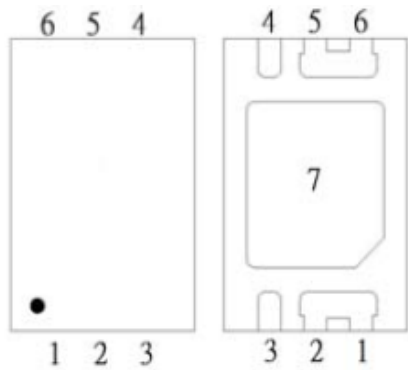


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Dual N-Channel Enhancement Mode MOSFET

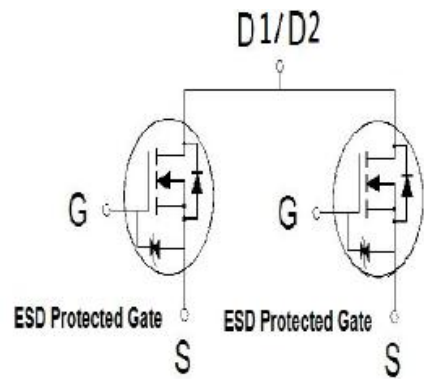
PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
20V	19.5mΩ @ $V_{GS} = 4.5V$	7A



TDFN 2X3-6

1,2:S1
3:G1
4:G2
5,6:S2
7:D1/D2



ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ Unless Otherwise Noted)

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	±8	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	7	A
	$T_A = 70\text{ }^{\circ}\text{C}$		6	
Pulsed Drain Current ¹		I_{DM}	25	
Avalanche Current		I_{AS}	13	
Avalanche Energy ³		E_{AS}	8.5	mJ
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	1.8	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.2	
Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^{\circ}\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		68	$^{\circ}\text{C} / \text{W}$

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^{\circ}\text{C}$.

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ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.35	0.8	1	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 30	μA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 16V, V_{GS} = 0V$			1	μA
		$V_{DS} = 10V, V_{GS} = 0V, T_J = 125^{\circ}C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 3A$		14.8	19.5	m Ω
		$V_{GS} = 3.8V, I_D = 3A$		15.3	23	
		$V_{GS} = 3.1V, I_D = 3A$		16.5	24.5	
		$V_{GS} = 2.5V, I_D = 3A$		18.6	28	
		$V_{GS} = 1.8V, I_D = 3A$		28	40	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 3A$		30		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$		593		pF
Output Capacitance	C_{oss}			111		
Reverse Transfer Capacitance	C_{rss}			85		
Total Gate Charge ²	$Q_g(V_{GS}=4.5V)$	$V_{DS} = 10V, I_D = 3A$		8.2		nC
	$Q_g(V_{GS}=3.8V)$			7		
Gate-Source Charge ²	Q_{gs}			0.7		
Gate-Drain Charge ²	Q_{gd}			3		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = 10V$ $I_D \cong 3A, V_{GS} = 4.5V, R_{GS} = 6\Omega$		15		nS
Rise Time ²	t_r			25		
Turn-Off Delay Time ²	$t_{d(off)}$			35		
Fall Time ²	t_f			13		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^{\circ}C$)						
Continuous Current	I_S				1.5	A
Forward Voltage ¹	V_{SD}	$I_F = 3A, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 3A, dI_F/dt = 100A / \mu S$		10		nS
Reverse Recovery Charge	Q_{rr}			2.6		nC

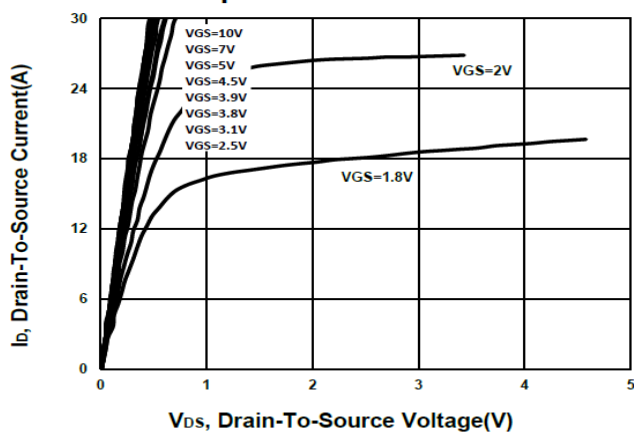
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

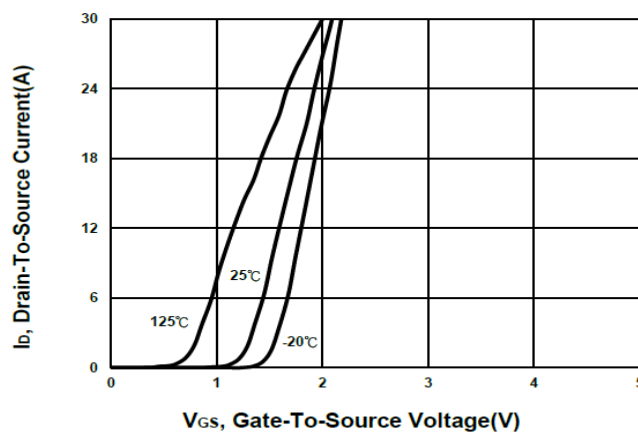
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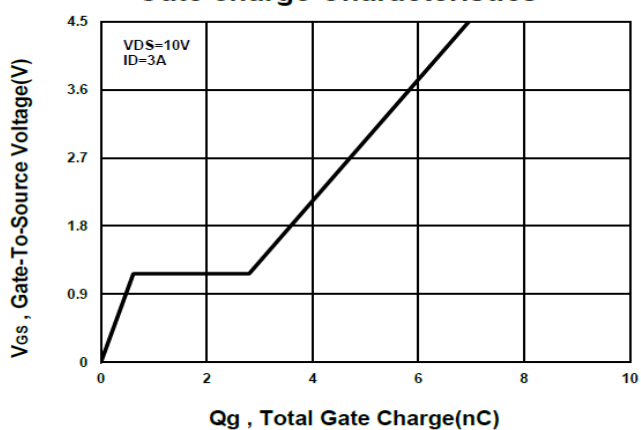
Output Characteristics



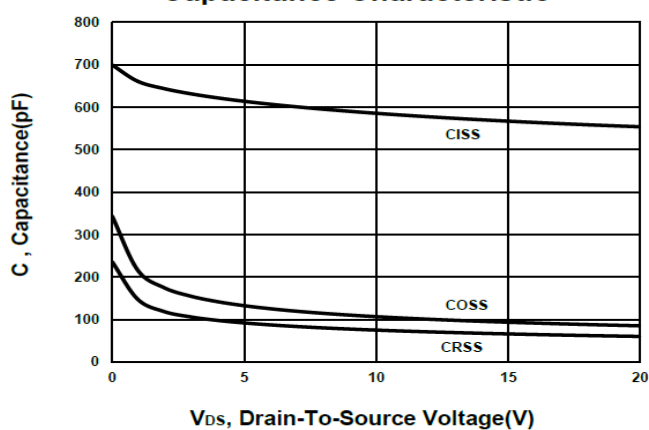
Transfer Characteristics



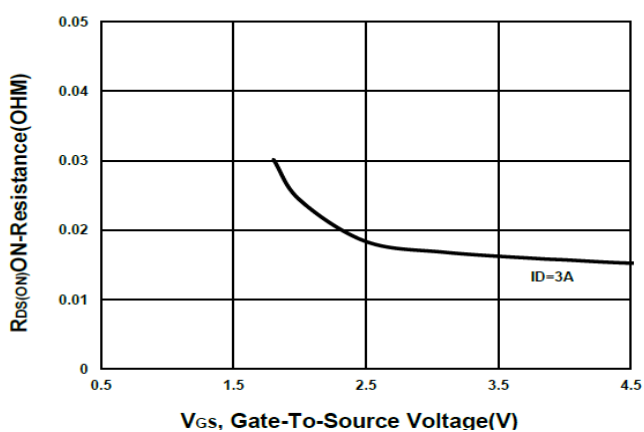
Gate charge Characteristics



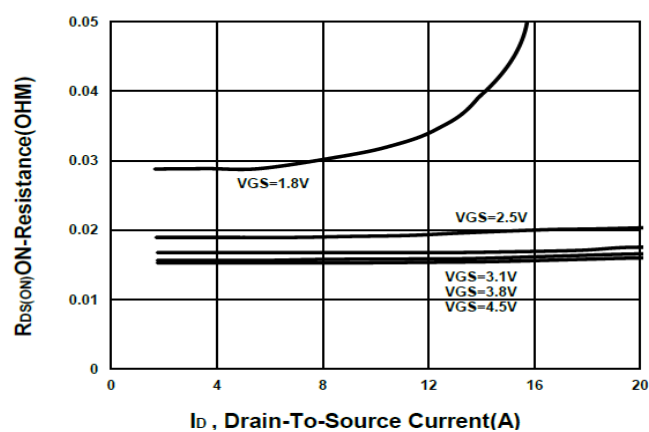
Capacitance Characteristic



On-Resistance VS Gate-To-Source



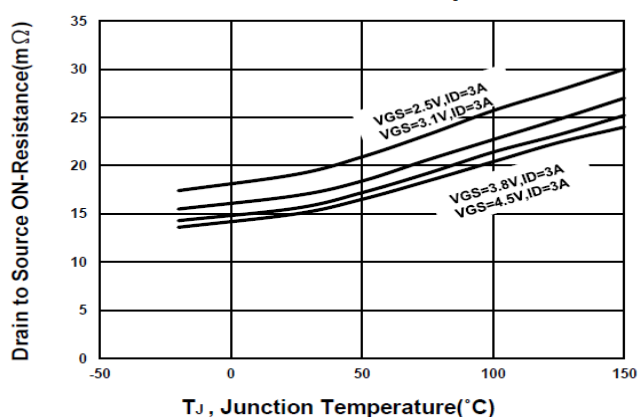
On-Resistance VS Drain Current



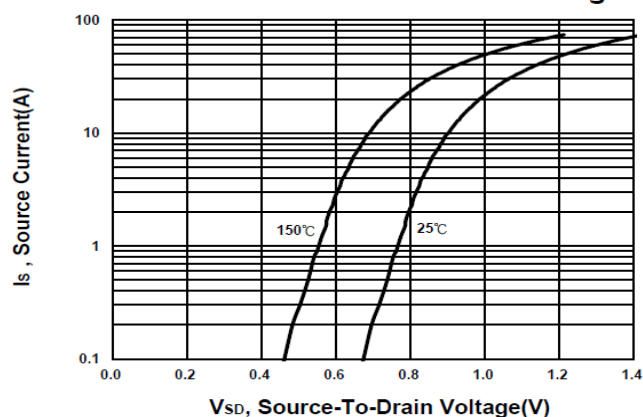
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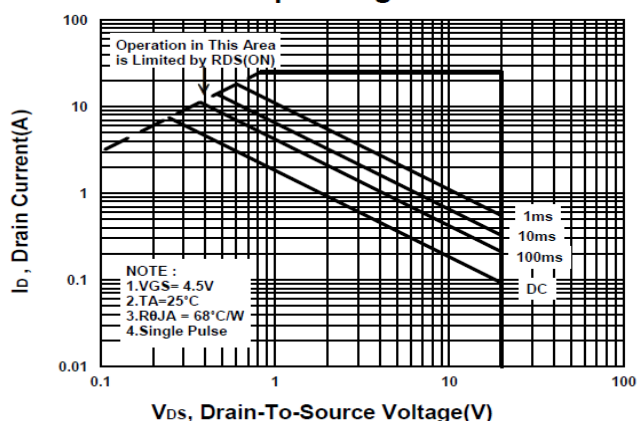
On-Resistance VS Temperature



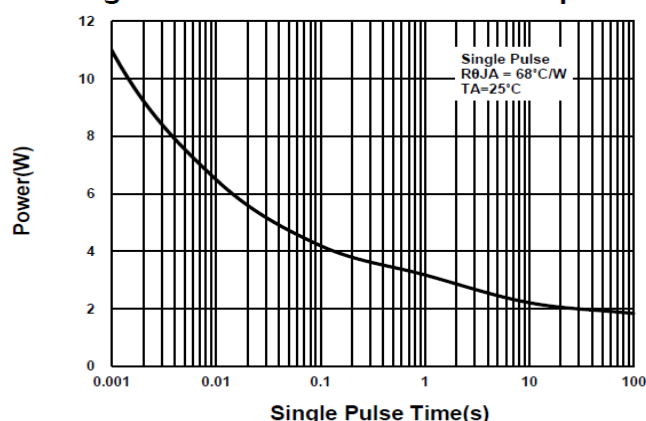
Source-Drain Diode Forward Voltage



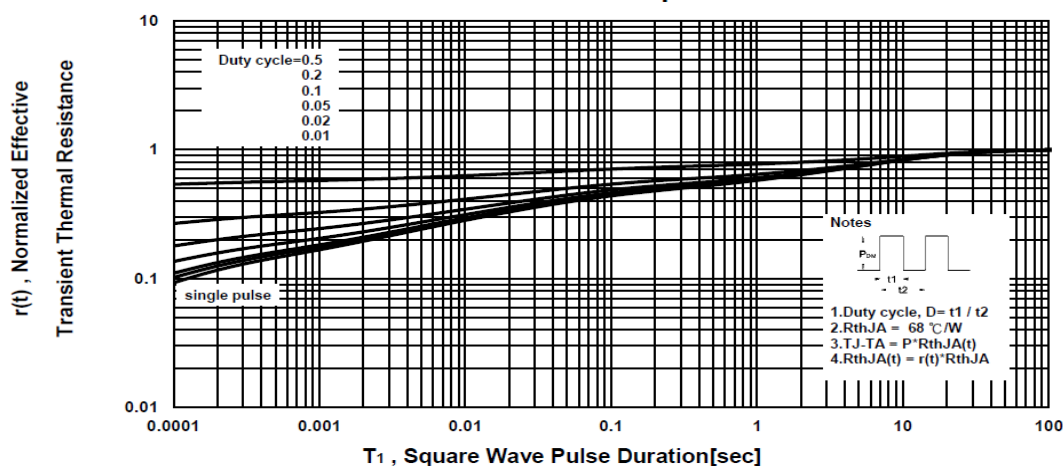
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



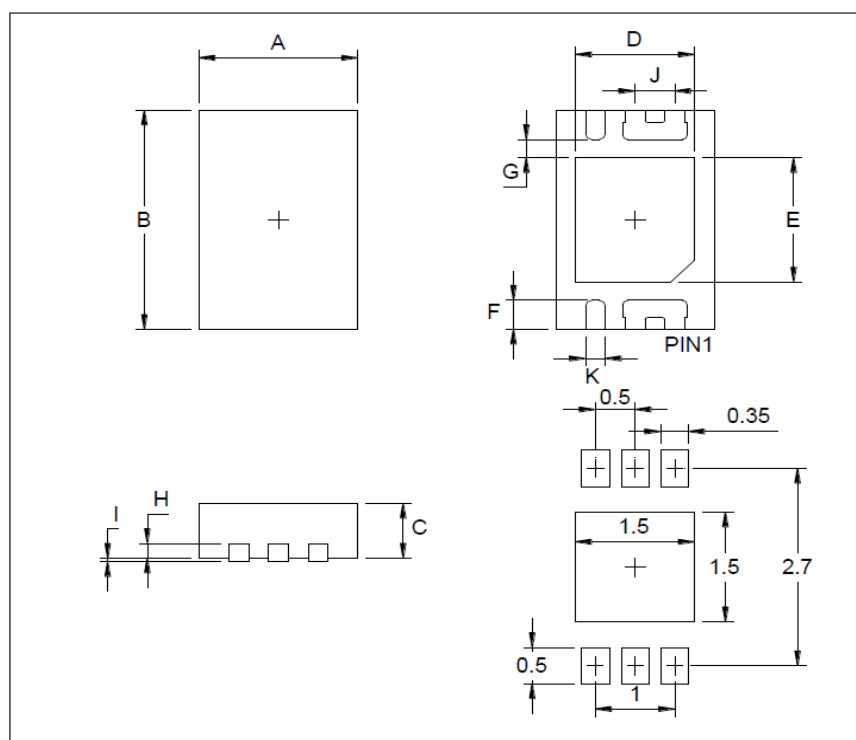
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Package Dimension

TDFN 2x3-6 MECHANICAL DATA

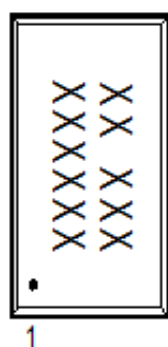
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.95	2.00	2.05	H	0.195	0.203	0.211
B	2.95	3.00	3.05	I	0		0.05
C	0.70	0.75	0.8	J		0.50	
D	1.45	1.50	1.55	K	0.20	0.25	0.30
E	1.65	1.70	1.75				
F	0.35	0.40	0.45				
G	0.25						



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A. Marking Information (此产品代码为 : D7)

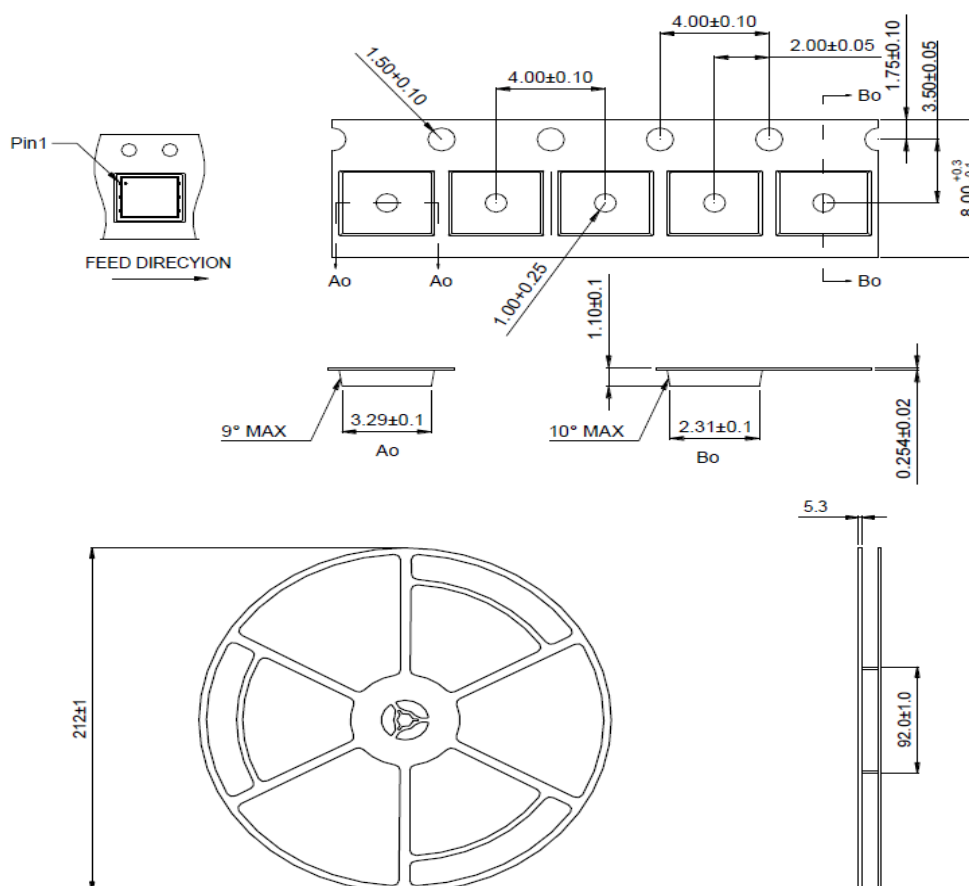


XX(前两码):产品代码

XXX

XXXXXX(后九码): LOT NO

B. Tape&Reel Information:3000pcs/Reel



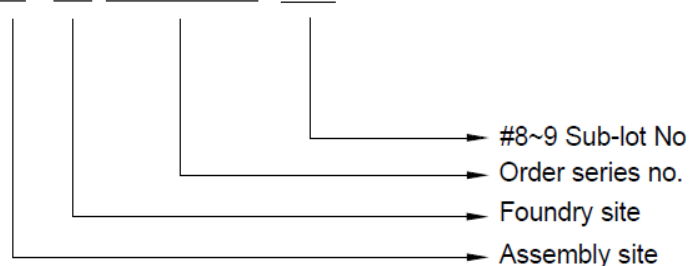
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C. Lot.No. & Date Code rule

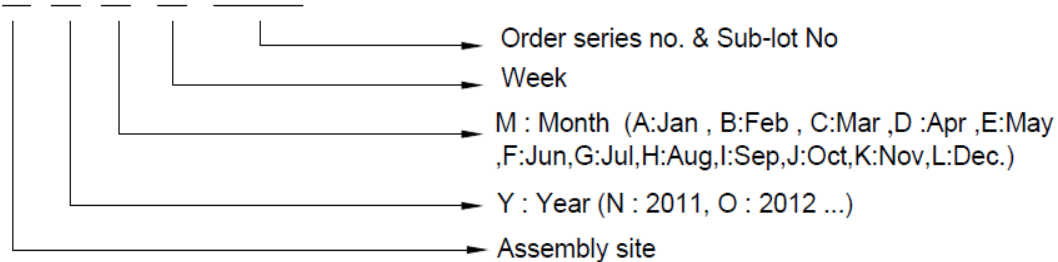
1.LOT.NO.

M N 15M21 03



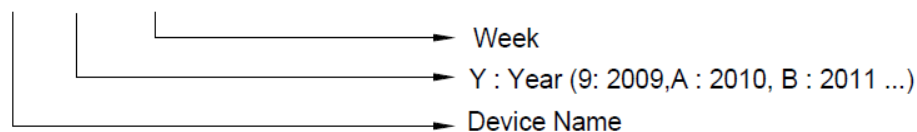
2.Date Code

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