UNIKC Semiconductor

RoHS Compliant

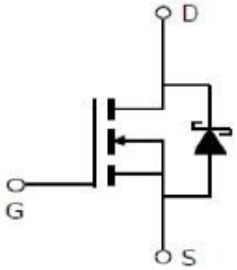
PE600SA

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	12mΩ @V_{GS} = 10V	25A

PDFN 3X3P



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[3]	T_C = 25 °C	I_D	30	A
	T_C = 100 °C		19	
	T_A = 25 °C		11	
	T_A= 70 °C		9.3	
Pulsed Drain Current[1]		I_{DM}	80	
Avalanche Current		I_{AS}	21	
Avalanche Energy	L =0.1mH	E_{AS}	22	mJ
Power Dissipation[4]	T_C = 25 °C	P_D	20	W
	T_C = 100 °C		8.3	
	T_A = 25 °C		3.1	
	T_A = 70 °C		2	
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	$R_{\theta JA}$		40	°C / W
	Steady-State	$R_{\theta JA}$		69	
Junction-to-Case	Steady-State	$R_{\theta JC}$		6	

[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]Package limitation current is 16A

[4]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 = 1mA	30			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.3	1.75	2.3	
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			0.1	mA
		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 = 7.6A		9.9	15	mΩ
		V_{GS} = 10V , I_D = 7.6A		7.8	12	
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 7.6A		52		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 15V, f = 1MHz		1030		pF
Output Capacitance	C_{oss}			177		
Reverse Transfer Capacitance	C_{rss}			123		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.9		Ω
Total Gate Charge[2]	Q_g(V_{GS}=10V)	V_{DS} = 15V , I_D = 7.6A		23		nC
	Q_g(V_{GS}=4.5V)			12		
Gate-Source Charge[2]	Q_{gs}			3		
Gate-Drain Charge[2]	Q_{gd}			5.7		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD}= 15V, $I_D \cong$ 7.6A, V_{GEN} = 10V, R_G= 6Ω		18		nS
Rise Time[2]	t_r			12		
Turn-Off Delay Time[2]	$t_{d(off)}$			36		
Fall Time[2]	t_f			15		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				16	A
Forward Voltage[1]	V_{SD}	I_F = 1A, V_{GS} = 0V			0.6	V
Reverse Recovery Time	t_{rr}	I_F = 7.6A, dI_F/dt = 100A / μS		14		nS
Reverse Recovery Charge	Q_{rr}			3.8		nC

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

[2]Independent of operating temperature.

[3]Package limitation current is 16A

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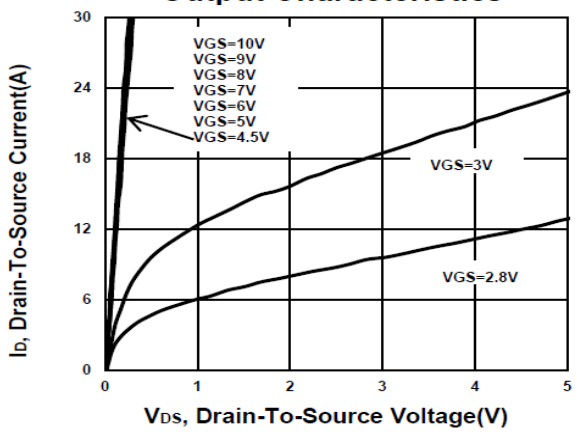
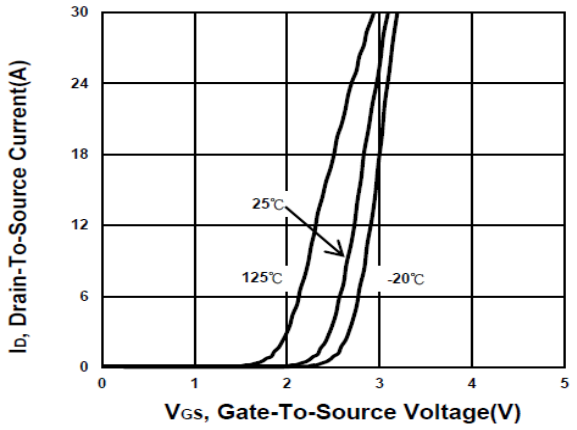
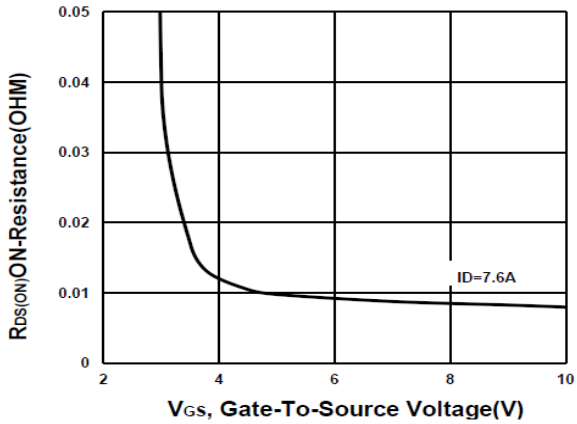
Output Characteristics



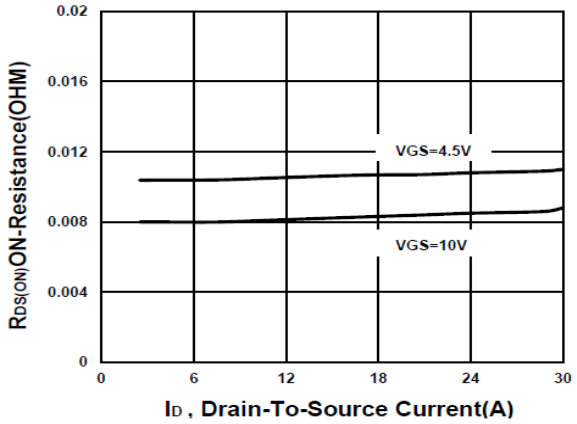
Transfer Characteristics



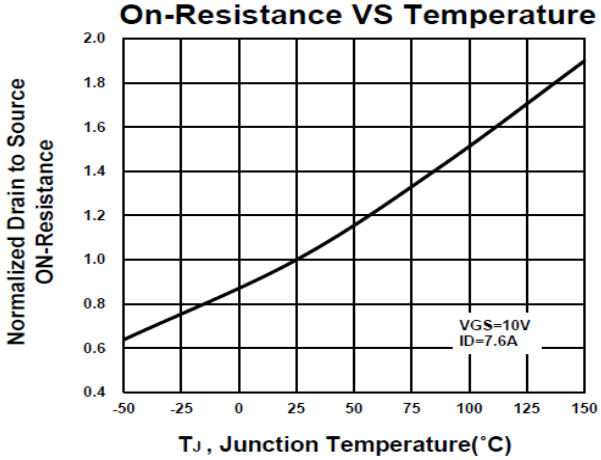
On-Resistance VS Gate-To-Source



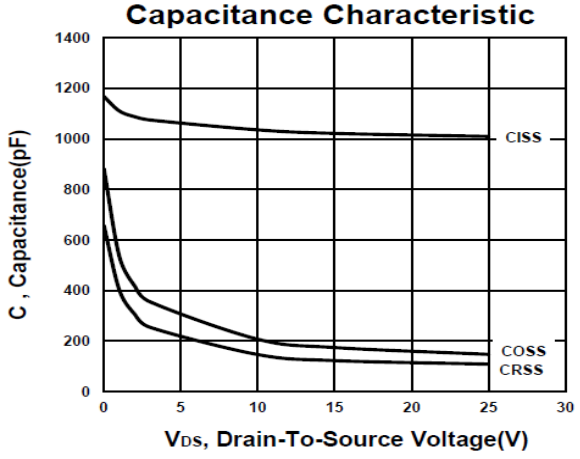
On-Resistance VS Drain Current



On-Resistance VS Temperature



Capacitance Characteristic



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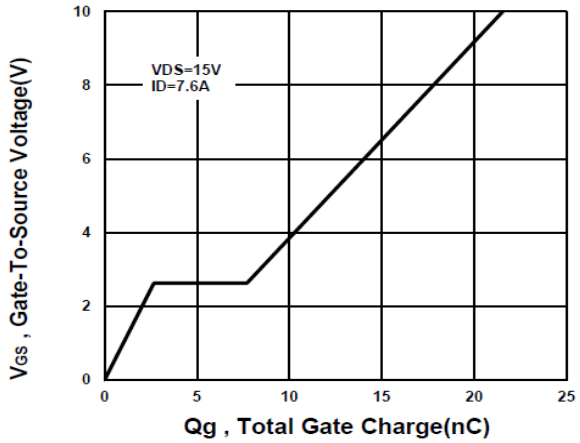
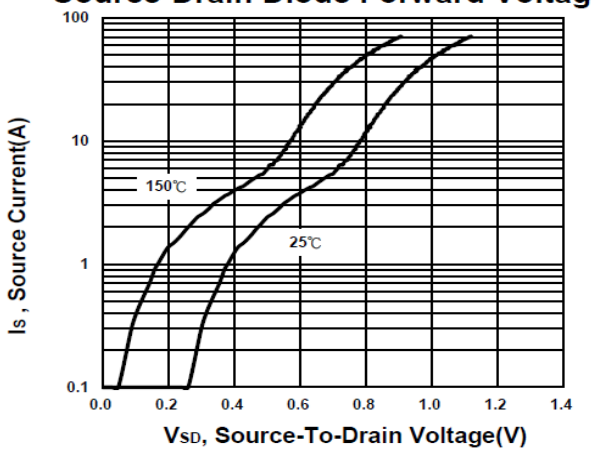
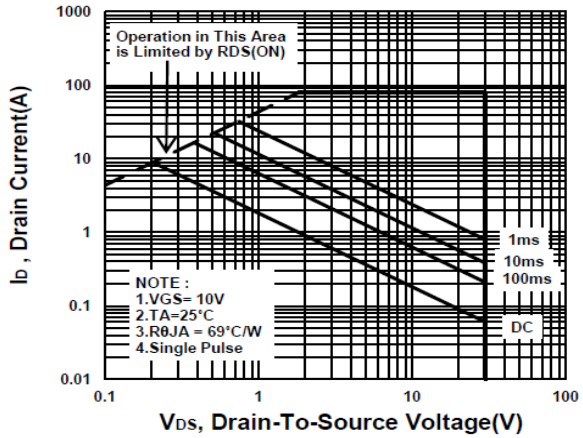
Gate charge Characteristics



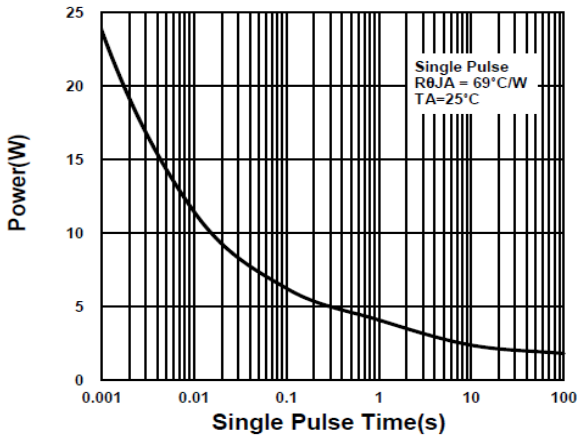
Source-Drain Diode Forward Voltage



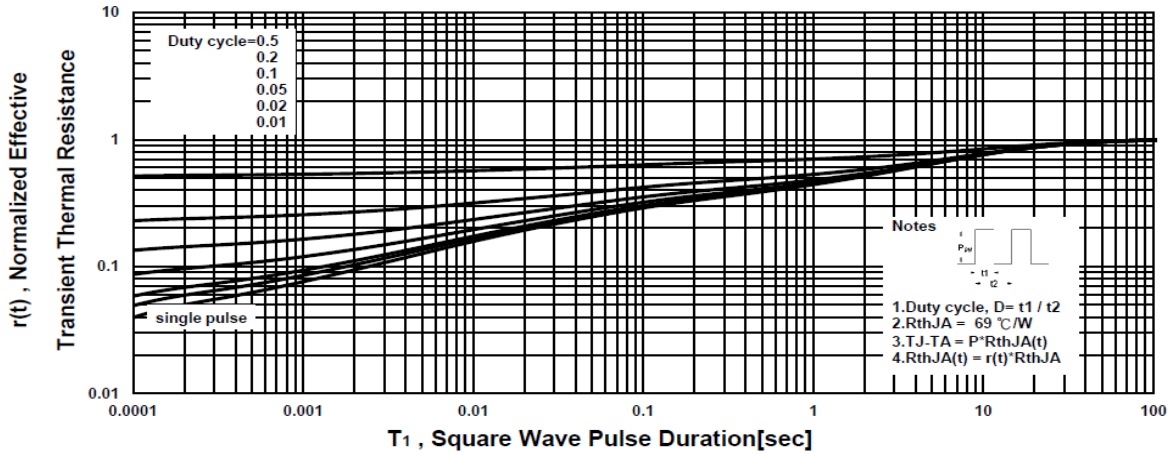
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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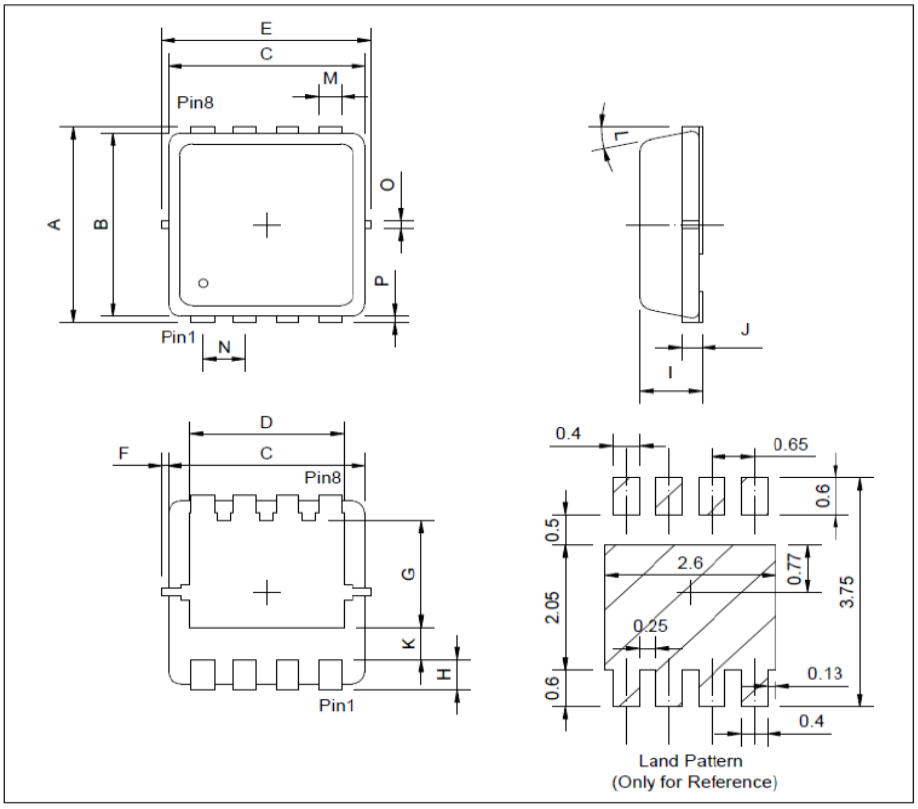
Package Dimension

PDFN 3x3P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	3	3.3	3.6	I	0.65	0.8	0.9
B	2.88	3	3.2	J	0.1	0.15	0.25
C	2.9	3	3.25	K	0.59		
D	2.29	2.45	2.69	L	0°	10°	12°
E	3	3.3	3.6	M	0.14	0.3	0.4
F	0	0.1	0.2	N	0.55	0.65	0.75
G	1.35	1.75	2.2	O		0.2	
H	0.15	0.3	0.55	P	0		0.2



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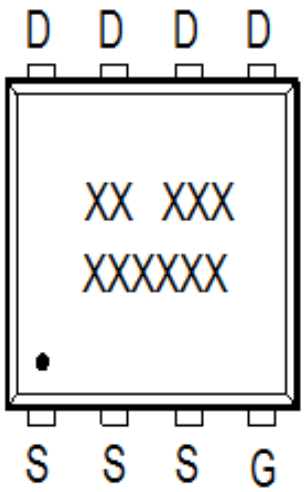
A. Marking Information(此产品代码为：F3）

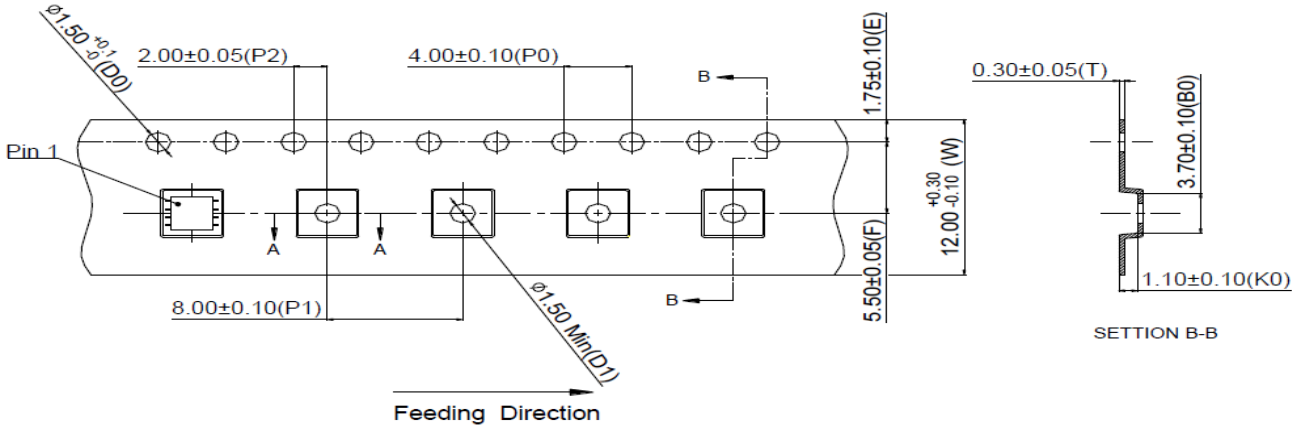


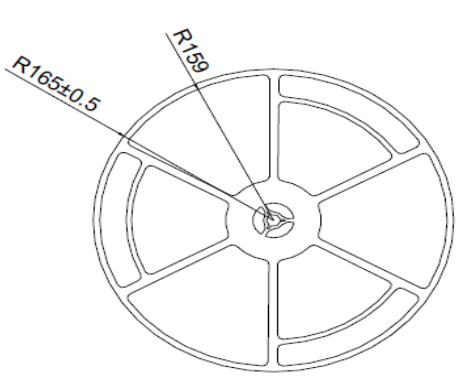
XX(前两码):产品代码

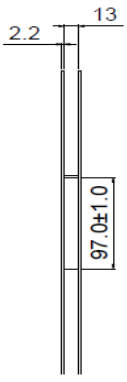
XXX

XXXXX(后九码):LOT NO

B. Tape&Reel Information:5000pcs/Reel







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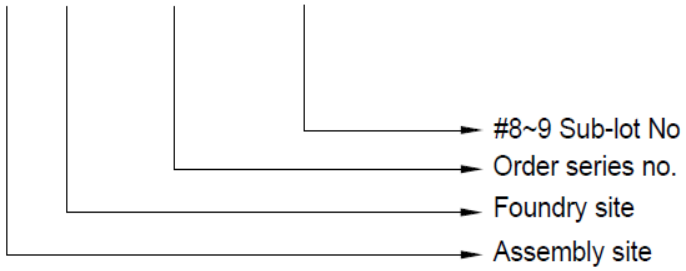
C. Lot.No. & Date Code rule

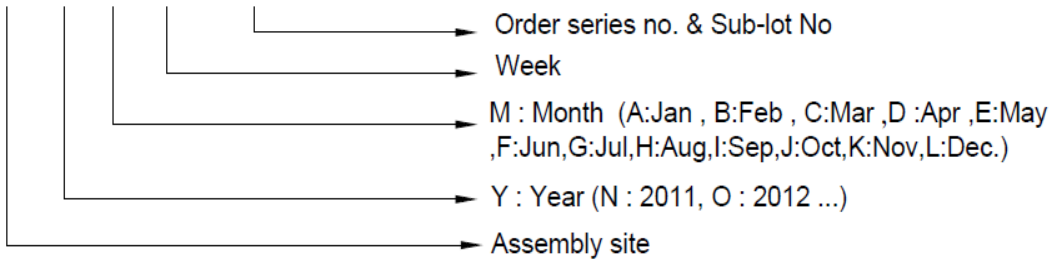
1.LOT.NO.

M N 15M21 03



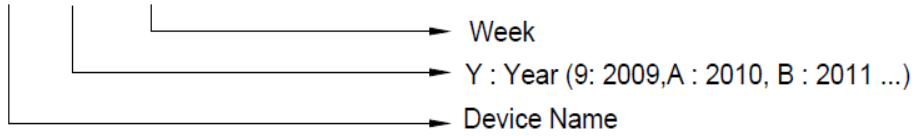
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW



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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	Great Power	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	Pb Free label	Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
11	Halogen Free label	Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Scan info	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