UNIKC
Semiconductor

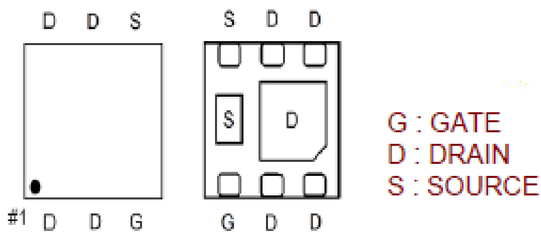
RoHS Compliant

PB606BA

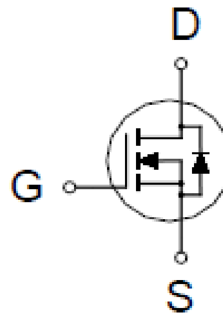
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	16mΩ @V_{GS} = 10V	7.8A



PDFN 2X2S



100%RG TEST
100%UIL TEST

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °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_A = 25 °C	I_D	7.8	A
	T_A= 70 °C		6.2	
Pulsed Drain Current[1]		I_{DM}	21	
Avalanche Current		I_{AS}	12.8	
Avalanche Energy	L = 0.1 mH	E_{AS}	8.2	mJ
Power Dissipation	T_A= 25 °C	P_D	1.5	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[2]	$R_{\theta JA}$		80	°C / W

[1]Pulse width limited by maximum junction temperature.

[2]The value of $R_{\theta JA}$ is measured with the device mounted on 1in^2 FR-4 board with 2oz. Coppe.

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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	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.3	1.75	2.3	V
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 = 6A		19	24	mΩ
		V_{GS} =10V, I_D = 7A		13	16	
Forward Transconductance[1]	g_{fs}	V_{DS} =10V, I_D = 7A		31		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		329		pF
Output Capacitance	C_{oss}			68		
Reverse Transfer Capacitance	C_{rss}			48		
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} = 15V , I_D = 7A		8.1		nC
	$Q_g(V_{GS}=4.5V$			4.5		
Gate-Source Charge[2]	Q_{gs}			1.1		
Gate-Drain Charge[2]	Q_{gd}			2.4		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 15V I_D ≅ 7A, V_{GEN} = 10V, R_G = 6Ω		17		nS
Rise Time[2]	t_r			17		
Turn-Off Delay Time[2]	$t_{d(off)}$			37		
Fall Time[2]	t_f			18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				1.5	A
Forward Voltage[1]	V_{SD}	I_F = 7A, V_{GS} = 0V			1	V
Reverse Recovery Time	t_{rr}	I_F = 7A, dI_F/dt = 100A / μS		9.6		nS
Reverse Recovery Charge	Q_{rr}			2.9		nC

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

[2]Independent of operating temperature.

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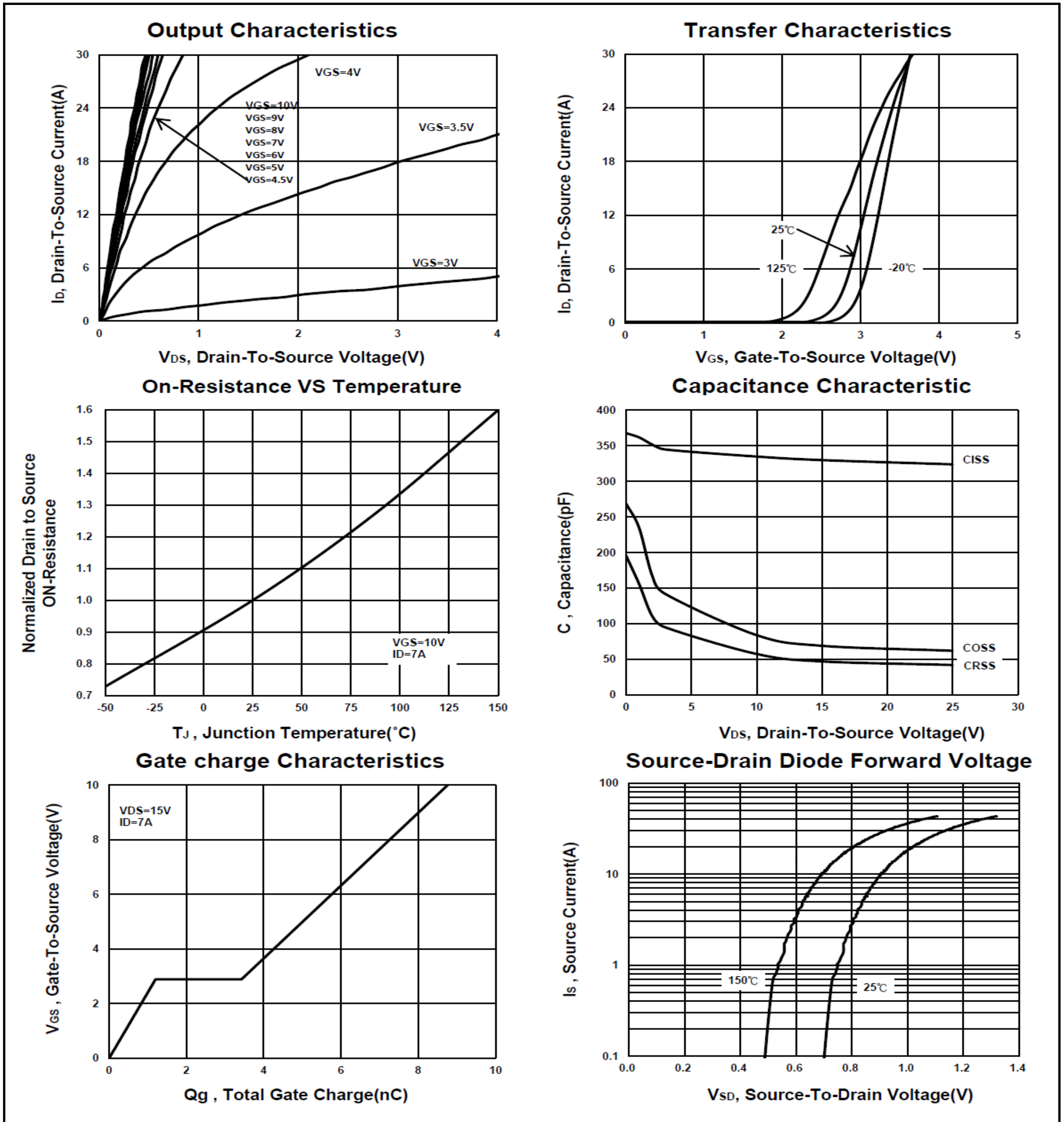

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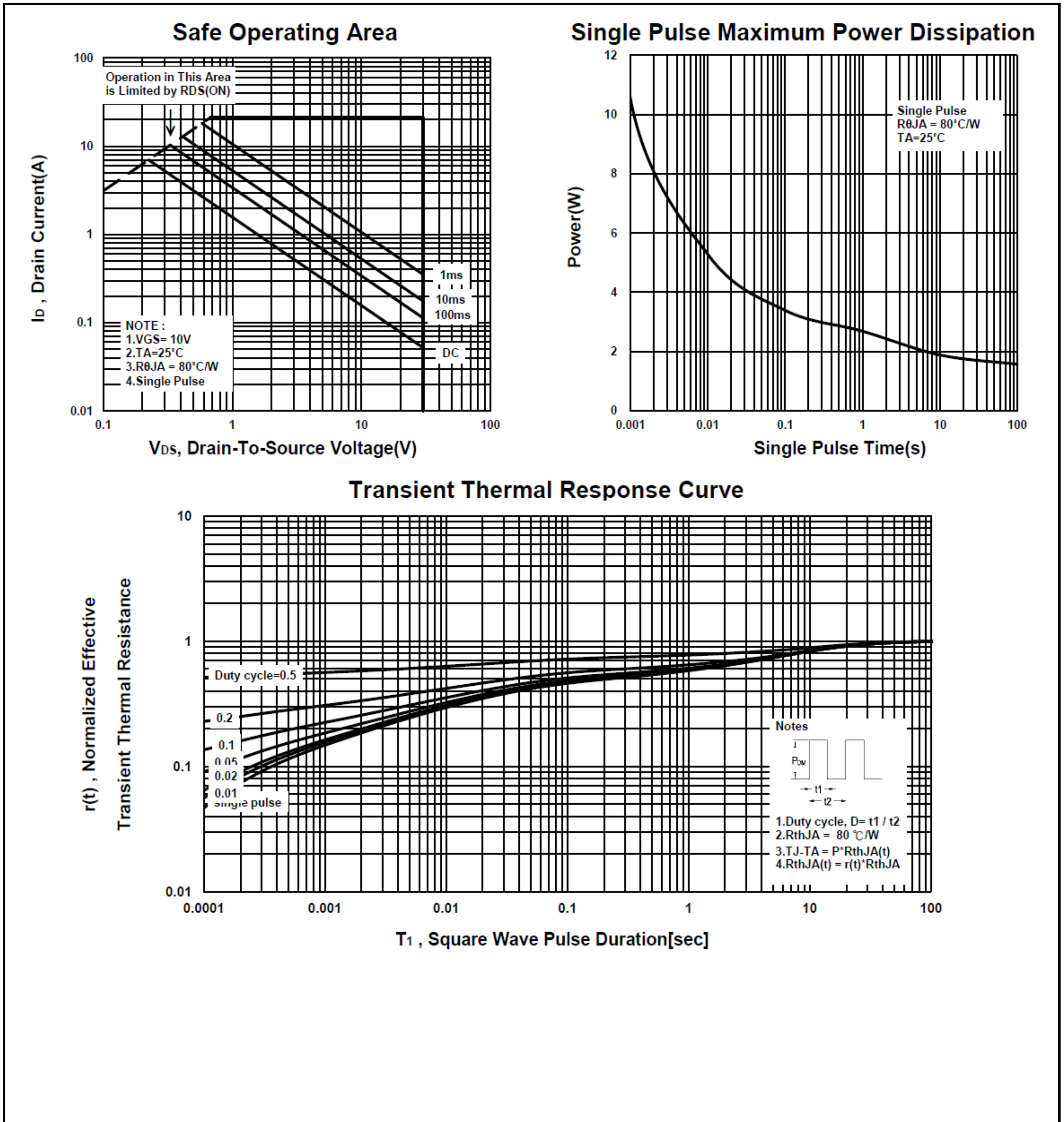

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Package Dimension

PDFN 2x2S MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.9		2.1	H	0.8		1.1
B	1.9		2.1	I	0		0.05
C	0.55	0.65	0.75	J		0.203	
D	0.85		1.1	K	0.7		0.8
E	0.174	0.25	0.326	L	0.2		0.4
F	0.25		0.35	M	0.46		0.85
G		0.2