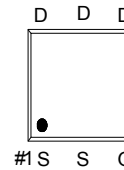
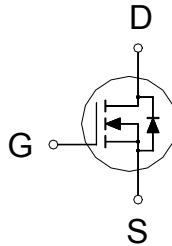


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D^3
30V	22mΩ	21A



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 ³	$T_C = 25\text{ °C}$	I_D	21	A
	$T_C = 70\text{ °C}$		17	
	$T_A = 25\text{ °C}$		8	
	$T_A = 70\text{ °C}$		6	
Pulsed Drain Current ¹		I_{DM}	60	
Avalanche Current		I_{AS}	18	
Avalanche Energy	L = 0.1mH	E_{AS}	16	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	16	W
	$T_C = 70\text{ °C}$		10	
	$T_A = 25\text{ °C}$		2	
	$T_A = 70\text{ °C}$		1.2	
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 ²	$R_{\theta JA}$		65	°C/W
Junction-to-Case	$R_{\theta JC}$		7.6	

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. Coppe.

³Package limitation current is 12A.

ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ °C}$, 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	1.7	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA

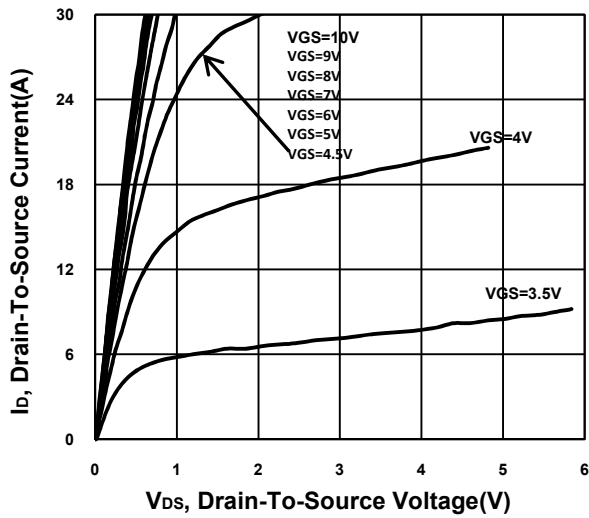
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ }^\circ C$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	60			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 5A$		28	34	$m\Omega$
		$V_{GS} = 10V, I_D = 7A$		17	22	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 10V, I_D = 7A$		21		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		616		pF
Output Capacitance	C_{oss}			70		
Reverse Transfer Capacitance	C_{rss}			55		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		3.6		Ω
Total Gate Charge ²	$Q_g(V_{GS}=10V)$	$V_{DS} = 0.5V_{(BR)DSS}, I_D = 7A$		12		nC
	$Q_g(V_{GS}=4.5V)$			6		
Gate-Source Charge ²	Q_{gs}			2.3		
Gate-Drain Charge ²	Q_{gd}			3.4		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DD} = 15V$ $I_D \cong 7A, V_{GEN} = 10V, R_G = 6\Omega$		15	
Rise Time ²	t_r			10		
Turn-Off Delay Time ²	$t_{d(off)}$			43		
Fall Time ²	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^\circ C$)						
Continuous Current ³	I_S				21	A
Forward Voltage ¹	V_{SD}	$I_F = 7A, V_{GS} = 0V$			1	V
Reverse Recovery Time	t_{rr}	$I_F = 7A, di_F/dt = 100A / \mu S$		11.5		nS
Reverse Recovery Charge	Q_{rr}			4		nC

¹Pulse test : Pulse Width $\leq 300\ \mu sec$, Duty Cycle $\leq 2\%$.

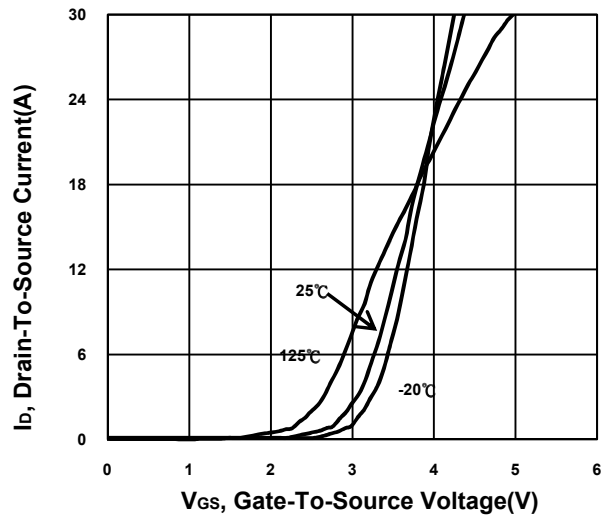
²Independent of operating temperature.

³Package limitation current is 12A

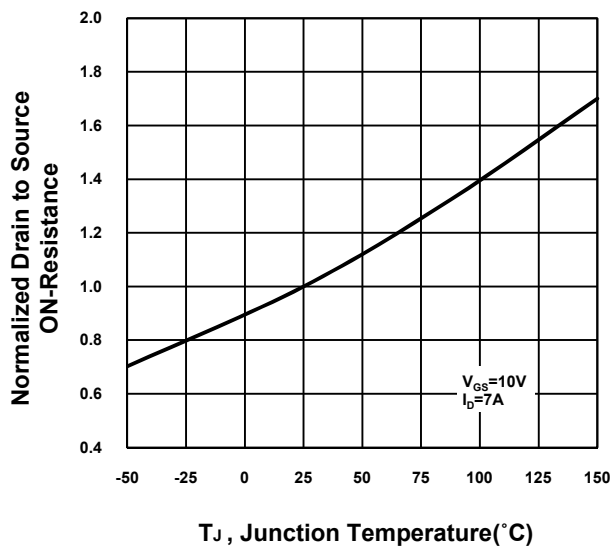
Output Characteristics



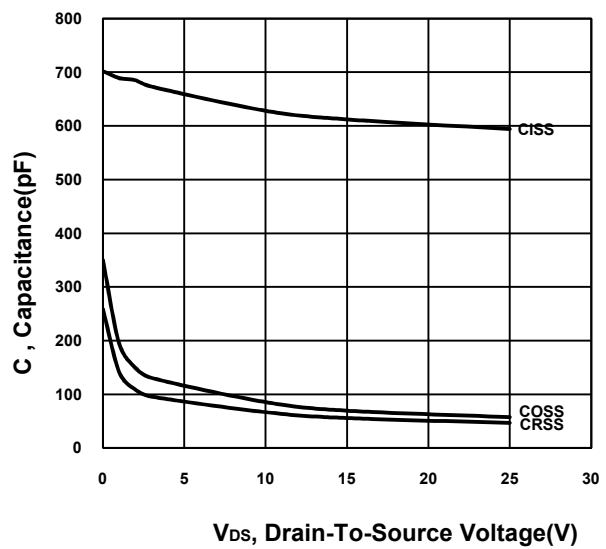
Transfer Characteristics



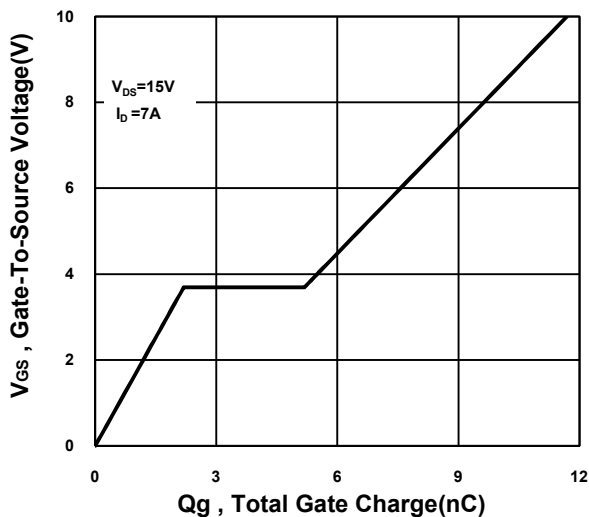
On-Resistance VS Temperature



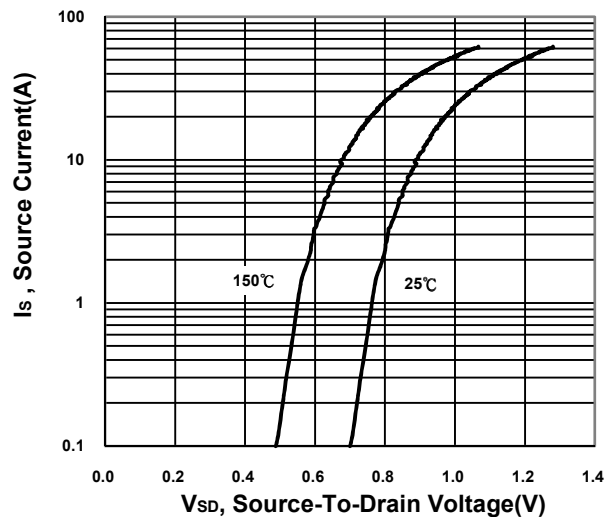
Capacitance Characteristic



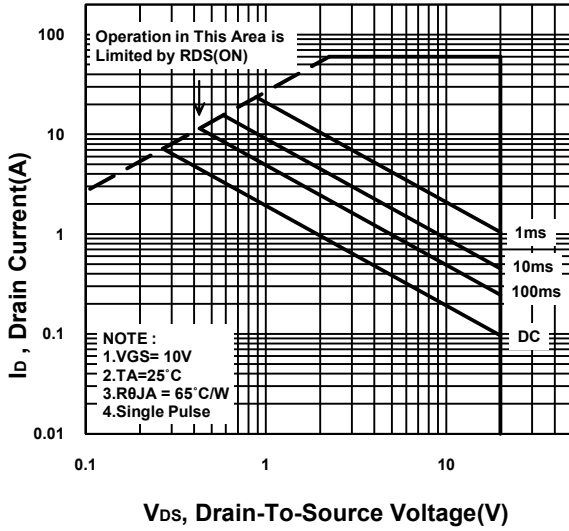
Gate charge Characteristics



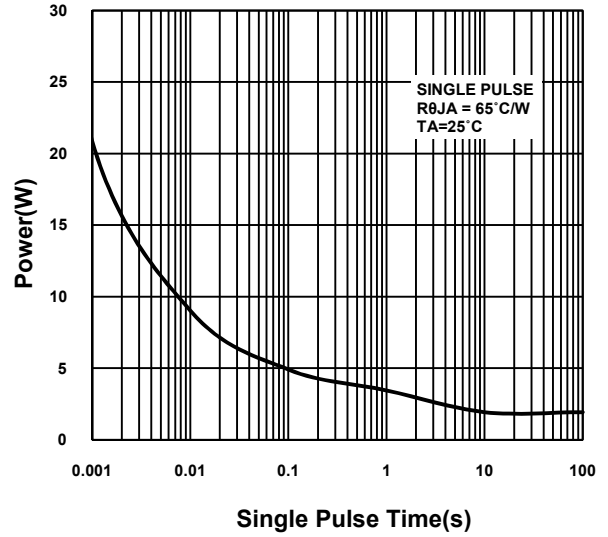
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

