UNIKC
Semiconductor

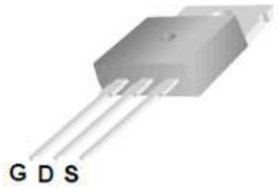
RoHS
Compliant

P8010BT

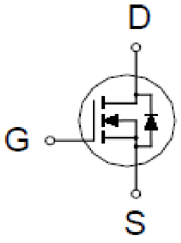
N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
100V	85mΩ @V_{GS} = 10V	17A



TO-220



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C = 25 °C	I_D	17	A
	T_C = 100 °C		10	
Pulsed Drain Current[1]		I_{DM}	35	
Avalanche Current		I_{AS}	13	
Avalanche Energy[2]		E_{AS}	8.5	mJ
Power Dissipation	T_C = 25 °C	P_D	54	W
	T_C = 100 °C		21	
Junction & Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		2.3	°C / W
Junction-to-Case			62.5	

[1] Pulse width limited by maximum junction temperature.

[2] Starting T_j = 25 °C,L=0.1mH,V_{DD}= 50V

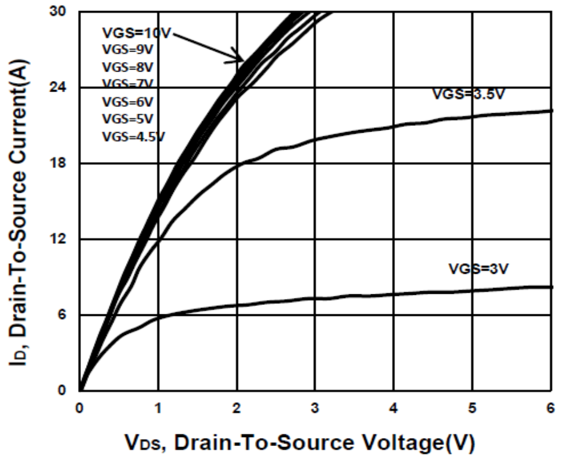
ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

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	1.3	1.8	2.3	
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 = 10A		63	95	mΩ
		V_{GS} = 10V, I_D = 15A		61	85	
Forward Transconductance[1]	g_{fs}	V_{DS} = 10V, I_D = 15A		26		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		538		pF
Output Capacitance	C_{oss}			86		
Reverse Transfer Capacitance	C_{rss}			35		
Total Gate Charge[2]	Q_g	V_{DS} = 50V, I_D = 15A, V_{GS} = 10V		12.7		nC
Gate-Source Charge[2]	Q_{gs}			1.9		
Gate-Drain Charge[2]	Q_{gd}			4.5		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DD} = 50V $I_D \cong$ 15A, V_{GS} = 10V, R_{GS} =6Ω		11		nS
Rise Time[2]	t_r			53		
Turn-Off Delay Time[2]	$t_{d(off)}$			80		
Fall Time[2]	t_f			75		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I_S				17	A
Forward Voltage[1]	V_{SD}	I_F = 15A, V_{GS} = 0V			1.1	V
Reverse Recovery Time	t_{rr}	I_F = 15A, dls/dt = 100A / µS		33		nS
Reverse Recovery Charge	Q_{rr}			47		nC

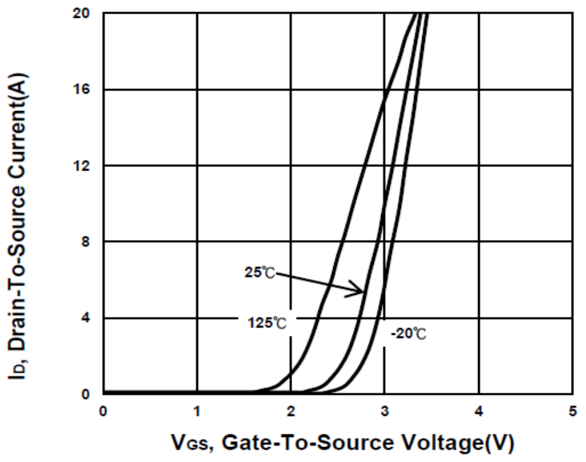
[1] Pulse test : Pulse Width ≤ 300 µsec, Duty Cycle ≤ 2%.

[2] Independent of operating temperature.

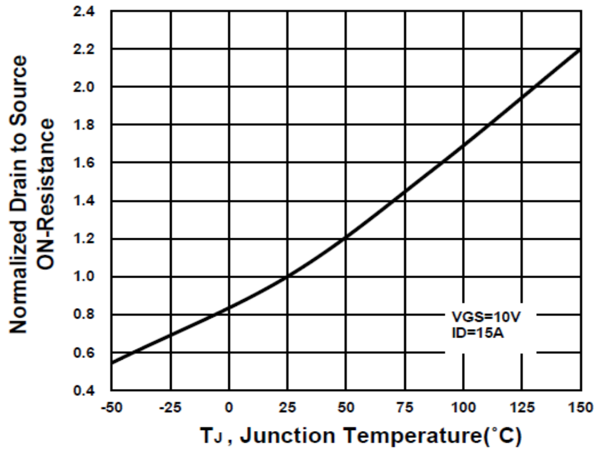
Output Characteristics



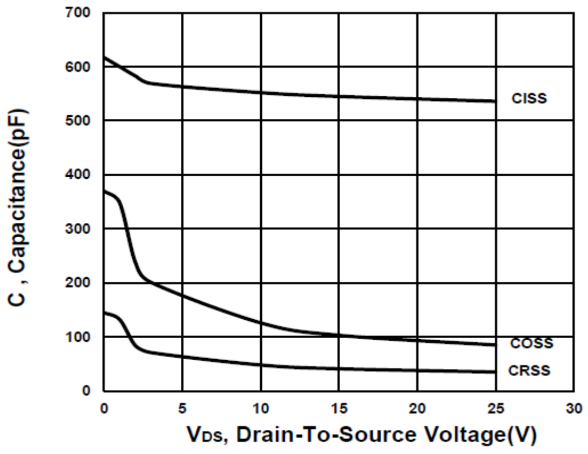
Transfer Characteristics



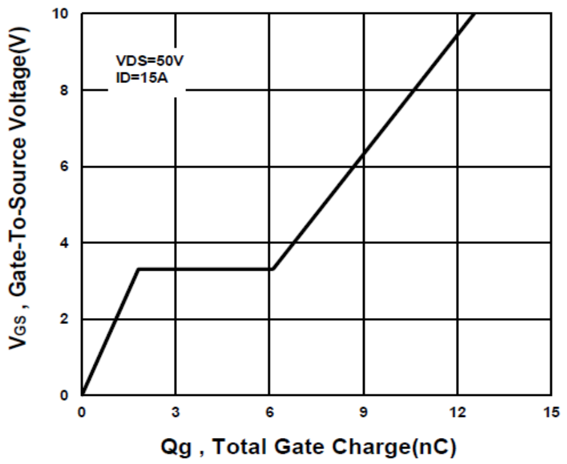
On-Resistance VS Temperature



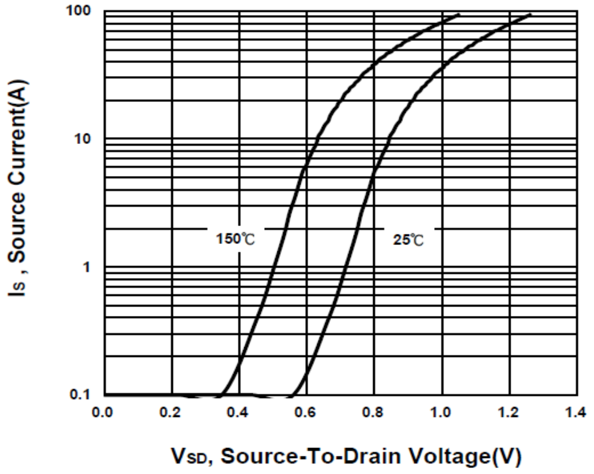
Capacitance Characteristic



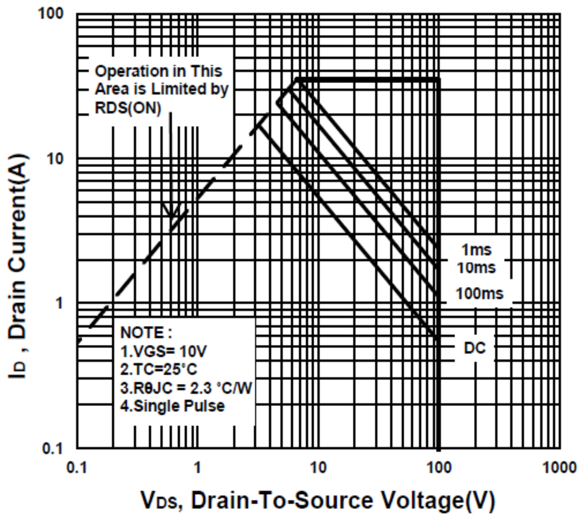
Gate charge Characteristics



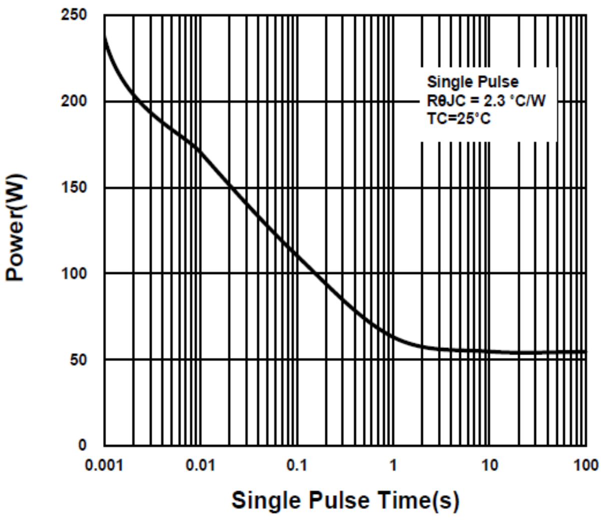
Source-Drain Diode Forward Voltage



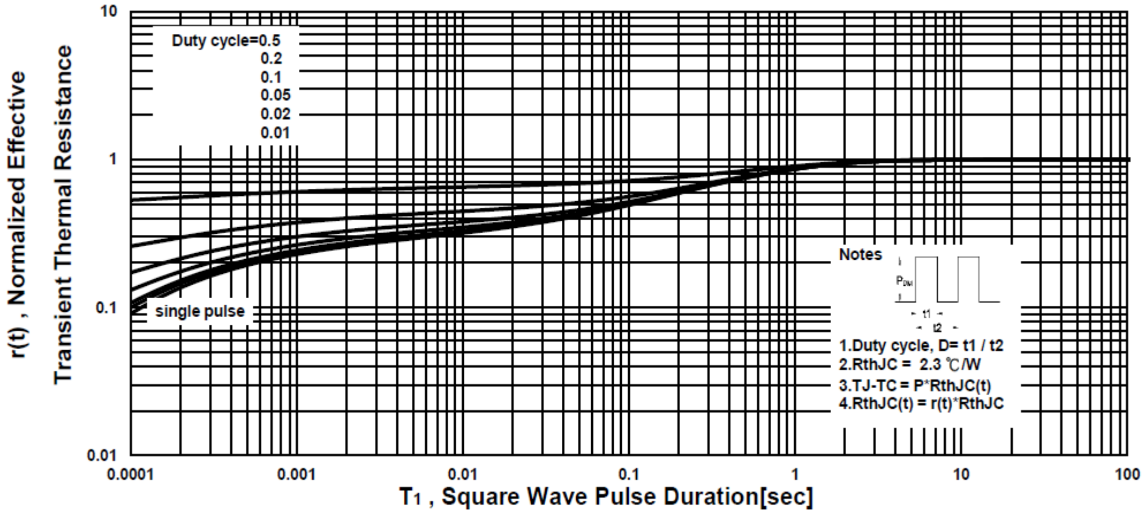
Safe Operating Area



Single Pulse Maximum Power Dissipation



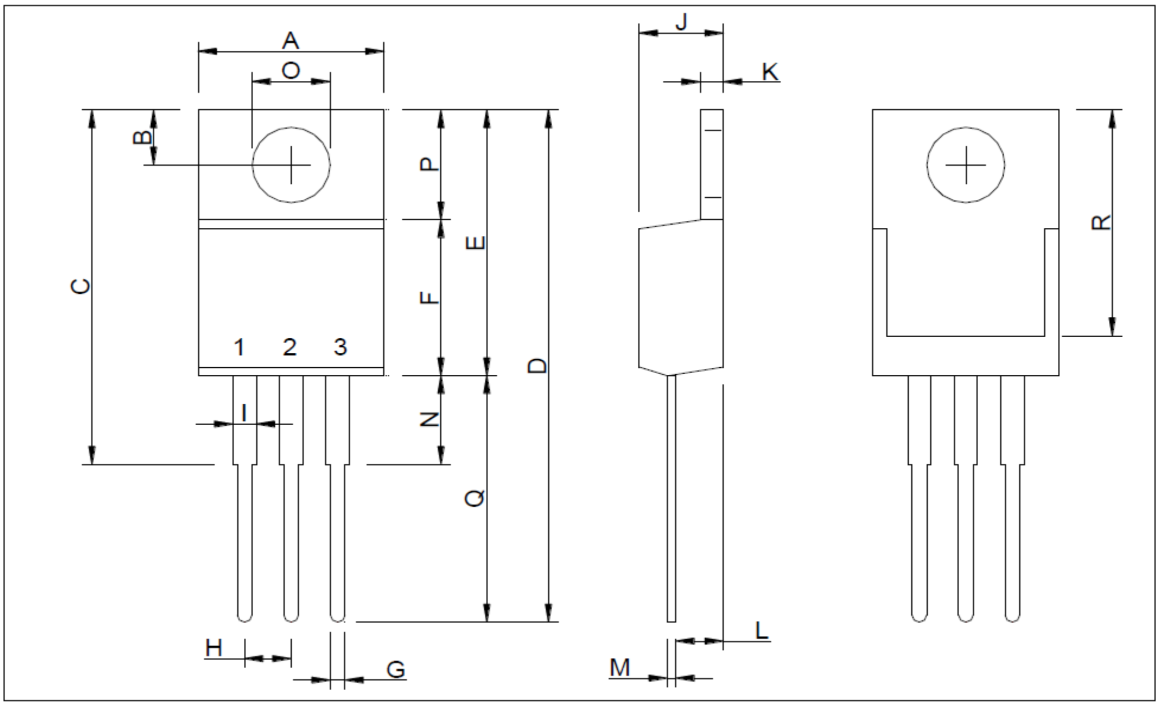
Transient Thermal Response Curve



Package Dimension

TO-220 (3-Lead) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.65		11.5	J	3.55		4.83
B		2.54		K	1.11		1.45
C	18.1		22.86	L	1.89		3.09
D	26.9		31.24	M	0.34		0.61
E	14.32		16.51	N	2.6		4.06
F	8.38		9.3	O		3.7	
G	0.38		1.02	P	5.84		6.85
H	2.04	2.54	3.04	Q	12.5		14.73
I	1.14		1.8	R	11.3		13.31



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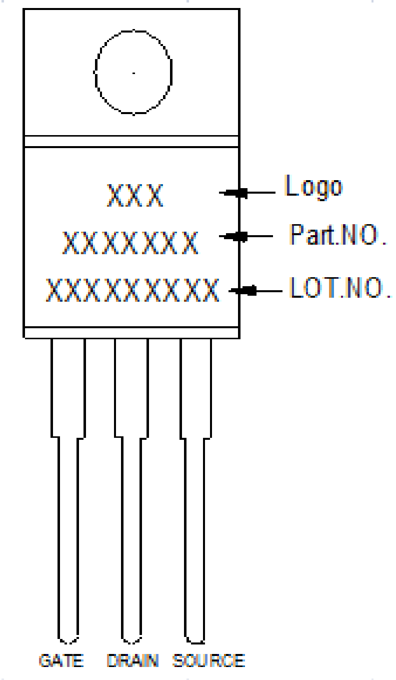
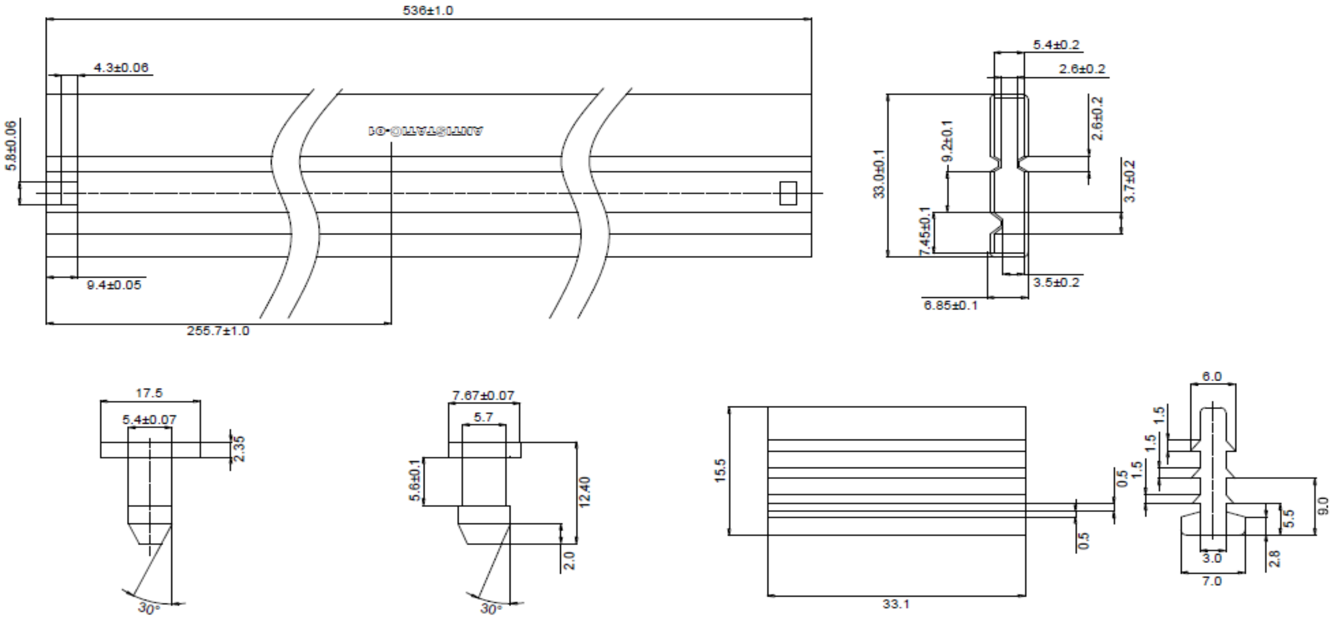
A. Marking Information

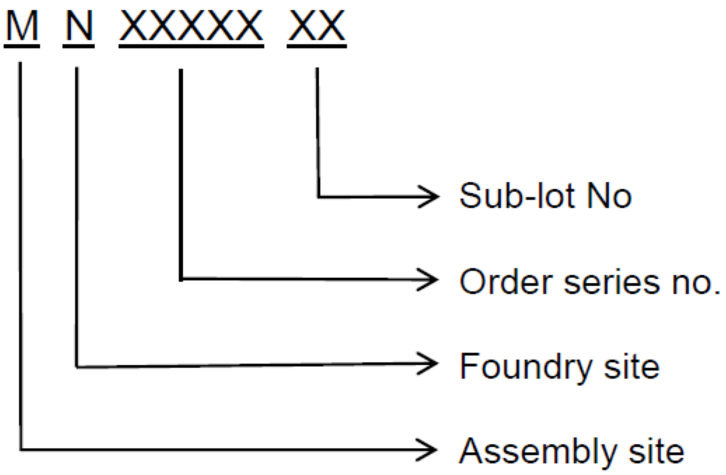


B. Tape&Reel Information:50pcs/Tube

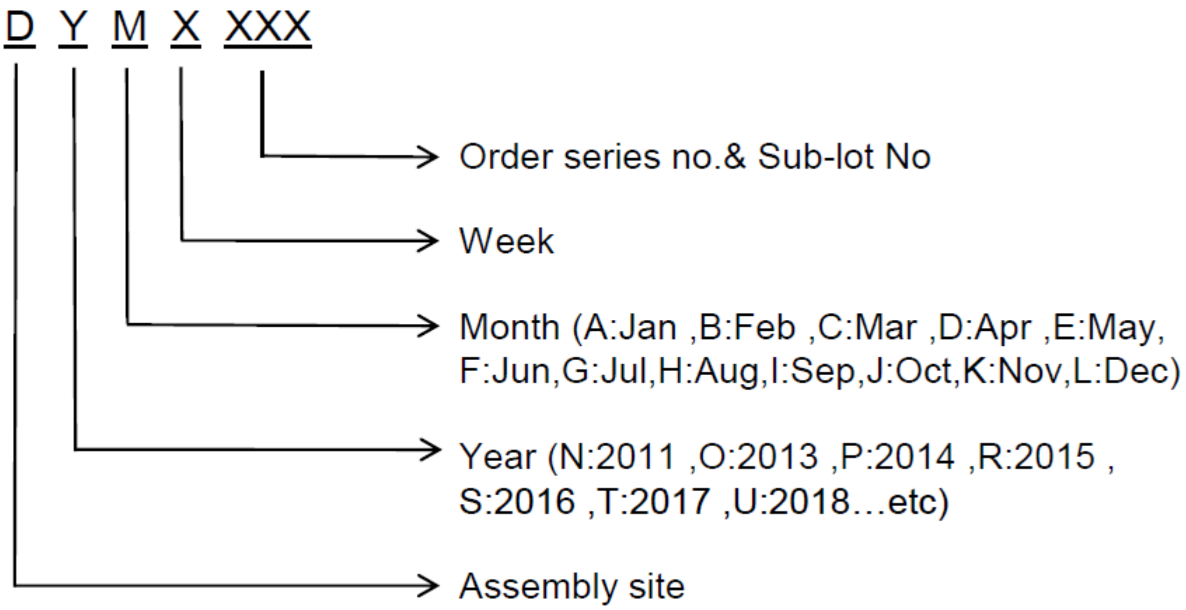


C. Lot No.&Date Code rule

1.Lot No.



2.Date Code



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