UNIKC Semiconductor

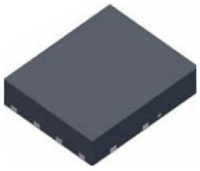
RoHS Compliant

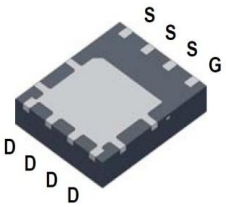
PKC16BB

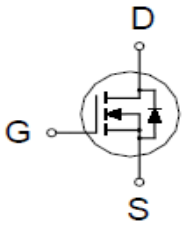
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	7mΩ @V_{GS} = 10V	51A







100% UIS Tested
100% Rg Tested

PDFN 5X6P

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_C = 25 °C	I_D	51	A
	T_C = 100 °C		32	
Pulsed Drain Current[1]		I_{DM}	120	
Continuous Drain Current	T_A = 25 °C	I_D	18	
	T_A= 70 °C		14	
Avalanche Current		I_{AS}	24.7	
Avalanche Energy	L =0.1mH	E_{AS}	30.5	mJ
Power Dissipation	T_C = 25 °C	P_D	32	W
	T_C = 100 °C		13	
Power Dissipation[3]	T_A = 25 °C	P_D	4.1	W
	T_A = 70 °C		2.6	
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[2]	t ≦10s	$R_{\theta JA}$		30	°C / W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		54	
Junction-to-Case	Steady-State	$R_{\theta JC}$		3.8	

[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.

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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	1.4	1.8	3	
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 = 13A		6	9.5	mΩ
		V_{GS} = 10V , I_D = 13A		4.3	7	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 13A		52		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		902		pF
Output Capacitance	C_{oss}			171		
Reverse Transfer Capacitance	C_{rss}			106		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		2.2		Ω
Total Gate Charge[2]	Q_g (V_{GS} =10V)	V_{DS} = 15V, V_{GS} = 10V, I_D = 13A		17.5		nC
	Q_g (V_{GS} =4.5V)			9.6		
Gate-Source Charge[2]	Q_{gs}			2		
Gate-Drain Charge[2]	Q_{gd}			5.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 15V, I_D ≅ 13A, V_{GS} = 10V, R_{GEN} = 6Ω		29		nS
Rise Time[2]	t_r			25		
Turn-Off Delay Time[2]	$t_{d(off)}$			62		
Fall Time[2]	t_f			30		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				26	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 / μS		9.2		nS
Reverse Recovery Charge	Q_{rr}			2		nC

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

[2]Independent of operating temperature.

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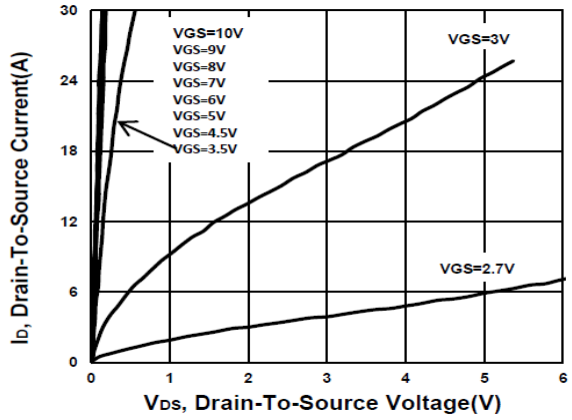
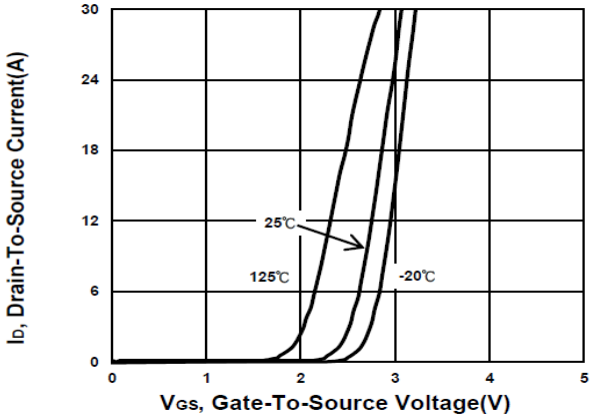
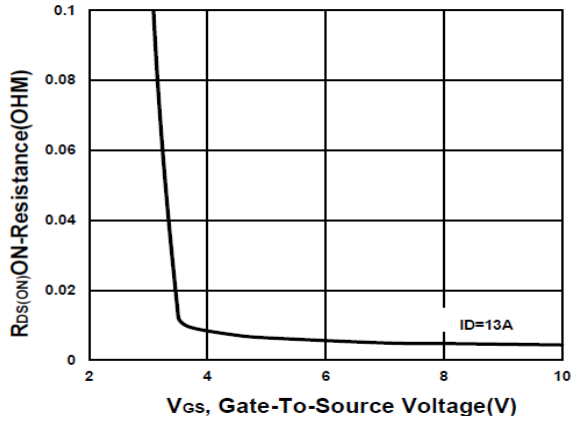
Output Characteristics



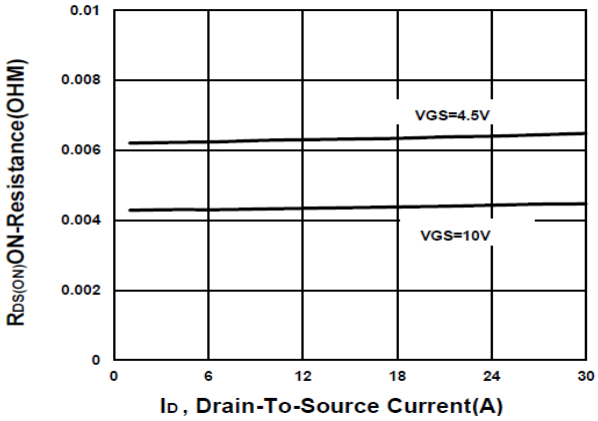
Transfer Characteristics



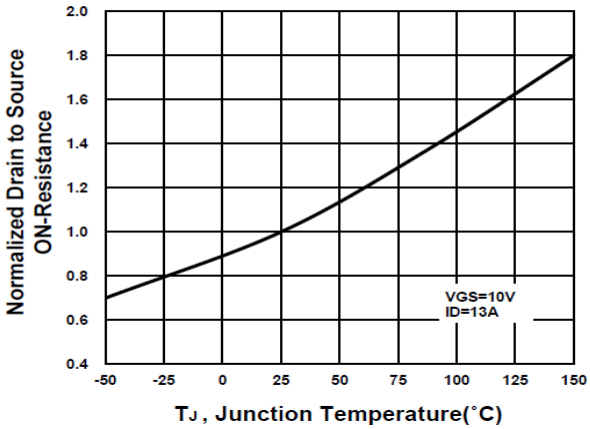
On-Resistance VS Gate-To-Source



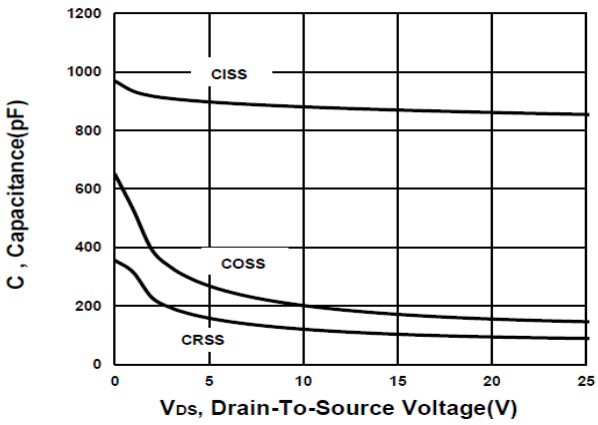
On-Resistance VS Drain Current



On-Resistance VS Temperature



Capacitance Characteristic



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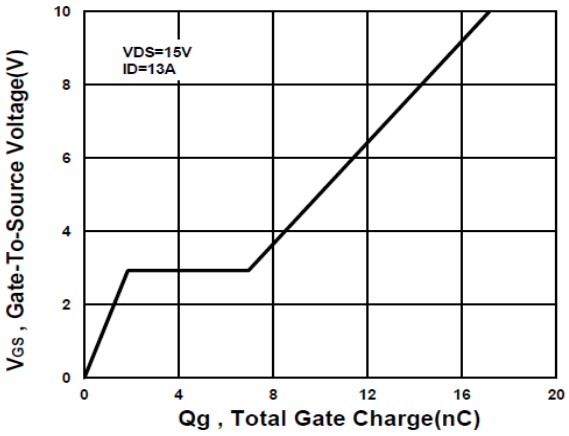
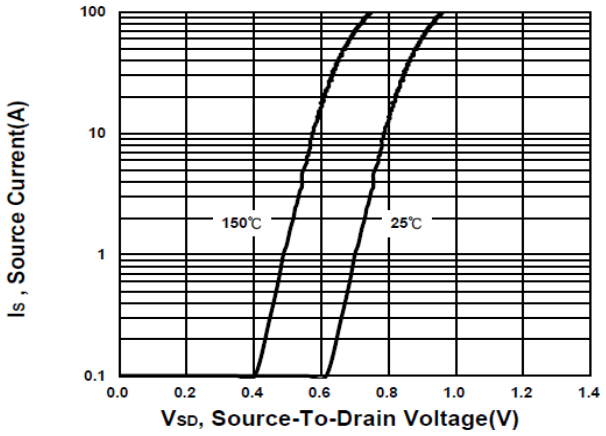
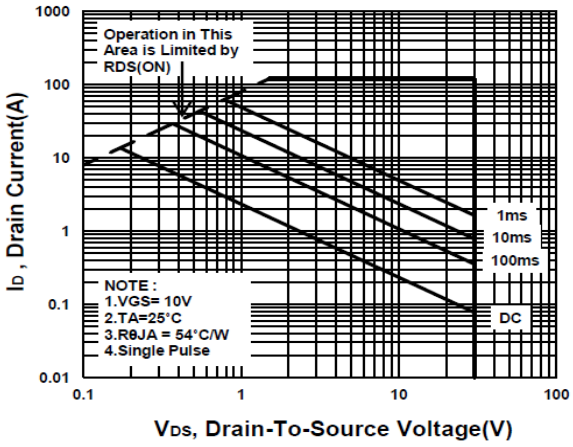
Gate charge Characteristics



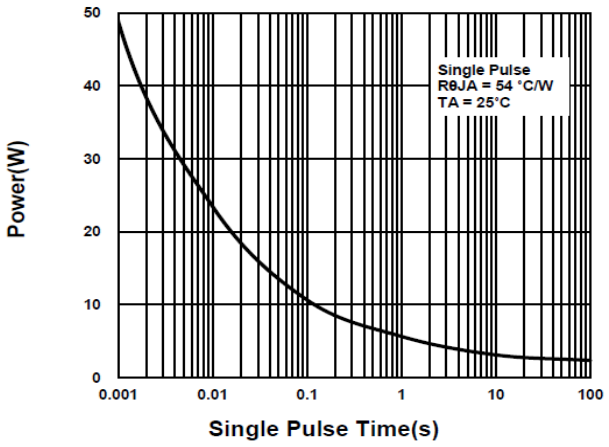
Source-Drain Diode Forward Voltage



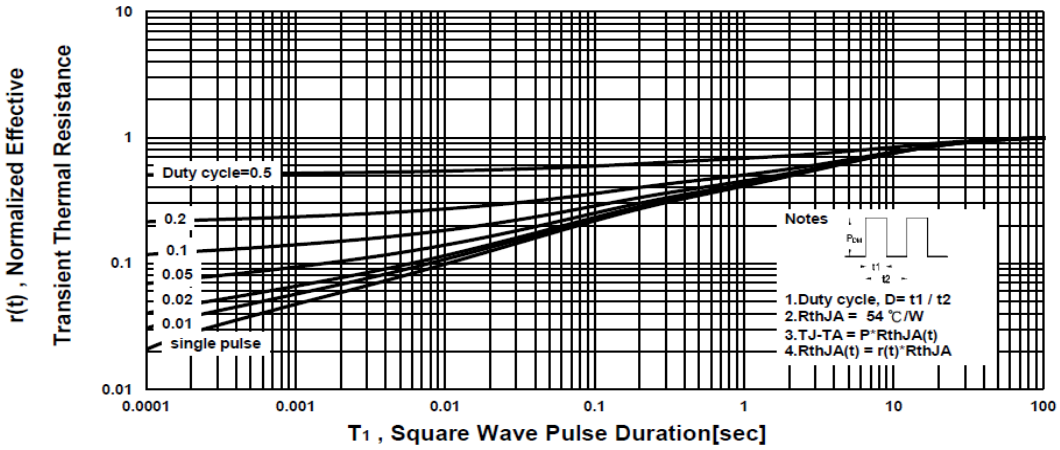
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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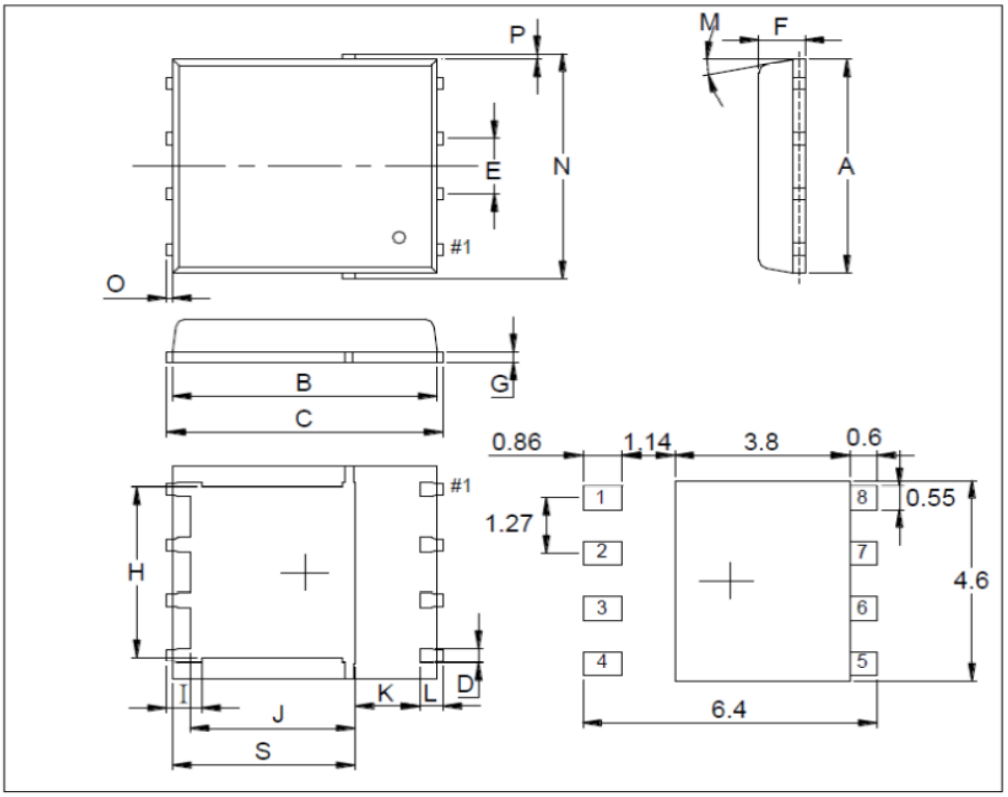
Package Dimension

PDFN 5x6P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.34		3.9
B	5.42		5.9	K	0.9		
C	5.9		6.35	L	0.38		0.711
D	0.3		0.51	M	0°		12°
E	1.17	1.27	1.37	N	4.8		5.4
F	0.8	1	1.2	O	0.05		0.36
G	0.15		0.35	P	0.05		0.25
H	3.67		4.31	S	3.73		4.19
I	0.38		0.71				



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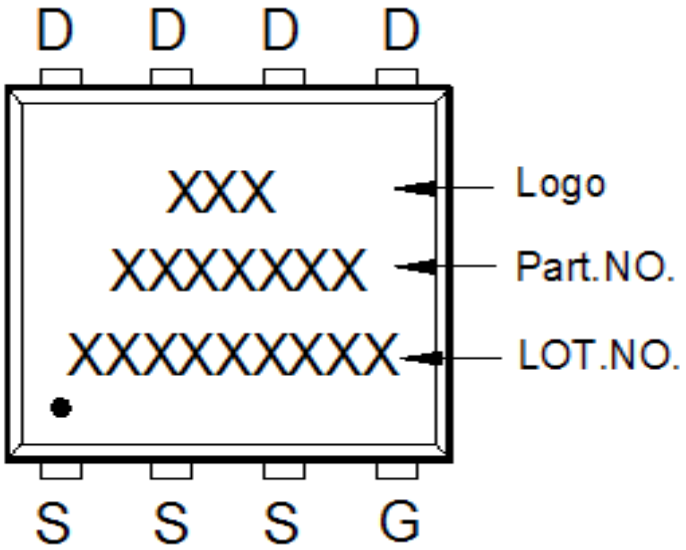
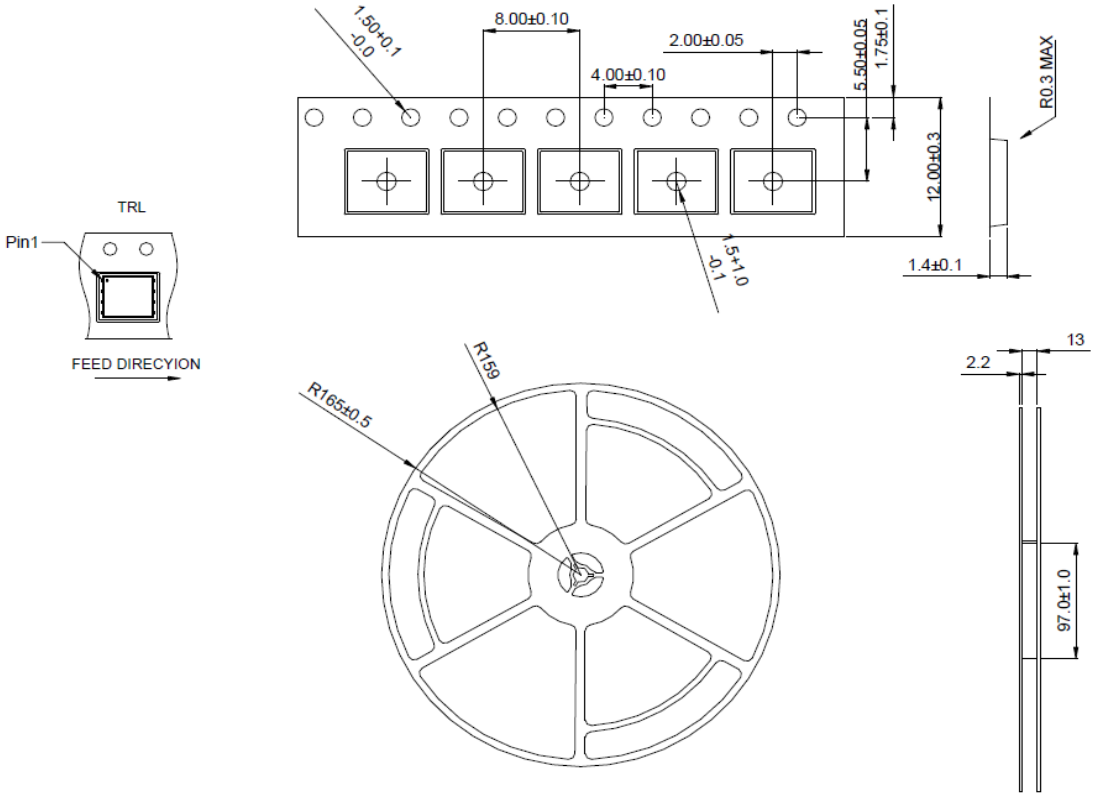
A. Marking Information



B. Tape&Reel Information:3000pcs/Reel



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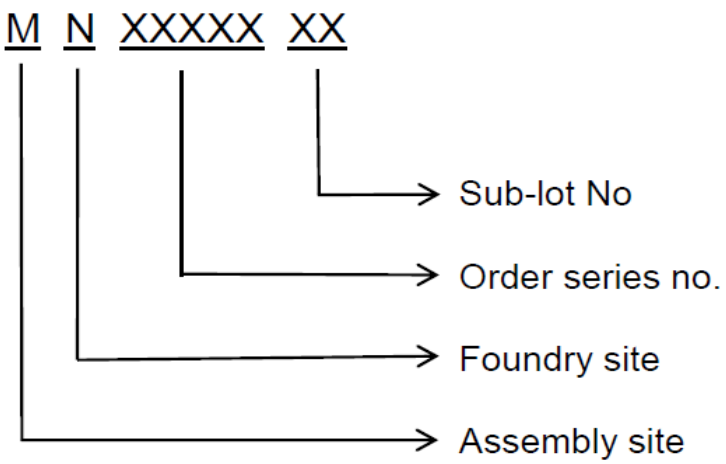
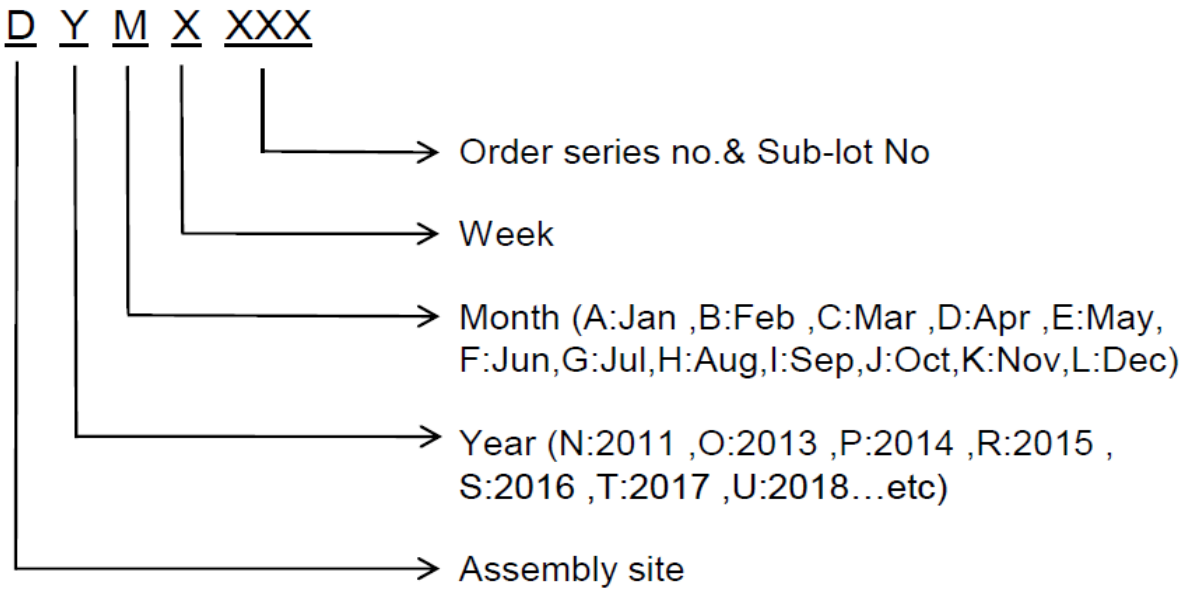
C. Lot No.&Date Code rule

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”0”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