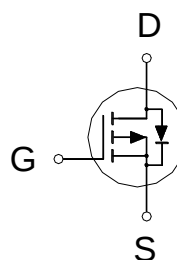


PRODUCT SUMMARY

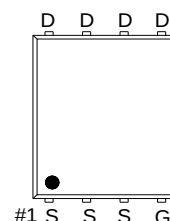
$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	4.1m Ω	-89A


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 ($T_A = 25\text{ }^{\circ}\text{C}$ 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	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	-89	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-56	
	$T_A = 25\text{ }^{\circ}\text{C}$		-23	
	$T_A = 70\text{ }^{\circ}\text{C}$		-18	
Pulsed Drain Current ¹		I_{DM}	-160	
Avalanche Current		I_{AS}	-60.5	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	183	mJ
Power Dissipation ³	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	62.5	W
	$T_C = 100\text{ }^{\circ}\text{C}$		25	
	$T_A = 25\text{ }^{\circ}\text{C}$		4.1	
	$T_A = 70\text{ }^{\circ}\text{C}$		2.6	
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	$t \leq 10s$	$R_{\theta JA}$		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 $T_A = 25^\circ \text{C}$. 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 is limited by the package.

ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ \text{C}$, 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}	$V_{DS} = -24V, V_{GS} = 0V$			-1	uA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -12A$		2.8	4.1	mΩ
		$V_{GS} = -4.5V, I_D = -12A$		4.1	6.2	
Forward Transconductance	g_{fs}	$V_{DS} = -5V, I_D = -12A$		60		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		6550		pF
Output Capacitance	C_{oss}			1053		
Reverse Transfer Capacitance	C_{rss}			863		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		3.9		Ω
Total Gate Charge ⁵	Q_g	$V_{DS} = -15V,$ $V_{GS} = -10V, I_D = -12A$		143	172	nC
Gate-Source Charge ⁵	Q_{gs}			17		
Gate-Drain Charge ⁵	Q_{gd}			33		
Turn-On Delay Time ⁵	$t_{d(on)}$	$V_{DS} = -15V,$ $I_D \cong -12A, V_{GS} = -10V, R_{GS} = 6\Omega$		21		nS
Rise Time ⁵	t_r			37		
Turn-Off Delay Time ⁵	$t_{d(off)}$			290		
Fall Time ⁵	t_f			145		

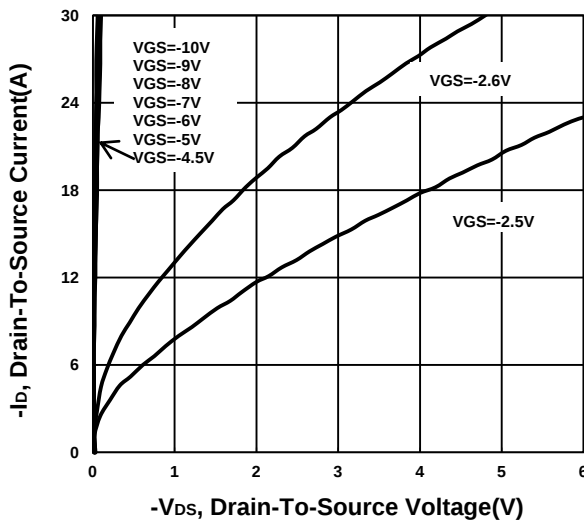
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)

Continuous Current ⁶	I _S				-62.5	A
Forward Voltage	V _{SD}	I _F = -12A, V _{GS} = 0V			-1	V
Reverse Recovery Time	t _{rr}	I _F = -12A , dI _F /dt = 100 A / μS		45		nS
Reverse Recovery Charge	Q _{rr}			31		nC

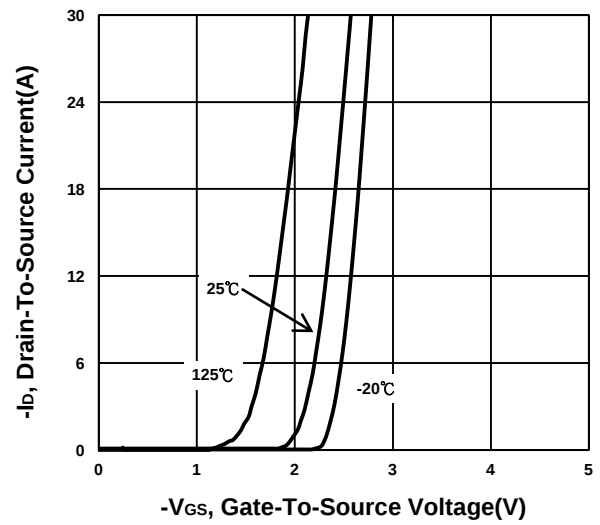
⁵Independent of operating temperature.

⁶The maximum current is limited by the package.

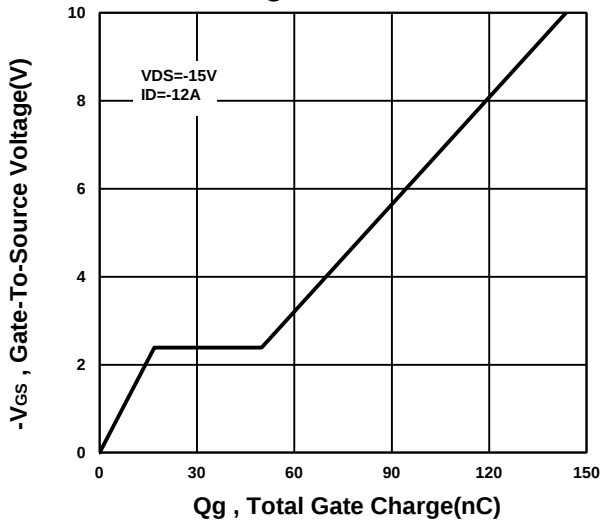
Output Characteristics



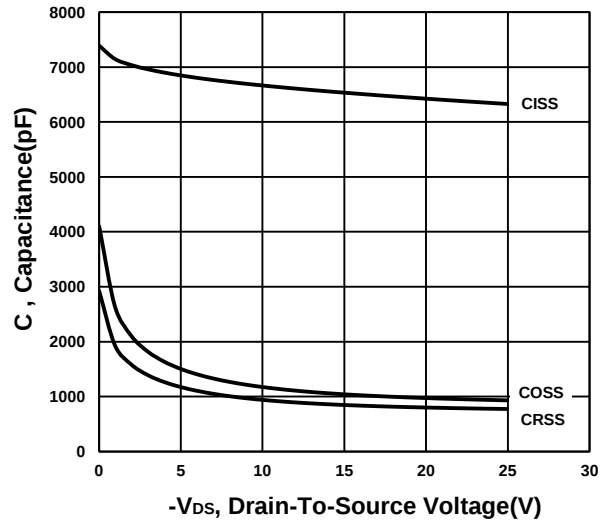
Transfer Characteristics



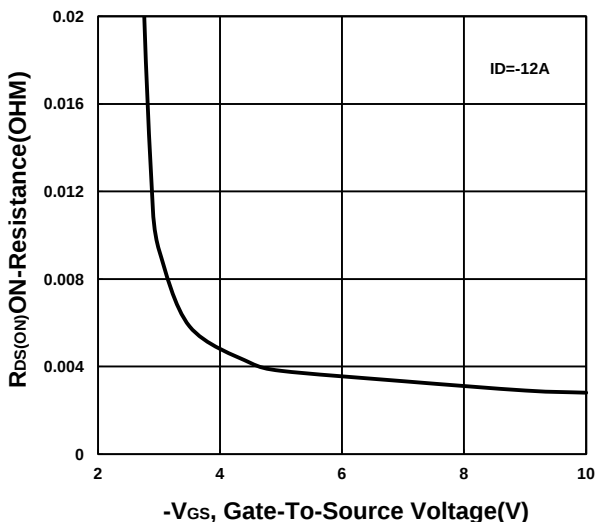
Gate charge Characteristics



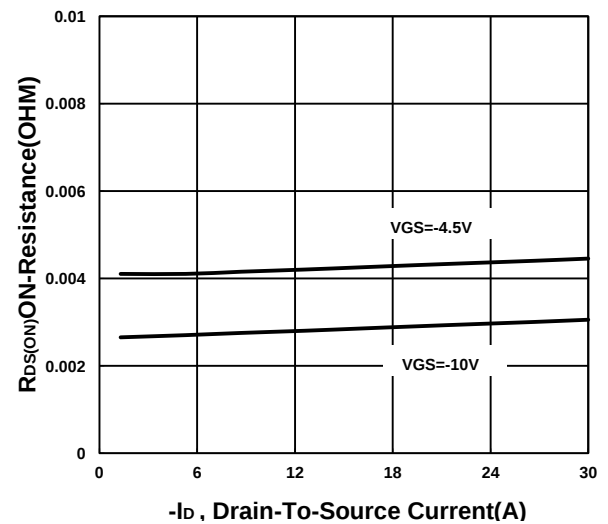
Capacitance Characteristic



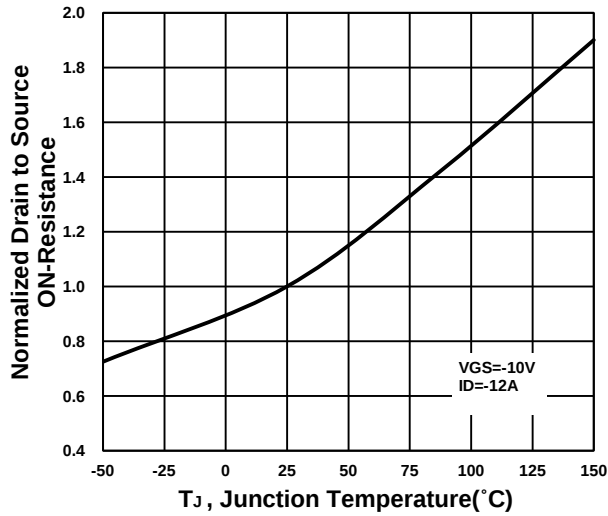
On-Resistance VS Gate-To-Source



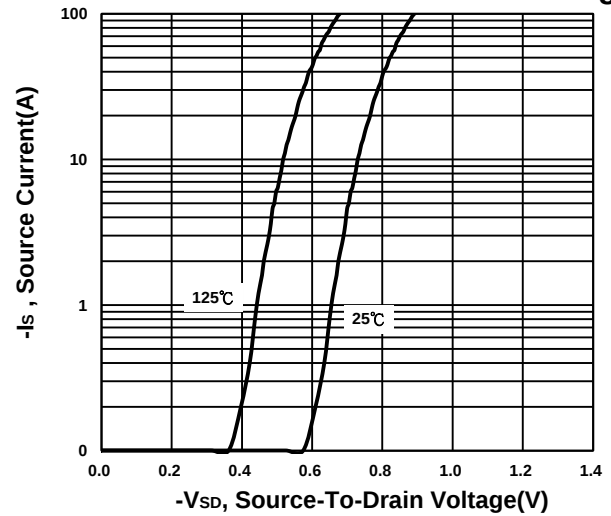
On-Resistance VS Drain Current



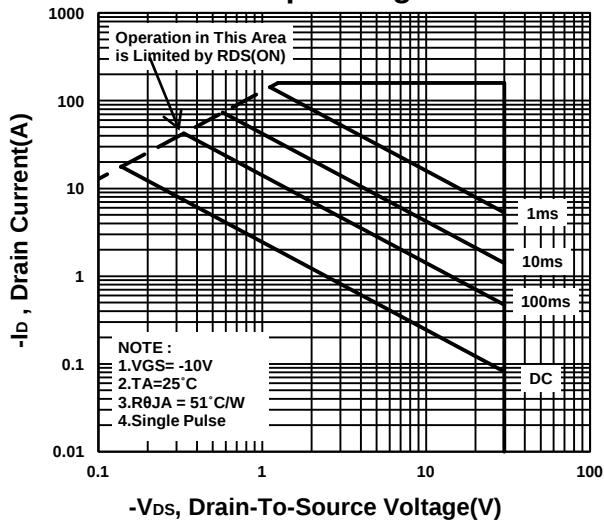
On-Resistance VS Temperature



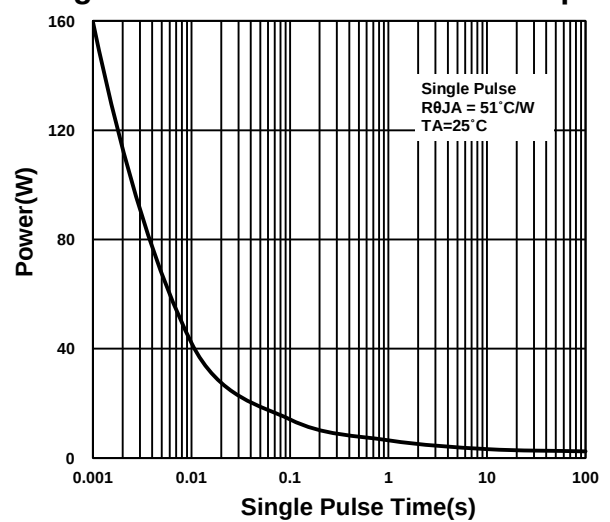
Source-Drain Diode Forward Voltage



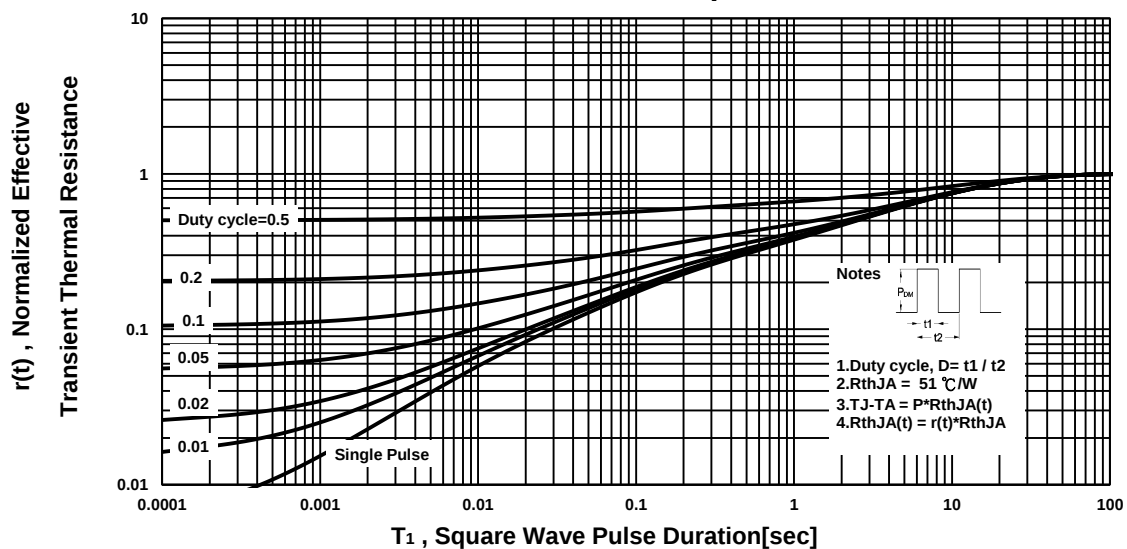
Safe Operating Area



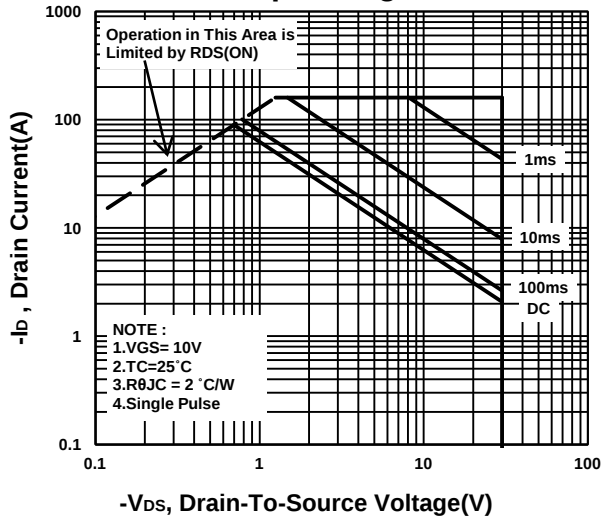
Single Pulse Maximum Power Dissipation



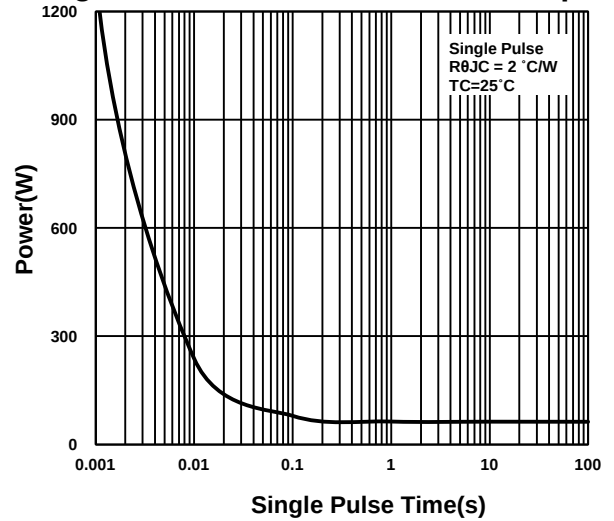
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

