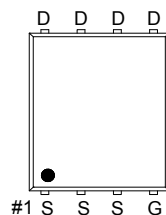
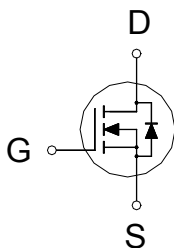




PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	10.5mΩ	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	$T_C = 25\text{ °C}$	I_D	40	A
	$T_C = 100\text{ °C}$		25	
Pulsed Drain Current ¹		I_{DM}	80	
Continuous Drain Current	$T_A = 25\text{ °C}$	I_D	10	
	$T_A = 70\text{ °C}$		8.3	
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
	$T_C = 100\text{ °C}$		12	
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	$R_{\theta JA}$		60	°C / W
Junction-to-Case	$R_{\theta JC}$		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 $T_A = 25\text{ °C}$.

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

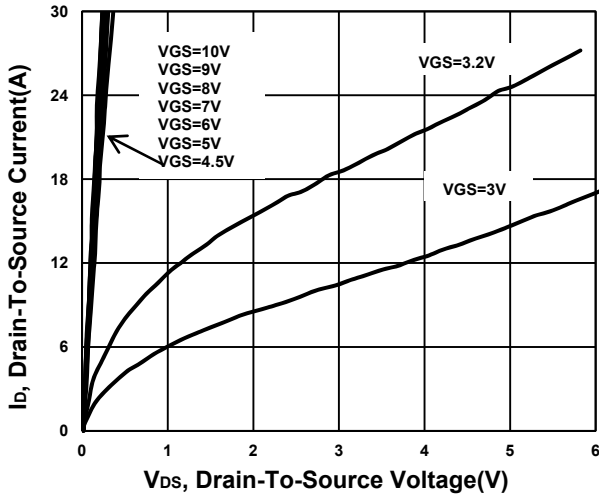
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.75	2.3	

Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA	
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$			10		
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 13A$		10	14	m Ω	
		$V_{GS} = 10V, I_D = 13A$		7	10.5		
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 13A$		42		S	
DYNAMIC							
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		529		μF	
Output Capacitance	C_{oss}			142			
Reverse Transfer Capacitance	C_{rss}			64			
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1		Ω	
Total Gate Charge ²	Q_g	$V_{GS} = 10V$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 13A$		10.3	nC	
		$V_{GS} = 4.5V$			6		
Gate-Source Charge ²	Q_{gs}			1.4			
Gate-Drain Charge ²	Q_{gd}			3			
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V, I_D \cong 13A, V_{GS} = 10V, R_{GEN} = 6\Omega$			15		nS
Rise Time ²	t_r				13		
Turn-Off Delay Time ²	$t_{d(off)}$			21			
Fall Time ²	t_f			15			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)							
Continuous Current	I_S				25	A	
Forward Voltage ¹	V_{SD}	$I_F = 13A, V_{GS} = 0V$			1.2	V	
Reverse Recovery Time	t_{rr}	$I_F = 13A, di_F/dt = 100A / \mu S$		8.2		nS	
Reverse Recovery Charge	Q_{rr}			1.3		nC	

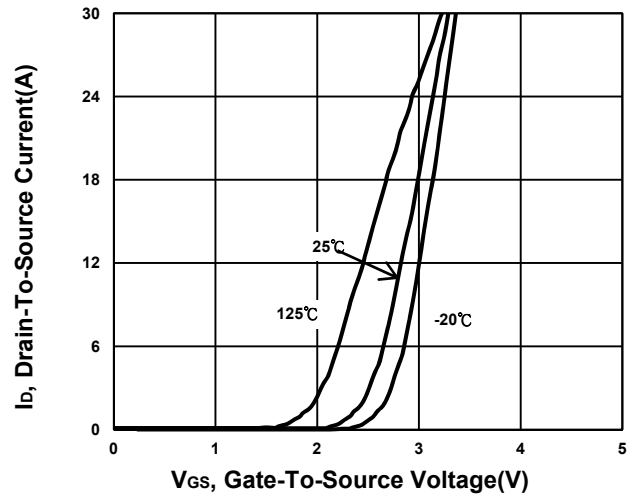
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

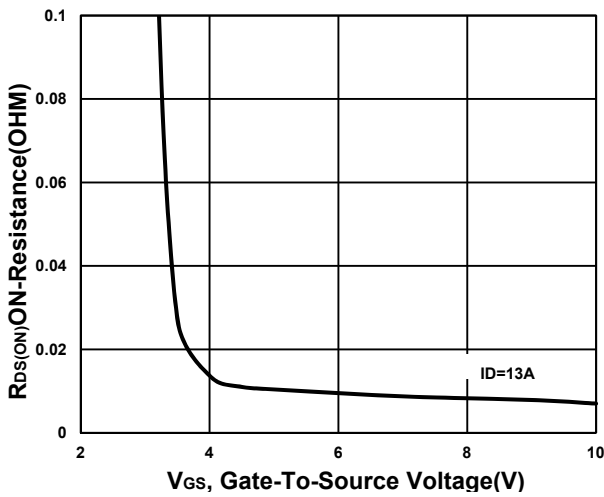
Output Characteristics



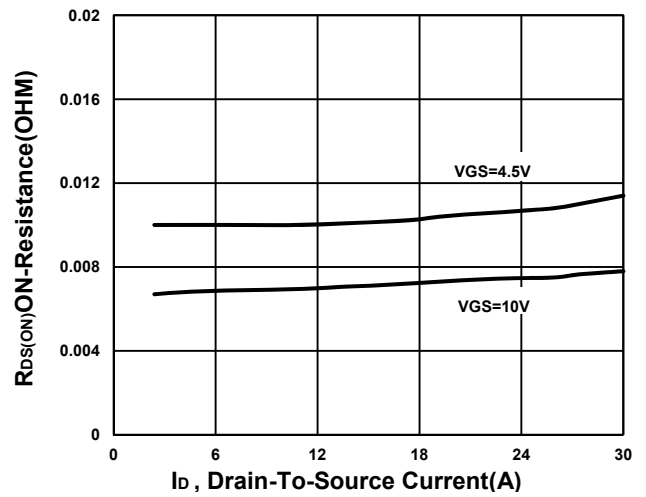
Transfer Characteristics



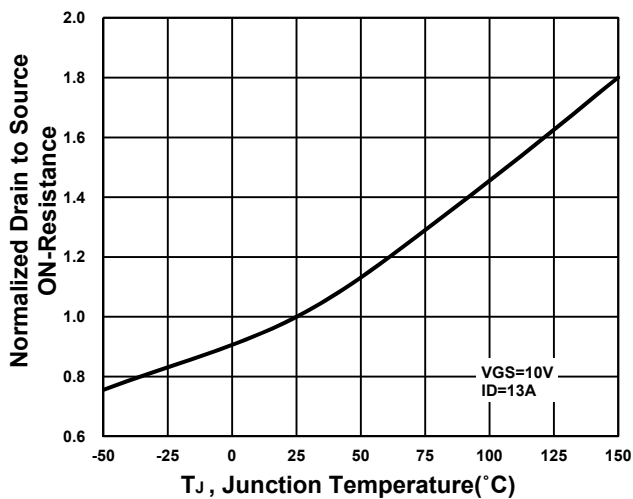
On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



On-Resistance VS Temperature



Capacitance Characteristic

