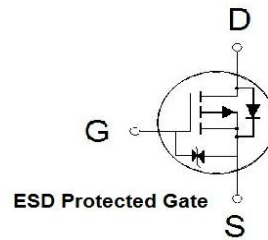


PRODUCT SUMMARY

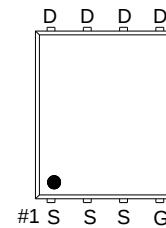
$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	6.1m Ω	-68A


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 up to 4KV.

Applications

- Protection Circuits Applications.
- Logic/Load Switch Circuits Applications.



G. GATE
D. DRAIN
S. SOURCE

100% UIS Tested
100% Rg Tested

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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	$T_C = 25^\circ\text{C}$	I_D	-68	A
	$T_C = 100^\circ\text{C}$		-43	
	$T_A = 25^\circ\text{C}$		-15	
	$T_A = 70^\circ\text{C}$		-12	
Pulsed Drain Current ¹		I_{DM}	-150	
Avalanche Current		I_{AS}	-68	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	231	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	48	W
	$T_C = 100^\circ\text{C}$		19	
	$T_A = 25^\circ\text{C}$		2.3	
	$T_A = 70^\circ\text{C}$		1.5	
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	$R_{\theta JA}$		55	$^\circ\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		2.6	

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

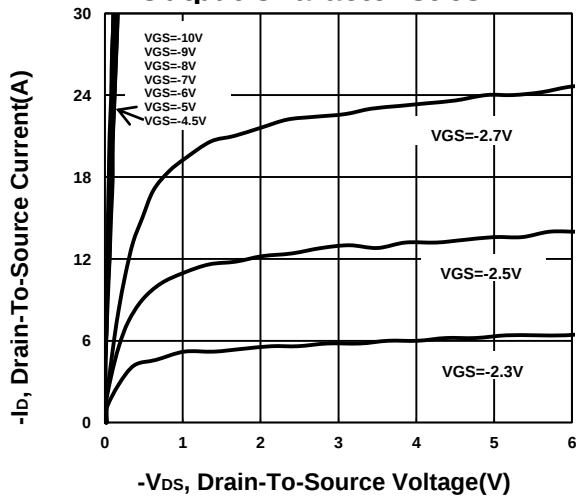
ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^\circ\text{C}$, Unless Otherwise Noted)

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}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 10	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -24V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -20V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -20A$		6.5	10.5	$m\Omega$
		$V_{GS} = -10V, I_D = -20A$		4.1	6.1	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -5V, I_D = -20A$		55		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$		4924		pF
Output Capacitance	C_{oss}			795		
Reverse Transfer Capacitance	C_{rss}			715		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.9		Ω
Total Gate Charge ²	$Q_{g(VGS=-10V)}$	$V_{DS} = -15V, I_D = -20A$		120		nC
	$Q_{g(VGS=-4.5V)}$			60		
Gate-Source Charge ²	Q_{gs}			13		
Gate-Drain Charge ²	Q_{gd}			28		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = -15V,$ $I_D \cong -20A, V_{GS} = -10V, R_{GS} = 6\Omega$		18		nS
Rise Time ²	t_r			96		
Turn-Off Delay Time ²	$t_{d(off)}$			162		
Fall Time ²	t_f			126		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current	I_S				-37	A
Forward Voltage ¹	V_{SD}	$I_F = -20A, V_{GS} = 0V$			-1.3	V
Reverse Recovery Time	t_{rr}	$I_F = -20A, di_F/dt = 100\text{ A} / \mu S$		17		nS
Reverse Recovery Charge	Q_{rr}			6.8		nC

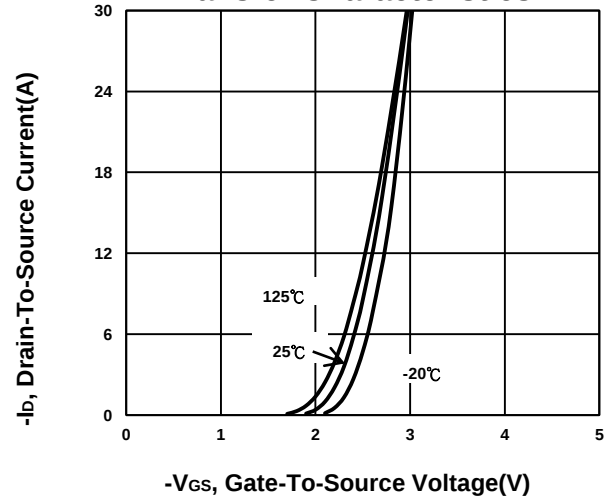
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

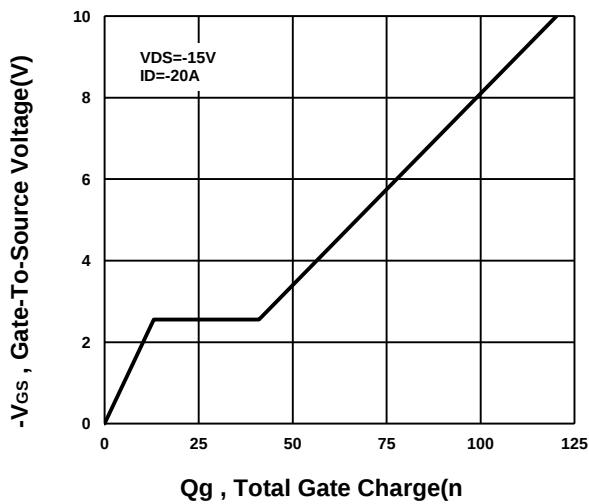
Output Characteristics



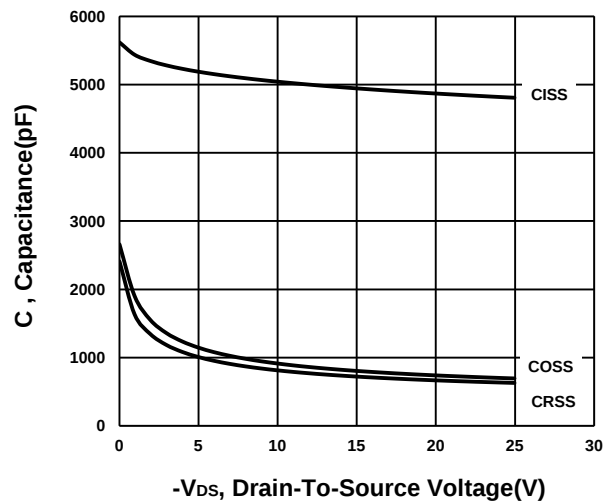
Transfer Characteristics



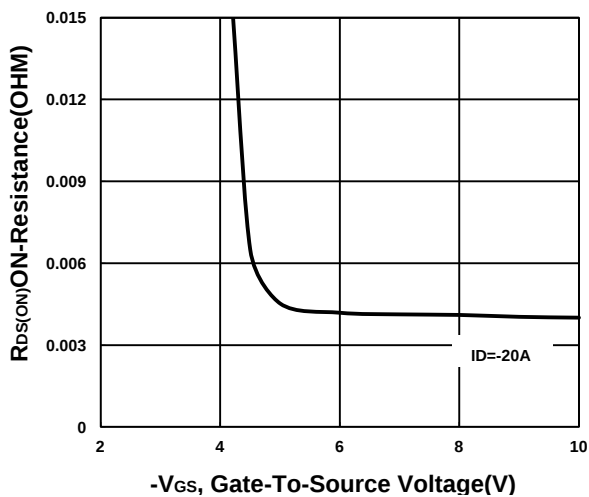
Gate charge Characteristics



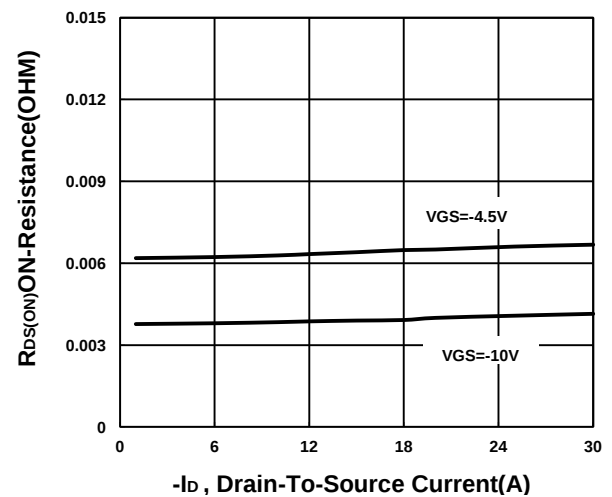
Capacitance Characteristic



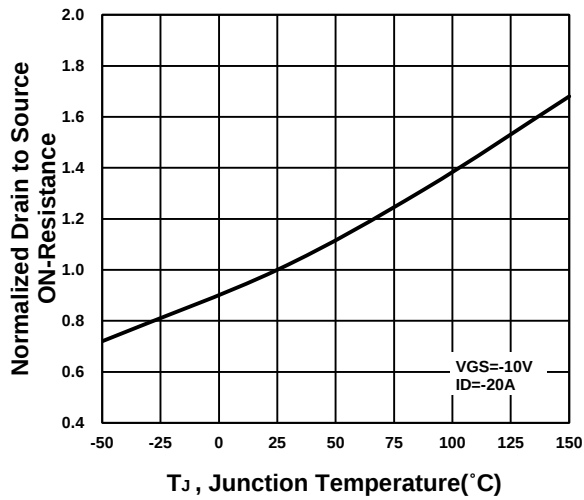
On-Resistance VS Gate-To-Source



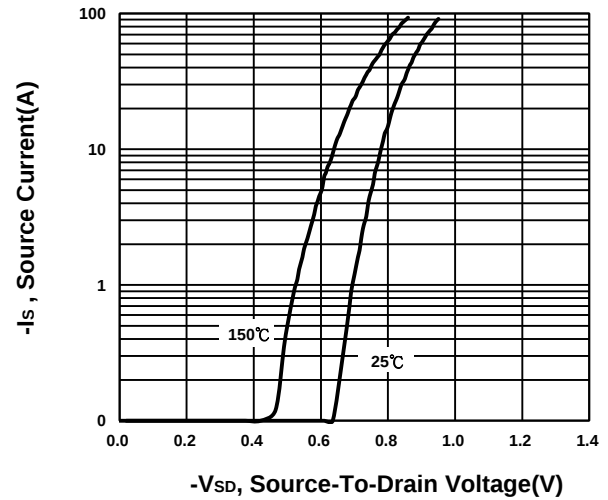
On-Resistance VS Drain Current



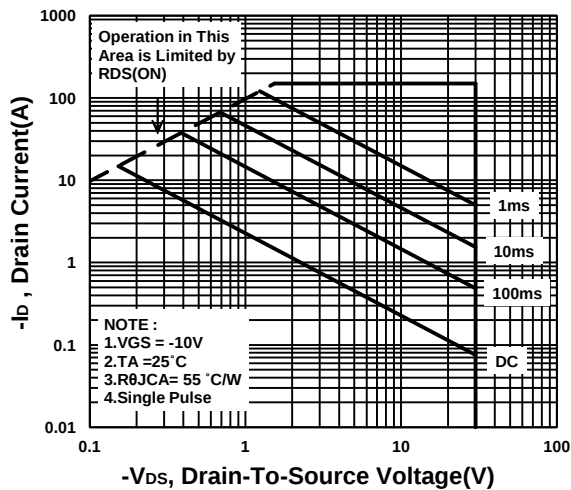
On-Resistance VS Temperature



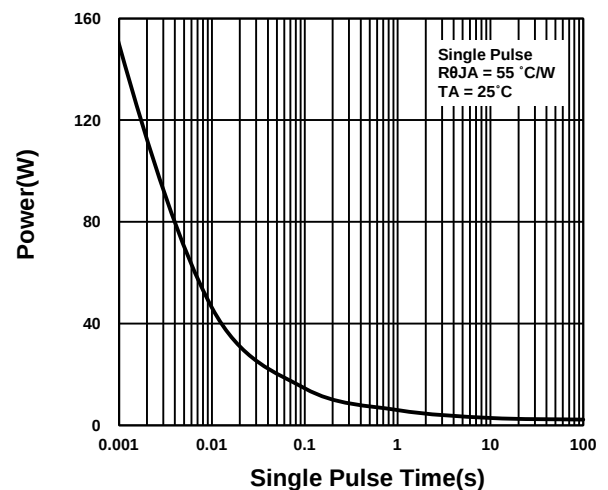
Source-Drain Diode Forward Voltage



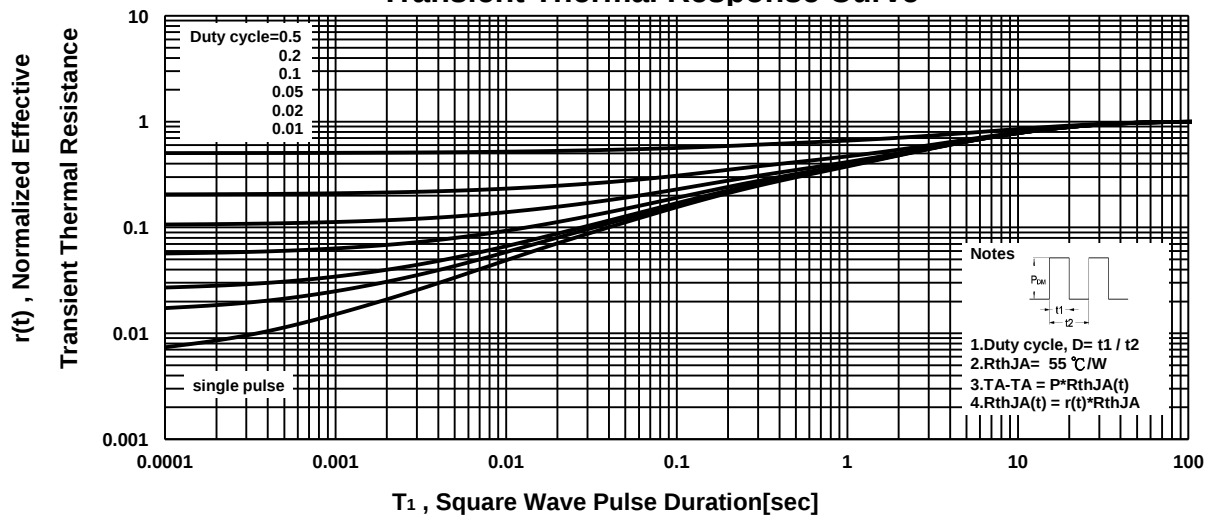
Safe Operating Area



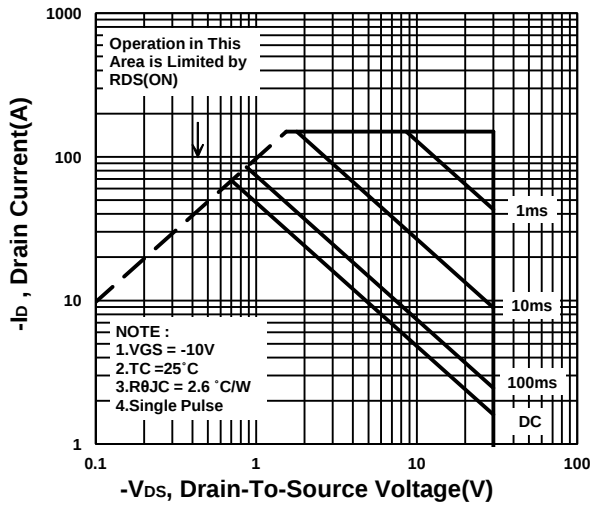
Single Pulse Maximum Power Dissipation



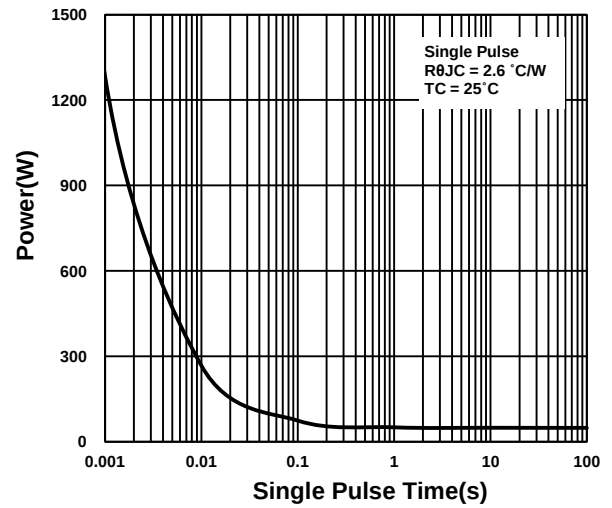
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

