UNIKC Semiconductor

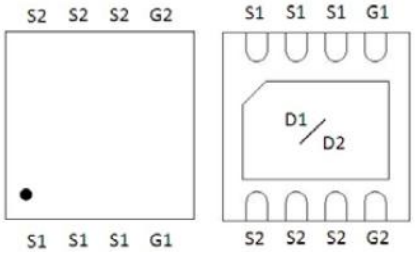
RoHS Compliant

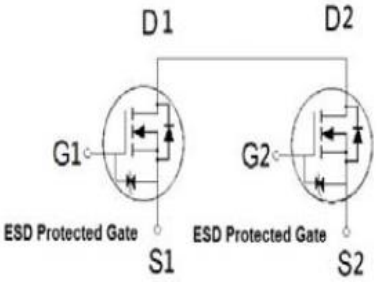
PE5C6JZ

Dual N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
24V	5.5mΩ @V_{GS} = 4.5V	54A





PDFN 3X3S

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	24	V
Gate-Source Voltage		V_{GS}	±12	V
Continuous Drain Current[2]	T_C = 25 °C	I_D	54	A
	T_C = 100 °C		34	
	T_A = 25 °C		16	
	T_A= 70 °C		13	
Pulsed Drain Current[1]		I_{DM}	90	
Avalanche Current		I_{AS}	28	
Avalanche Energy	L =0.1mH	E_{AS}	39	mJ
Power Dissipation	T_C = 25 °C	P_D	27	W
	T_C = 100 °C		11	
	T_A = 25 °C		2.5	
	T_A = 70 °C		1.6	
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[3]	$R_{\theta JA}$		50	°C / W
Junction-to-Case	$R_{\theta JC}$		4.5	

[1]Pulse width limited by maximum junction temperature.

[2]Package limitation current is 13A.

[3]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.

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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	24			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	0.6	0.9	1.2	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±10V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	μA
		V_{DS} = 20V, V_{GS} = 0V, T_J = 125 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 3A	3.6	4.6	5.5	mΩ
		V_{GS} = 3.8V, I_D = 3A	3.9	4.9	6	
		V_{GS} = 3.1V, I_D = 3A	4.3	5.3	6.9	
		V_{GS} = 2.5V, I_D = 3A	5	6	8.5	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 3A		24		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 12V, f = 1MHz		1774		pF
Output Capacitance	C_{oss}			327		
Reverse Transfer Capacitance	C_{rss}			267		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.8		Ω
Total Gate Charge[2]	Q_g(V_{GS}=4.5V)	V_{DS} = 12V , I_D = 3A		24		nC
	Q_g(V_{GS}=3.9V)			21.4		
Gate-Source Charge[2]	Q_{gs}			2.2		
Gate-Drain Charge[2]	Q_{gd}			9		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD}= 12V, I_D ≅ 3A, V_{GEN} = 4.5V, R_G= 6Ω		20		nS
Rise Time[2]	t_r			38		
Turn-Off Delay Time[2]	$t_{d(off)}$			70		
Fall Time[2]	t_f			18		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				22	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		28		nS
Reverse Recovery Charge	Q_{rr}			13		nC

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

[2]Independent of operating temperature.

[3]Package limitation current is 13A.

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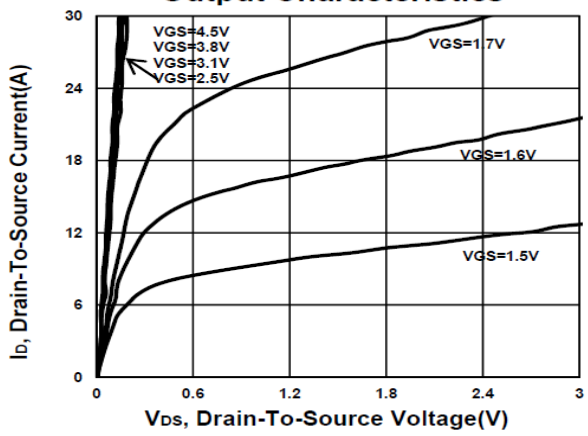
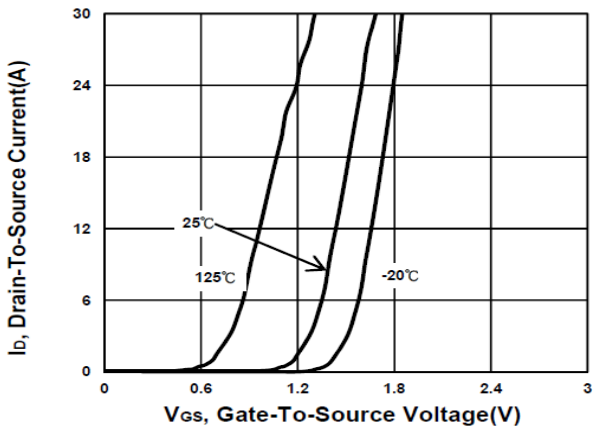
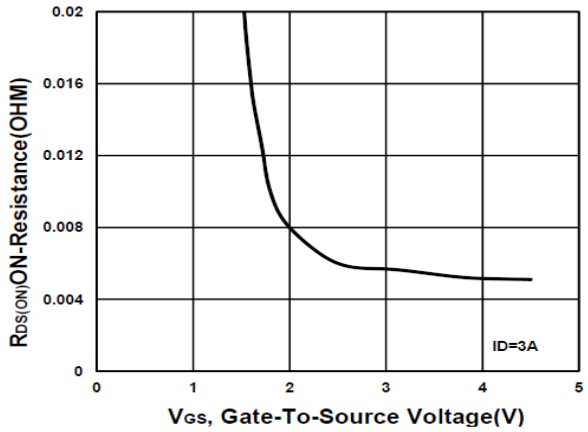
Output Characteristics



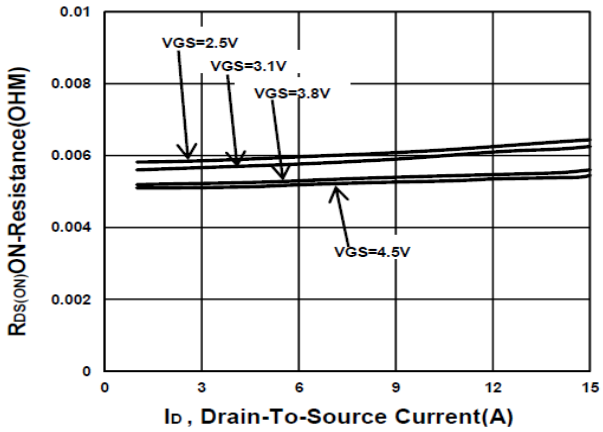
Transfer Characteristics



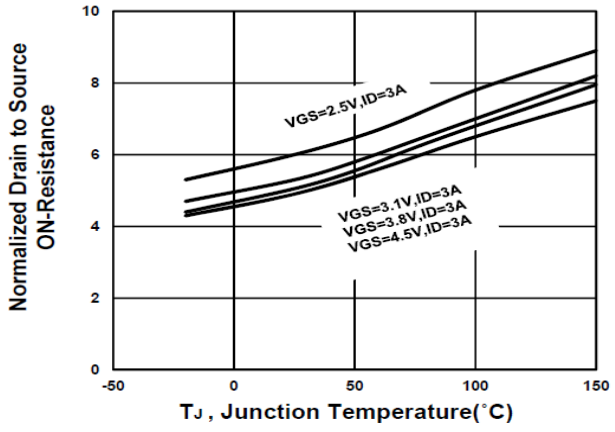
On-Resistance VS Gate-To-Source



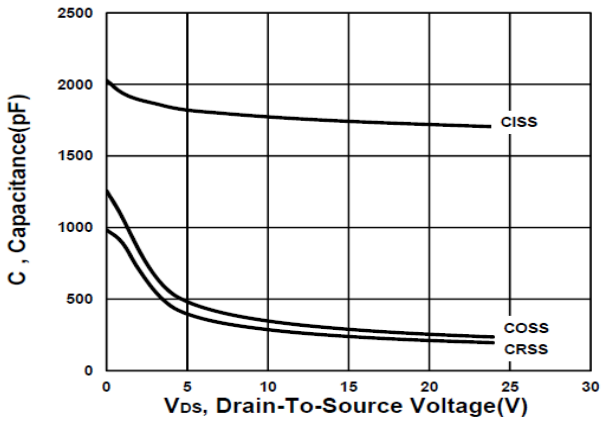
On-Resistance VS Drain Current



On-Resistance VS Temperature



Capacitance Characteristic



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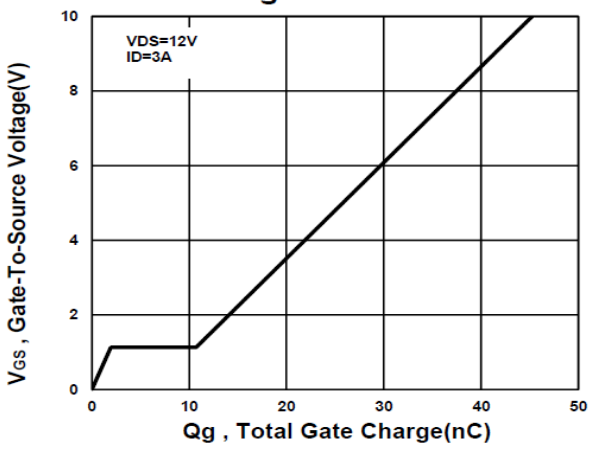
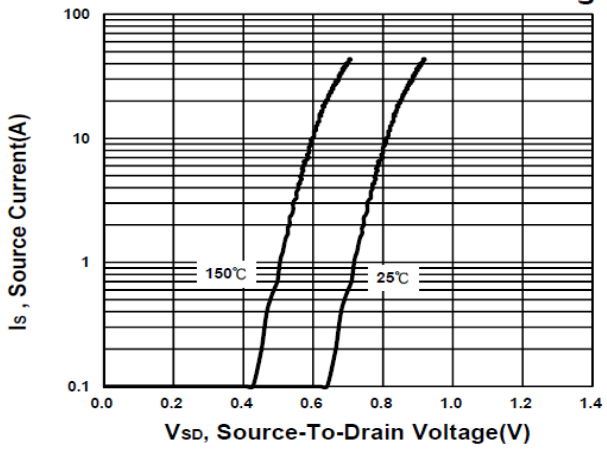
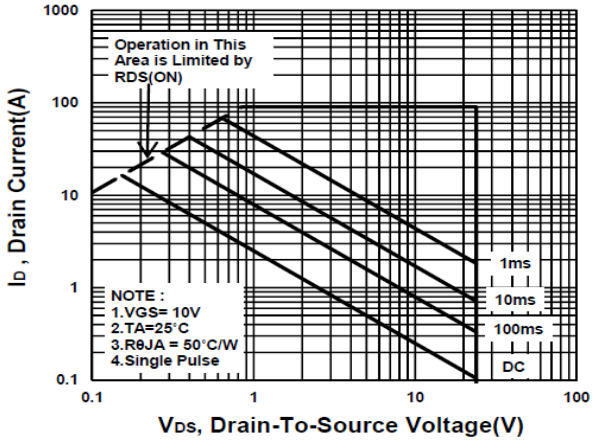
Gate charge Characteristics



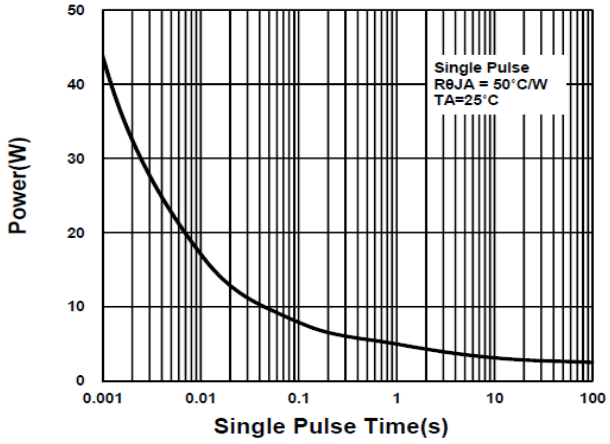
Source-Drain Diode Forward Voltage



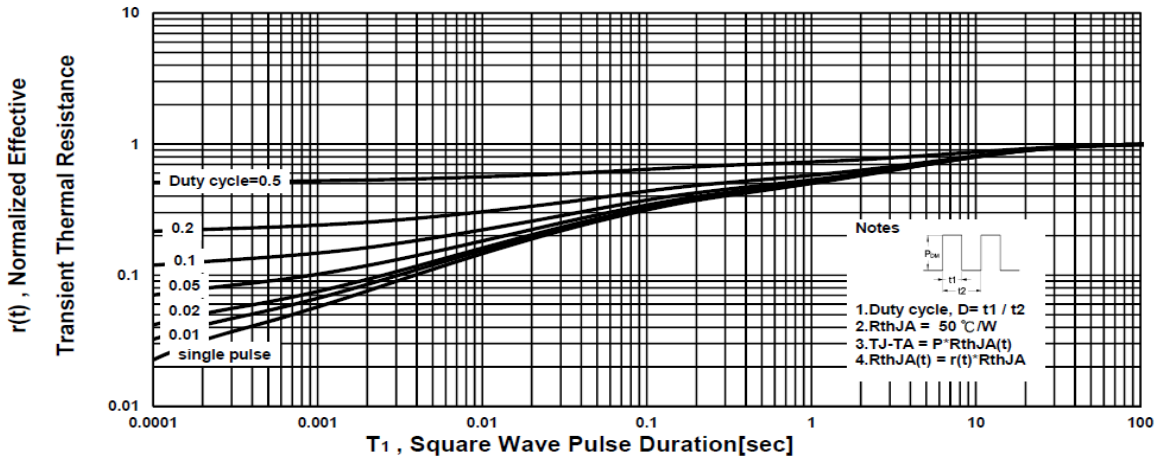
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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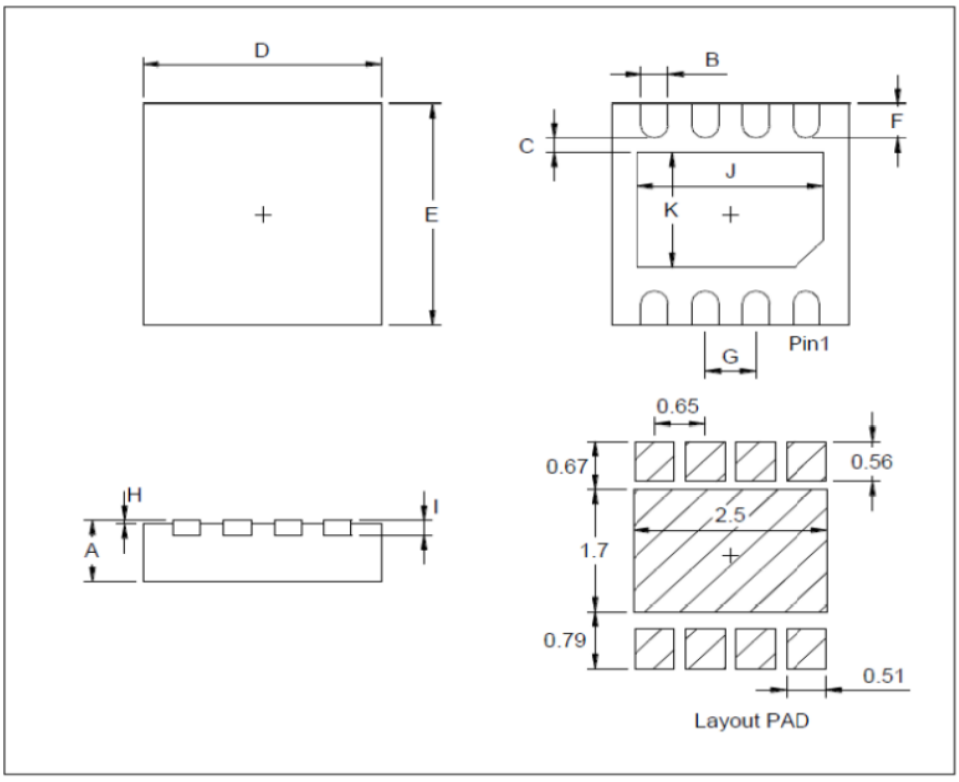
Package Dimension

PDFN 3x3S MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.70		0.90	I	0.195		0.211
B	0.25		0.35	J	2.20		2.40
C	0.25		0.45	K	1.40		1.60
D	2.90		3.10				
E	2.90		3.10				
F	0.324		0.476				
G	0.55	0.65	0.75				
H	0		0.05				



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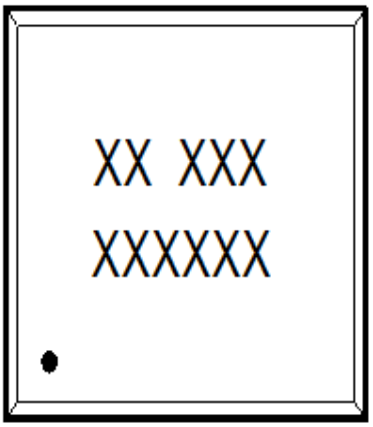
A. Marking Information(此产品代码为：K2)

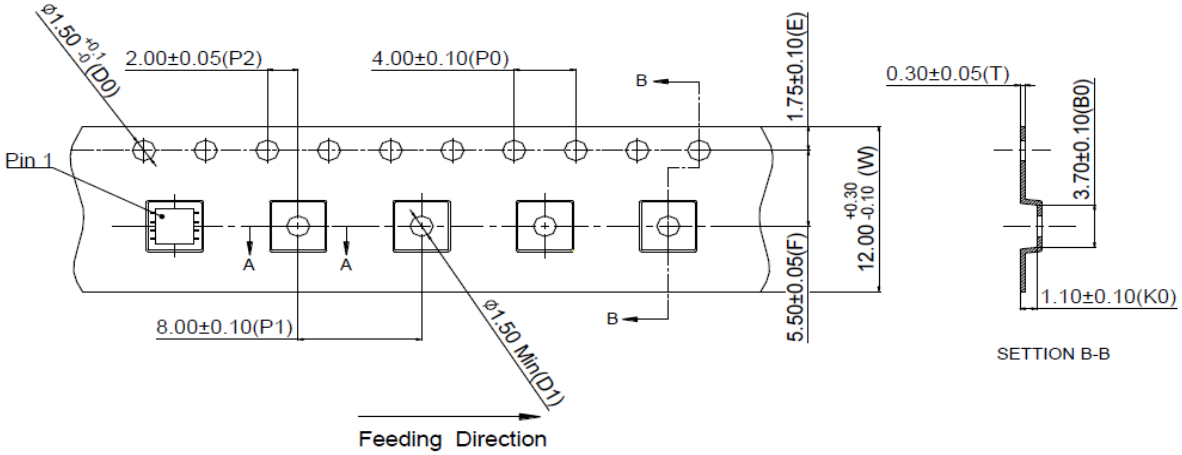


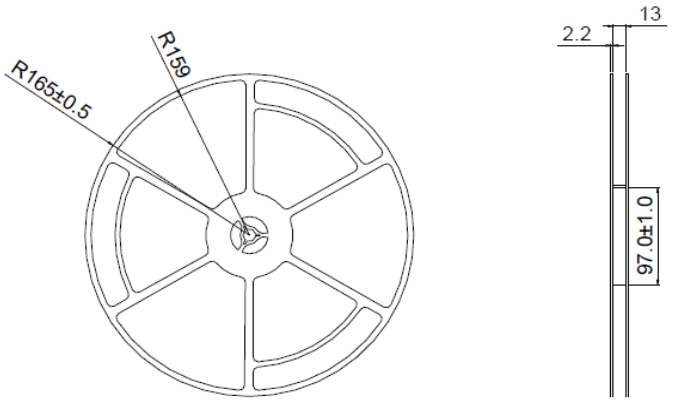
XX(前两码):产品代码

XXX

XXXXXX(后九码):LOT.NO

B. Tape&Reel Information:5000pcs/Reel





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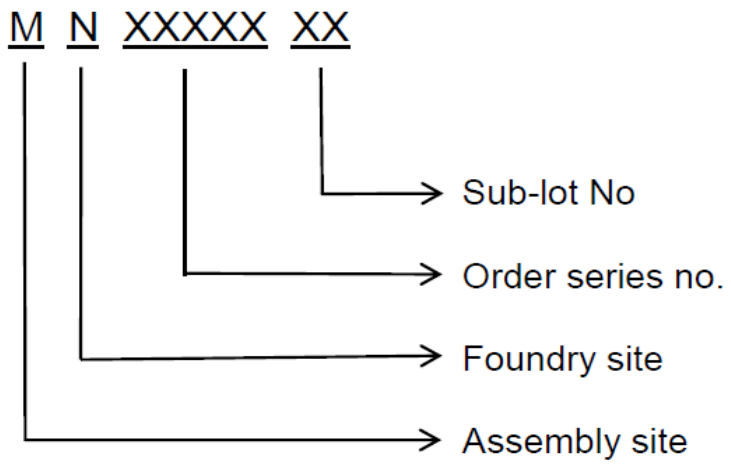
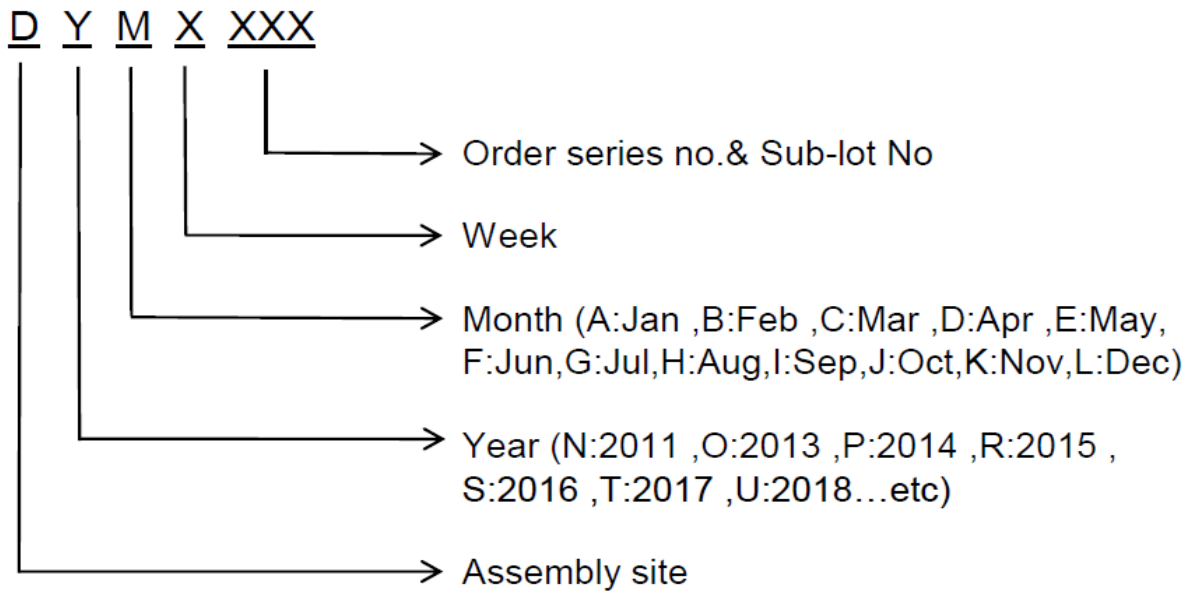
C. Lot No.&Date Code rule

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