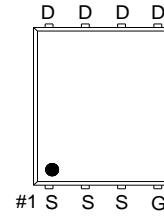
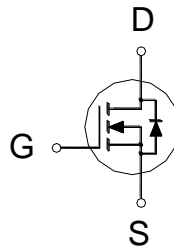




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	9.5mΩ	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 ³	$T_C = 25\text{ °C}$	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	10.7	
	$T_A = 70\text{ °C}$		8.6	
Avalanche Current		I_{AS}	18	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	16.2	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	27.8	W
	$T_C = 100\text{ °C}$		11	
Power Dissipation	$T_A = 25\text{ °C}$	P_D	2	W
	$T_A = 70\text{ °C}$		1.3	
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	$R_{\theta JA}$		63	°C / W
Junction-to-Case	$R_{\theta JC}$		4.5	

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 $T_A = 25\text{ °C}$.

³Package limitation current is 20A.

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

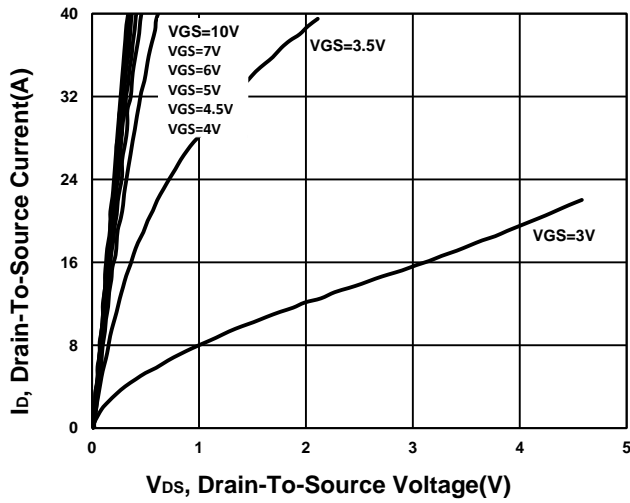
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.75	2.3		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	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 = 9A		9.7	13.5	mΩ	
		V _{GS} = 10V, I _D = 9.5A		7.4	9.5		
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 9.5A		62		S	
DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz	486	608	729	pF	
Output Capacitance	C _{oss}		89	112	134		
Reverse Transfer Capacitance	C _{rss}		44	74	104		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	1.4	2.8	42	Ω	
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 15V, V _{GS} = 10V, I _D = 9.5A	11	14	17	nC
		V _{GS} = 4.5V		5.8	7.3	8.8	
Gate-Source Charge ²	Q _{gs}	1.6		2	2.4		
Gate-Drain Charge ²	Q _{gd}	2.2		3.7	5.2		
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 15V, I _D = 9.5A, V _{GS} = 10V, R _{GEN} = 6Ω			13		
Rise Time ²	t _r			37			
Turn-Off Delay Time ²	t _{d(off)}			48			
Fall Time ²	t _f			25			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current ³	I _S				25	A	
Forward Voltage ¹	V _{SD}	I _F = 9.5A, V _{GS} = 0V			1.1	V	
Reverse Recovery Time	t _{rr}	I _F = 9.5A, di _F /dt = 100A / μS	5.9	11.7	18	nS	
Reverse Recovery Charge	Q _{rr}		1.5	3	4.5	nC	

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

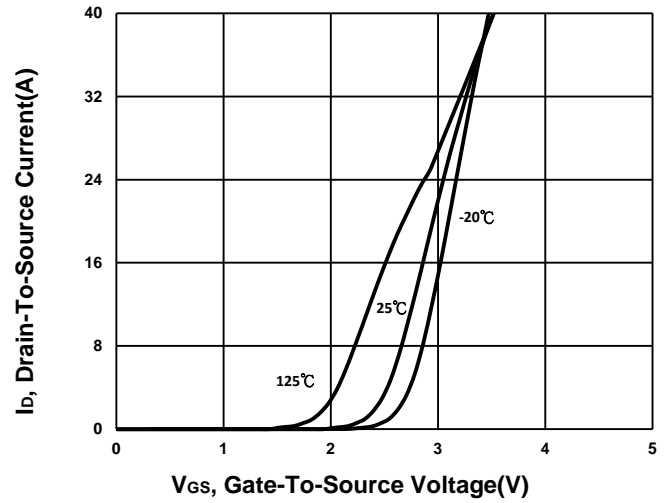
²Independent of operating temperature.

³Package limitation current is 20A.

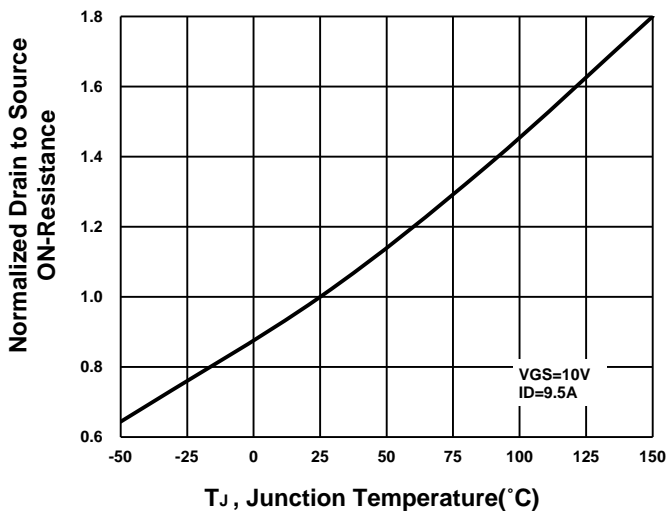
Output Characteristics



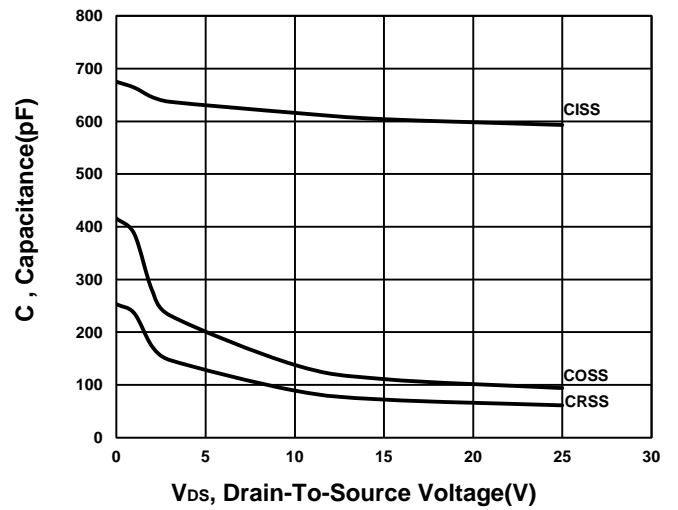
Transfer Characteristics



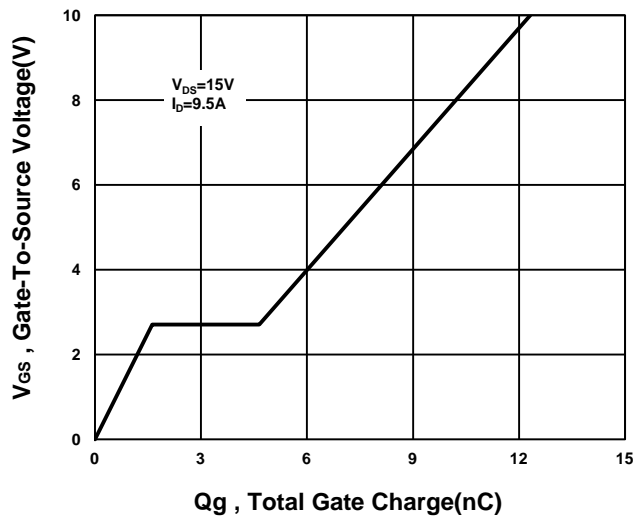
On-Resistance VS Temperature



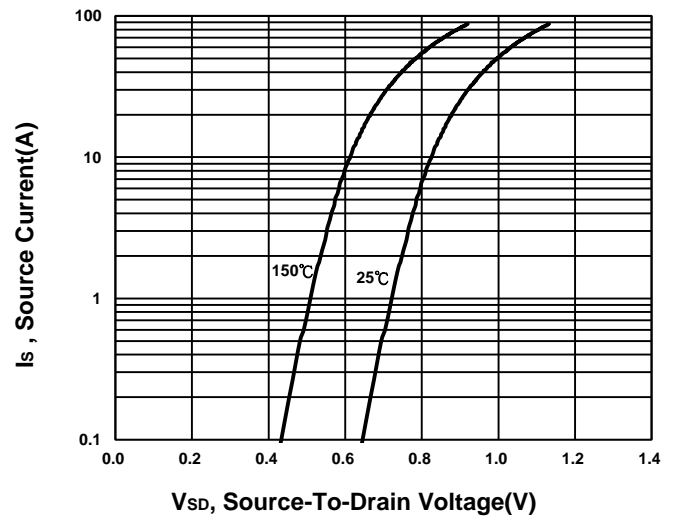
Capacitance Characteristic



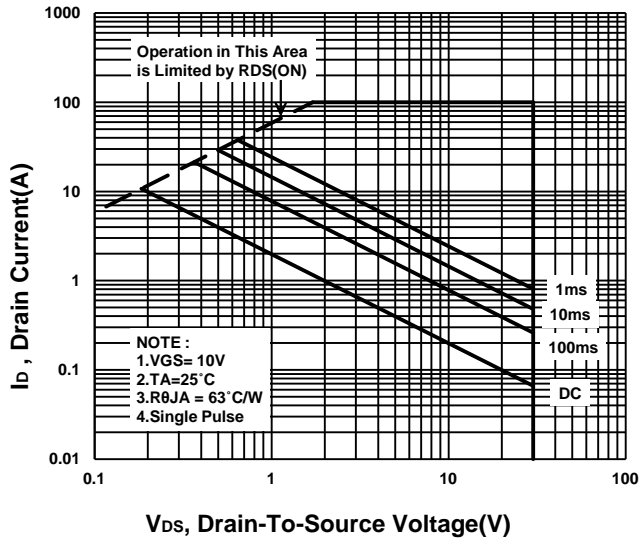
Gate charge Characteristics



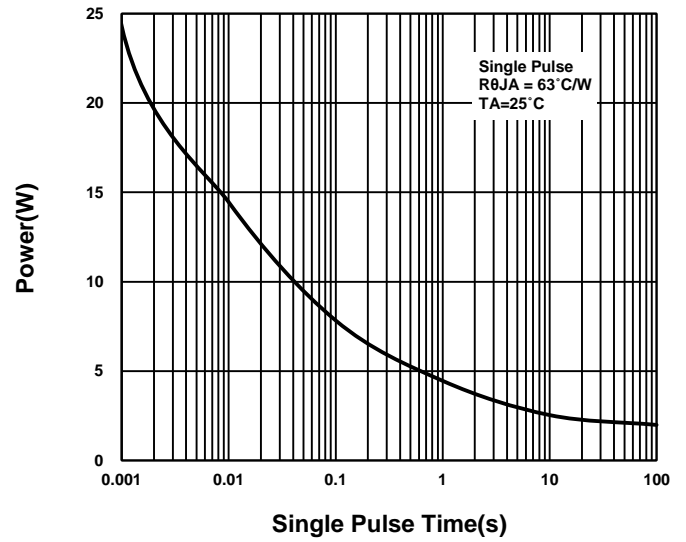
Source-Drain Diode Forward Voltage



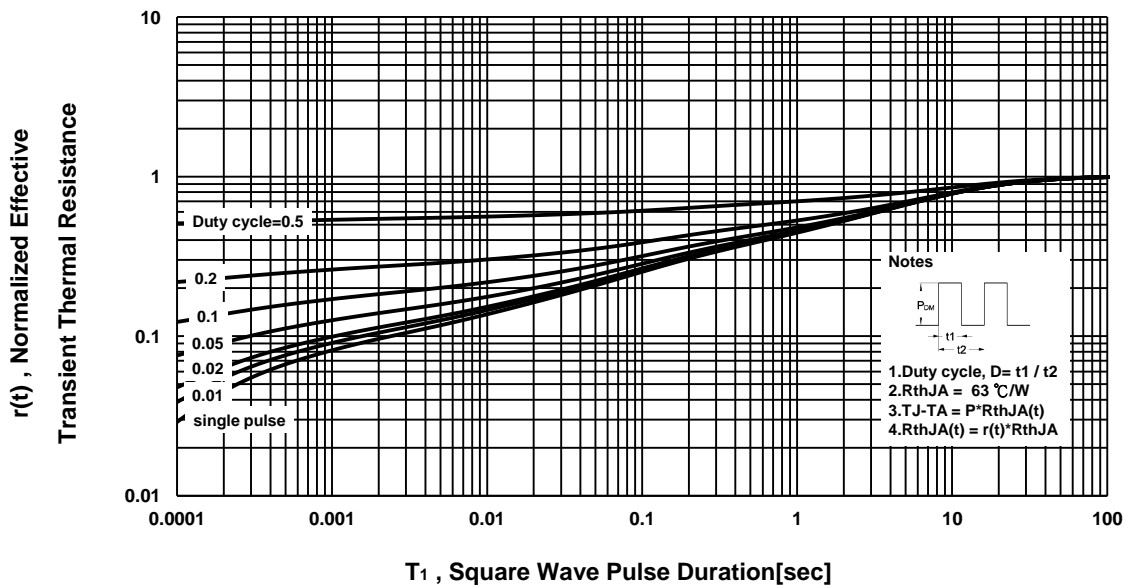
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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