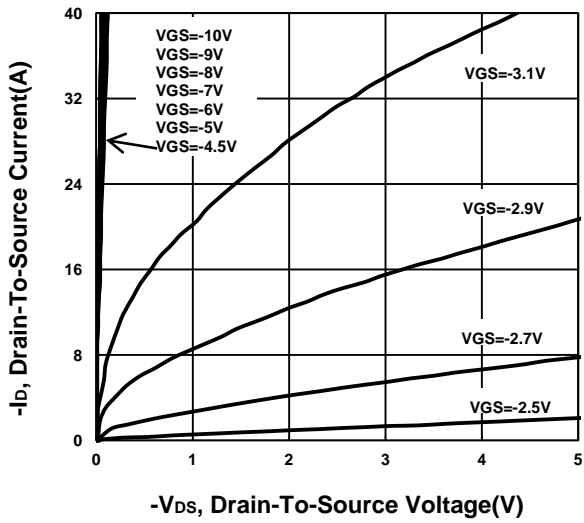
Continuous Current ³	I _S				-48	A
Forward Voltage ¹	V _{SD}	I _F = -12A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -12A , di _F /dt = 100 A / μS		28		nS
Reverse Recovery Charge	Q _{rr}			20		nC

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

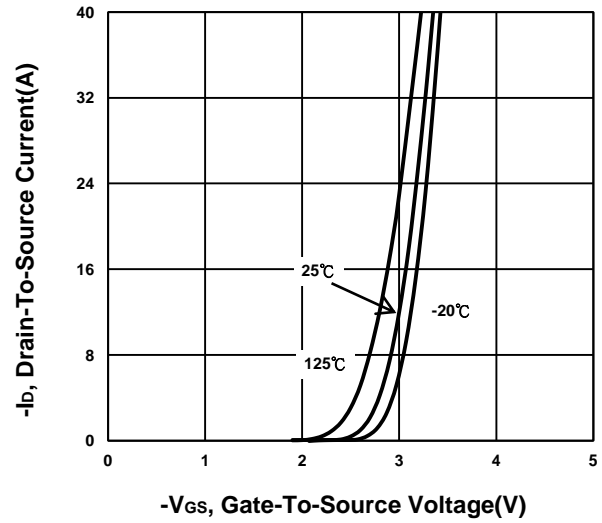
²Independent of operating temperature.

³The maximum current rating is package limited.

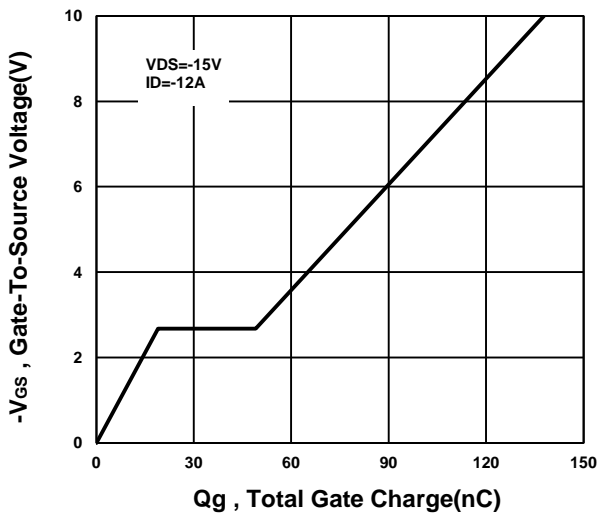
Output Characteristics



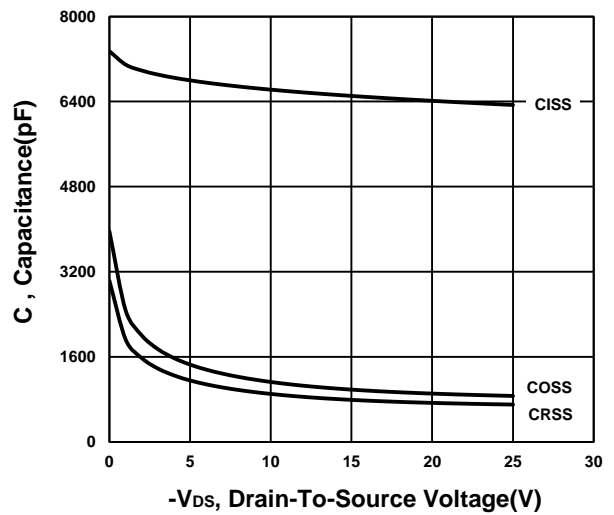
Transfer Characteristics



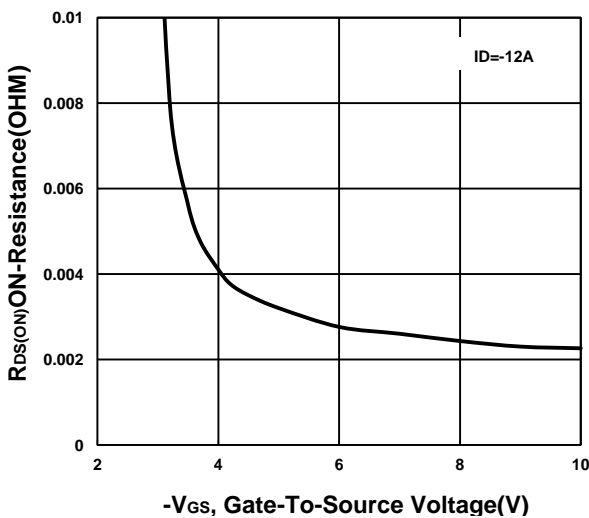
Gate charge Characteristics



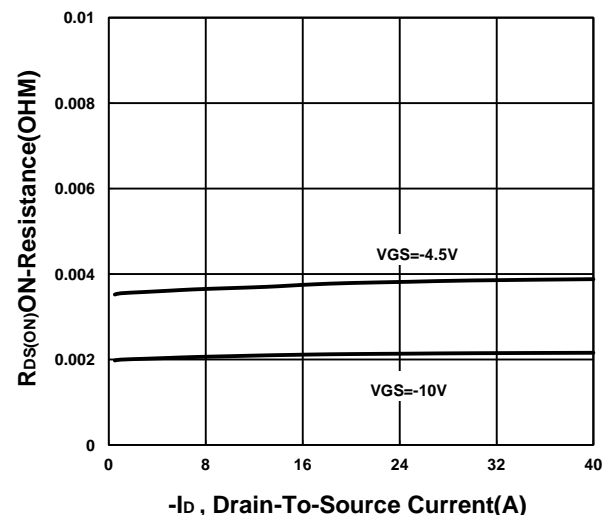
Capacitance Characteristic



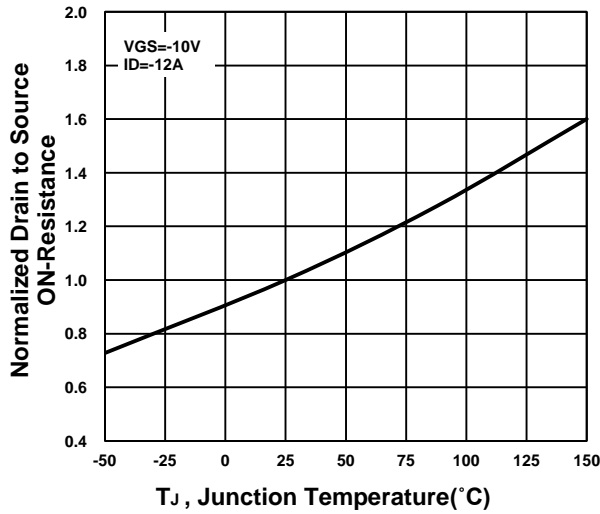
On-Resistance VS Gate-To-Source Voltage



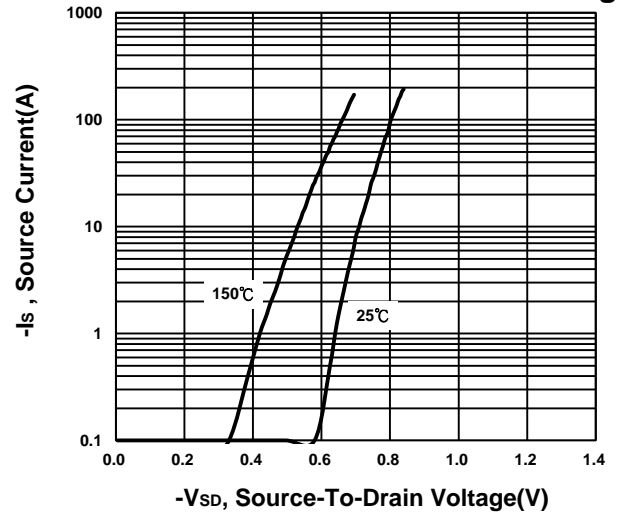
On-Resistance VS Drain Current



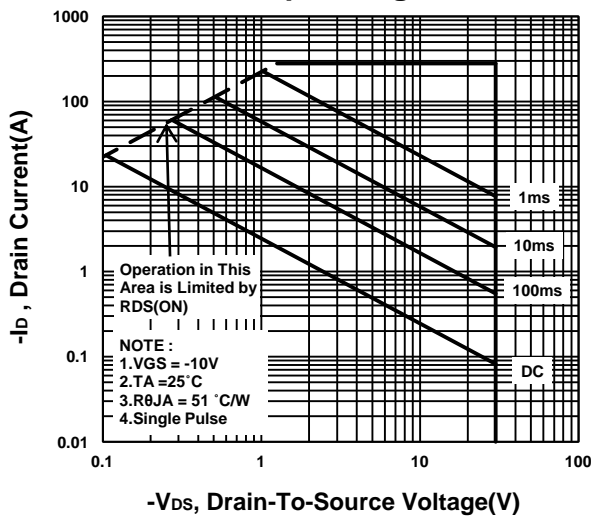
On-Resistance VS Temperature



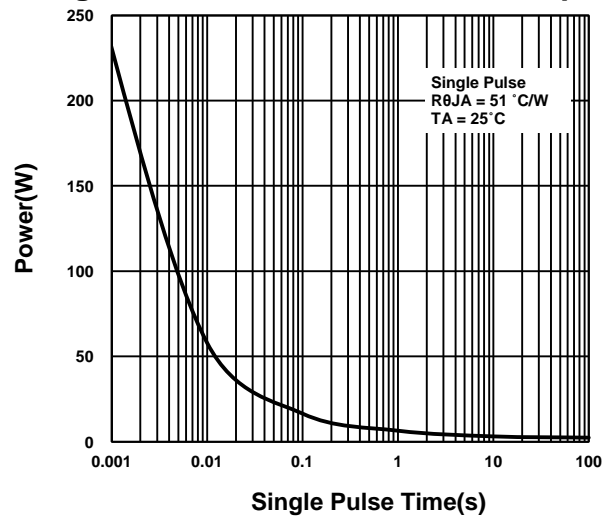
Source-Drain Diode Forward Voltage



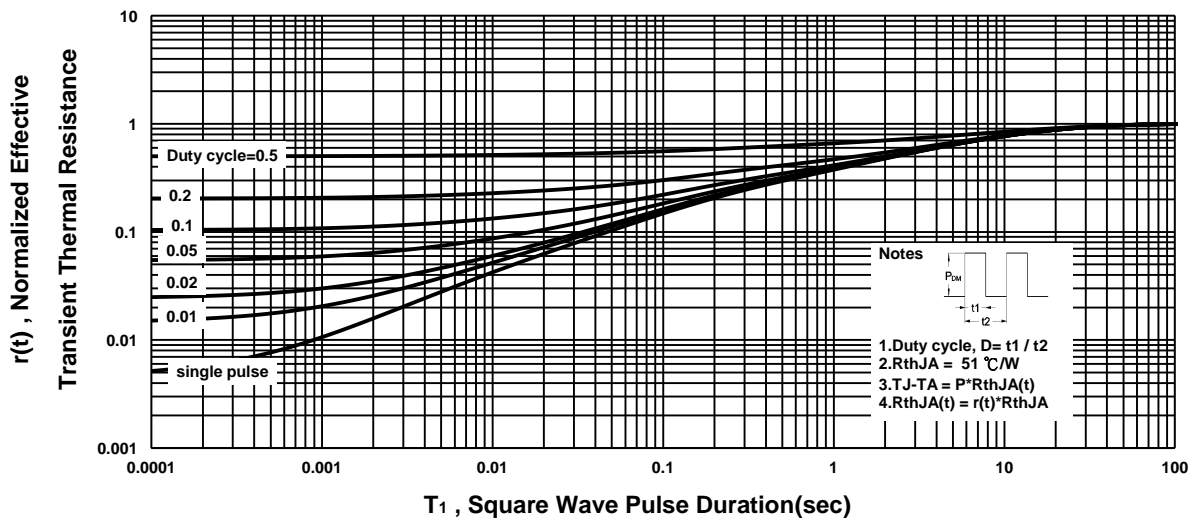
Safe Operating Area



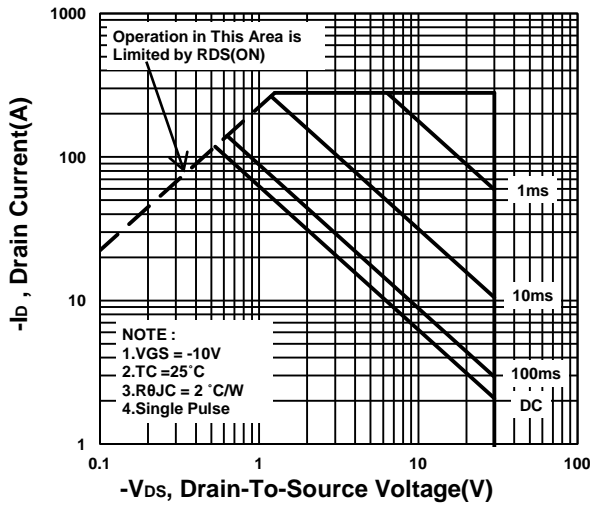
Single Pulse Maximum Power Dissipation



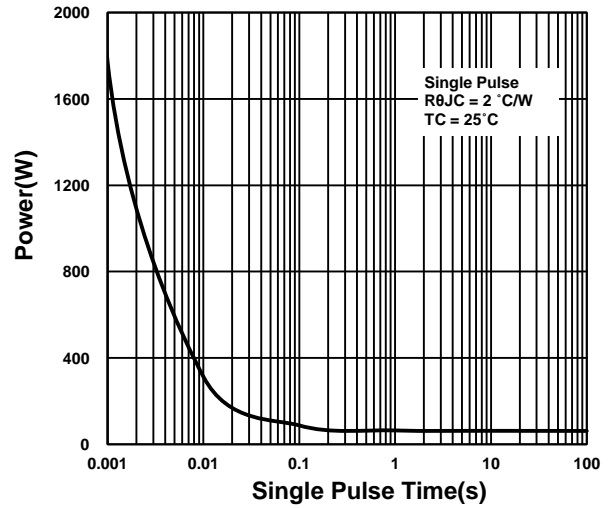
Transient Thermal Response Curve



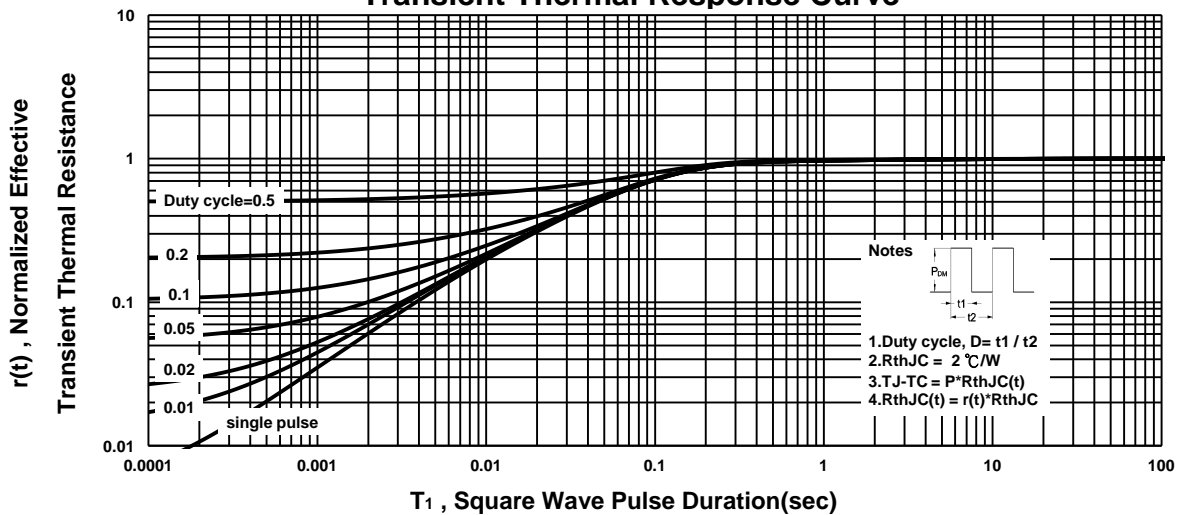
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



Inclamped Inductive Switching Capability

