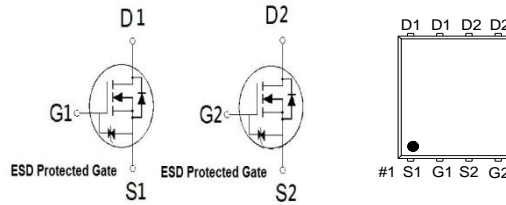




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	12.5mΩ	30A



G : GATE
D : DRAIN
S : SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±10	V
Continuous Drain Current ³	$T_C = 25\text{ °C}$	I_D	30	A
	$T_C = 100\text{ °C}$		19	
	$T_A = 25\text{ °C}$		11	
	$T_A = 70\text{ °C}$		9	
Pulsed Drain Current ¹		I_{DM}	80	
Avalanche Current		I_{AS}	22	
Avalanche Energy	L = 0.1mH	E_{AS}	24	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	17.8	W
	$T_C = 100\text{ °C}$		7	
	$T_A = 25\text{ °C}$		2.5	
	$T_A = 70\text{ °C}$		1.6	
ESD Class	HBM		2kV	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATING

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		50	°C / W
Junction-to-Case	$R_{\theta JC}$		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 $T_A = 25\text{ °C}$.

³Package limitation current is 7A.

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

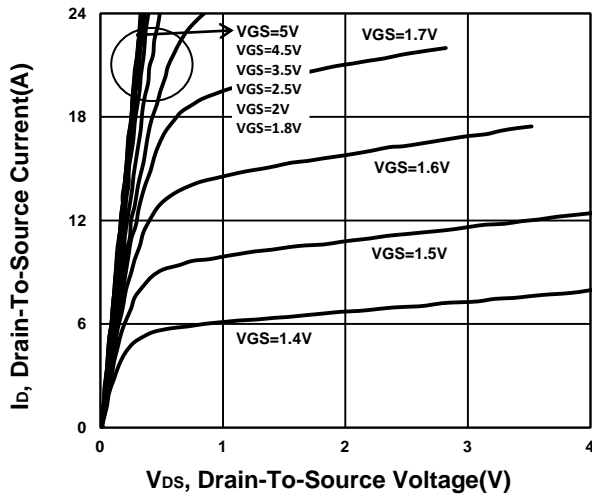
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT		
			MIN	TYP	MAX			
STATIC								
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	20			V		
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.35	0.67	1			
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			30	μA		
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 16V, V _{GS} = 0V			1	μA		
		V _{DS} = 10V, V _{GS} = 0V, T _J = 125 °C			10			
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 3A	8.5	10	12.5	mΩ		
		V _{GS} = 3.9V, I _D = 3A	8.7	10.2	13.7			
		V _{GS} = 2.5V, I _D = 3A	10	11.5	15			
		V _{GS} = 1.8V, I _D = 3A	12.7	14.2	20.2			
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 3A		35		S		
DYNAMIC								
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 10V, f = 1MHz		1105		pF		
Output Capacitance	C _{oss}			198				
Reverse Transfer Capacitance	C _{rss}			169				
Total Gate Charge ²	Q _{g(VGS=4.5V)}	V _{DS} = 10V, I _D = 3A		17		nC		
	Q _{g(VGS=3.9V)}			15				
Gate-Source Charge ²	Q _{gs}			1.4				
Gate-Drain Charge ²	Q _{gd}			5				
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = 10V, I _D ≅ 3A, V _{GS} = 4.5V, R _{GEN} = 6Ω		22			nS
Rise Time ²	t _r				34			
Turn-Off Delay Time ²	t _{d(off)}			51				
Fall Time ²	t _f			17				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)								
Continuous Current ³	I _S				14.8	A		
Forward Voltage ¹	V _{SD}	I _F = 3A, V _{GS} = 0V			1.2	V		
Reverse Recovery Time	t _{rr}	I _F = 3A, dI _F /dt = 100A / μS		14		nS		
Reverse Recovery Charge	Q _{rr}	V _{GS} = 0V		5.4		nC		

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

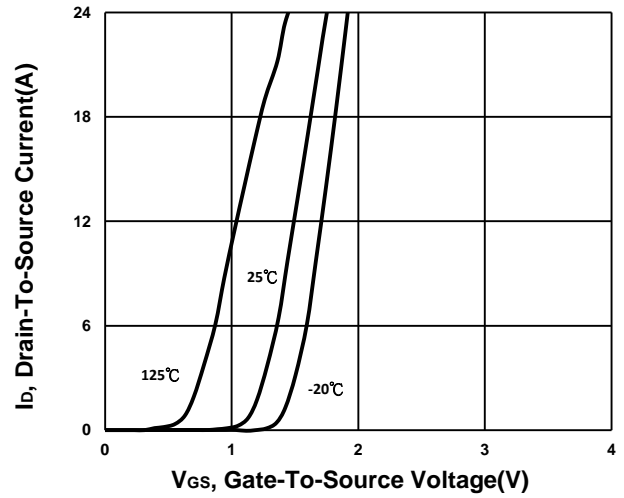
²Independent of operating temperature.

³Package limitation current is 7A.

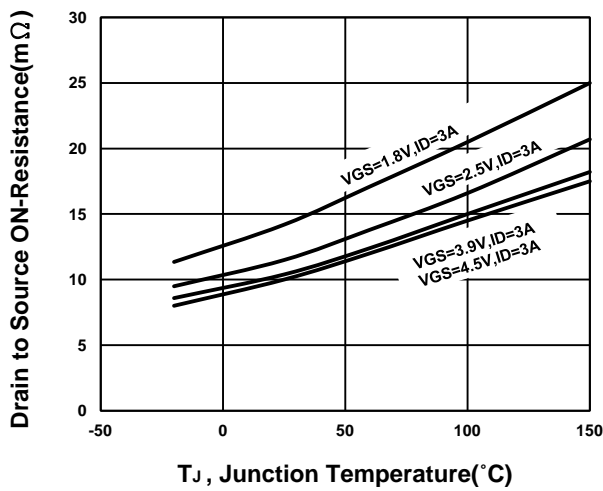
Output Characteristics



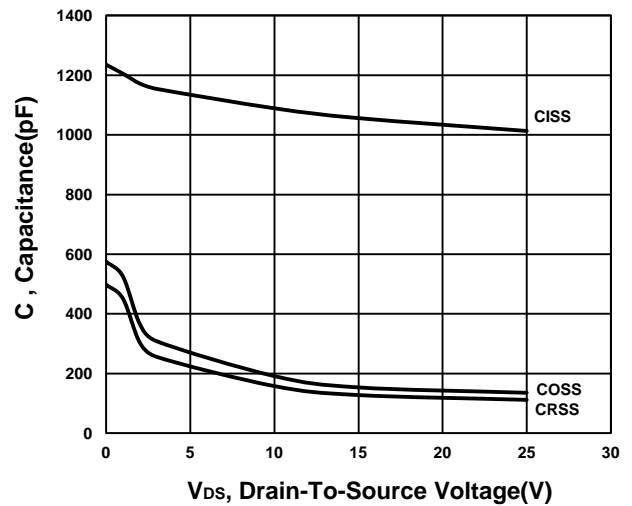
Transfer Characteristics



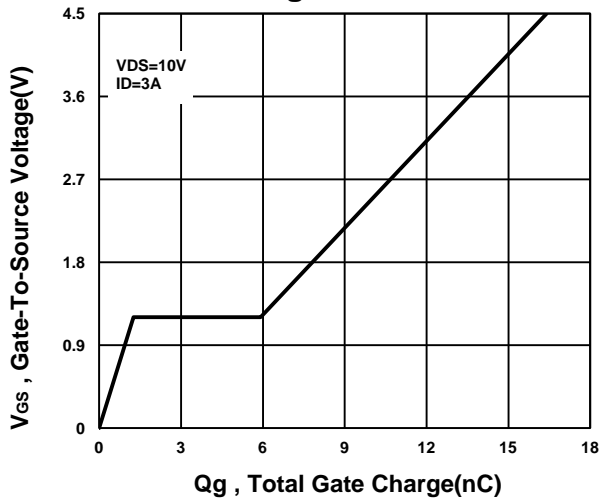
On-Resistance VS Temperature



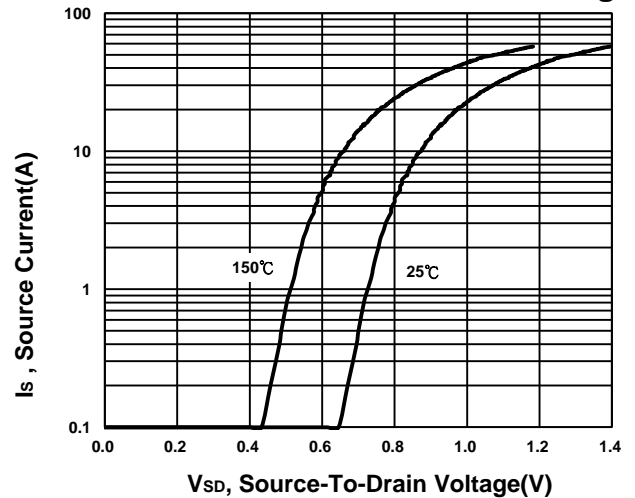
Capacitance Characteristic



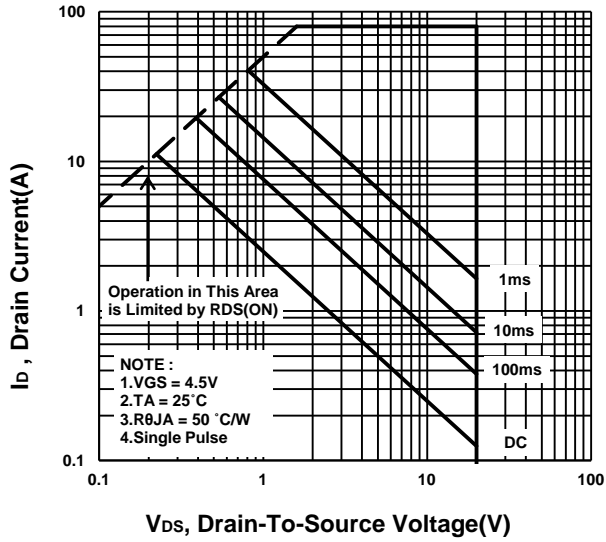
Gate charge Characteristics



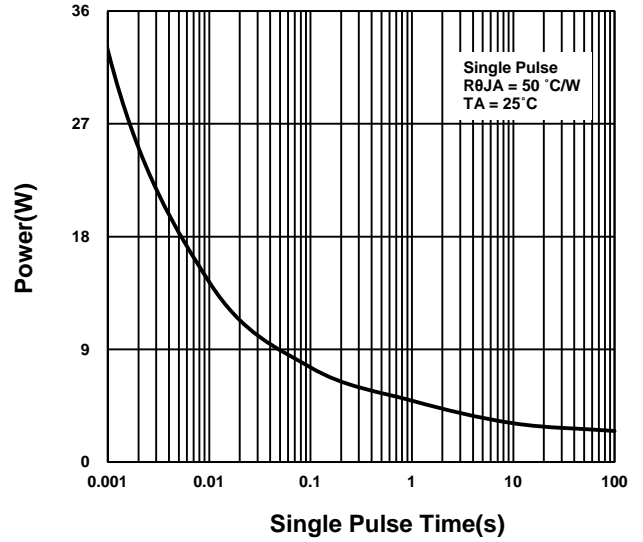
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

