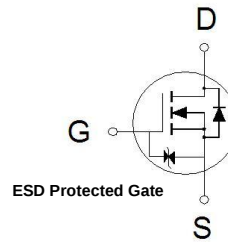


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	1.3m Ω	208A

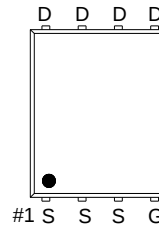


Features

- 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.
- 100% UIS Tested & Rg Tested.

Applications

- Protection Circuits Applications.
- Computer for DC to DC Converters 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	208	A
	$T_C = 100\text{ }^{\circ}\text{C}$		131	
Pulsed Drain Current ¹		I_{DM}	300	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	45	
	$T_A = 70\text{ }^{\circ}\text{C}$		36	
Avalanche Current		I_{AS}	127	
Avalanche Energy	$L = 0.03\text{mH}$	E_{AS}	241	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	104	W
	$T_C = 100\text{ }^{\circ}\text{C}$		42	
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	5	W
	$T_A = 70\text{ }^{\circ}\text{C}$		3.2	
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	$t \leq 10s$	$R_{\theta JA}$		25	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		47	
Junction-to-Case	Steady-State	$R_{\theta JC}$		1.2	

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 $T_A = 25^\circ\text{C}$.

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	3		
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 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	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 20A$		1.6	2.3	$m\Omega$	
		$V_{GS} = 10V, I_D = 20A$		1.0	1.3		
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 20A$		100		S	
DYNAMIC							
Input Capacitance	C_{iss}		$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		9421		pF
Output Capacitance	C_{oss}				1211		
Reverse Transfer Capacitance	C_{rss}				983		
Gate Resistance	R_g		$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		2		Ω
Total Gate Charge ²	Q_g	$V_{GS} = 10V$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$		177		nC
		$V_{GS} = 4.5V$			84		
Gate-Source Charge ²	Q_{gs}				33		
Gate-Drain Charge ²	Q_{gd}				31		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DS} = 15V, I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$		28		nS
Rise Time ²	t_r				119		
Turn-Off Delay Time ²	$t_{d(off)}$				149		
Fall Time ²	t_f				118		

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

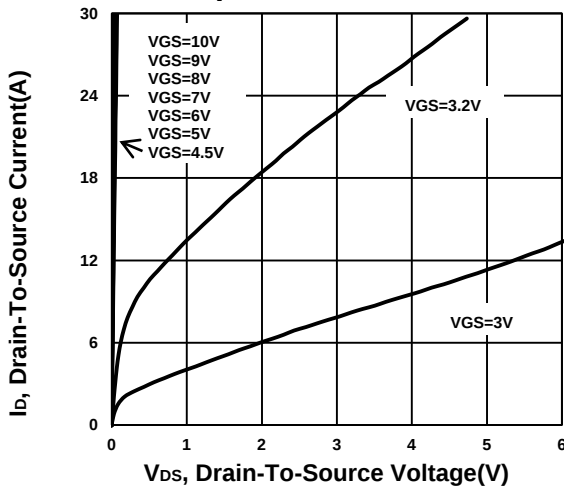
Continuous Current ³	I _S			87	A
Forward Voltage ¹	V _{SD}	I _F = 20A, V _{GS} = 0V		1.2	V
Reverse Recovery Time	t _{rr}	I _F = 20A, dI _F /dt = 400A / μS		36	nS
Reverse Recovery Charge	Q _{rr}			69	nC

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

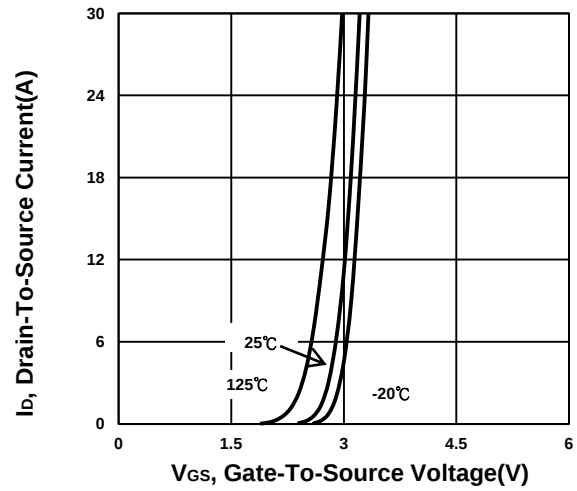
²Independent of operating temperature.

³The maximum current rating is package limited.

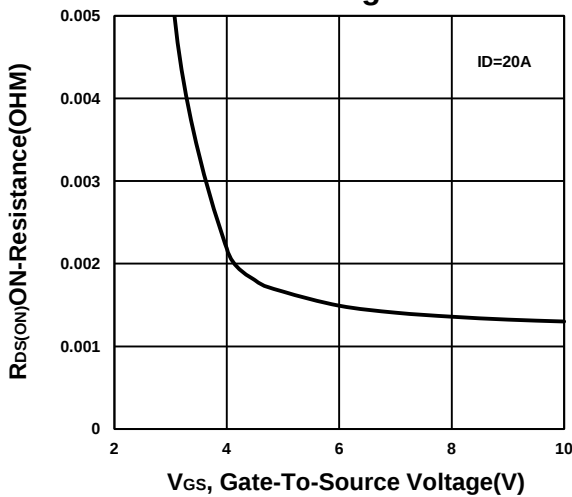
Output Characteristics



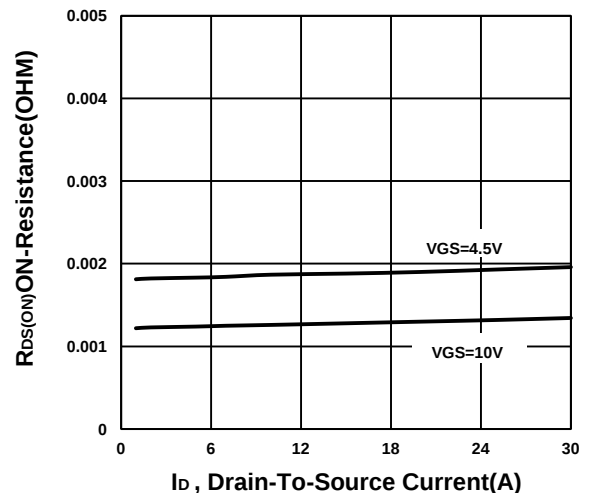
Transfer Characteristics



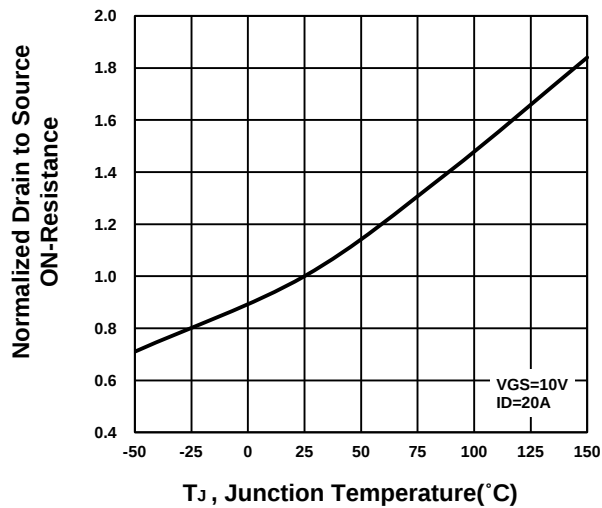
On-Resistance VS Gate-To-Source Voltage



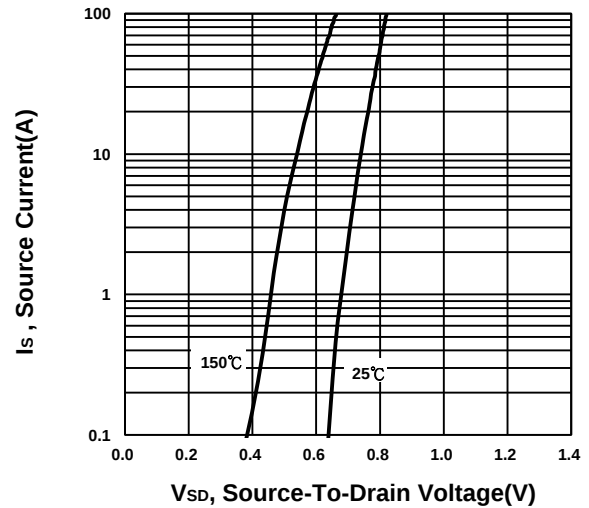
On-Resistance VS Drain Current



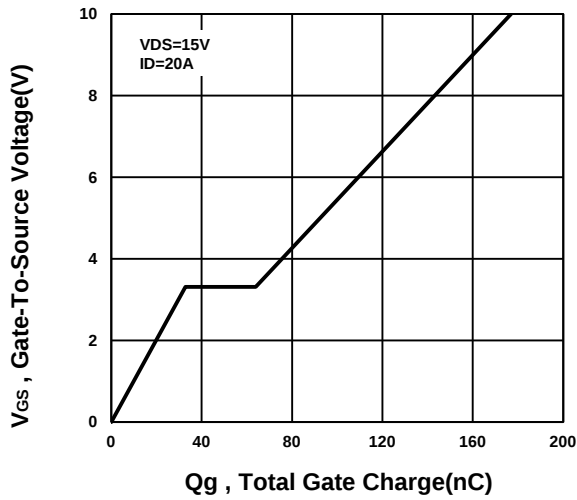
On-Resistance VS Temperature



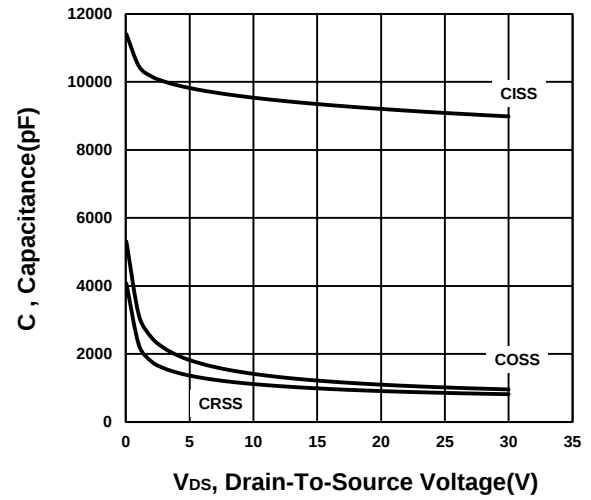
Source-Drain Diode Forward Voltage



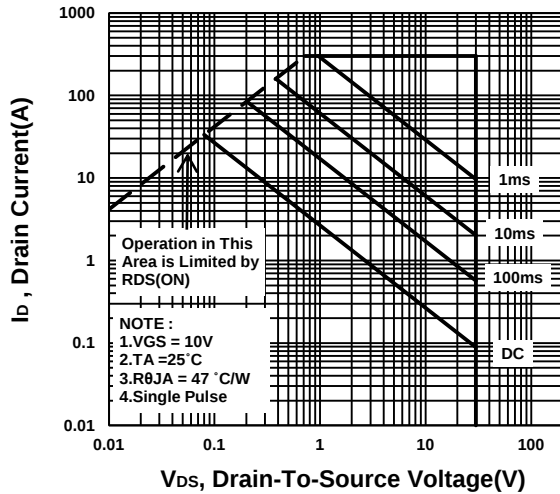
Gate charge Characteristics



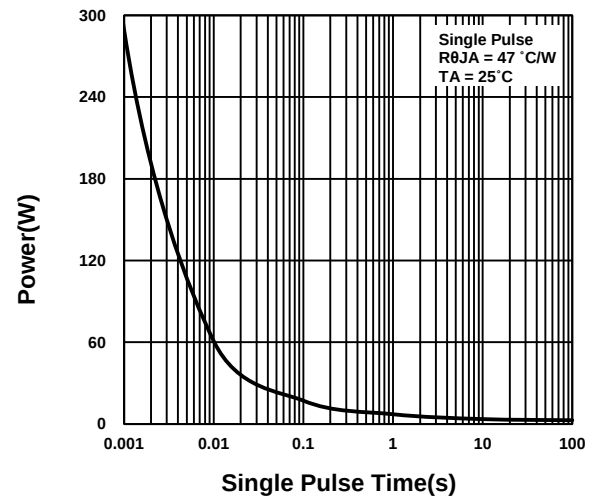
Capacitance Characteristic



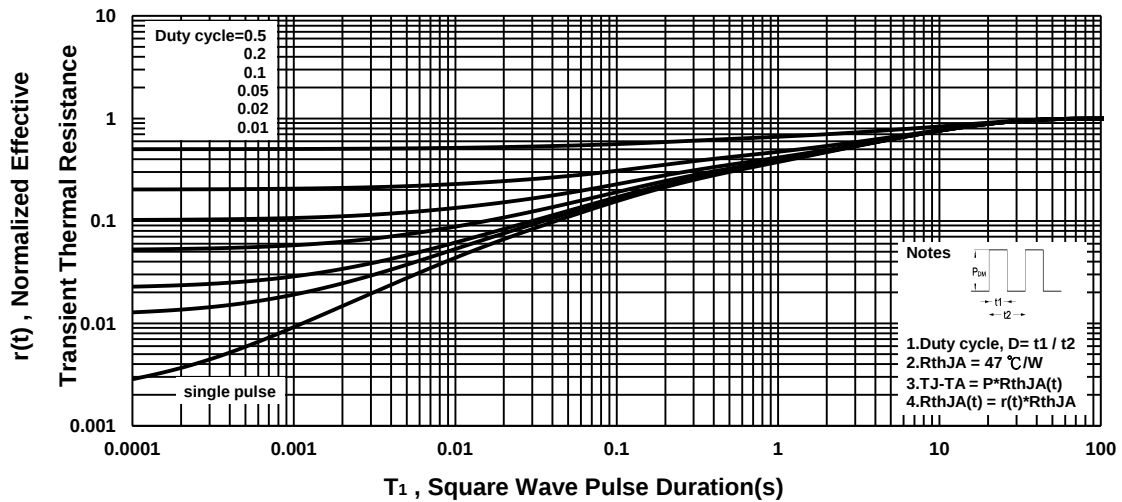
Safe Operating Area



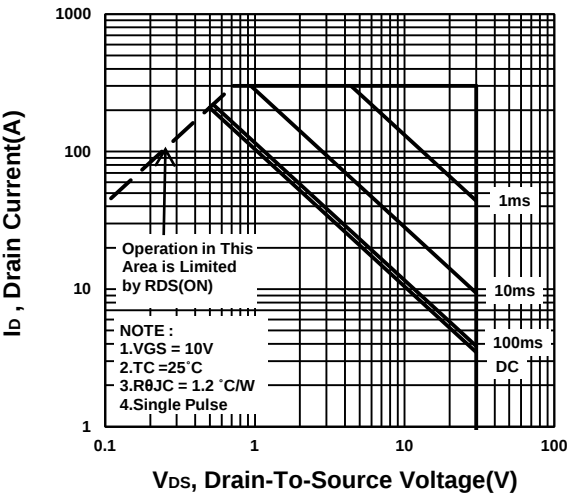
Single Pulse Maximum Power Dissipation



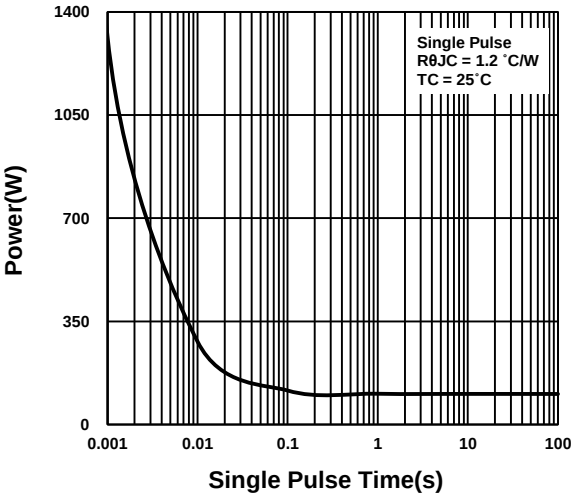
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

