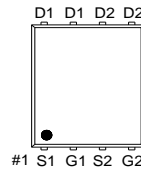
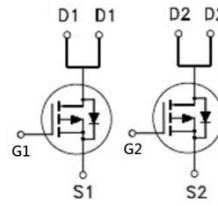




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	20mΩ	-30A



G : GATE
D : DRAIN
S : SOURCE

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}	-20	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current ⁴	$T_C = 25\text{ °C}$	I_D	-30	A
	$T_C = 100\text{ °C}$		-19	
	$T_A = 25\text{ °C}$		-8.8	
	$T_A = 70\text{ °C}$		-7	
Pulsed Drain Current ¹		I_{DM}	-40	
Avalanche Current		I_{AS}	-21.5	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	23	mJ
Power Dissipation ³	$T_C = 25\text{ °C}$	P_D	29	W
	$T_C = 100\text{ °C}$		11	
	$T_A = 25\text{ °C}$		2.5	
	$T_A = 70\text{ °C}$		1.6	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		50	°C/W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		72	
Junction-to-Case	Steady-State	$R_{\theta JC}$		4.3	

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. Coppe.

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

⁴Package limitation current is -9A.

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

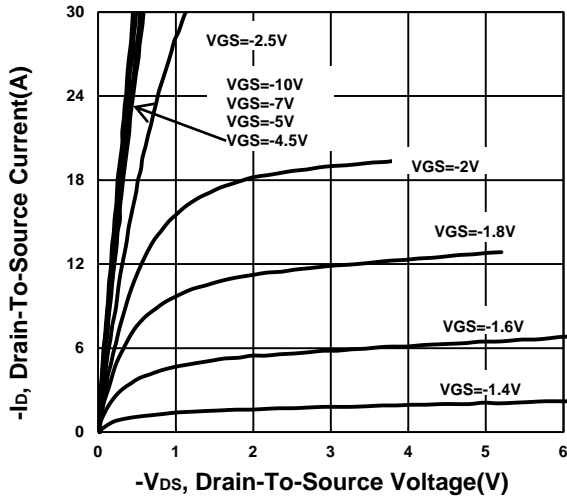
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.65	-0.77	-1.2	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V			±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 °C			-10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -2.5V, I _D = -2A		26	35	mΩ
		V _{GS} = -4.5V, I _D = -2.5A		19	25	
		V _{GS} = -10V, I _D = -2.5A		16	20	
Forward Transconductance ¹	g _{fs}	V _{DS} = -10V, I _D = -2.5A		17		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -10V, f = 1MHz		1275		pF
Output Capacitance	C _{oss}			179		
Reverse Transfer Capacitance	C _{rss}			161		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		9.5		Ω
Total Gate Charge ²	Q _g	V _{DS} = -10V, V _{GS} = -10V, I _D = -2.5A		33		nC
Gate-Source Charge ²	Q _{gs}			1.5		
Gate-Drain Charge ²	Q _{gd}			4.7		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = -10V I _D ≅ -2.5A, V _{GEN} = -10V, R _G = 6Ω		10		nS
Rise Time ²	t _r			24		
Turn-Off Delay Time ²	t _{d(off)}			60		
Fall Time ²	t _f			153		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current ³	I _S				-24	A
Forward Voltage ¹	V _{SD}	I _F = -2.5A, V _{GS} = 0V			-1.2	V
Reverse Recovery Time	t _{rr}	I _F = -2.5A, di _F /dt = 100A / μS		13		nS
Reverse Recovery Charge	Q _{rr}				5.5	

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

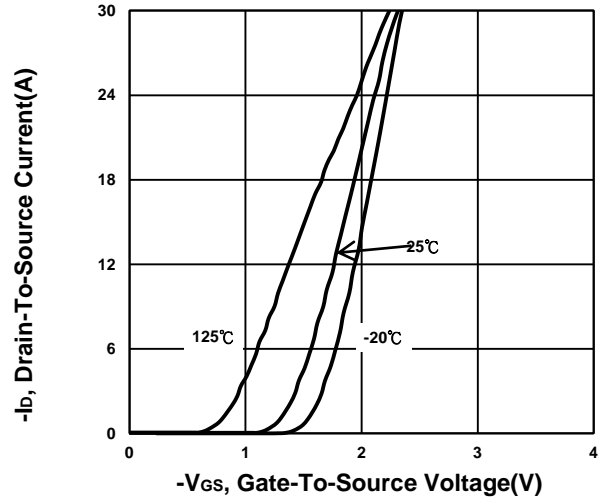
²Independent of operating temperature.

³Package limitation current is -9A.

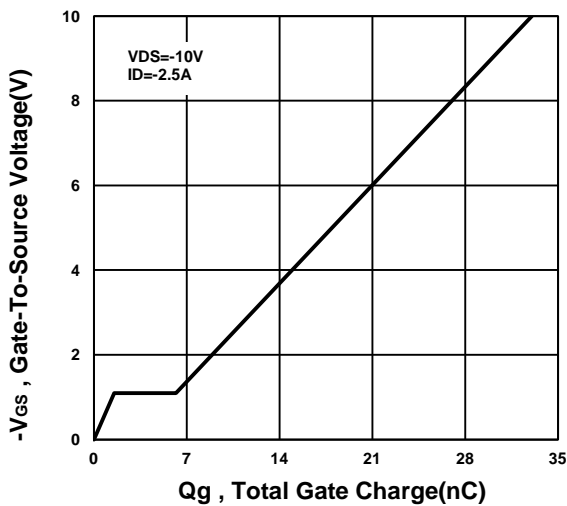
Output Characteristics



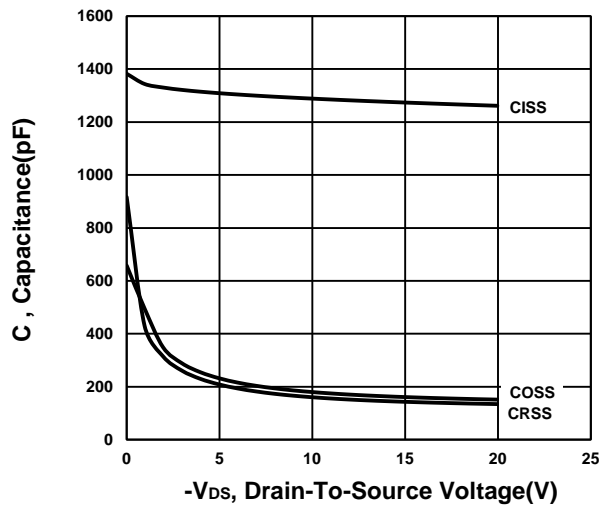
Transfer Characteristics



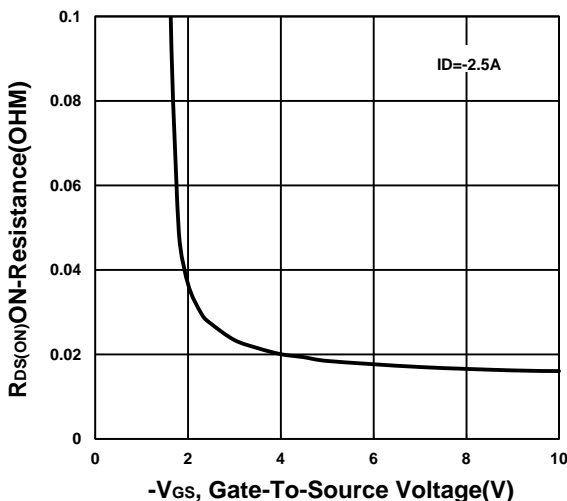
Gate charge Characteristics



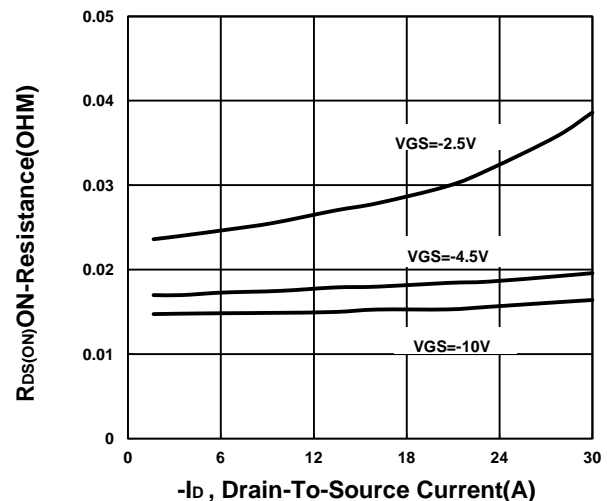
Capacitance Characteristic



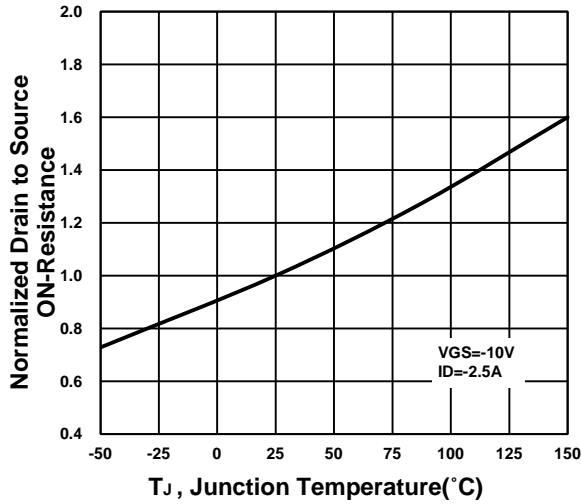
On-Resistance VS Gate-To-Source Voltage



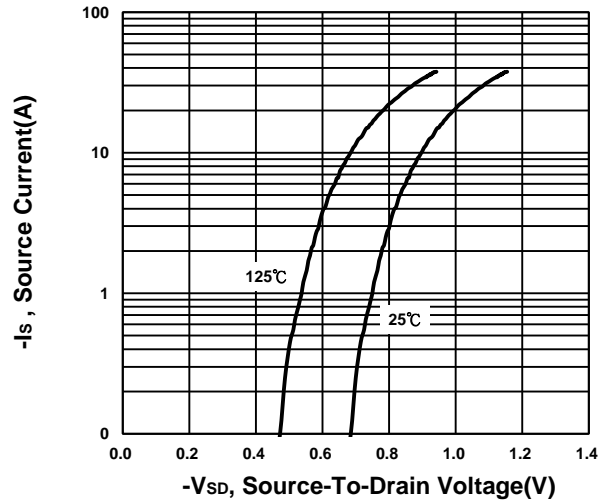
On-Resistance VS Drain Current



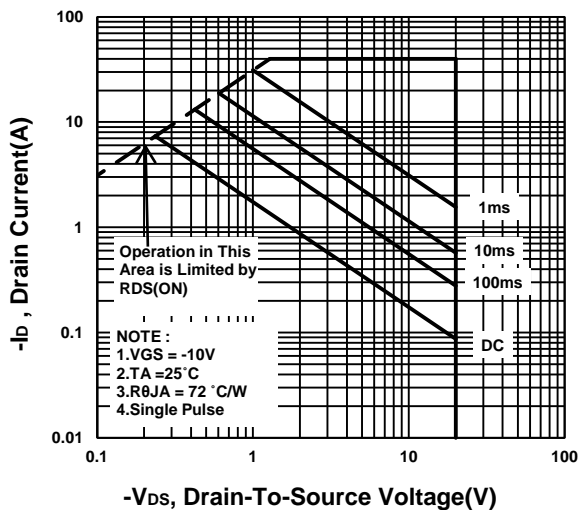
On-Resistance VS Temperature



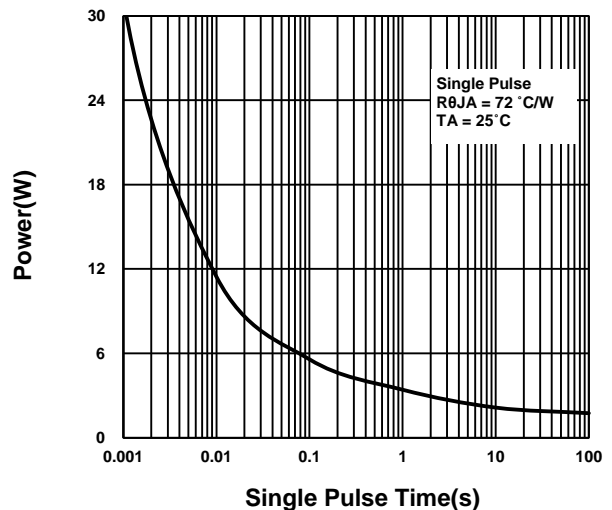
Source-Drain Diode Forward Voltage



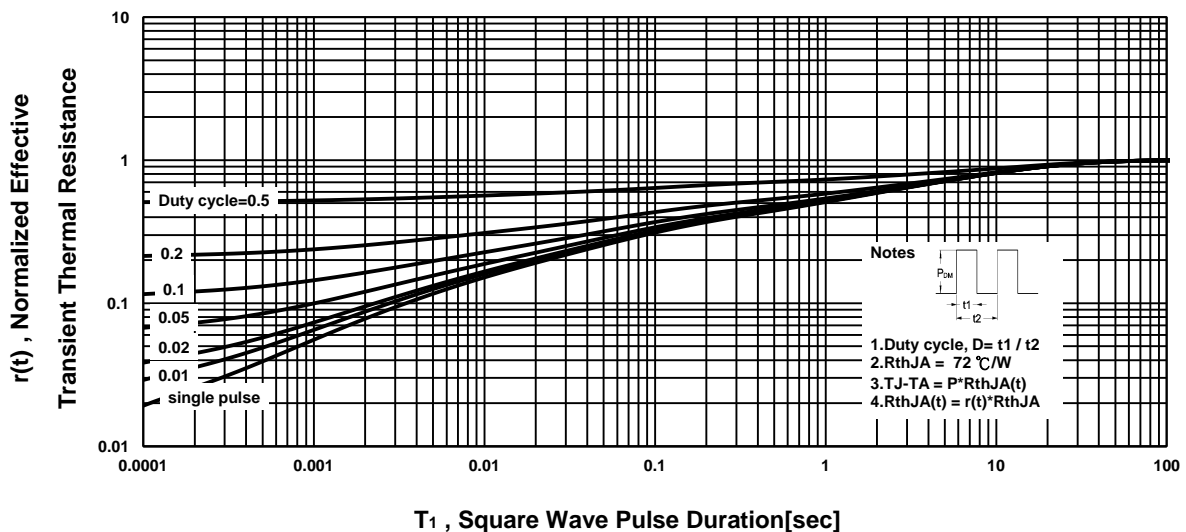
Safe Operating Area



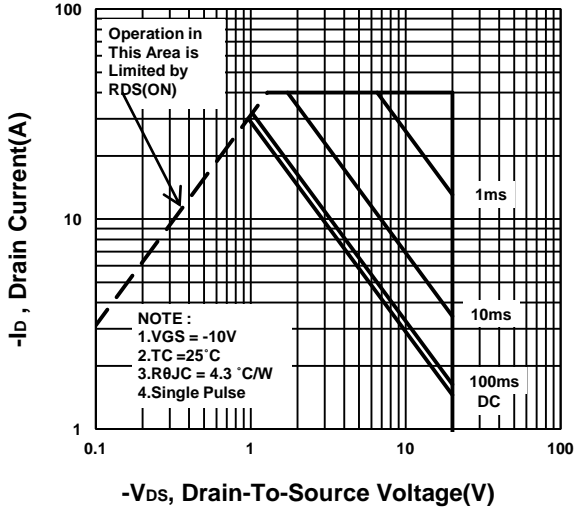
Single Pulse Maximum Power Dissipation



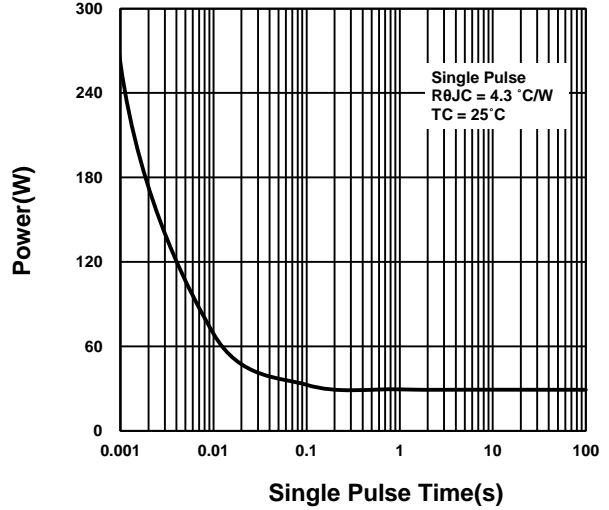
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

