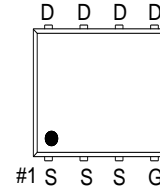
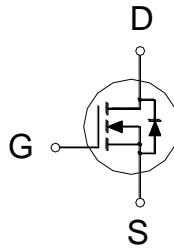




PRODUCT SUMMARY

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



G. GATE
D. DRAIN
S. SOURCE

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ °C}$ 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	$T_C = 25\text{ °C}$	I_D	40	A
	$T_C = 100\text{ °C}$		25	
Pulsed Drain Current ¹		I_{DM}	100	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	12	
	$T_A = 70\text{ °C}$		10	
Avalanche Current		I_{AS}	30	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	46	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	17.8	W
	$T_C = 100\text{ °C}$		7	
Power Dissipation	$T_A = 25\text{ °C}$	P_D	1.6	W
	$T_A = 70\text{ °C}$		1	
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 ³	$R_{\theta JA}$		77	°C / 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 $T_A = 25\text{ °C}$.

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

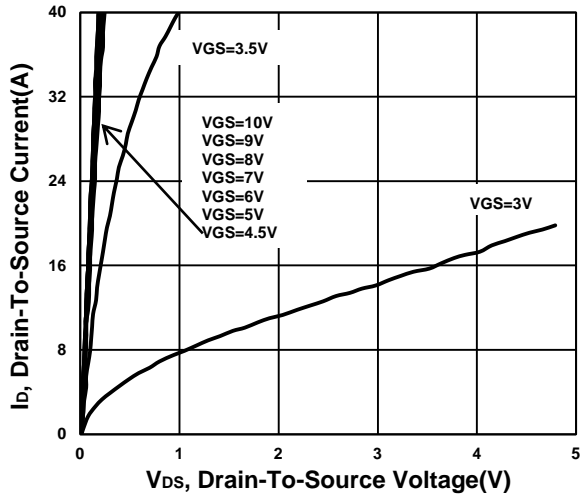
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.8	2.35		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	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		1540		pF	
Output Capacitance	C _{oss}			254			
Reverse Transfer Capacitance	C _{rss}			161			
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1		Ω	
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V, I _D = 20A		30	nC	
		V _{GS} = 4.5V			16		
Gate-Source Charge ²	Q _{gs}			4.8			
Gate-Drain Charge ²	Q _{gd}			7.4			
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, I _D ≅ 20A, V _{GS} = 10V, R _{GEN} = 6Ω			19		nS
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 ≤ 300 μsec, Duty Cycle ≤ 2%.

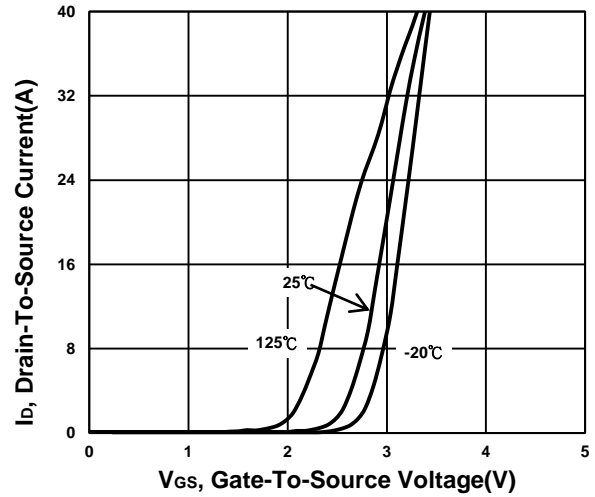
²Independent of operating temperature.

³Package limitation current is 22A

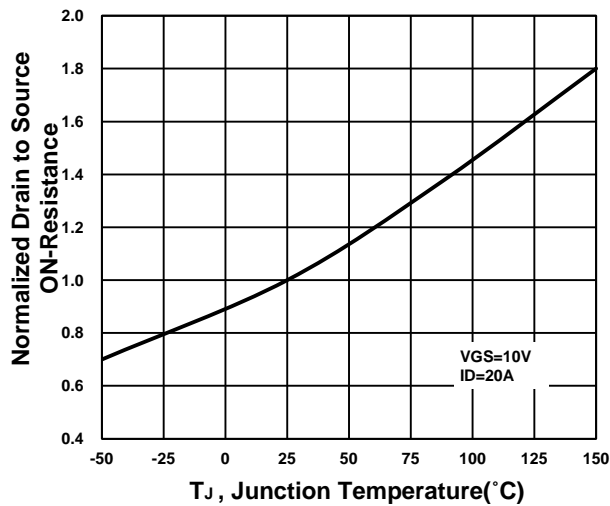
Output Characteristics



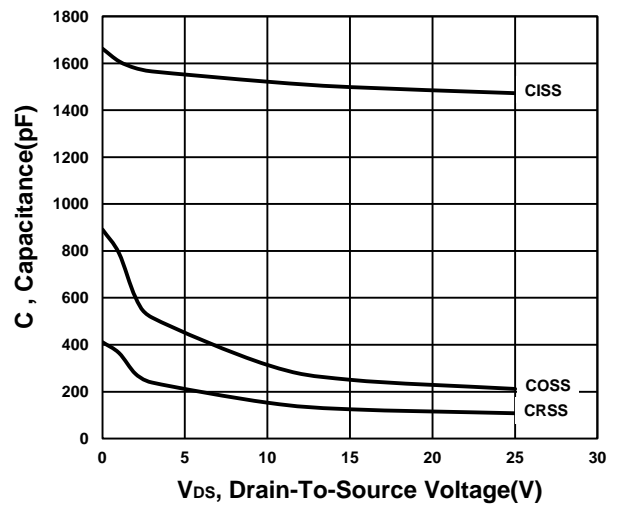
Transfer Characteristics



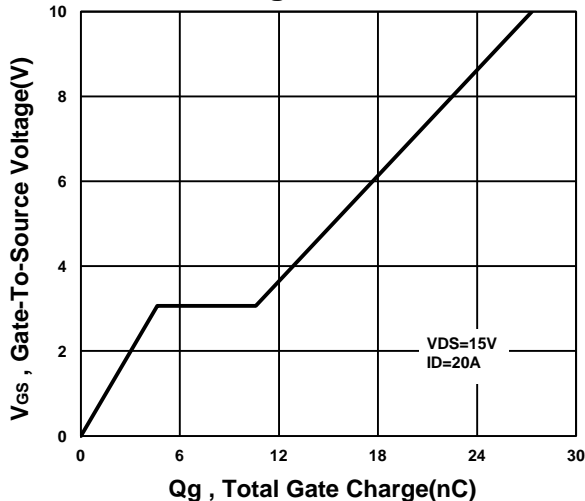
On-Resistance VS Temperature



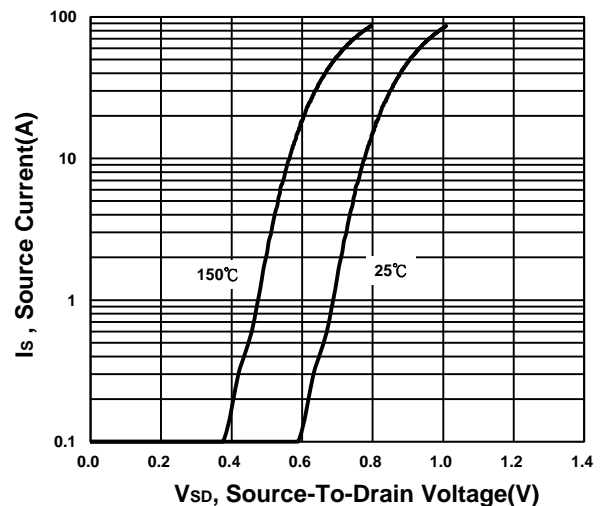
Capacitance Characteristic



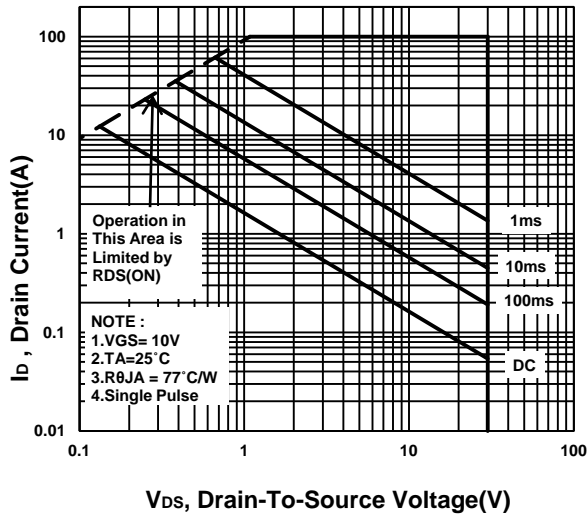
Gate charge Characteristics



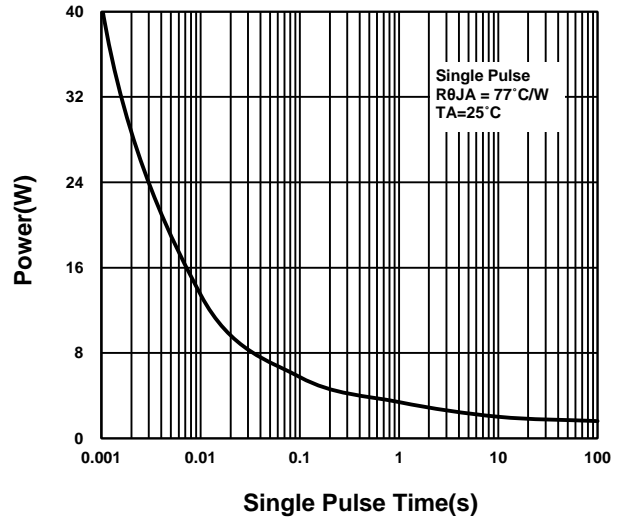
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

