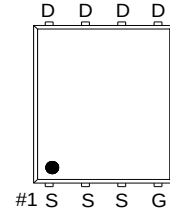
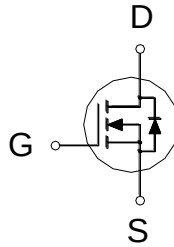




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	3.3m Ω	78A



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 ³	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	78	A
	$T_C = 100\text{ }^{\circ}\text{C}$		49	
Pulsed Drain Current ¹		I_{DM}	150	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	27	
	$T_A = 70\text{ }^{\circ}\text{C}$		22	
Avalanche Current		I_{AS}	40	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	80	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	36	W
	$T_C = 100\text{ }^{\circ}\text{C}$		14	
Power Dissipation ⁴	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	4.6	W
	$T_A = 70\text{ }^{\circ}\text{C}$		2.9	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		27	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		48	
Junction-to-Case	Steady-State	$R_{\theta JC}$		3.4	

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

³Package limitation current is 40A.

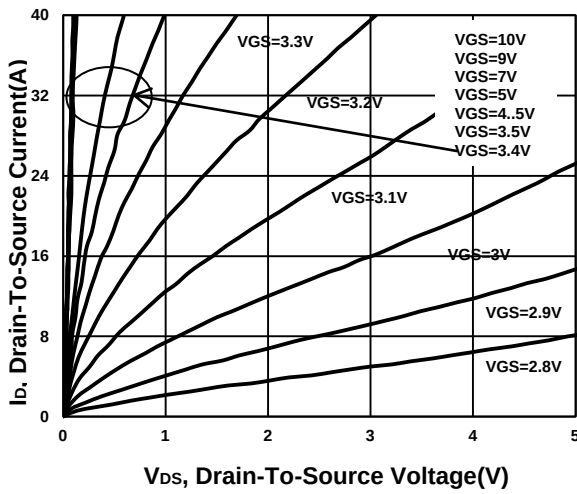
⁴The Power dissipation is based on $R_{\theta JA} t \leq 10\text{s}$ value.

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

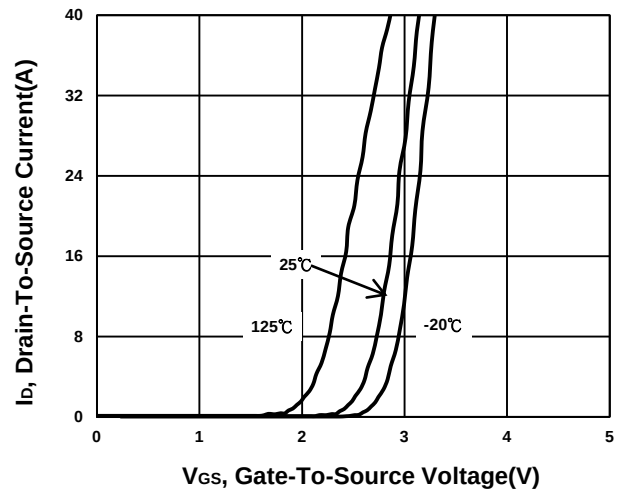
PARAMETER	SYMBOL		TEST CONDITIONS	LIMITS			UNIT
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$		$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$		$V_{DS} = V_{GS}, I_D = 250\mu A$	1.5	1.9	2.35	
Gate-Body Leakage	I_{GSS}		$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}		$V_{DS} = 24V, V_{GS} = 0V$			1	μA
			$V_{DS} = 20V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$		$V_{GS} = 4.5V, I_D = 16A$		3	4	$m\Omega$
			$V_{GS} = 10V, I_D = 20A$		2.1	3.3	
Forward Transconductance ¹	g_{fs}		$V_{DS} = 5V, I_D = 20A$		62		S
DYNAMIC							
Input Capacitance	C_{iss}		$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		2096		pF
Output Capacitance	C_{oss}				393		
Reverse Transfer Capacitance	C_{rss}				229		
Gate Resistance	R_g		$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.5		Ω
Total Gate Charge ²	Q_g	$V_{GS} = 10V$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$		42		nC
		$V_{GS} = 4.5V$			22		
Gate-Source Charge ²	Q_{gs}				6.6		
Gate-Drain Charge ²	Q_{gd}				11		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DS} = 15V, I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$		25		nS
Rise Time ²	t_r				15		
Turn-Off Delay Time ²	$t_{d(off)}$				54		
Fall Time ²	t_f				17		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)							
Continuous Current ³	I_S					36	A
Forward Voltage ¹	V_{SD}		$I_F = 20A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}		$I_F = 20A, di_F/dt = 100A / \mu S$		28		nS
Reverse Recovery Charge	Q_{rr}				15		nC

¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.³Package limitation current is 40A.

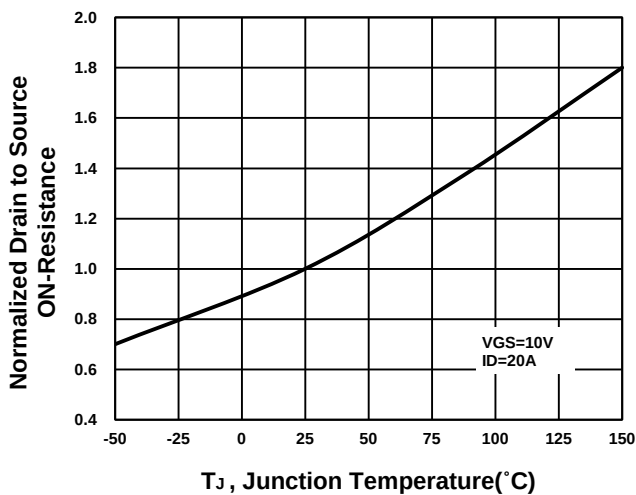
Output Characteristics



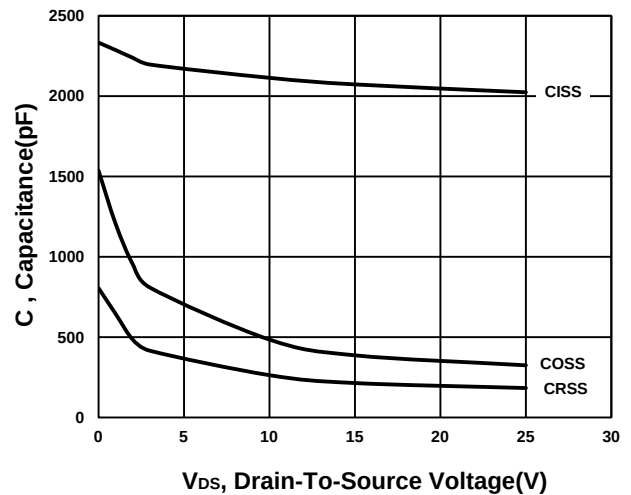
Transfer Characteristics



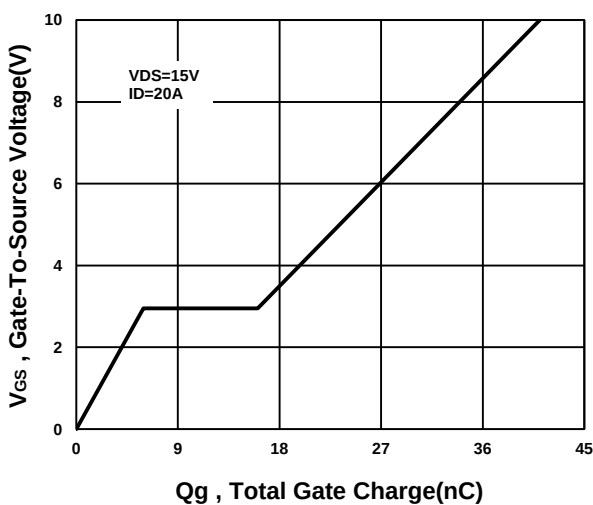
On-Resistance VS Temperature



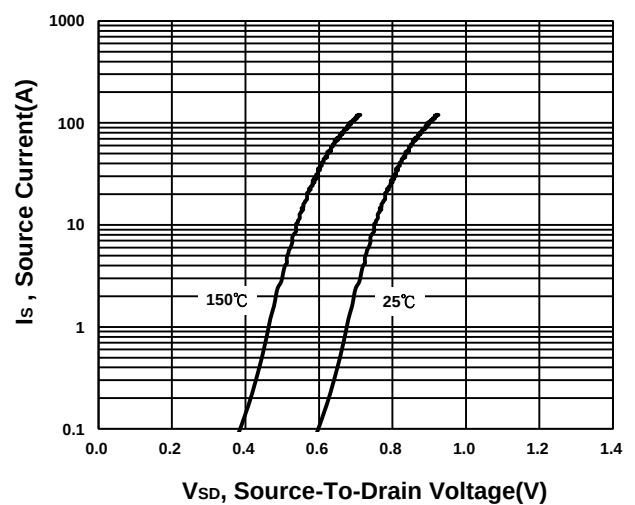
Capacitance Characteristic



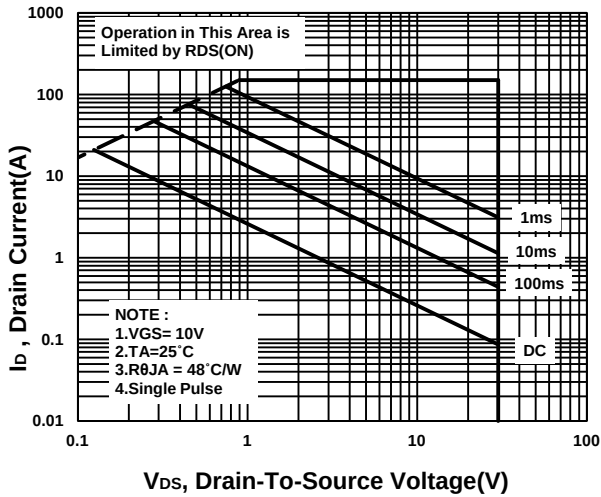
Gate charge Characteristics



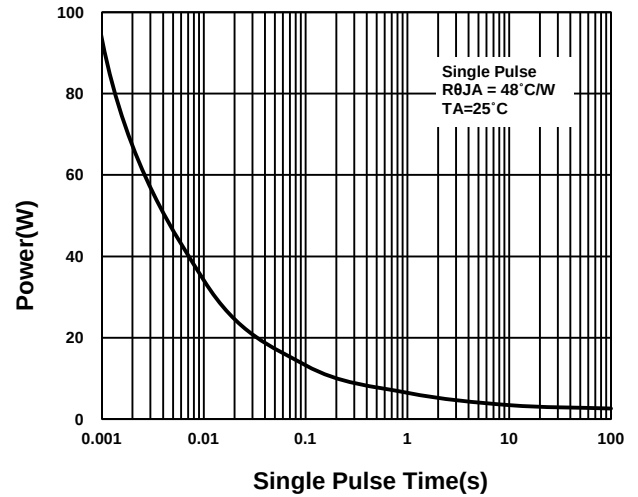
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

