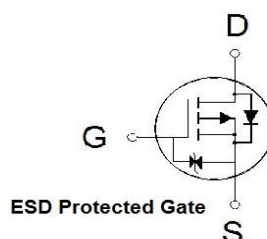


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	3.2m Ω	-116A

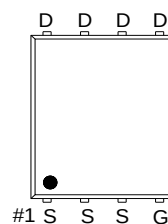


Features

- 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.
- Products Integrated ESD diode with ESD Protected.

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	-116	A
	$T_C = 100\text{ }^{\circ}\text{C}$		-73	
	$T_A = 25\text{ }^{\circ}\text{C}$		-28	
	$T_A = 70\text{ }^{\circ}\text{C}$		-22	
Pulsed Drain Current ¹		I_{DM}	-265	
Avalanche Current		I_{AS}	-81	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	325	mJ
Power Dissipation ³	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	74	W
	$T_C = 100\text{ }^{\circ}\text{C}$		29	
	$T_A = 25\text{ }^{\circ}\text{C}$		4.3	
	$T_A = 70\text{ }^{\circ}\text{C}$		2.8	
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	$t \leq 10s$	$R_{\theta JA}$		29	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		50	
Junction-to-Case	Steady-State	$R_{\theta JC}$		1.7	

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 rating is package limited.

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	-1.7	-2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -10V, I_D = -12A$		2.5	3.2	$m\Omega$
		$V_{GS} = -4.5V, I_D = -12A$		3.7	5.8	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -12A$		61		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		6977		pF
Output Capacitance	C_{oss}			1072		
Reverse Transfer Capacitance	C_{rss}			852		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		4.9		Ω
Total Gate Charge ²	Q_g	$V_{DS} = -15V,$ $V_{GS} = -10V, I_D = -12A$		152		nC
Gate-Source Charge ²	Q_{gs}			19		
Gate-Drain Charge ²	Q_{gd}			32		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = -15V,$ $I_D \cong -12A, V_{GS} = -10V, R_{GS} = 6\Omega$		21		nS
Rise Time ²	t_r			82		
Turn-Off Delay Time ²	$t_{d(off)}$			258		
Fall Time ²	t_f			141		

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

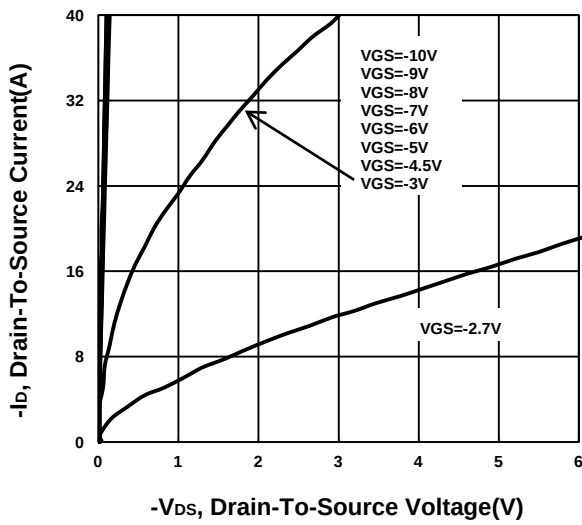
Continuous Current ³	I _S				-57	A
Forward Voltage ¹	V _{SD}	I _F = -12A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -12A , di _F /dt = 100 A / μS		30		nS
Reverse Recovery Charge	Q _{rr}			17		nC

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

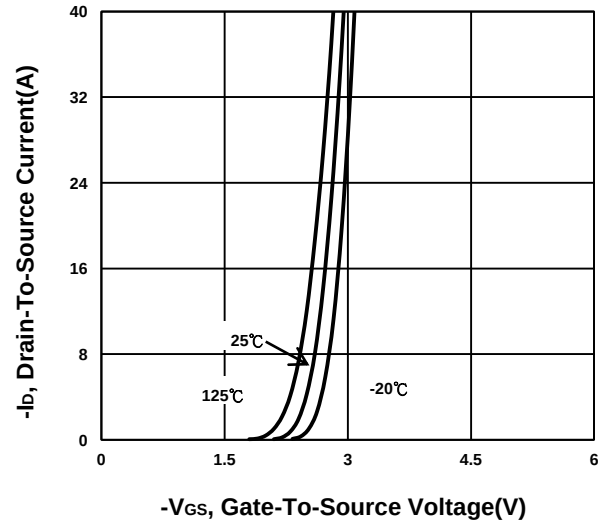
²Independent of operating temperature.

³The maximum current rating is package limited.

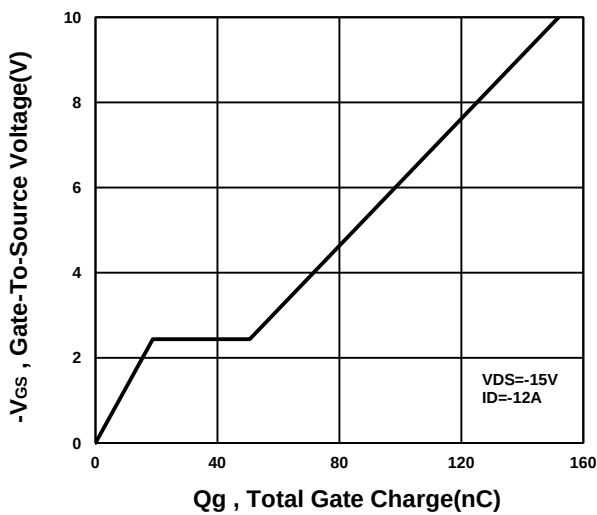
Output Characteristics



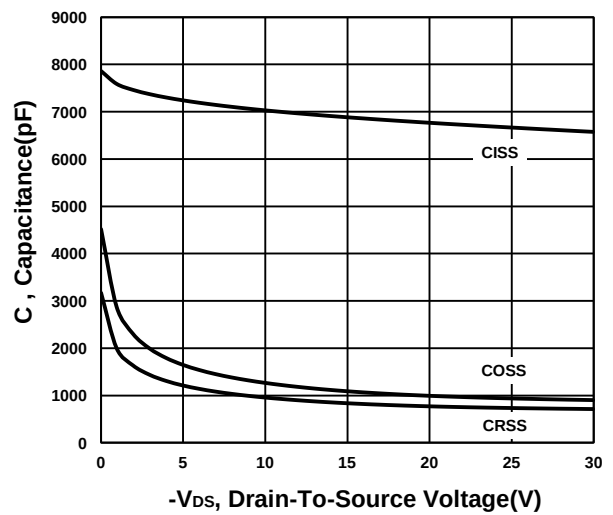
Transfer Characteristics



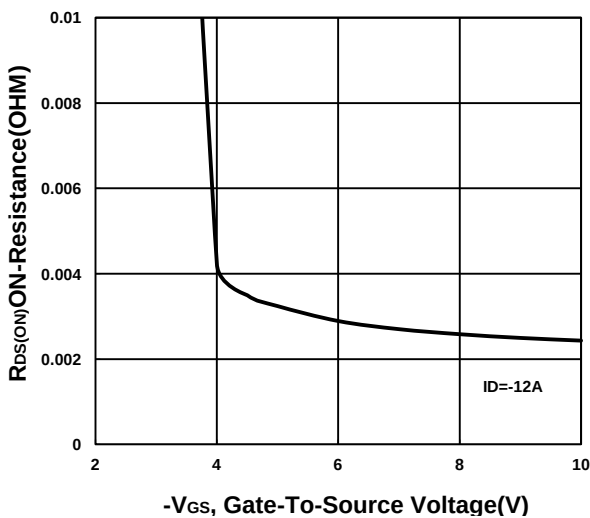
Gate charge Characteristics



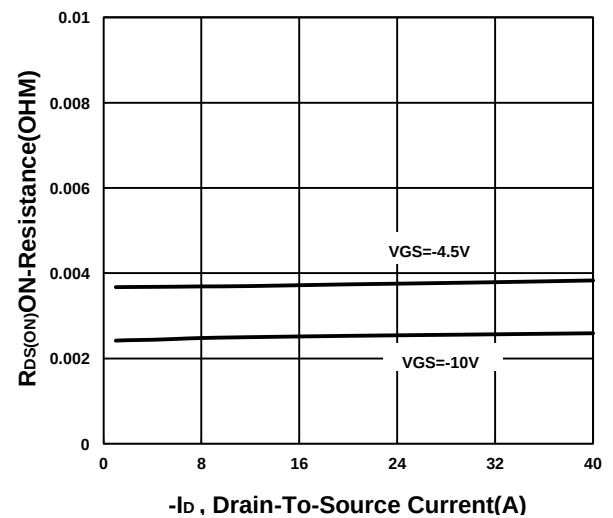
Capacitance Characteristic



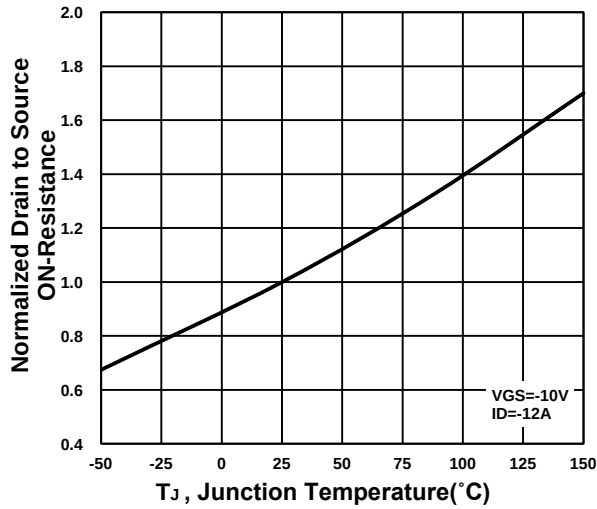
On-Resistance VS Gate-To-Source Voltage



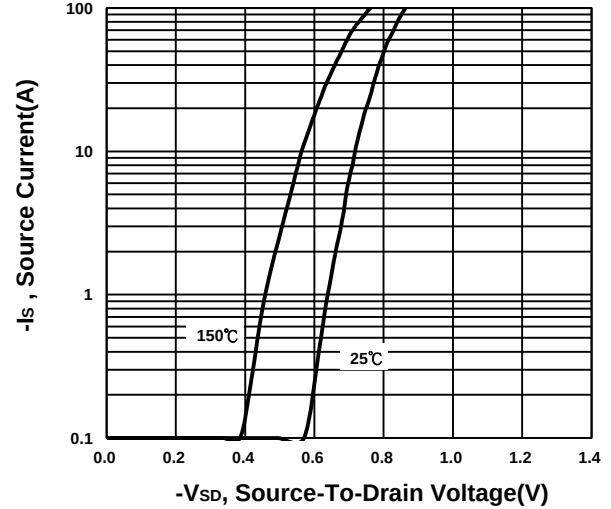
On-Resistance VS Drain Current



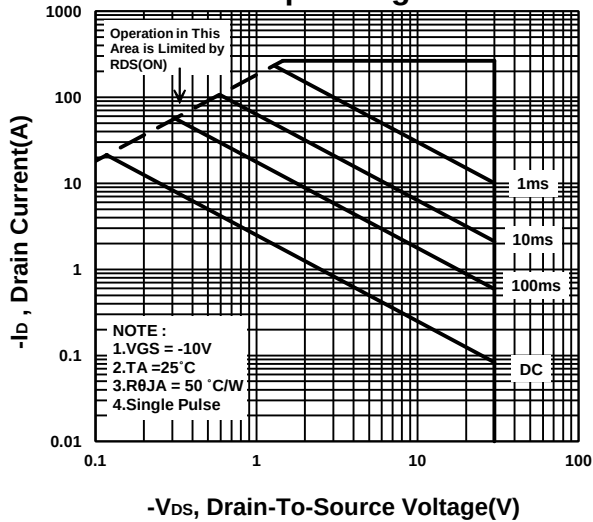
On-Resistance VS Temperature



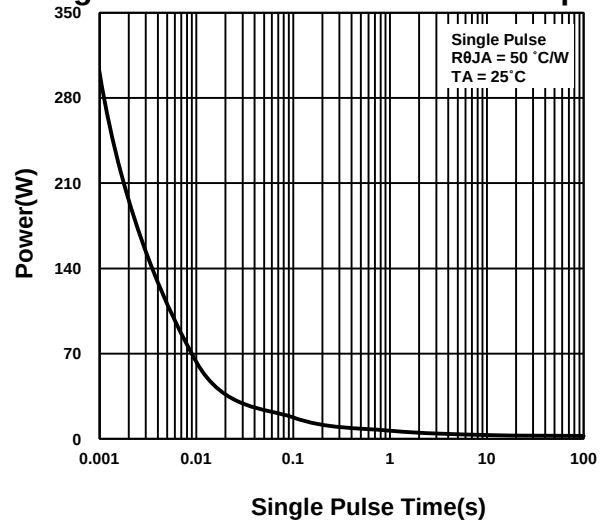
Source-Drain Diode Forward Voltage



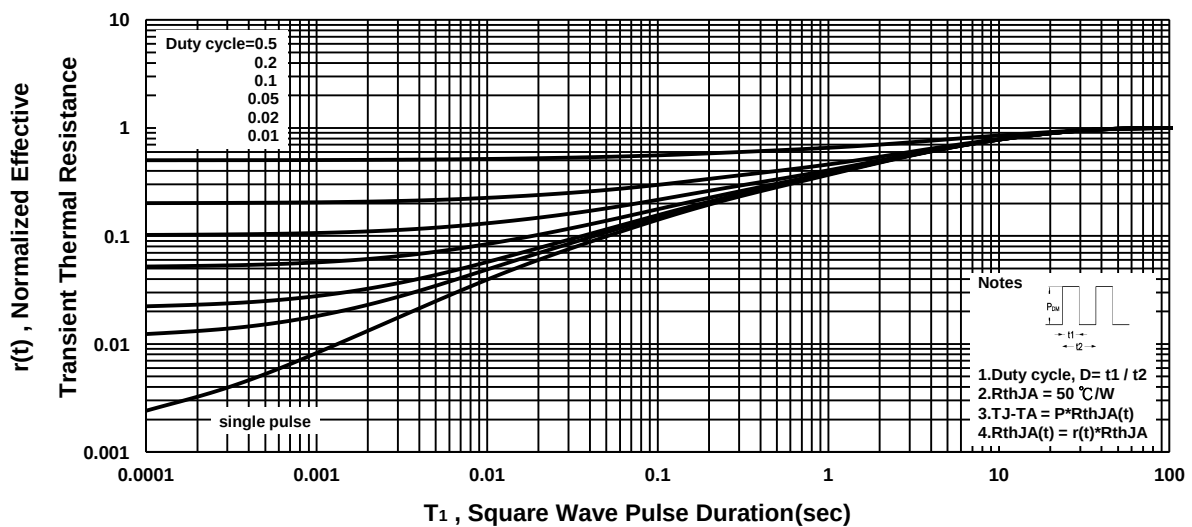
Safe Operating Area



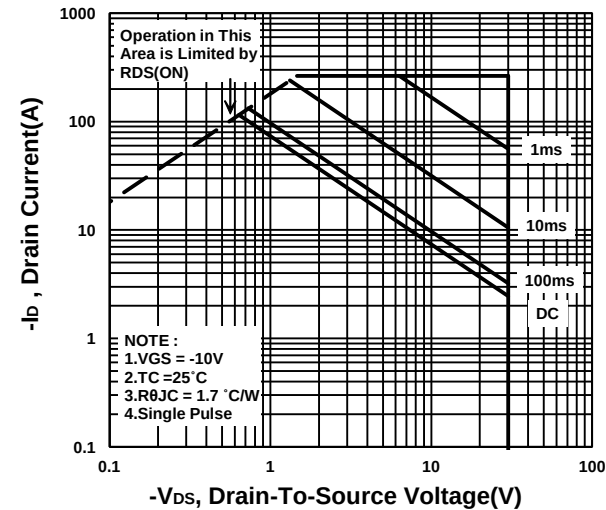
Single Pulse Maximum Power Dissipation



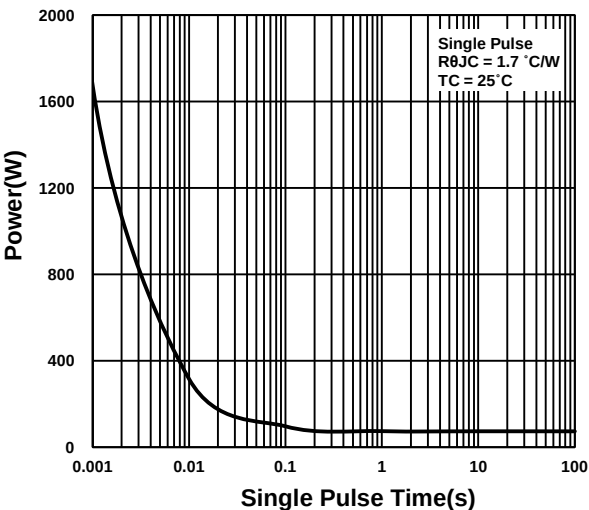
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

