UNIKC Semiconductor

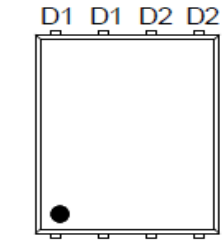
RoHS Compliant

PK601CA

N & P-Channel Enhancement Mode MOSFET

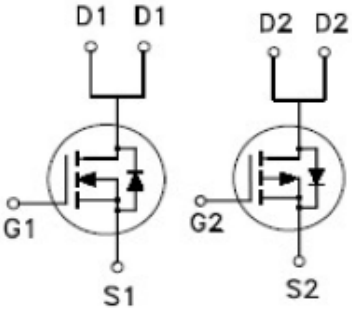
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D	CH.
-30V	28mΩ @V_{GS} = -10V	-22A	Q2
30V	22mΩ @V_{GS} = 10V	23A	Q1



PDFN 5*6P

100% UIS Tested
100% Rg Tested



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

PARAMETERS/TEST CONDITIONS		SYMBOL	CH.	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	Q2	-30	V
			Q1	30	
Gate-Source Voltage		V_{GS}	Q2	±20	
			Q1	±20	
Continuous Drain Current[3]	T_C = 25 °C	I_D	Q2	-22	A
			Q1	23	
	T_C = 100 °C		Q2	-14	
			Q1	14	
Pulsed Drain Current[1]		I_{DM}	Q2	-45	
			Q1	50	
Continuous Drain Current	T_A = 25 °C	I_D	Q2	-7.8	
			Q1	8.6	
	T_A = 70 °C		Q2	-6.3	
			Q1	6.9	
Avalanche Current		I_{AS}	Q2	-19	
			Q1	12	
Avalanche Energy	L = 0.1mH	E_{AS}	Q2	18	mJ
			Q1	7.3	
Power Dissipation	T_C = 25 °C	P_D	Q2	25	W
			Q1	22	
	T_C = 100 °C		Q2	10	
			Q1	9	

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Power Dissipation	T_A = 25 °C	P_D	Q2	3	W
			Q1	3	
	T_A = 70 °C		Q2	2	
			Q1	2	
Operating Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150		°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE		SYMBOL	CH.	TYPICA	MAXIMUM	UNITS
Junction-to-Ambient[2]	t ≦10s	$R_{\theta JA}$	Q2		40	°C / W
	Steady-State				57	
Junction-to-Ambient[2]	t ≦10s	$R_{\theta JA}$	Q1		40	
	Steady-State				65	
Junction-to-Case		$R_{\theta JC}$	Q2		5	
			Q1		5.5	

[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. Copper, in a still air environment with T_A =25°C.

[3]The Power dissipation is based on $R_{\theta JA}$ t ≦10s value.

[3]Package limitation current :Q1=10A,Q2=-10A

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

PARAMETER	SYMBOL	TEST CONDITIONS	CH.	LIMITS			UNITS
				MIN	TYP	MAX	
STATIC							
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = -250μA	Q2	-30			V
		V_{GS} = 0V, I_D = 250μA	Q1	30			
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250μA	Q2	-1	-1.5	-2.5	
		V_{DS} = V_{GS}, I_D = 250μA	Q1	1	1.6	2.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	Q2			±100	nA
		V_{DS} = 0V, V_{GS} = ±20V	Q1			±100	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24V, V_{GS} = 0V	Q2			-1	μA
		V_{DS} = 24V, V_{GS} = 0V	Q1			1	
		V_{DS} = -20V V_{GS} = 0V ,T_J = 55 °C	Q2			-10	
		V_{DS} = 20V V_{GS} = 0V ,T_J = 55 °C	Q1			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = -4.5V, I_D = -5A	Q2		30	45	mΩ
		V_{GS} = 4.5V, I_D = 6A	Q1		18	32	
		V_{GS} = -10V, I_D = -6A	Q2		20	28	
		V_{GS} = 10V, I_D = 7A	Q1		14	22	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -6A	Q2		18		S
		V_{DS} = 5V, I_D = 7A	Q1		27		

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DYNAMIC							
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz	Q2		929		pF
			Q1		341		
Output Capacitance	C_{oss}		Q2		145		
			Q1		84		
Reverse Transfer Capacitance	C_{rss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz	Q2		122		
			Q1		48		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz	Q2		12		Ω
			Q1		3		
Total Gate Charge[2]	Q_g V_{GS}=10V	Q2 V_{DS} = -15V, V_{GS} = -10V, I_D = -6A Q1 V_{DS} = 15V, VGS = 10V, I_D = 7A	Q2		20.8		nC
			Q1		7.6		
	Q_g V_{GS}=4.5V		Q2		10.8		
			Q1		4.3		
Gate-Source Charge[2]	Q_{gs}		Q2		2		
			Q1		1		
Gate-Drain Charge[2]	Q_{gd}		Q2		5		
			Q1		2		
Turn-On Delay Time[2]	$t_{d(on)}$	Q2 V_{DS} = -15V, I_D ≅ -6A, V_{GS} = -10V, R_{GEN} = 6Ω Q1 V_{DS} = 15V, I_D ≅ 7A, V_{GS} = 10V, R_{GEN} = 6Ω	Q2		15		nS
			Q1		15		
Rise Time[2]	t_r		Q2		30		
			Q1		30		
Turn-Off Delay Time[2]	$t_{d(off)}$		Q2		50		
			Q1		20		
Fall Time[2]	t_f		Q2		41		
			Q1		13		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)							
Continuous Current[3]	I_S		Q2			-25	A
			Q1			20	
Forward Voltage[1]	V_{SD}	I_F = -6A, V_{GS} = 0V	Q2			-1	V
		I_F = 7A, V_{GS} = 0V	Q1			1.1	
Reverse Recovery Time	t_{rr}	Q2 I_F = -6A, dI_F/dt = 100A /μs Q1 I_F = 7A, dI_F/dt = 100A /μS	Q2		12.6		nS
			Q1		7.9		
Reverse Recovery Charge	Q_{rr}		Q2		4.2		nC
			Q1		1.2		

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

[2]Independent of operating temperature.

[3]Package limitation current :Q1=10A,Q2=-10A

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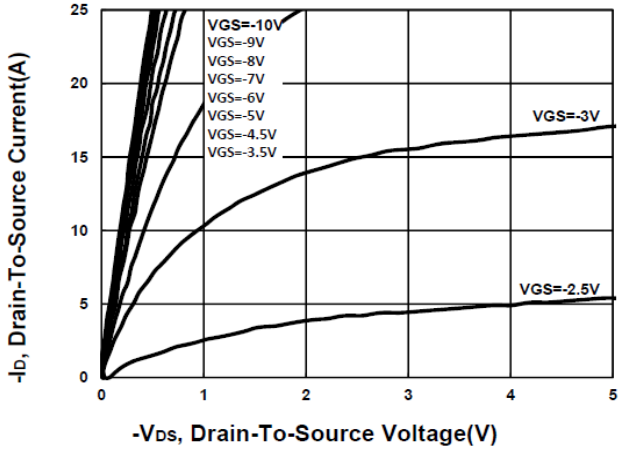
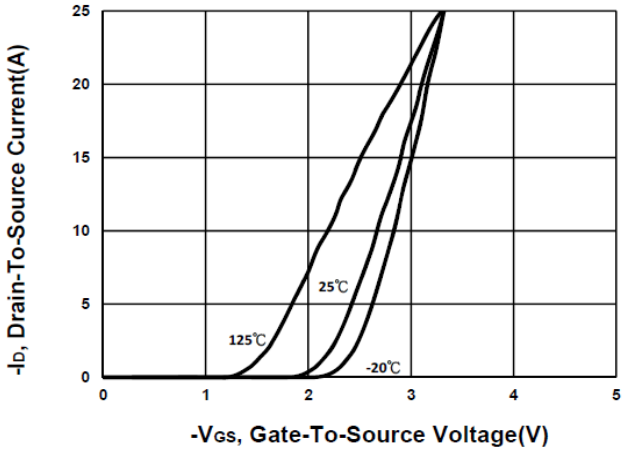
Q2

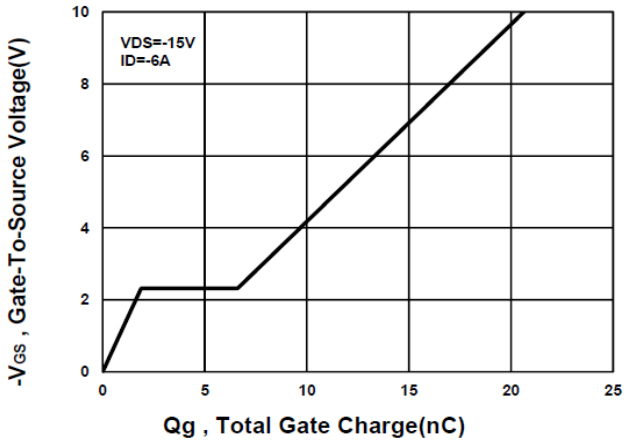
Output Characteristics



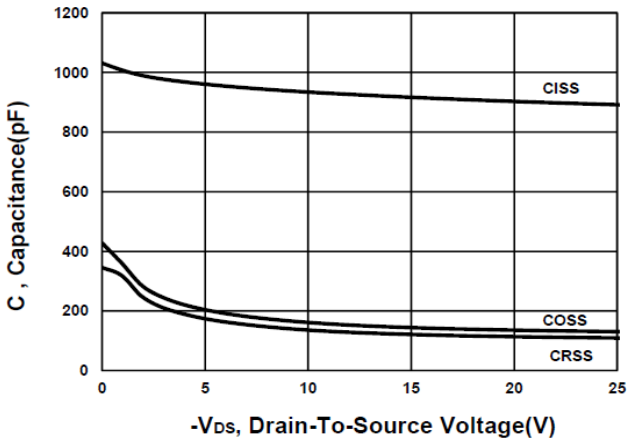
Transfer Characteristics



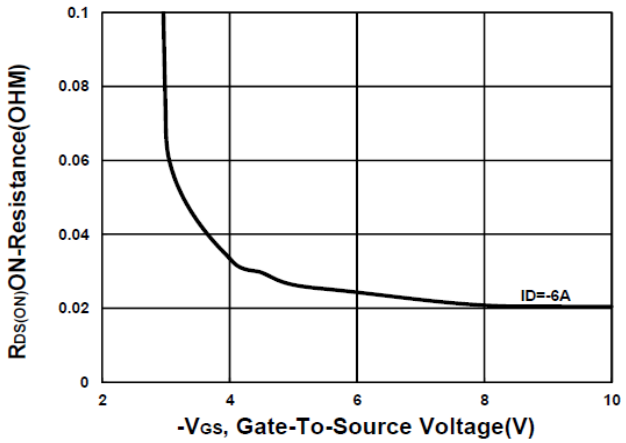
Gate charge Characteristics



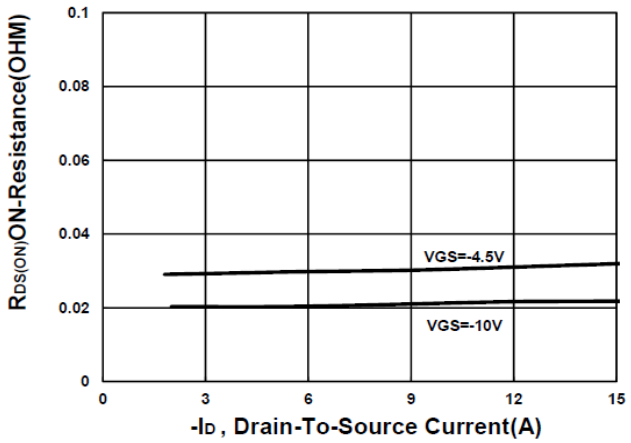
Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



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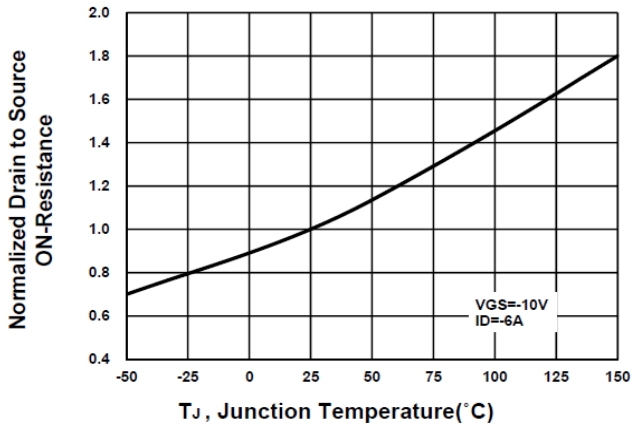
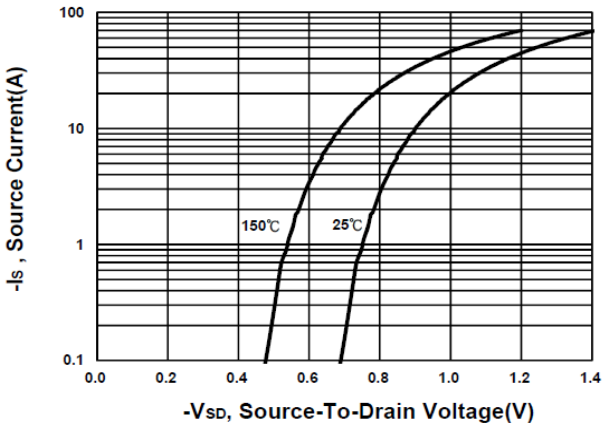
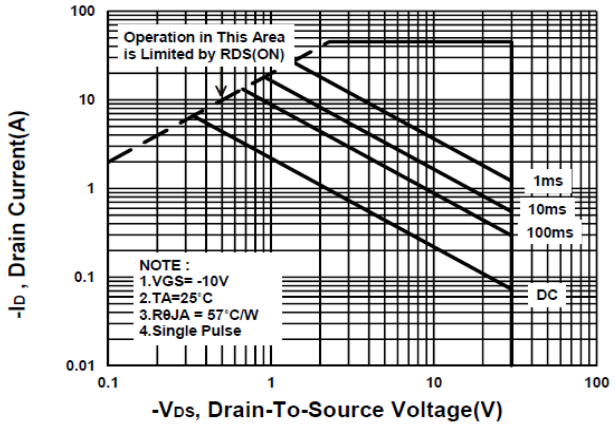
On-Resistance VS Temperature



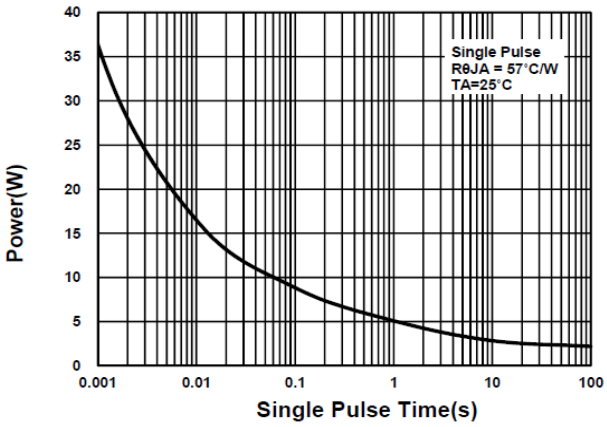
Source-Drain Diode Forward Voltage



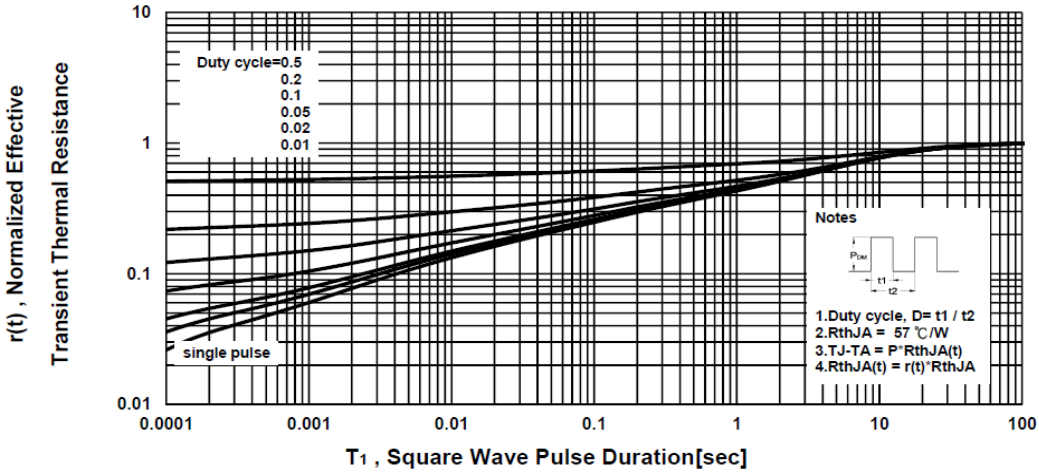
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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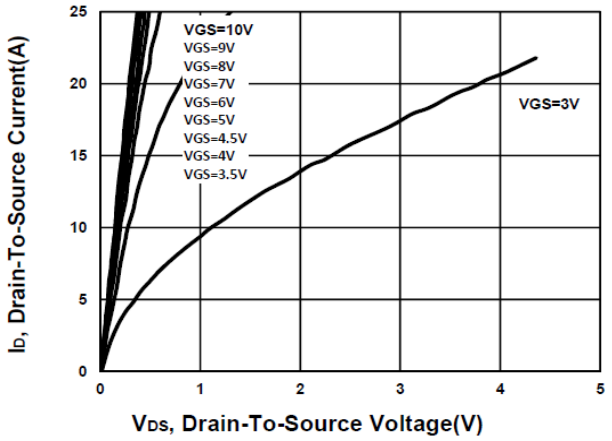
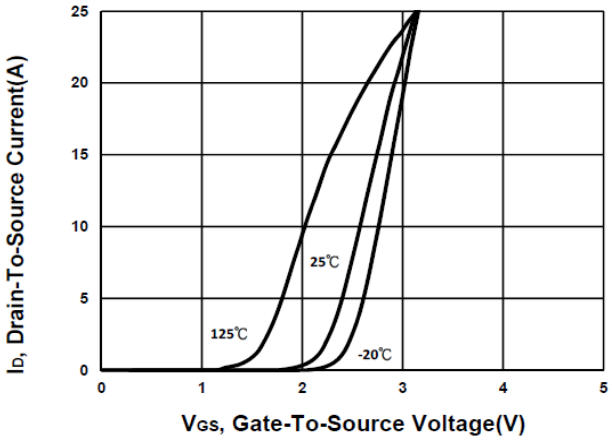
Q1

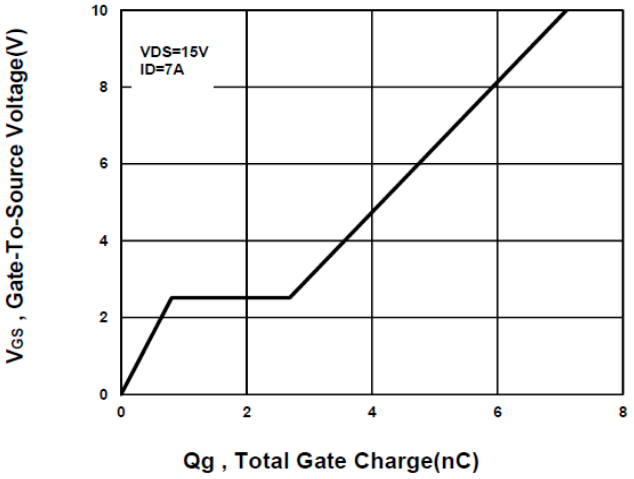
Output Characteristics



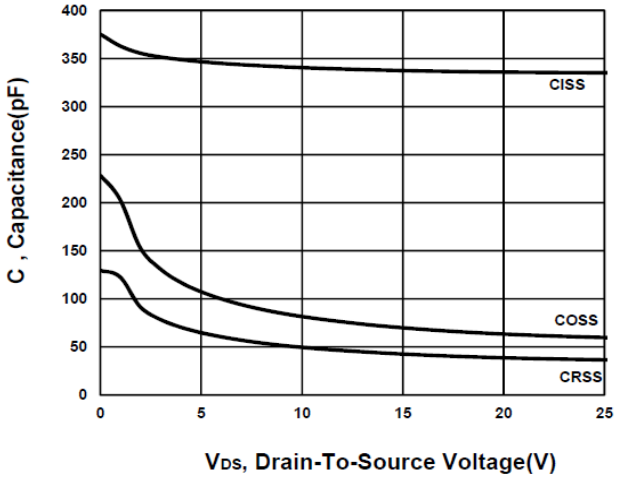
Transfer Characteristics



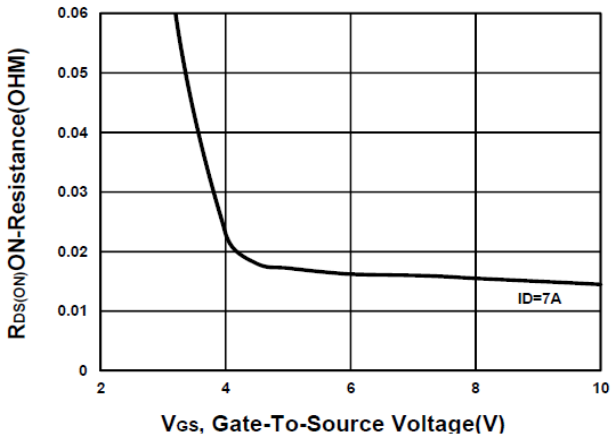
Gate charge Characteristics



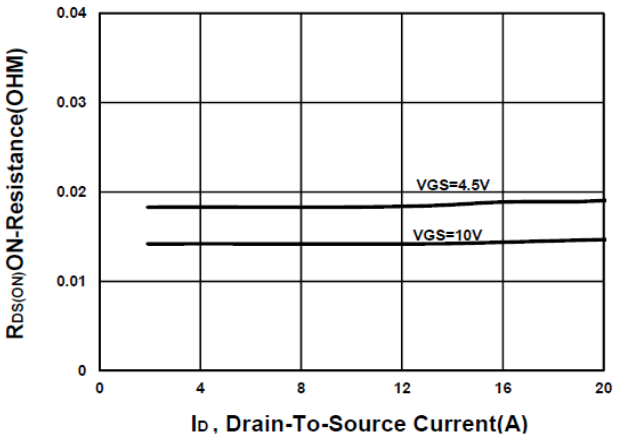
Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



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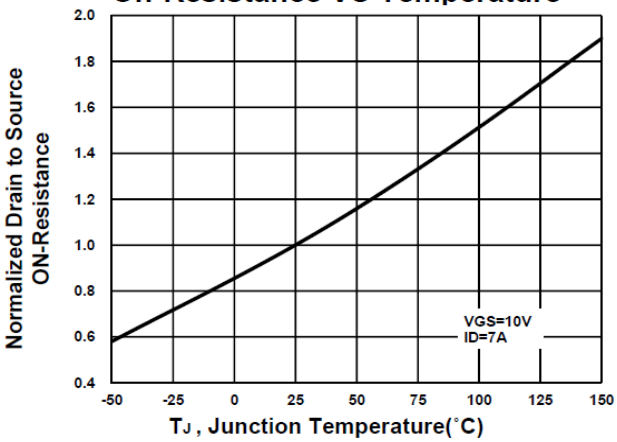
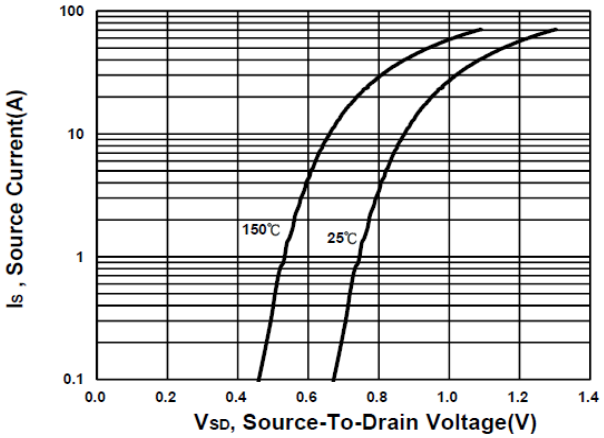
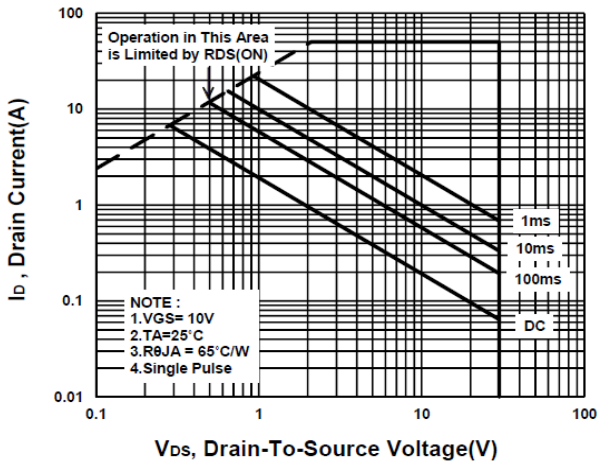
On-Resistance VS Temperature



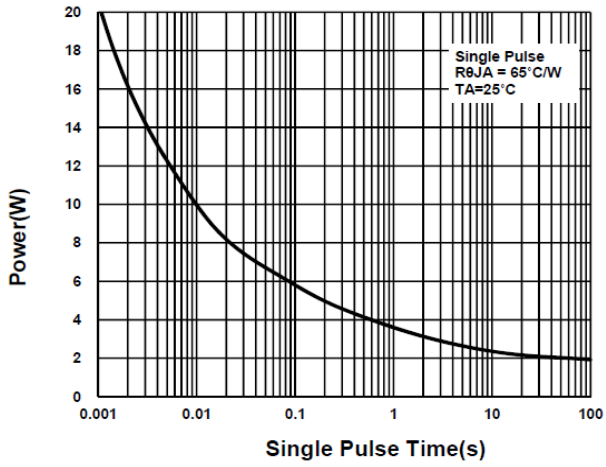
Source-Drain Diode Forward Voltage



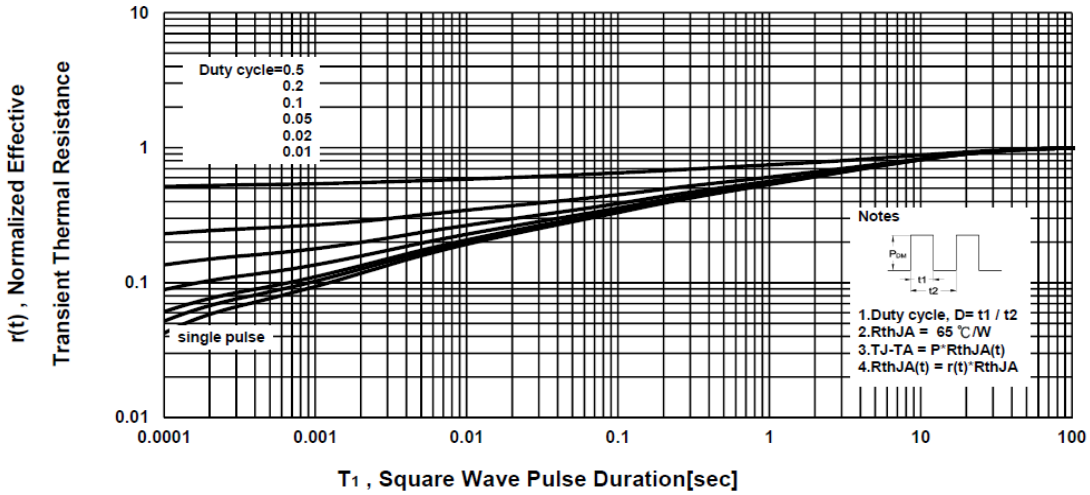
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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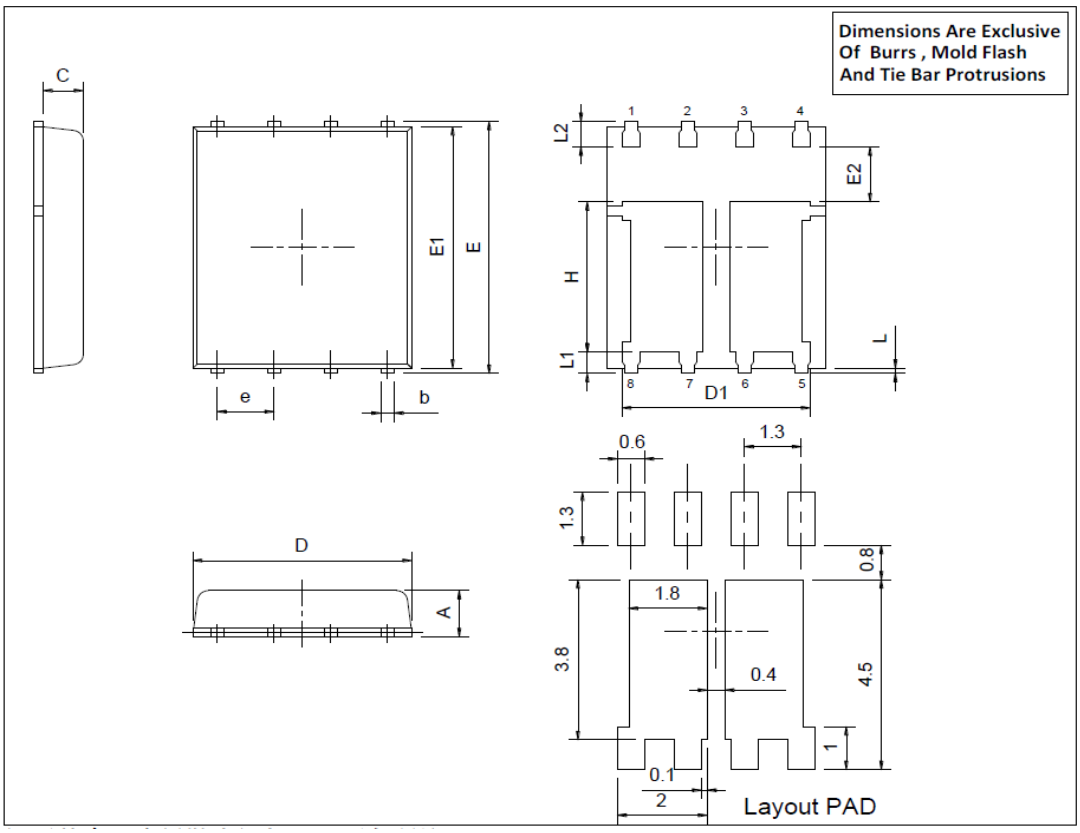
Package Dimension

PDFN 5x6P(左右 Dual) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1.17	e		1.27	
b	0.33		0.51	L	0.05		0.25
C	0.7		0.97	L1	0.38		0.61
D	4.8		5.0	L2	0.38		0.71
D1	3.61		4.31	H	3.38		3.78
E	5.9		6.15				
E1	5.65		5.85				
E2	1.1						



＊散热片形状会因为封装厂框架不同而有所差异。

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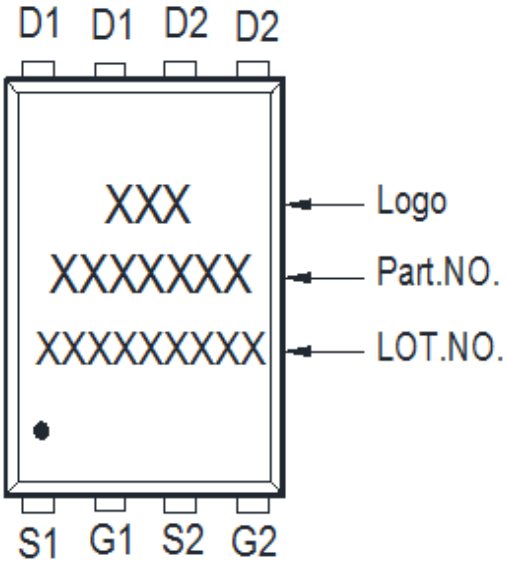
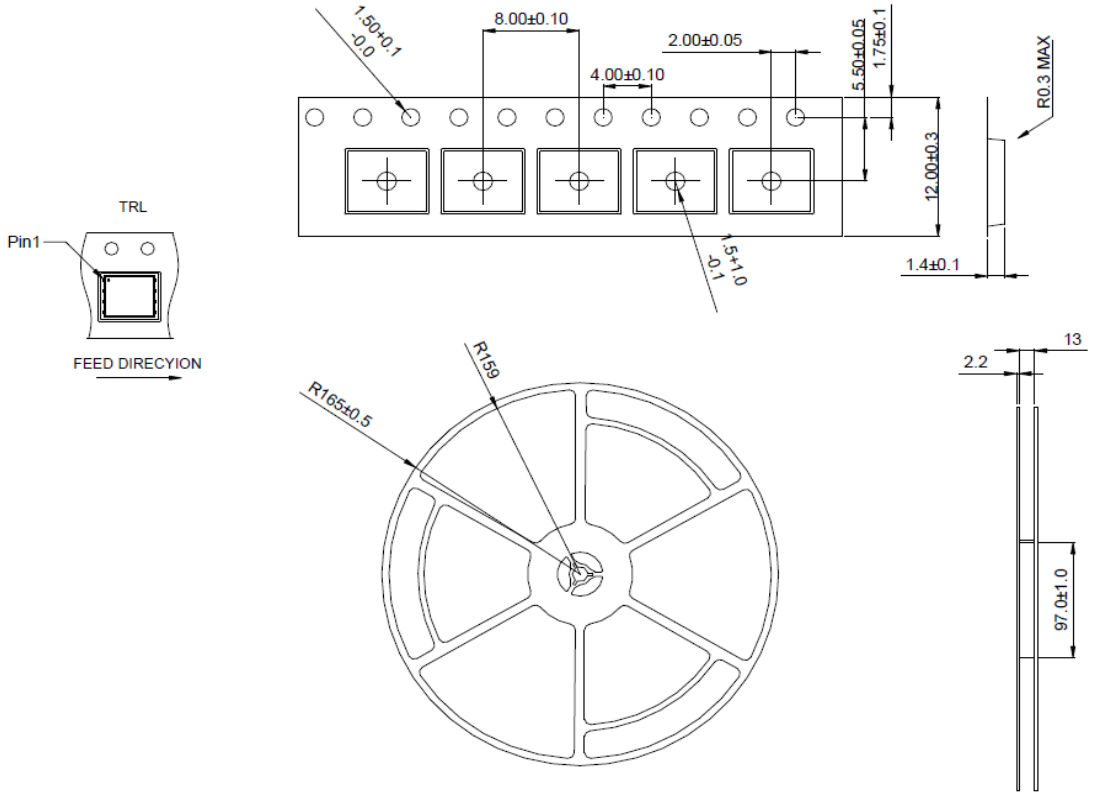
A. Marking Information



B. Tape&Reel Information:3000pcs/Reel



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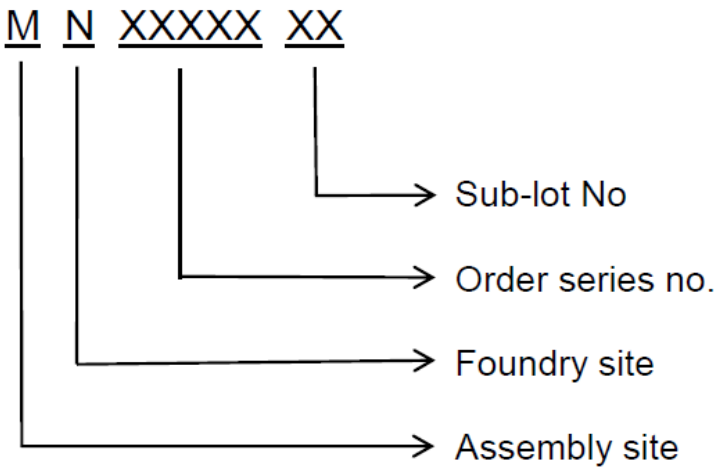
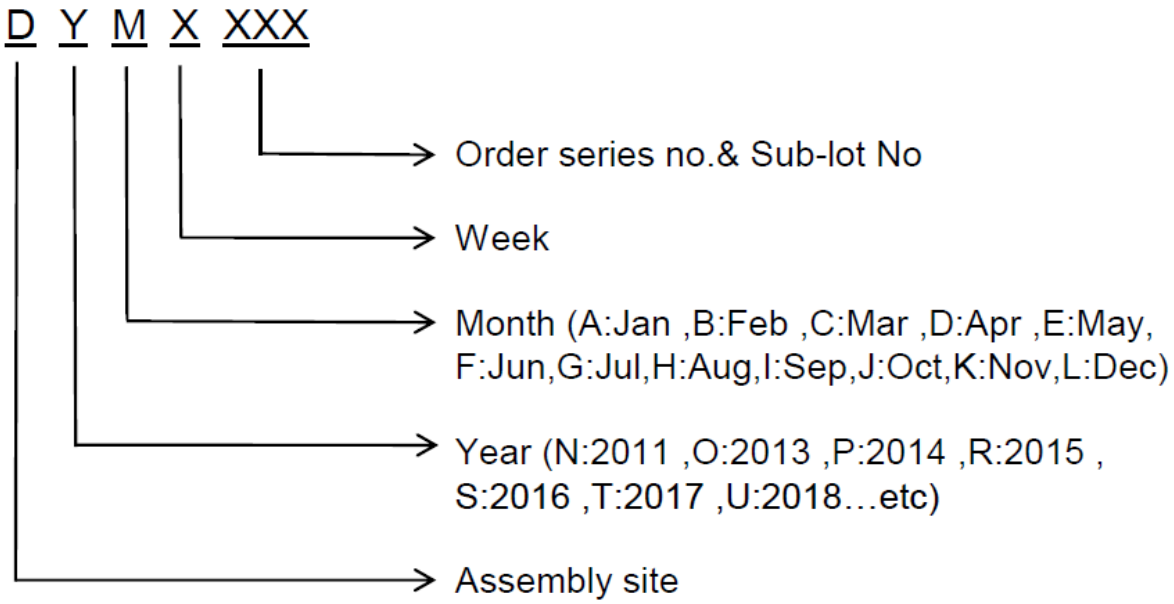
C. Lot No.&Date Code rule

1.Lot No.



2.Date Code



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D.Label rule

标签内容(Label content)

1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial (或可区分英文”O”和数字”0”，”G和”Q”的字型即可)
3	U-NIKC	Height: 4 mm
4	Package	Height: 2 mm
5	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
6	Device	Height: 3 mm (Max: 16 Digit)
7	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
8	D/C	Height: 3 mm (Max: 7 Digit)
9	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
10	RoHS label	RoHS long axis: 12 mm minor axis:6 mm bottom color: White Font color: Black Font style: Arial
11	Halogen Free label	G Diameter: 10 mm bottom color: Green Font color: Black Font style: Arial
12	Scan information	Device / Lot / D/C / QTY , Insert “ / “ between every parts. for example: P3055LDG/G12345601/GGG2301/2000 DPI (Dots per inch): Over 300 dpi Code : Code 128 Height: 6 mm at least