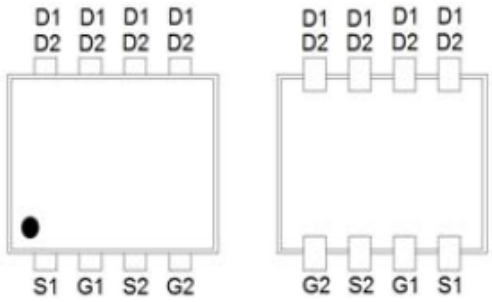
PJ614DA

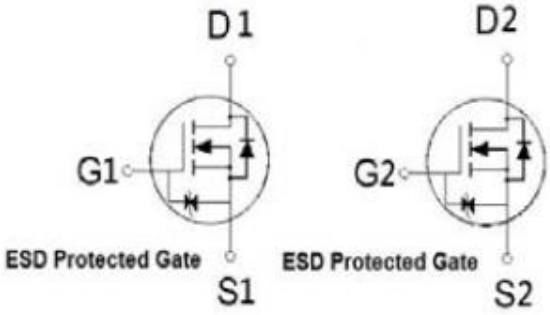
Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	12.5mΩ @V_{GS} = 4.5V	9A



J-Lead



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±10	
Continuous Drain Current[2]	T_A= 25 °C	I_D	9	A
	T_A= 70 °C		7	
Pulsed Drain Current[1]		I_{DM}	28	
Avalanche Current		I_{AS}	22	
Avalanche Energy	L=0.1mH	E_{AS}	24	mJ
Power Dissipation	T_A= 25 °C	P_D	1.7	W
	T_A= 70°C		1	
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	$R_{\theta JA}$		73	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]Package limitation current is 7A.

UNIKC Semiconductor

RoHS Compliant

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	20			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.35	0.7	1	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±30	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =16V, V_{GS} = 0V			1	μA
		V_{DS} =10V, V_{GS} = 0V, T_J = 70°C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 1.8V, I_D = 3A	13.6	15.1	20.2	mΩ
		V_{GS} = 2.5V, I_D = 3A	10.4	11.9	15	
		V_{GS} = 3.9V, I_D = 3A	9	10.5	13.7	
		V_{GS} = 4.5V, I_D = 3A	8.7	10.2	12.5	
Forward Transconductance[1]	g_{fs}	V_{DS} =5V, I_D =3A		40		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 10V, f = 1MHz		1133		pF
Output Capacitance	C_{oss}			214		
Reverse Transfer Capacitance	C_{rss}			168		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge[2]	Q_g	V_{DS} = 10V, V_{GS} = 4.5V, I_D = 3A		17.4		nC
Gate-Source Charge[2]	Q_{gs}			1.1		
Gate-Drain Charge[2]	Q_{gd}			5.1		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 10V , I_D≅3A, V_{GS} = 4.5V,R_G =6Ω		24		nS
Rise Time[2]	t_r			32		
Turn-Off Delay Time[2]	$t_{d(off)}$			66		
Fall Time[2]	t_f			35		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Current	I_S				1.4	A
Forward Voltage[1]	V_{SD}	I_F = 3A, V_{GS} = 0V			1.2	V
Reverse Recovery Time	t_{rr}	I_F = 3A, dI_F/dt = 100A /μS		14		nS
Reverse Recovery Charge	Q_{rr}			5.4		nC

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

[2]Independent of operating temperature.

[3]Pulse width limited by maximum junction temperature.

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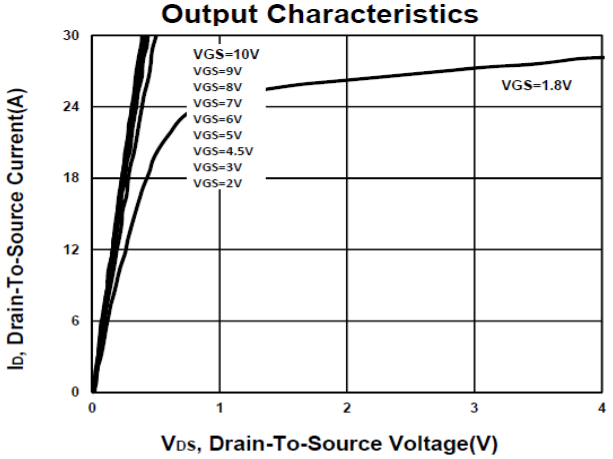
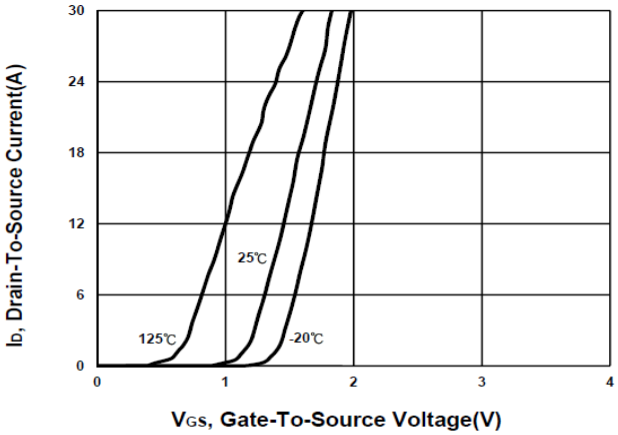
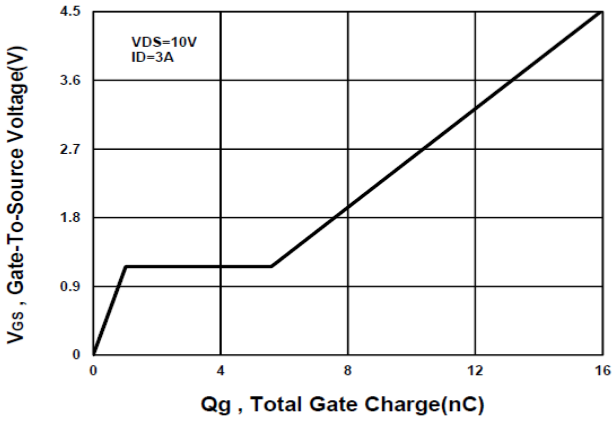
Output Characteristics



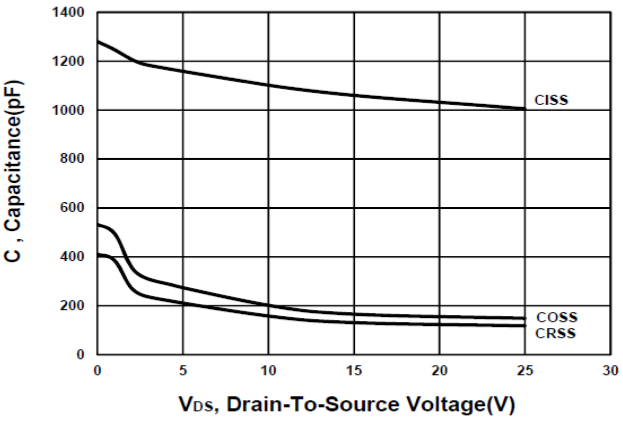
Transfer Characteristics



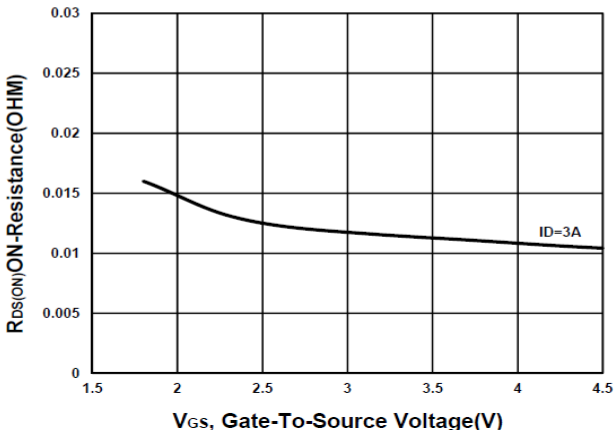
Gate charge Characteristics



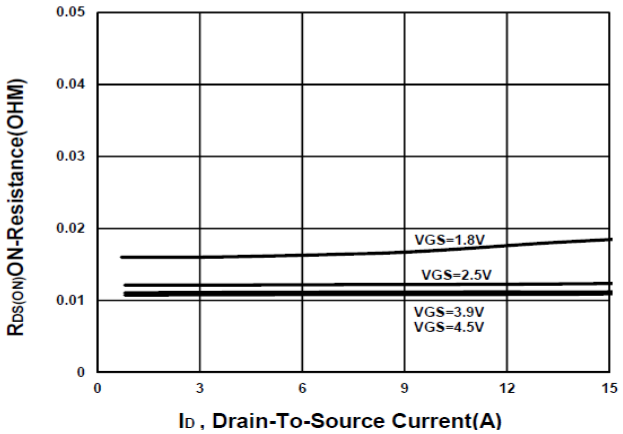
Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



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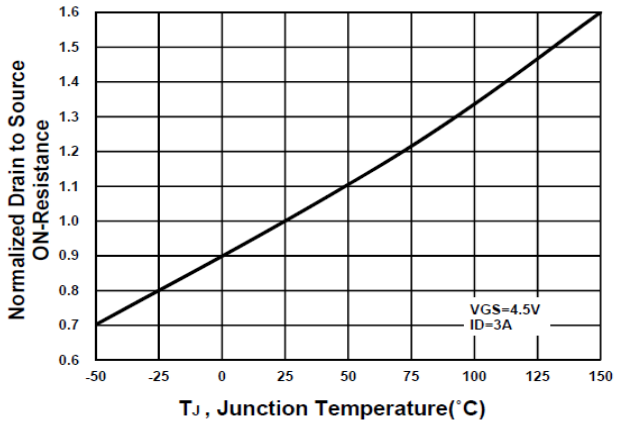
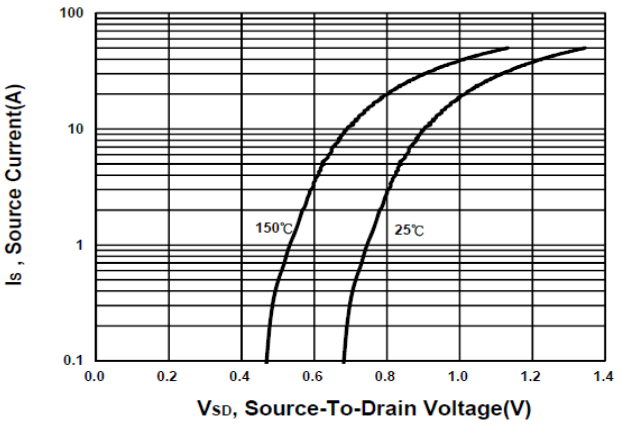
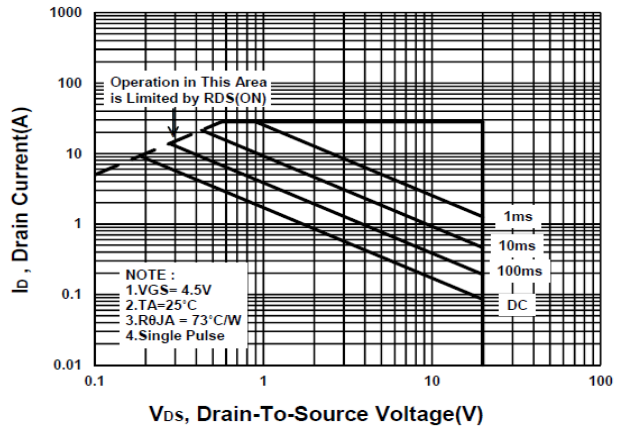
On-Resistance VS Temperature



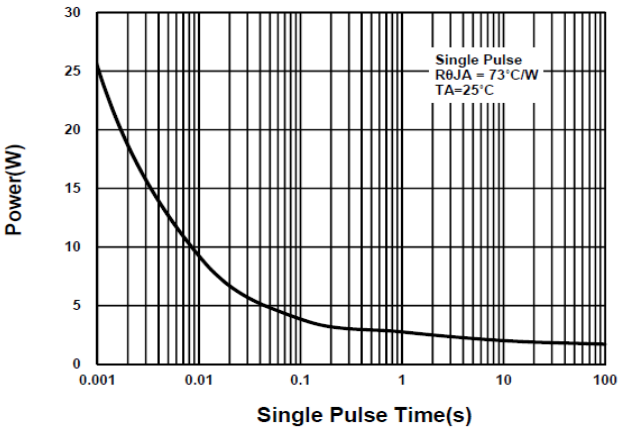
Source-Drain Diode Forward Voltage



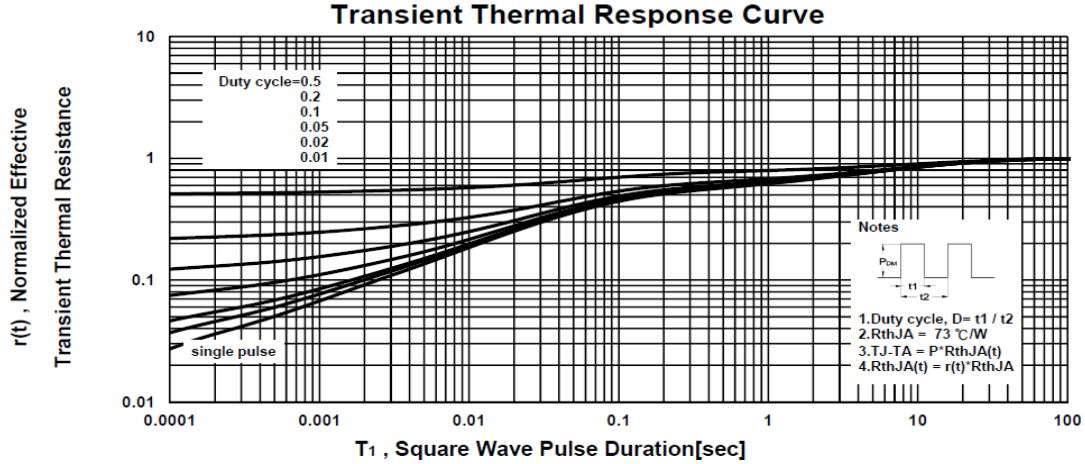
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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Package Dimension

J-Lead MECHANICAL DATA

Dimension	mm			Dimension	Mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	2.95	3.05	3.3	H	0.3	0.45	0.6
B	2.3	2.4	2.5	J		7°	
C	2.65	2.85	3.05	K		0.04	
D	0.25	0.32	0.4	L	0.1	0.15	0.2
E		0.65		M	0°	4°	8°
F	0.92		1.0				
G	0.01		0.1