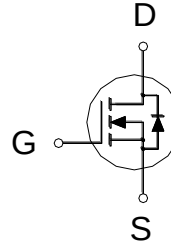


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	5.7m Ω	49A

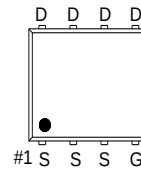


Features

- 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}	± 20	V
Continuous Drain Current ⁴	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	49	A
	$T_C = 100\text{ }^{\circ}\text{C}$		31	
Pulsed Drain Current ¹		I_{DM}	82	
Continuous Drain Current ⁴	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	19	
	$T_A = 70\text{ }^{\circ}\text{C}$		15	
Avalanche Current		I_{AS}	24	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	30	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	24	W
	$T_C = 100\text{ }^{\circ}\text{C}$		9	
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	3.1	W
	$T_A = 70\text{ }^{\circ}\text{C}$		2	
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	$t \leq 10s$	$R_{\theta JA}$		40	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		85	
Junction-to-Case	Steady-State	$R_{\theta JC}$		5.3	

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. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

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

⁴Package limitation current is 20A.

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 = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.9	2.3	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}		V _{DS} = 24V, V _{GS} = 0V			1	μA
			V _{DS} = 30V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}		V _{GS} = 4.5V, I _D = 13A		6.8	8.8	mΩ
			V _{GS} = 10V, I _D = 13A		4.4	5.7	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 13A		85		S
DYNAMIC							
Input Capacitance	C _{iss}		V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1115		pF
Output Capacitance	C _{oss}				537		
Reverse Transfer Capacitance	C _{rss}				33		
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V , V _{GS} = 10V, I _D = 13A		21		nC
		V _{GS} = 4.5V			11		
Gate-Source Charge ²	Q _{gs}				3		
Gate-Drain Charge ²	Q _{gd}				5		
Turn-On Delay Time ²	t _{d(on)}		V _{DS} = 15V , I _D ≅ 13A, V _{GS} = 10V, R _{GEN} =6Ω		14		nS
Rise Time ²	t _r				66		
Turn-Off Delay Time ²	t _{d(off)}				35		
Fall Time ²	t _f				49		

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

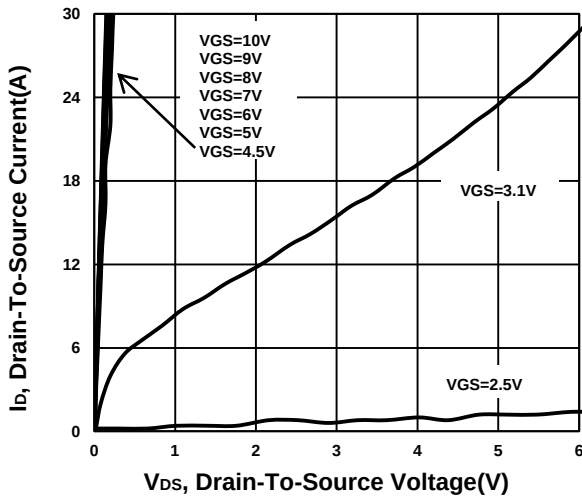
Continuous Current ³	I _S			20	A
Forward Voltage ¹	V _{SD}	I _F = 13A, V _{GS} = 0V		1.2	V
Reverse Recovery Time	t _{rr}	I _F = 13A, dI _F /dt = 100A / μS		31	nS
Reverse Recovery Charge	Q _{rr}			16	nC

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

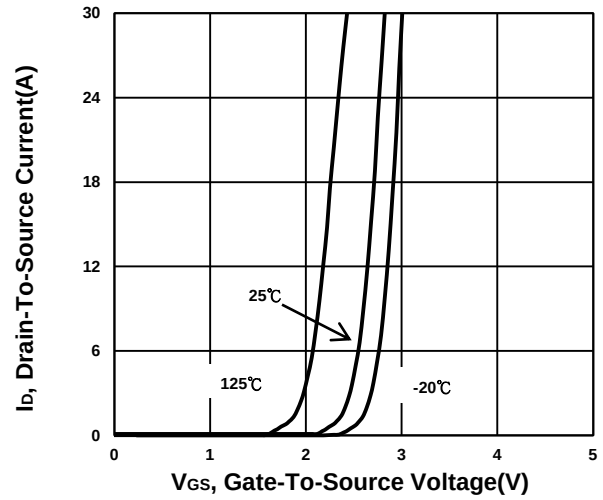
²Independent of operating temperature.

³Package limitation current is 20A.

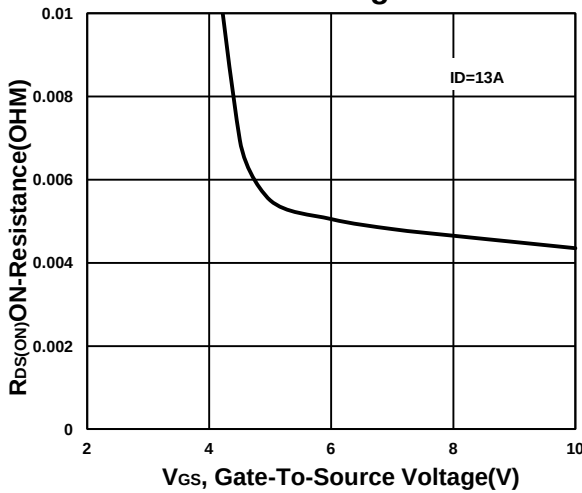
Output Characteristics



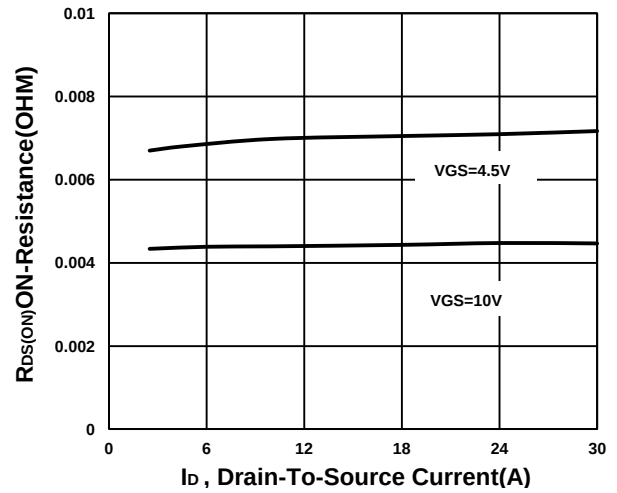
Transfer Characteristics



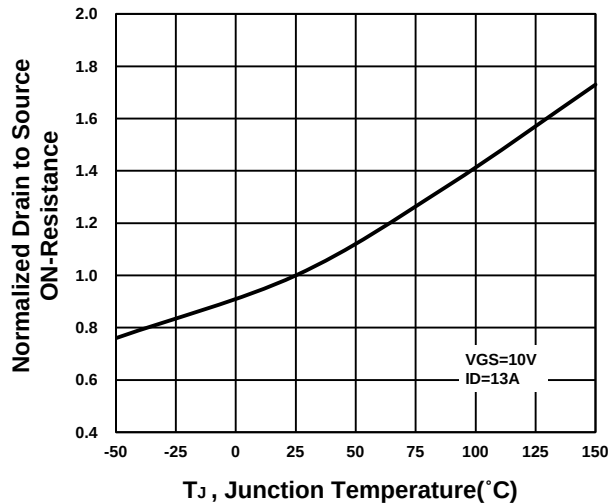
On-Resistance VS Gate-To-Source Voltage



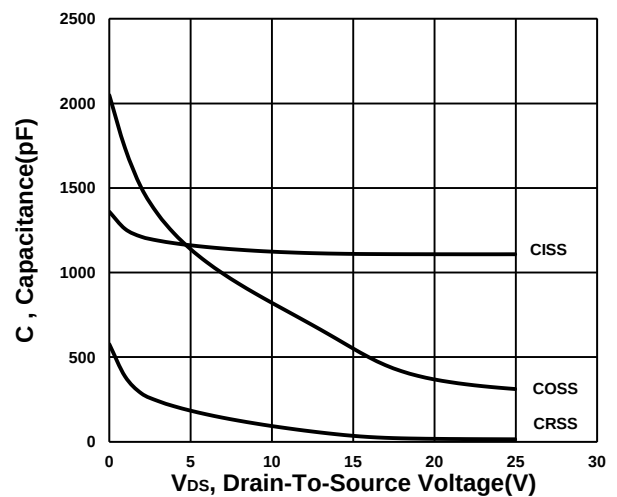
On-Resistance VS Drain Current



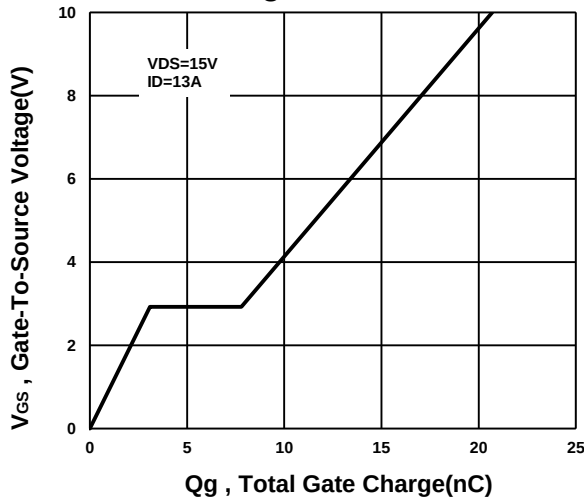
On-Resistance VS Temperature



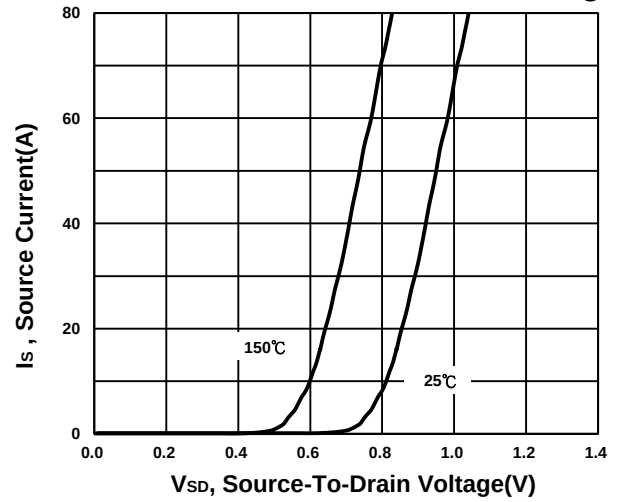
Capacitance Characteristic



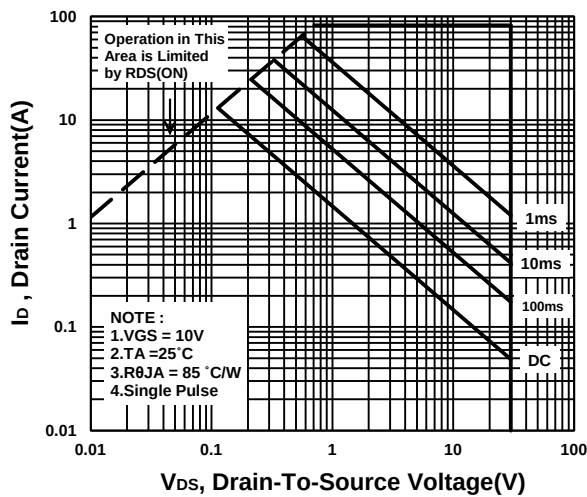
Gate charge Characteristics



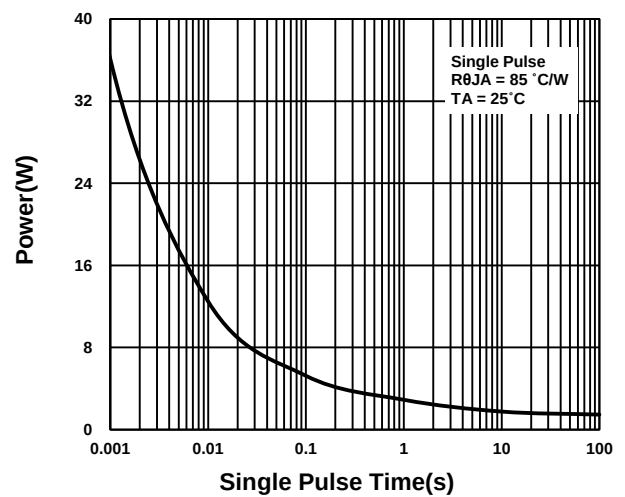
Source-Drain Diode Forward Voltage



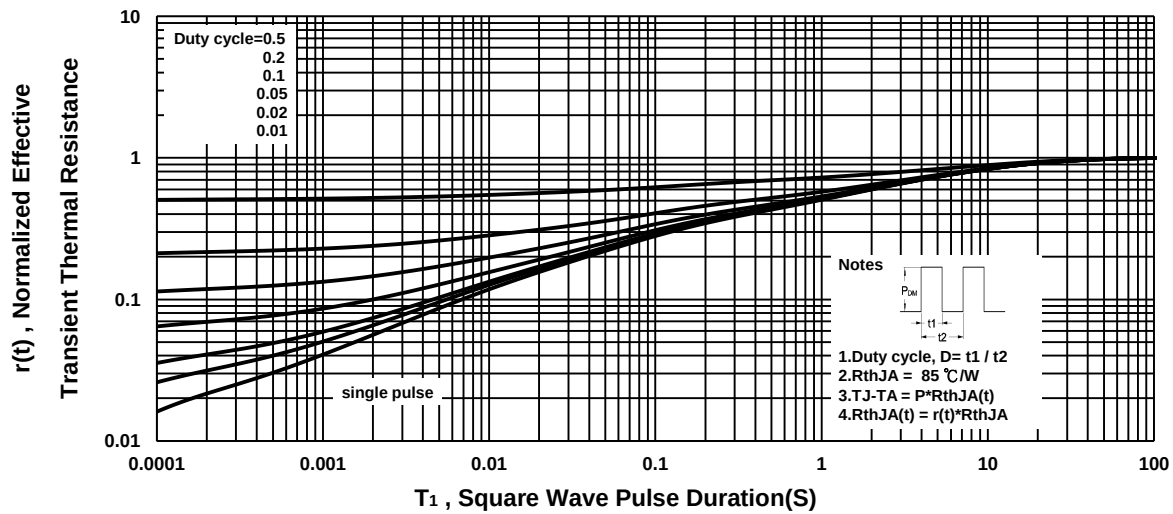
Safe Operating Area



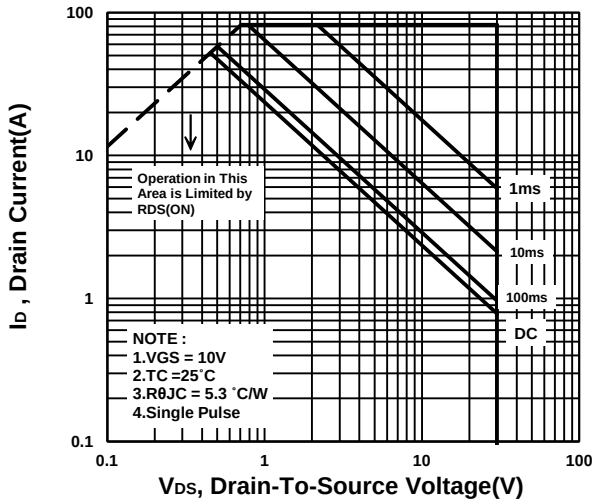
Single Pulse Maximum Power Dissipation



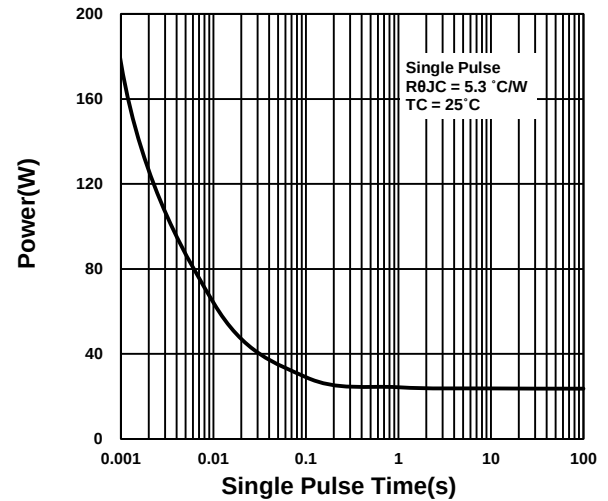
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

