UNIKC Semiconductor

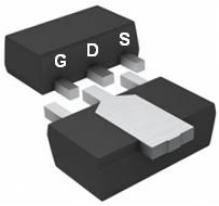
RoHS Compliant

PA110BC

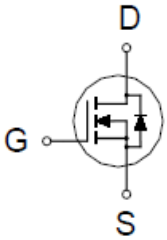
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	110mΩ @V_{GS} = 10V	4A



SOT-89



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25 °C	I_D	4	A
	T_A = 100 °C		3.5	
Pulsed Drain Current[1]		I_{DM}	15	
Avalanche Current		I_{AS}	4.8	
Avalanche Energy	L = 0.1mH	E_{AS}	11.5	mJ
Power Dissipation[3]	T_A = 25 °C	P_D	3.9	W
	T_A = 100 °C		2.5	
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	$R_{\theta JA}$		32	°C / W
Junction-to-Ambient[2]	Steady-State	$R_{\theta JA}$		63	
Junction-to-Case		$R_{\theta JC}$		20	

[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	100			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1	1.8	3	V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V			1	μA
		V_{DS} = 80V, V_{GS} = 0V , T_J = 125 °C			10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} = 4.5V, I_D = 4A		86	120	mΩ
		V_{GS} = 10V, I_D = 4A		81	110	
Forward Transconductance[1]	g_{fs}	V_{DS} = 5V, I_D = 4A		22		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		573		pF
Output Capacitance	C_{oss}			58		
Reverse Transfer Capacitance	C_{rss}			32		
Gate Resistance	R_g	V_{GS} = 0V, V_{DS} = 0V, f = 1MHz		1.5		Ω
Total Gate Charge[2]	Q_g(V_{GS}=10V)	V_{DS} = 50V,I_D = 4A		13.6		nC
	Q_g(V_{GS}=4.5V)			8		
Gate-Source Charge[2]	Q_{gs}			2		
Gate-Drain Charge[2]	Q_{gd}			4.6		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} = 50V, I_D≅ 4A, V_{GS} = 10V, R_{GS} = 6Ω		16		nS
Rise Time[2]	t_r			5		
Turn-Off Delay Time[2]	$t_{d(off)}$			35		
Fall Time[2]	t_f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				2.8	A
Forward Voltage[1]	V_{SD}	I_F = 4A, V_{GS} = 0V			1.4	V
Reverse Recovery Time	t_{rr}	I_F = 4A, dI/dt = 100A / μS		21		nS
Reverse Recovery Charge	Q_{rr}			14		nC

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

[2]Independent of operating temperature.

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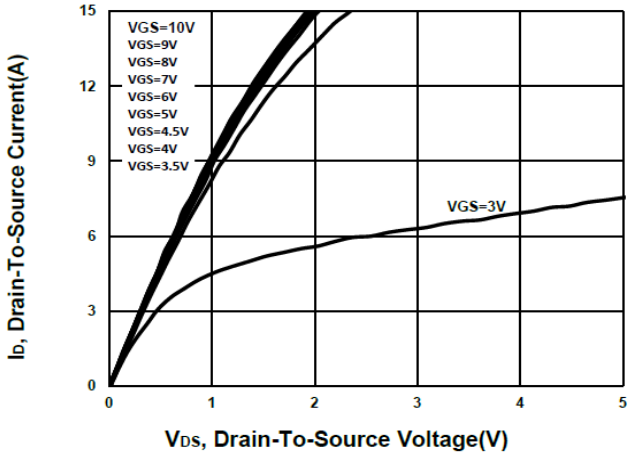
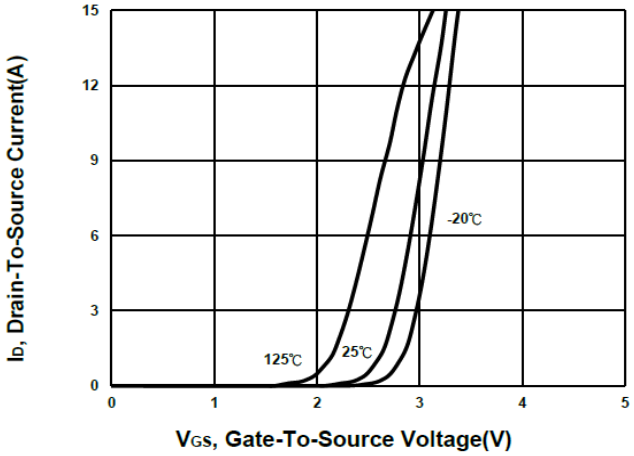
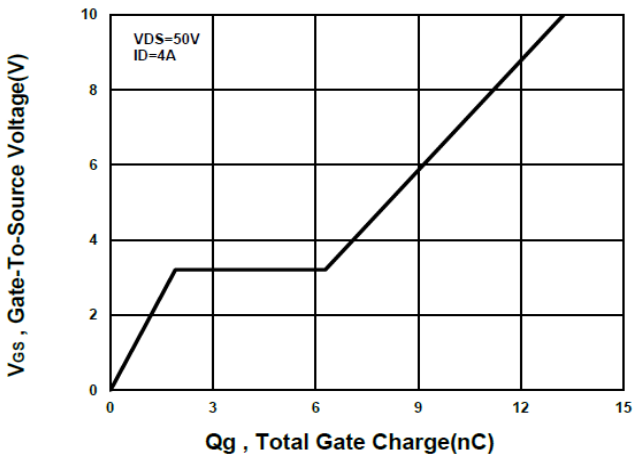
Output Characteristics



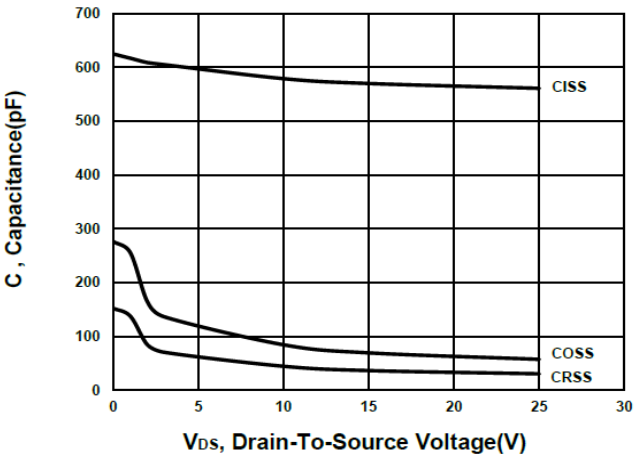
Transfer Characteristics



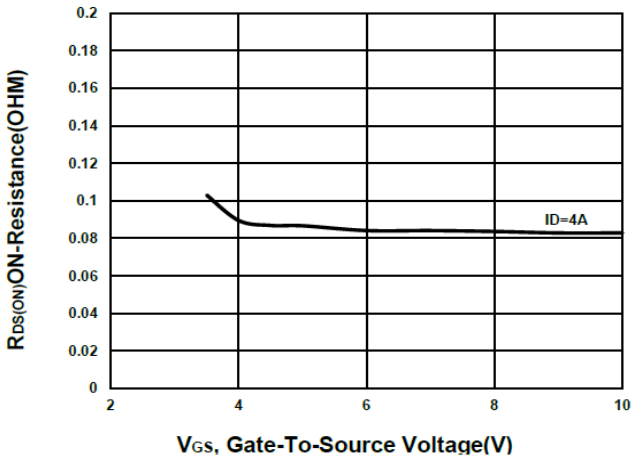
Gate charge Characteristics



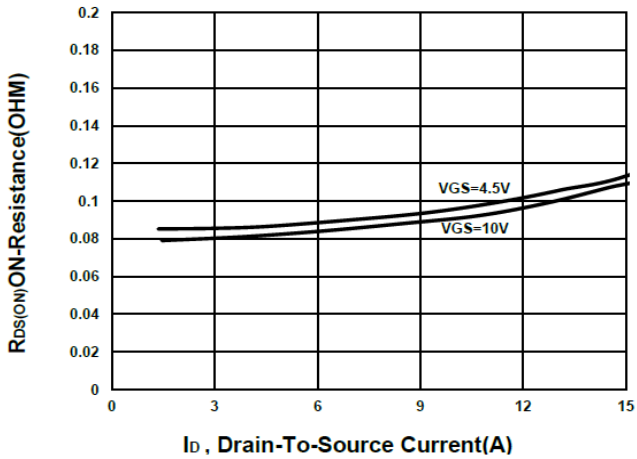
Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current



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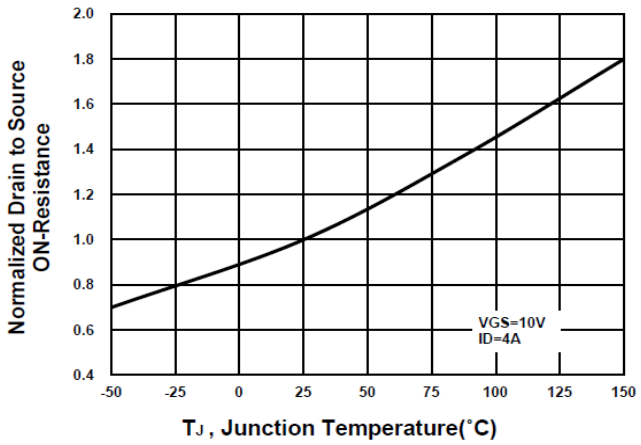
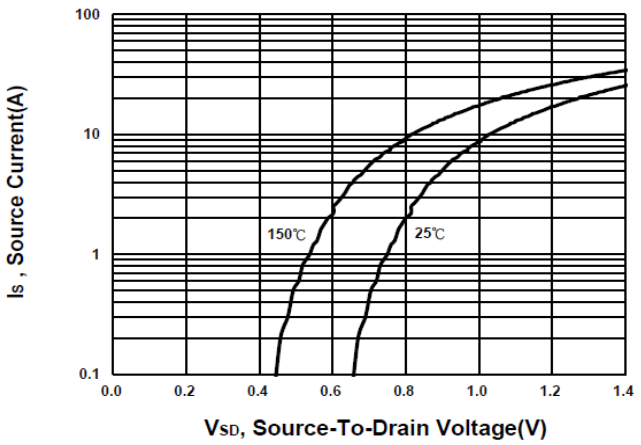
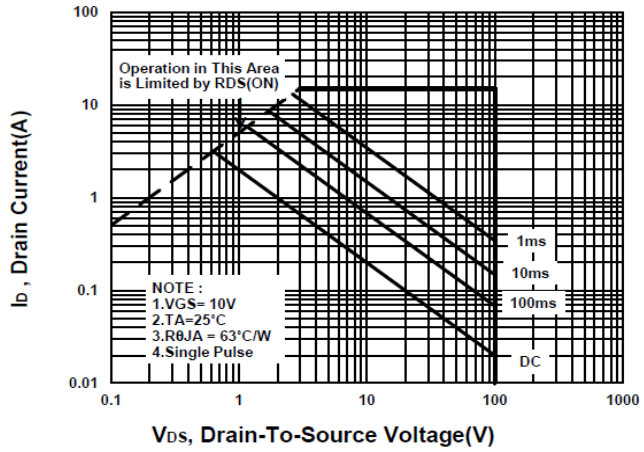
On-Resistance VS Temperature



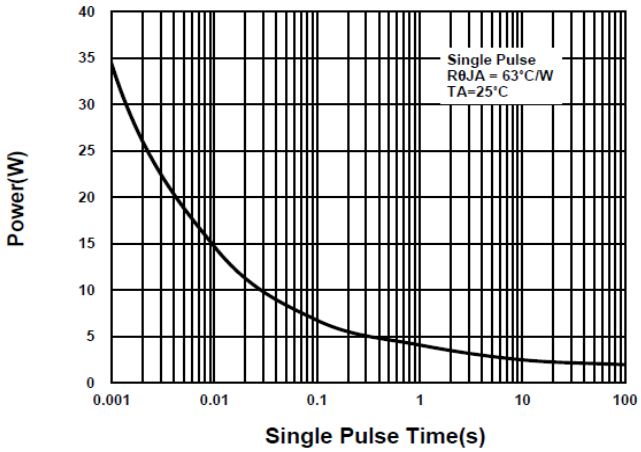
Source-Drain Diode Forward Voltage



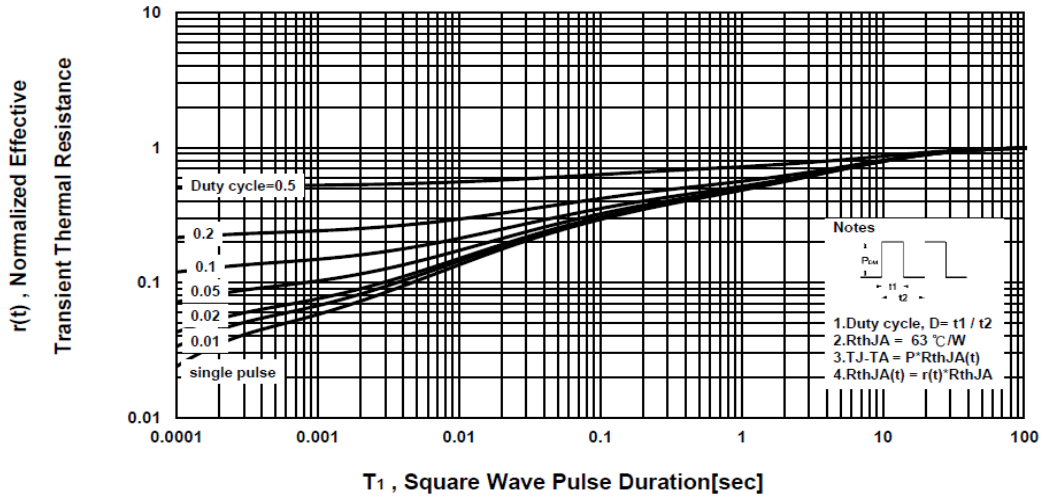
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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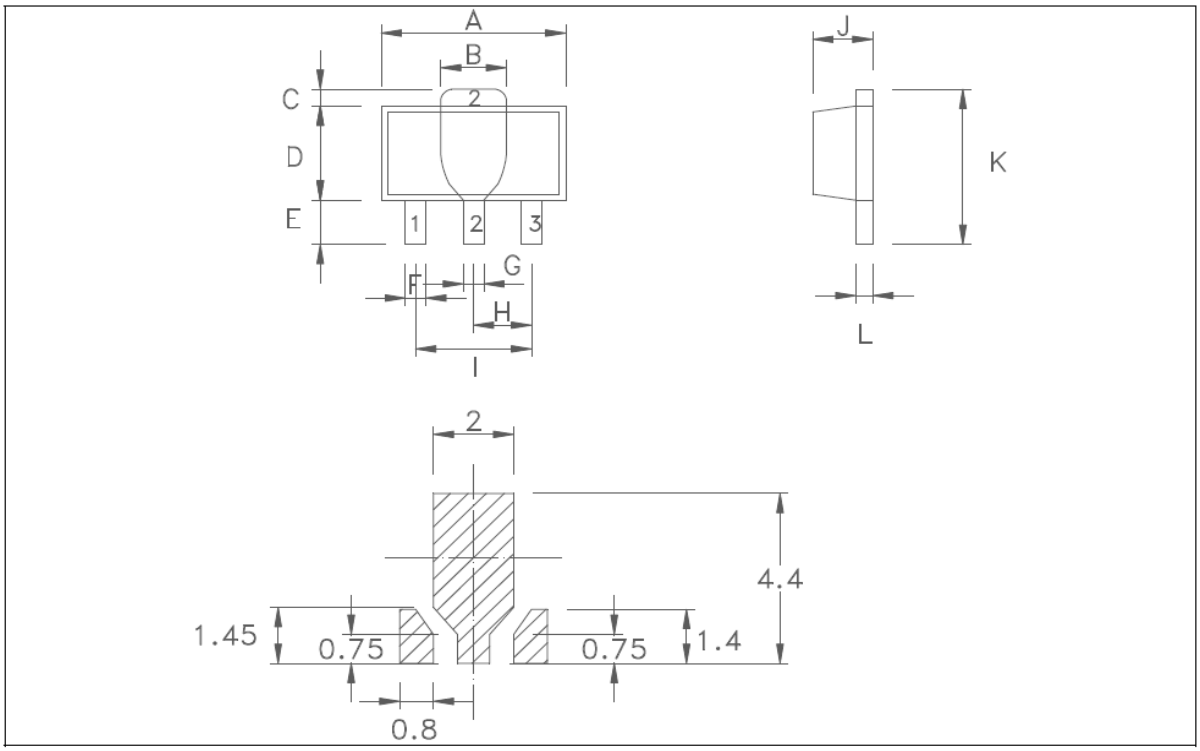
Package Dimension

SOT-89 MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.45	4.5	4.55	G	0.36	0.50	0.56
B	1.4	1.7	1.8	H	1.3	1.5	1.7
C	0	0.7	1.05	I	2.8	3.0	3.2
D	2.3	2.5	2.6	J	1.4	1.5	1.6
E	0.8	1.04	1.2	K	3.8	4.2	4.25
F	0.3	0.46	0.52	L	0.35	0.4	0.44



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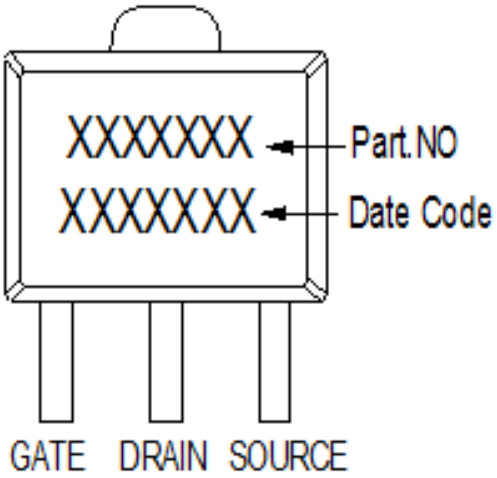
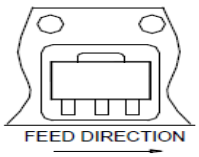
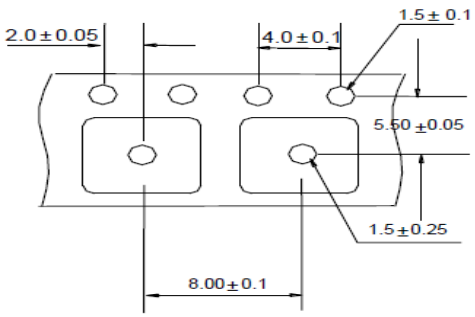
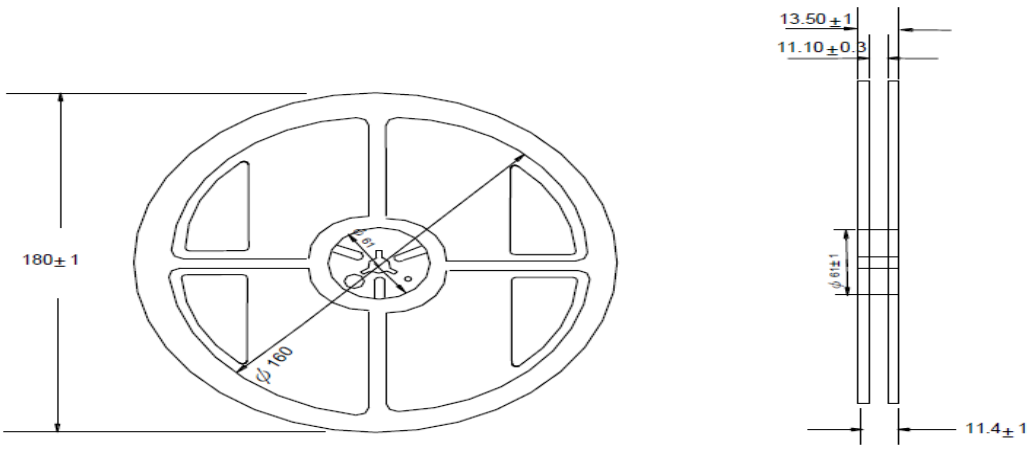
A. Marking Information



B. Tape&Reel Information:1000pcs/Reel







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C. Lot.No. & Date Code rule

1.LOT.NO.

M N 15M21 03

- 03 → #8~9 Sub-lot No
- 15M21 → Order series no.
- N → Foundry site
- M → Assembly site

2.Date Code

D Y M X XXX

- XXX → Order series no. & Sub-lot No
- X → Week
- M → M : Month (A:Jan , B:Feb , C:Mar ,D :Apr ,E:May ,F:Jun,G:Jul,H:Aug,I:Sep,J:Oct,K:Nov,L:Dec.)
- Y → Y : Year (N : 2011, O : 2012 ...)
- D → Assembly site

3.Date Code (for Small package)

XX Y WW

- WW → Week
- Y → Y : Year (9: 2009,A : 2010, B : 2011 ...)
- XX → Device Name

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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	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