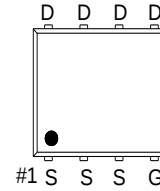
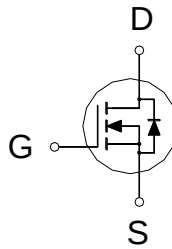




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	6m Ω	40A



G. GATE
D. DRAIN
S. SOURCE

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 ²	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	40	A
	$T_C = 100\text{ }^{\circ}\text{C}$		25	
Pulsed Drain Current ¹		I_{DM}	100	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	13	
	$T_A = 70\text{ }^{\circ}\text{C}$		10	
Avalanche Current		I_{AS}	30	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	46	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	17.8	W
	$T_C = 100\text{ }^{\circ}\text{C}$		7	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	1.8	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.1	
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 ³	$R_{\theta JA}$		68	$^{\circ}\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		7	

¹Pulse width limited by maximum junction temperature.

²Package limitation current is 22A

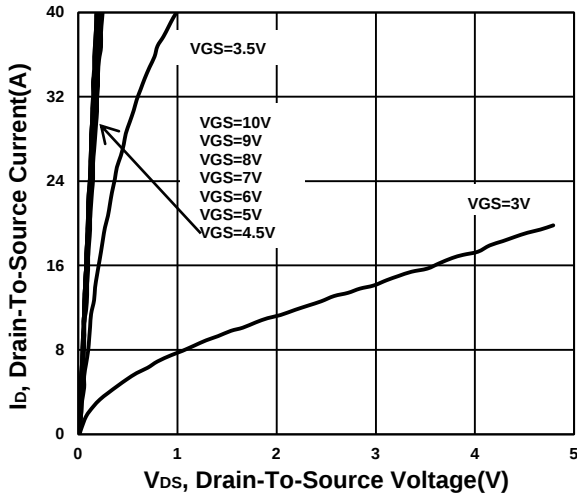
³The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

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

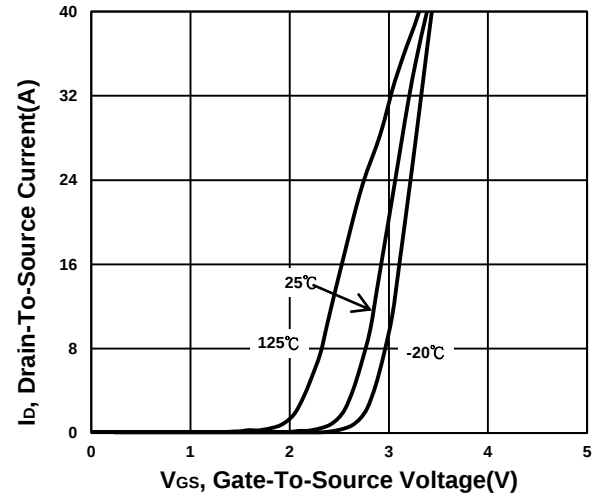
PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}		V _{GS} = 0V, I _D = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}		V _{DS} = V _{GS} , I _D = 250μA	1.3	1.8	2.35	
Gate-Body Leakage	I _{GSS}		V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}		V _{DS} = 24V, V _{GS} = 0V			1	μA
			V _{DS} = 20V, V _{GS} = 0V, T _J = 55 °C			10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}		V _{GS} = 4.5V, I _D = 15A		5.5	9	mΩ
			V _{GS} = 10V, I _D = 20A		4.3	6	
Forward Transconductance ¹	g _{fs}		V _{DS} = 5V, I _D = 20A		50		S
DYNAMIC							
Input Capacitance	C _{iSS}		V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	1232	1540	1848	pF
Output Capacitance	C _{oss}			203	254	305	
Reverse Transfer Capacitance	C _{rSS}			96	161	225	
Gate Resistance	R _g		V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	0.1	1	3	Ω
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V , I _D = 20A	24	30	36	nC
		V _{GS} = 4.5V		11	16	21	
Gate-Source Charge ²	Q _{gs}			2.9	4.8	6.7	
Gate-Drain Charge ²	Q _{gd}			4.4	7.4	10.4	
Turn-On Delay Time ²	t _{d(on)}			V _{DS} = 15V , I _D ≅ 20A, V _{GS} = 10V, R _{GEN} =6Ω		19	
Rise Time ²	t _r				10		
Turn-Off Delay Time ²	t _{d(off)}				40		
Fall Time ²	t _f				12		
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 = 20A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}		I _F = 20A, dI _F /dt = 100A / μS		16		nS
Reverse Recovery Charge	Q _{rr}				6		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Package limitation current is 22A

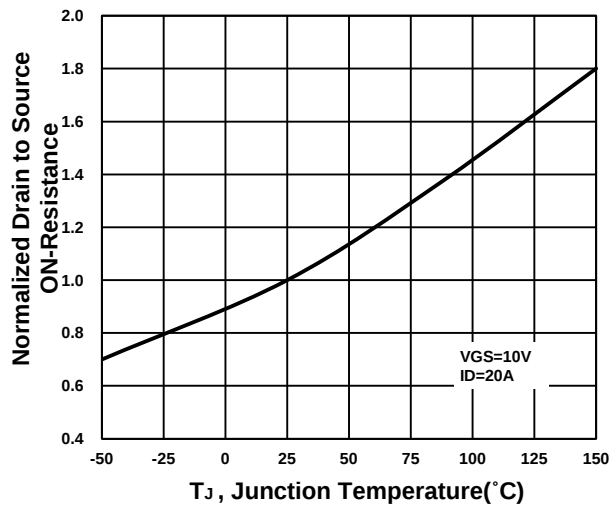
Output Characteristics



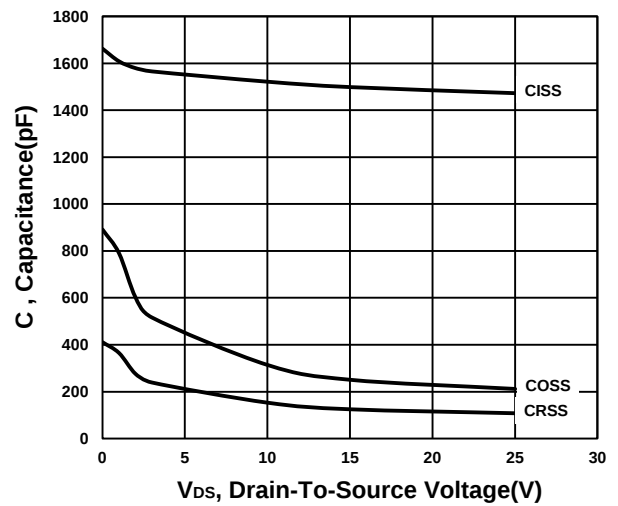
Transfer Characteristics



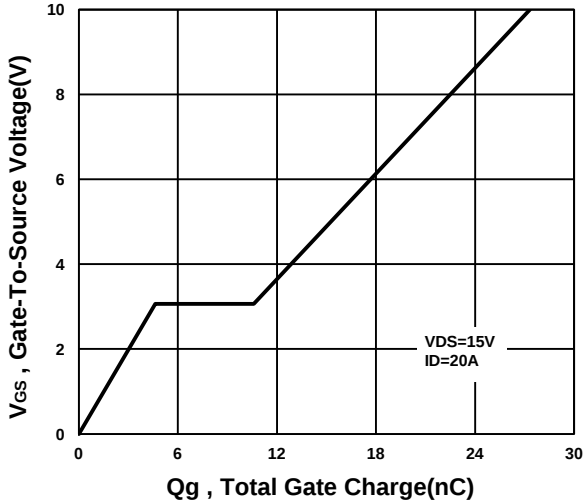
On-Resistance VS Temperature



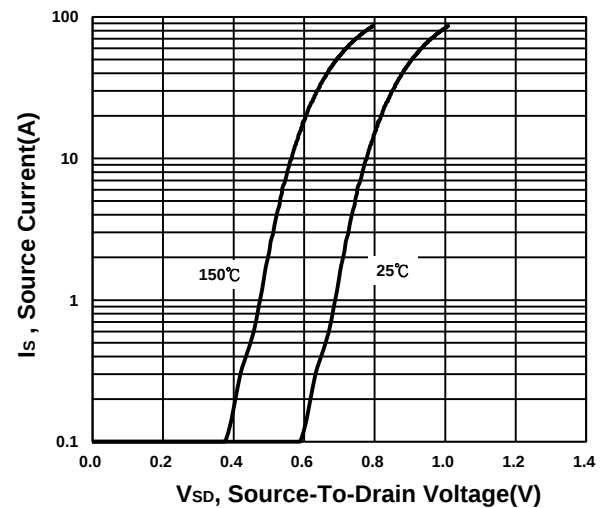
Capacitance Characteristic



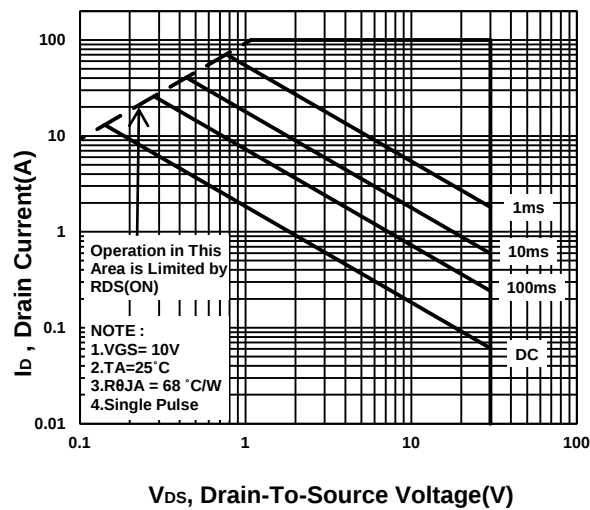
Gate charge Characteristics



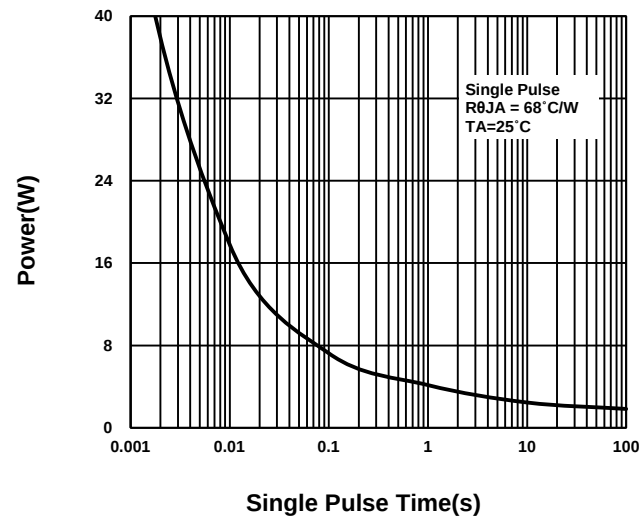
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

