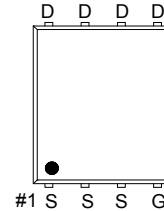
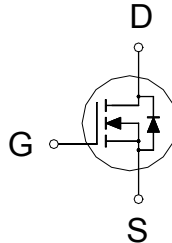




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
40V	10.5mΩ	37A



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}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_C = 25\text{ °C}$	I_D	37	A
	$T_C = 100\text{ °C}$		30	
Pulsed Drain Current ¹		I_{DM}	100	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	14	
	$T_A = 70\text{ °C}$		11	
Avalanche Current		I_{AS}	21	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	22	mJ
Power Dissipation	$T_C = 25\text{ °C}$	P_D	31	W
	$T_C = 100\text{ °C}$		20	
Power Dissipation ³	$T_A = 25\text{ °C}$	P_D	4	W
	$T_A = 70\text{ °C}$		2.7	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		30	°C / W
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		57	
Junction-to-Case	Steady-State	$R_{\theta JC}$		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 $T_A = 25\text{ °C}$.

³The Power dissipation is based on $R_{\theta JA} t \leq 10\text{s}$ value.

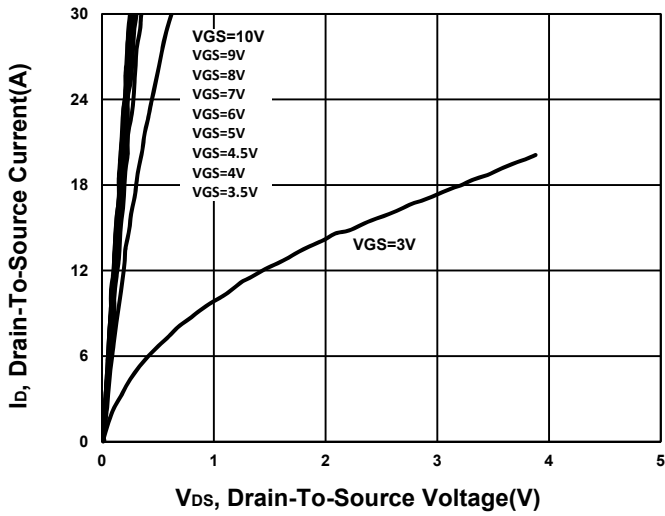
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT	
			MIN	TYP	MAX		
STATIC							
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	40			V	
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.7	2.3		
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±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 °C			10		
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = 4.5V, I _D = 10A		10	14	mΩ	
		V _{GS} = 10V, I _D = 14A		8.6	10.5		
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 14A		56		S	
DYNAMIC							
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 20V, f = 1MHz		937		pF	
Output Capacitance	C _{oss}			118			
Reverse Transfer Capacitance	C _{rss}			72			
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		2.6		Ω	
Total Gate Charge ²	Q _g	V _{GS} = 10V	V _{DS} = 20V, V _{GS} = 10V, I _D = 14A	17.6		nC	
		V _{GS} = 4.5V		9.3			
Gate-Source Charge ²	Q _{gs}	2.3					
Gate-Drain Charge ²	Q _{gd}	4.7					
Turn-On Delay Time ²	t _{d(on)}	V _{DS} = 20V, I _D ≅ 14A, V _{GS} = 10V, R _{GEN} = 6Ω		21			nS
Rise Time ²	t _r			13			
Turn-Off Delay Time ²	t _{d(off)}			33			
Fall Time ²	t _f		12				
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current	I _S				23	A	
Forward Voltage ¹	V _{SD}	I _F = 14A, V _{GS} = 0V			1.3	V	
Reverse Recovery Time	t _{rr}	I _F = 14A, dI _F /dt = 100A / μS		6.9		nS	
Reverse Recovery Charge	Q _{rr}			1.1		nC	

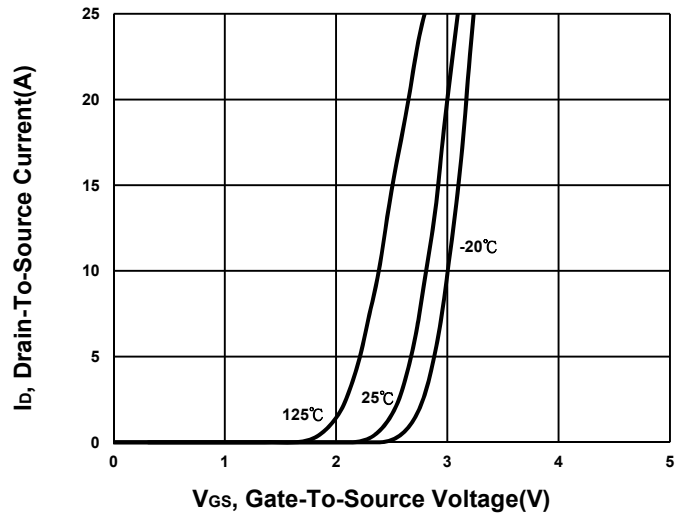
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

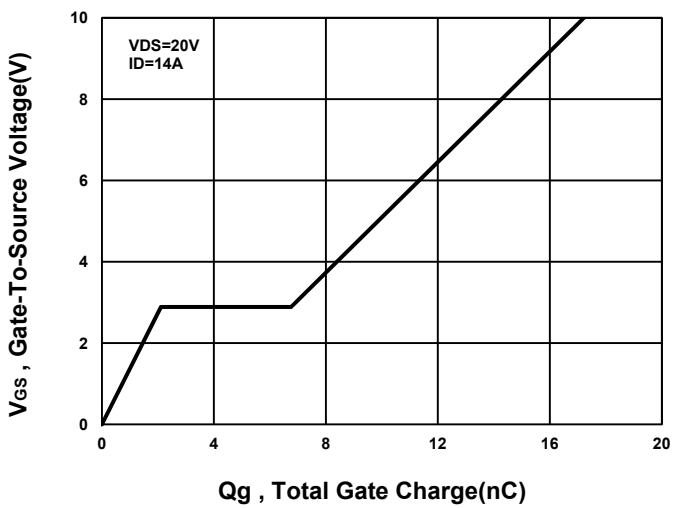
Output Characteristics



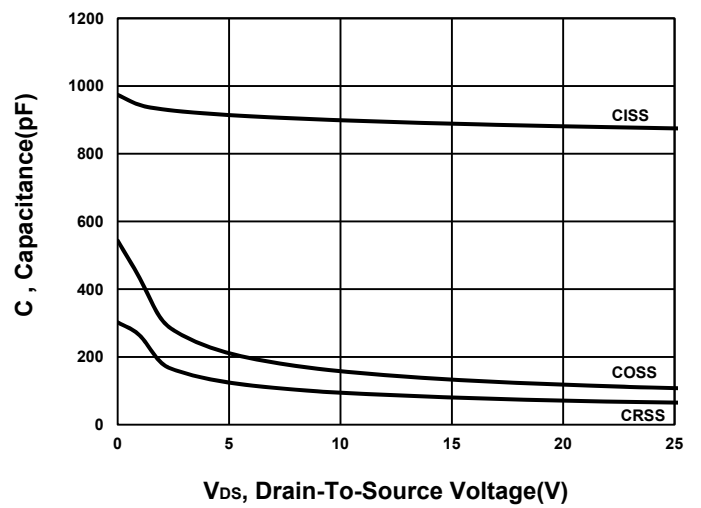
Transfer Characteristics



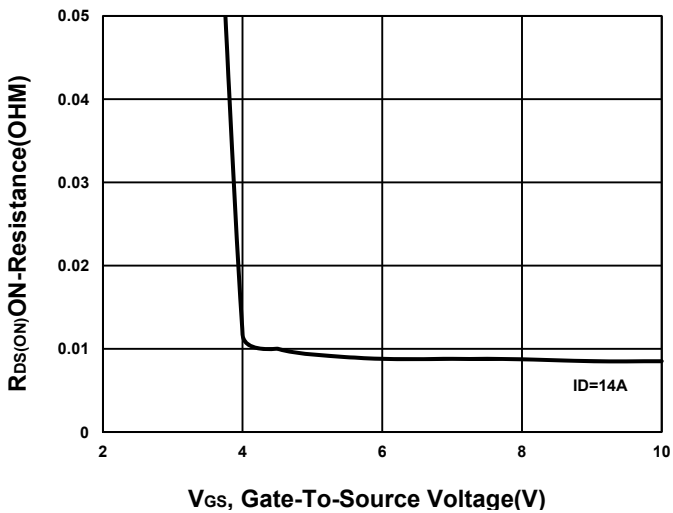
Gate charge Characteristics



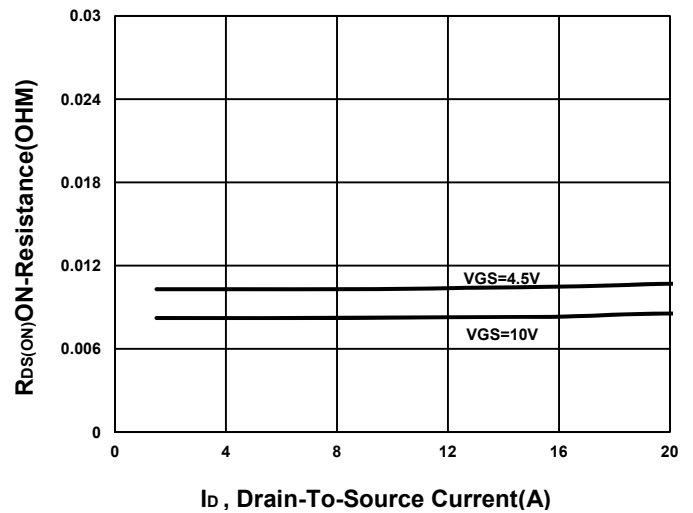
Capacitance Characteristic



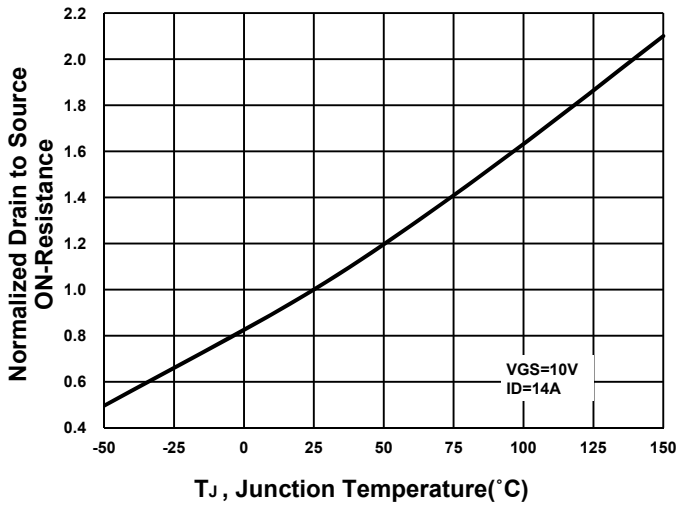
On-Resistance VS Gate-To-Source



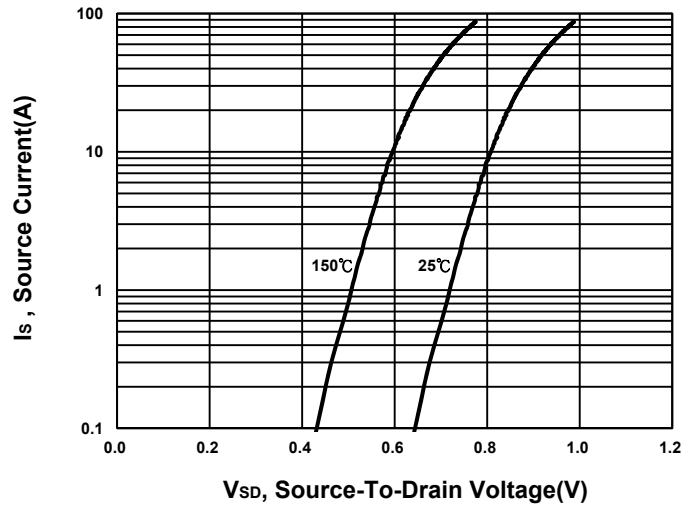
On-Resistance VS Drain Current



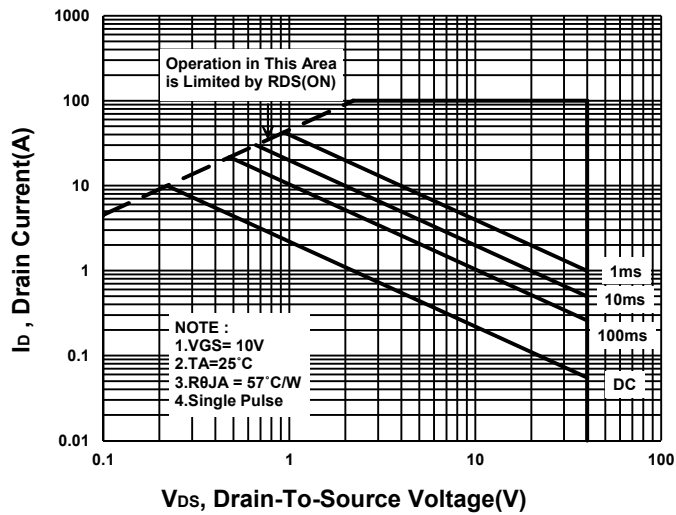
On-Resistance VS Temperature



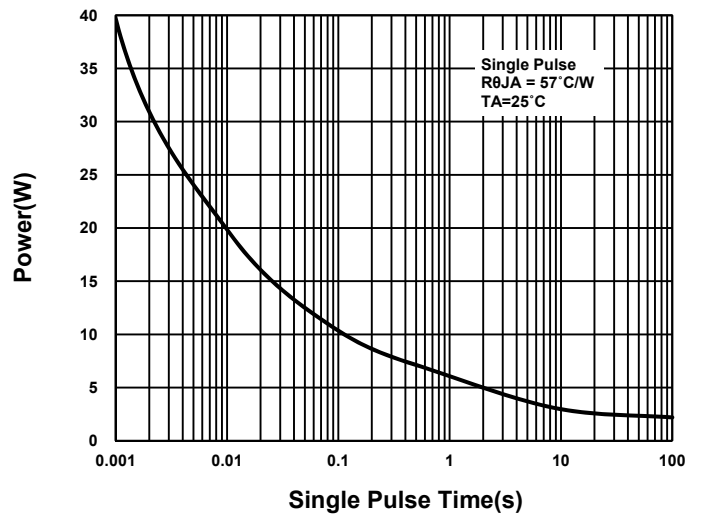
Source-Drain Diode Forward Voltage



Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

