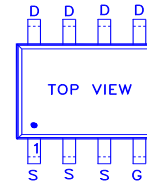
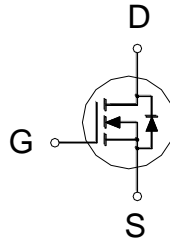


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	7mΩ	12.4A



G: GATE
D: DRAIN
S: SOURCE



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	12.4	A
	$T_A = 70^\circ\text{C}$		10	
Pulsed Drain Current ¹		I_{DM}	49.6	
Avalanche Current		I_{AS}	35	
Avalanche Energy	L = 0.1mH	E_{AS}	61.2	mJ
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	2.2	W
	$T_A = 70^\circ\text{C}$		1.4	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		55	°C / W
Junction-to-Case	$R_{\theta JC}$		25	

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

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

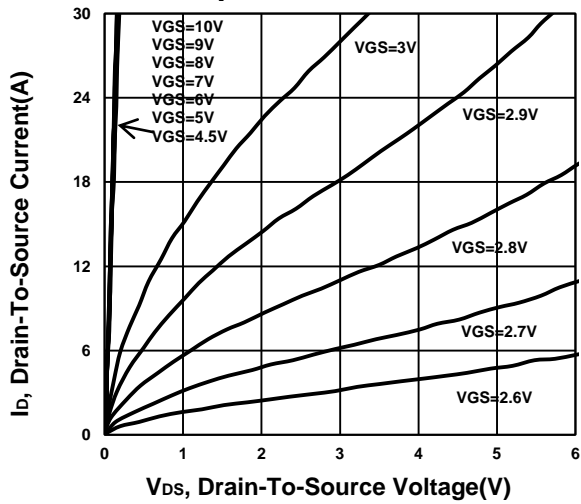
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.75	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 32V, V_{GS} = 0V$			1	μA
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 55^\circ\text{C}$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 11A$		4.6	7	mΩ
		$V_{GS} = 4.5V, I_D = 11A$		5.4	9	

Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 11A$		60		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		2147		pF
Output Capacitance	C_{oss}			271		
Reverse Transfer Capacitance	C_{rss}			159		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.3		Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 20V, I_D = 11A$		41		nC
	$Q_{g(VGS=4.5V)}$			21		
Gate-Source Charge ²	Q_{gs}			6.1		
Gate-Drain Charge ²	Q_{gd}			8.9		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DS} = 20V, I_D \cong 11A, V_{GS} = 10V, R_{GEN} = 6\Omega$		14	
Rise Time ²	t_r			53		
Turn-Off Delay Time ²	$t_{d(off)}$			69		
Fall Time ²	t_f			94		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				1.7	A
Forward Voltage ¹	V_{SD}	$I_F = 11A, V_{GS} = 0V$			1.3	V
Diode Reverse Recovery Time	t_{rr}	$I_F = 11A, di/dt = 100A/\mu s$		17		nS
Diode Reverse Recovery Charge	Q_{rr}			7		nC

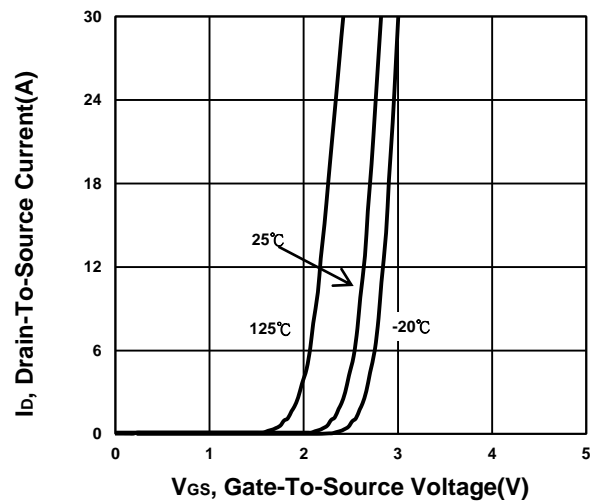
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

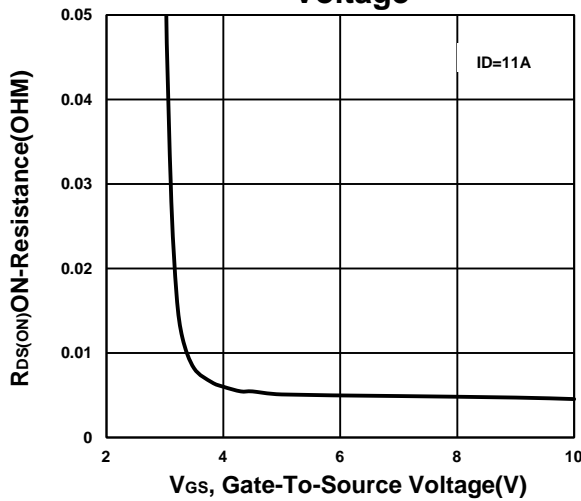
Output Characteristics



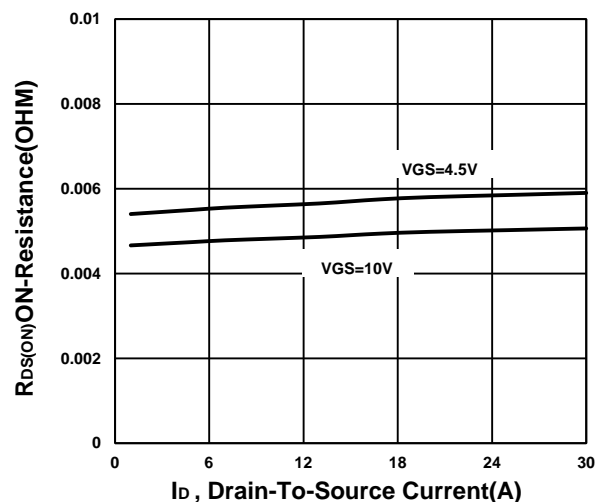
Transfer Characteristics



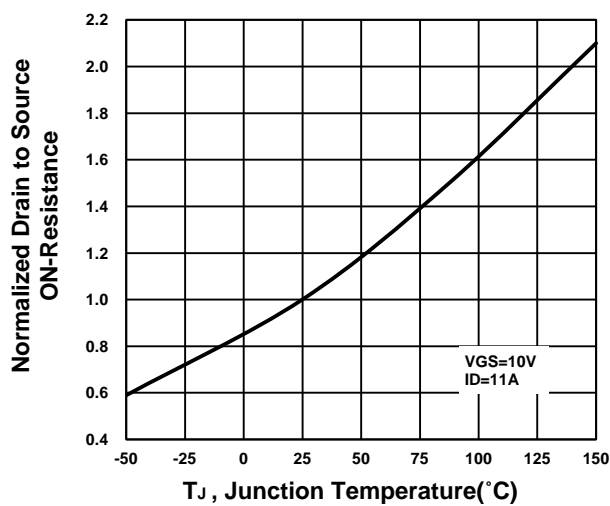
On-Resistance VS Gate-To-Source Voltage



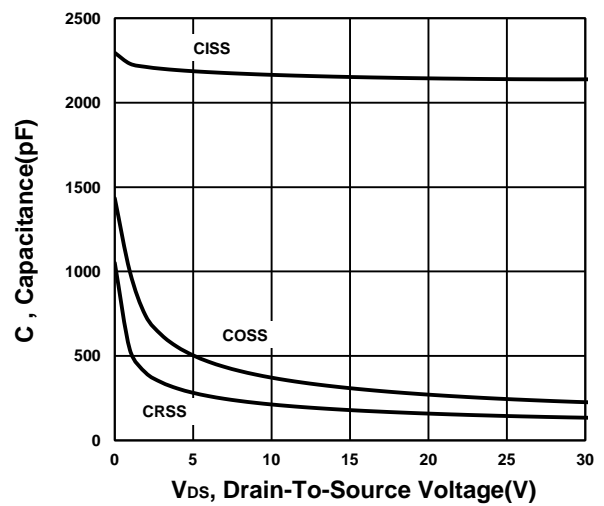
On-Resistance VS Drain Current



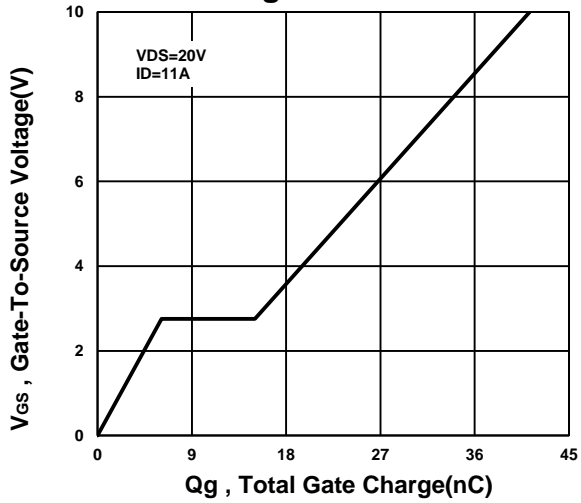
On-Resistance VS Temperature



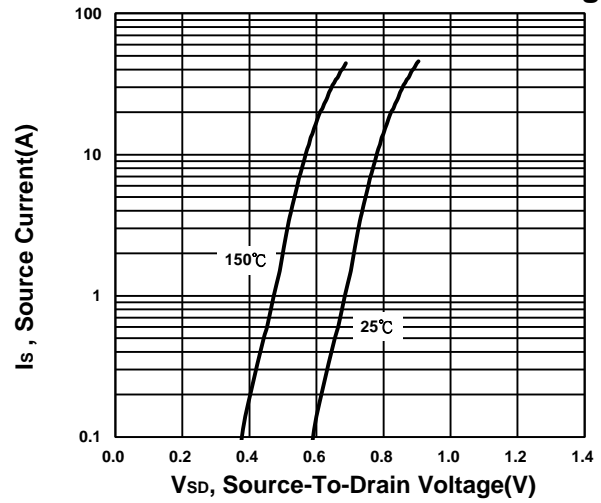
Capacitance Characteristic



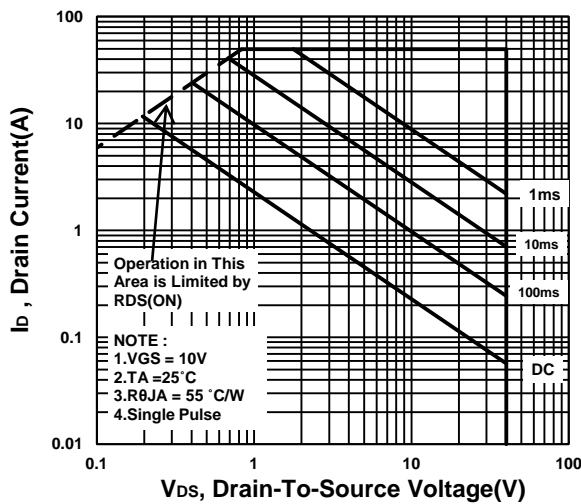
Gate charge Characteristics



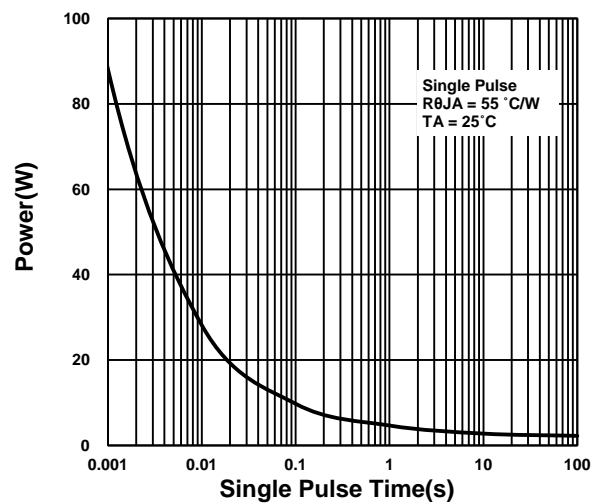
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

