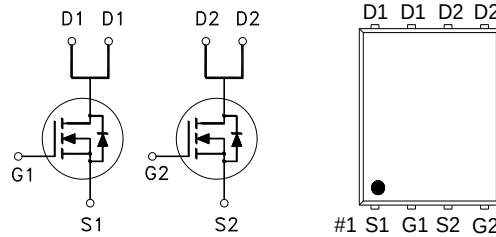


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	8.5m Ω	45A



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	$T_C = 25^\circ\text{C}$	I_D	45	A
	$T_C = 100^\circ\text{C}$		28.8	
Pulsed Drain Current ¹		I_{DM}	94	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	14	
	$T_A = 70^\circ\text{C}$		11	
Avalanche Current		I_{AS}	32	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	51	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	35	W
	$T_C = 100^\circ\text{C}$		14	
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	3.1	W
	$T_A = 70^\circ\text{C}$		2	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		40	$^\circ\text{C} / \text{W}$
	Steady-State			76	
Junction-to-Case		$R_{\theta JC}$		3.6	

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. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

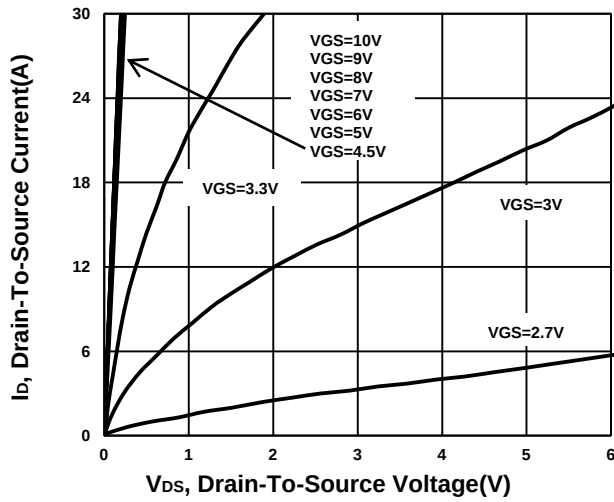
ELECTRICAL CHARACTERISTICS ($T_J = 25\text{ }^{\circ}\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.8	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
		$V_{DS} = 30V, V_{GS} = 0V, T_J = 55\text{ }^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 11A$		7.5	12	m Ω
		$V_{GS} = 10V, I_D = 11A$		6.2	8.5	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 11A$		80		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 20V, f = 1MHz$		2004		pF
Output Capacitance	C_{oss}			231		
Reverse Transfer Capacitance	C_{rss}			147		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.1		Ω
Total Gate Charge ²	Q_g	$V_{GS} = 10V$		37		nC
		$V_{GS} = 4.5V$		19		
Gate-Source Charge ²	Q_{gs}	$V_{DS} = 20V, V_{GS} = 10V, I_D = 11A$		5.4		
Gate-Drain Charge ²	Q_{gd}			7.9		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 20V, I_D \cong 11A, V_{GS} = 10V, R_{GEN} = 6\Omega$		17		nS
Rise Time ²	t_r			58		
Turn-Off Delay Time ²	$t_{d(off)}$			54		
Fall Time ²	t_f			88		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25\text{ }^{\circ}C$)						
Continuous Current	I_S				27	A
Forward Voltage ¹	V_{SD}	$I_F = 11A, V_{GS} = 0V$			1.3	V
Reverse Recovery Time	t_{rr}	$I_F = 11A, dI_F/dt = 100A / \mu S$		21		nS
Reverse Recovery Charge	Q_{rr}			11		nC

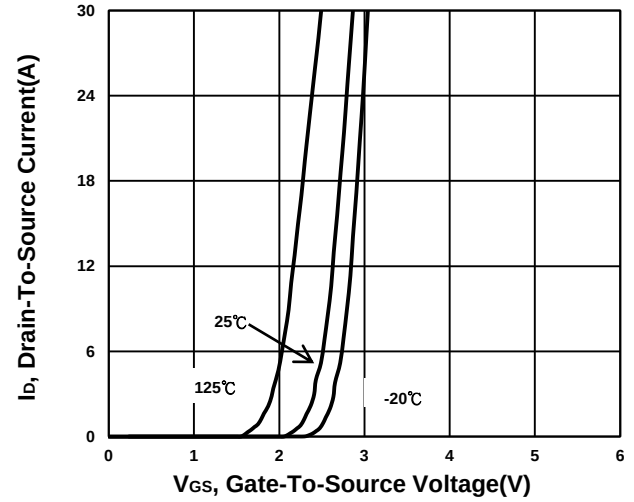
¹Pulse test : Pulse Width $\leq 300\text{ }\mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

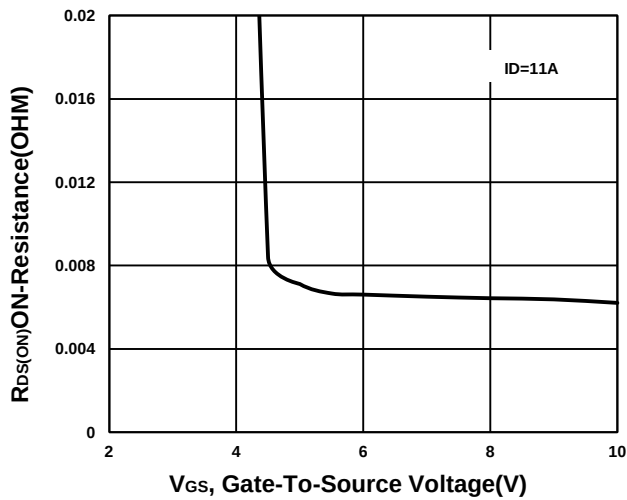
Output Characteristics



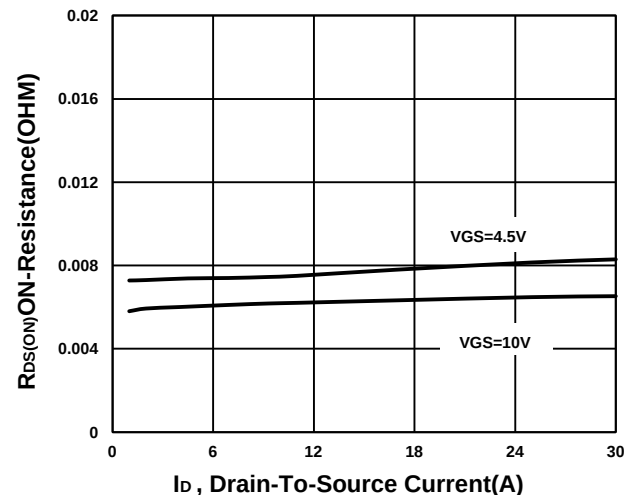
Transfer Characteristics



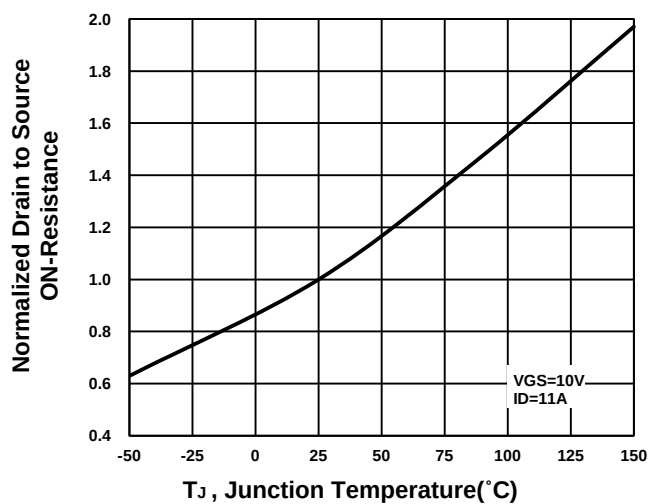
On-Resistance VS Gate-To-Source Voltage



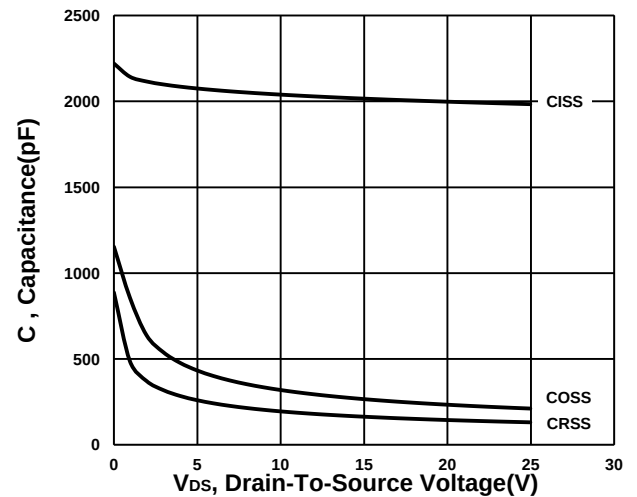
On-Resistance VS Drain Current



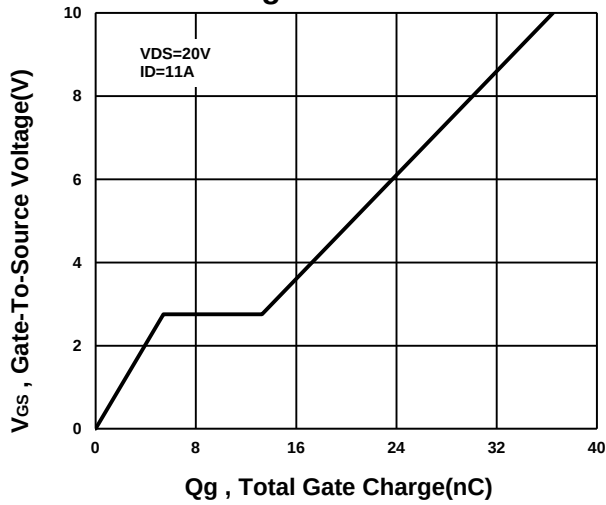
On-Resistance VS Temperature



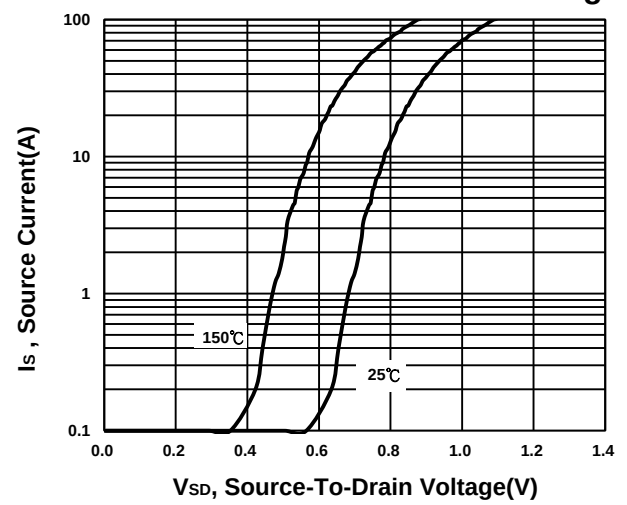
Capacitance Characteristic



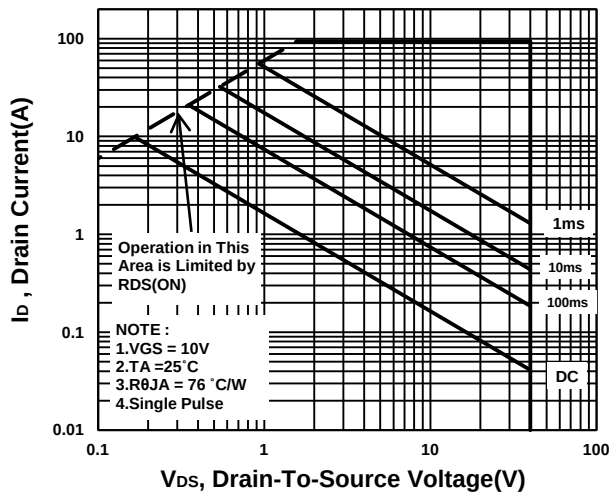
Gate charge Characteristics



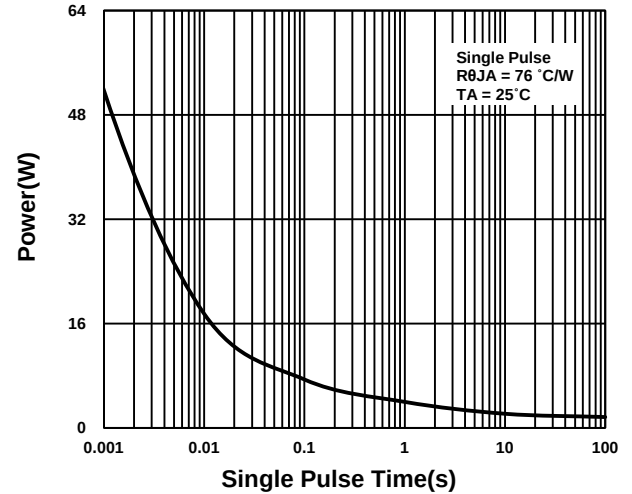
Source-Drain Diode Forward Voltage



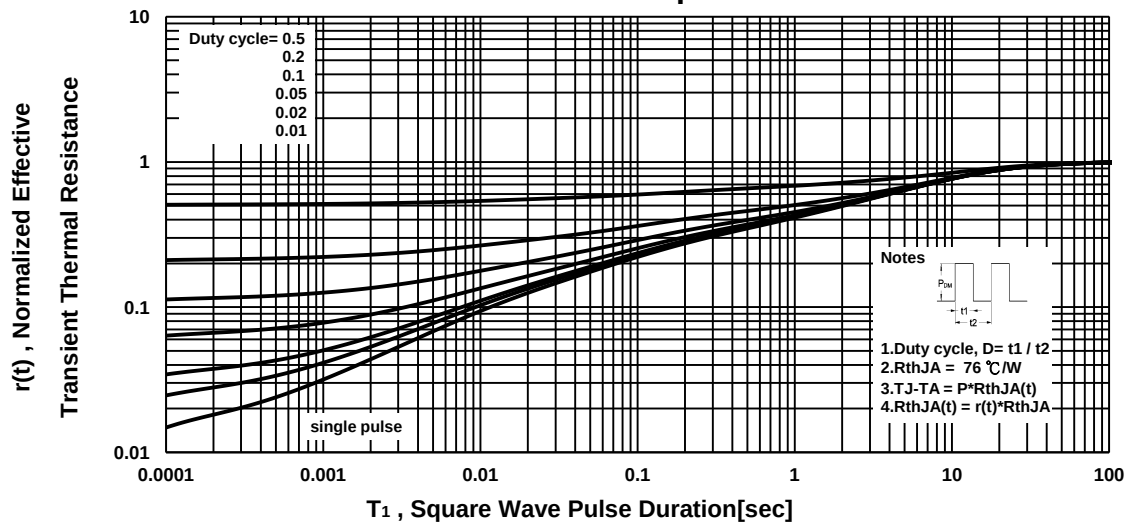
Safe Operating Area



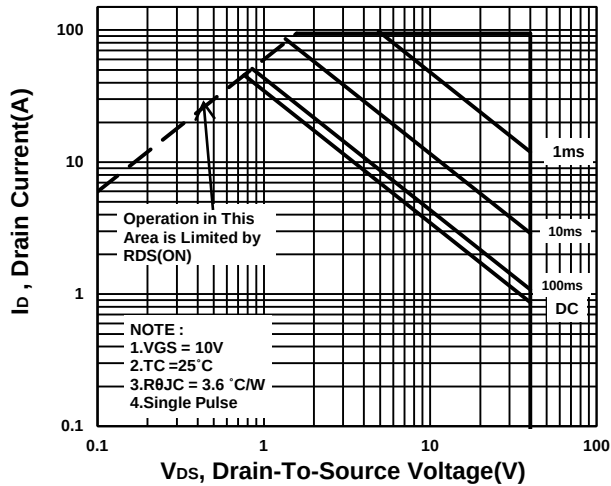
Single Pulse Maximum Power Dissipation



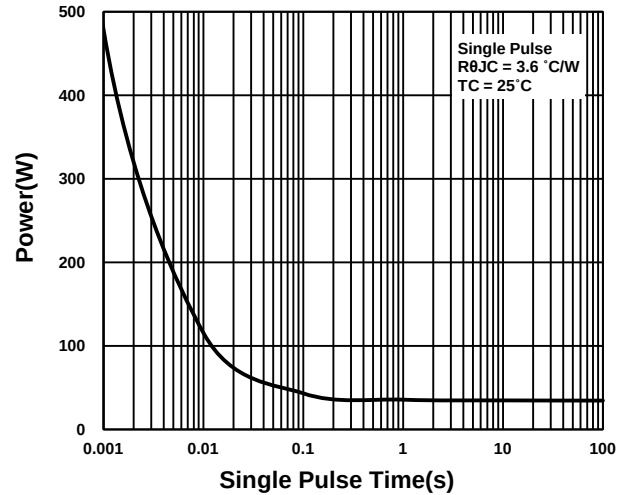
Transient Thermal Response Curve



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

