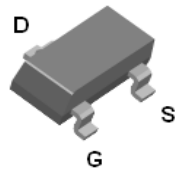


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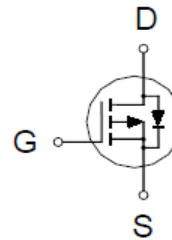
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	51m Ω @ $V_{GS} = -10V$	-4A



SOT-23(S)



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	-4	A
	$T_A = 70\text{ }^{\circ}\text{C}$		-3	
Pulsed Drain Current ¹		I_{DM}	-16	
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	1.4	W
	$T_A = 70\text{ }^{\circ}\text{C}$		0.9	
Operating 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	$t \leq 10s$	$R_{\theta JA}$		90	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		130	

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.

³The Power dissipation is based on $R_{\theta JA} t \leq 10s$ 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	-1.3	-1.6	-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			-1	μA
		V _{DS} = -20V, V _{GS} = 0V , T _J = 55 °C			-10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -10V, I _D = -4A		37	51	mΩ
		V _{GS} = -4.5V, I _D = -4A		53	85	
Forward Transconductance ¹	g _{fs}	V _{DS} = -5V, I _D = -4A		11		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		601		pF
Output Capacitance	C _{oss}			83		
Reverse Transfer Capacitance	C _{rss}			65		
Total Gate Charge ²	Q _g (V _{GS} =10V)	V _{DS} = -15V,V _{GS} = -10V,I _D = -4A		12		nC
	Q _g (V _{GS} =4.5V)			6		
Gate-Source Charge ²	Q _{gs}			1.7		
Gate-Drain Charge ²	Q _{gd}			2.7		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = -15V, V _{GS} = -10V I _D ≅ -4A, R _G = 6Ω		17		nS
Rise Time ²	t _r			24		
Turn-Off Delay Time ²	t _{d(off)}			18		
Fall Time ²	t _f			39		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICE (T _J = 25 °C)						
Continuous Current	I _S				-1	A
Forward Voltage ¹	V _{SD}	I _F = -4A, V _{GS} = 0V			-1.1	V
Reverse Recovery Time	t _{rr}	I _F = -4A, dI _F /dt = 100A / μS		9		nS
Reverse Recovery Charge	Q _{rr}			2.7		nC

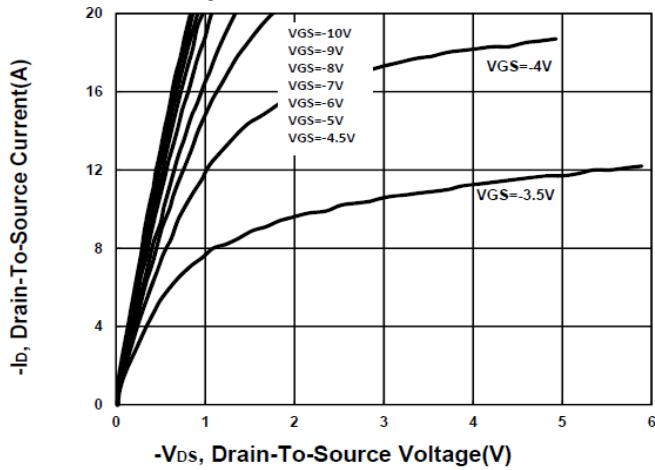
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

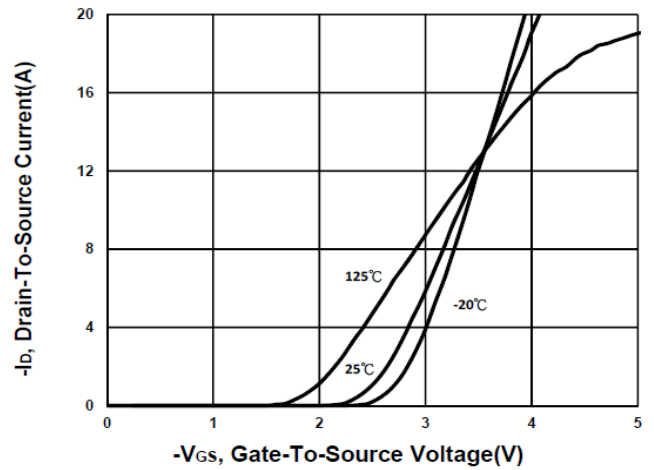
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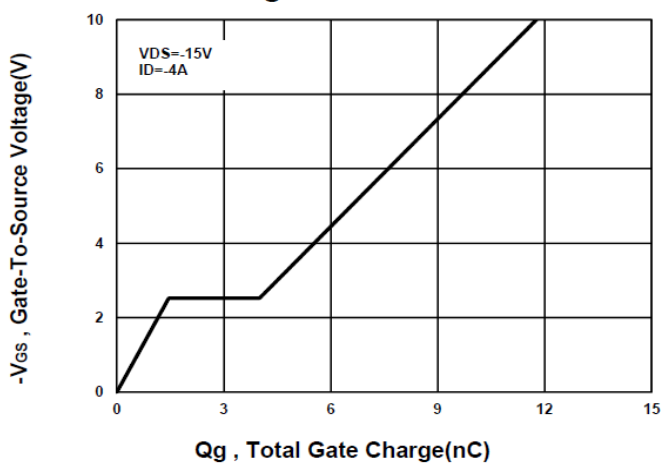
Output Characteristics



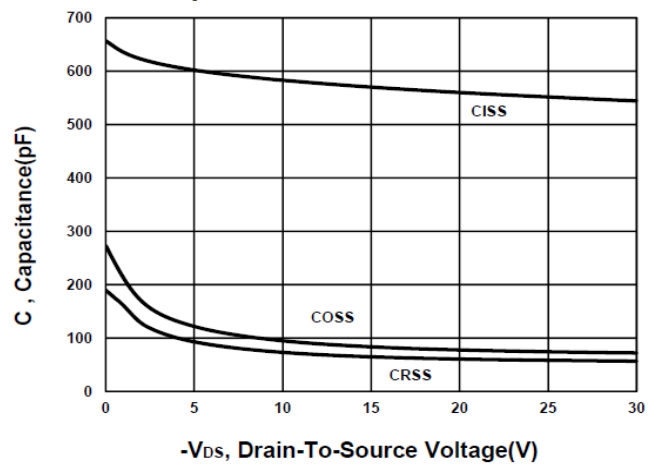
Transfer Characteristics



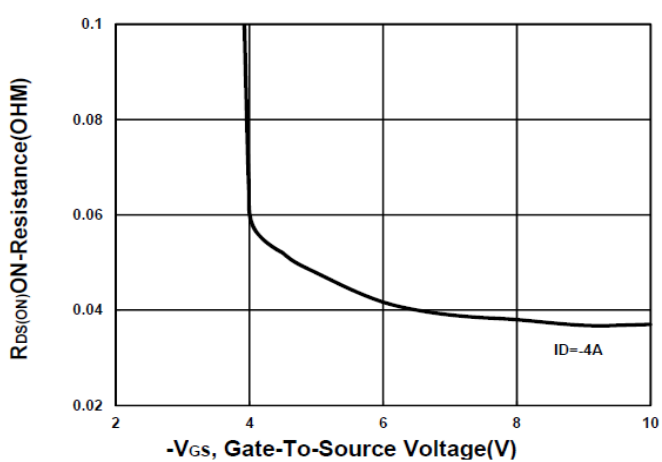
Gate charge Characteristics



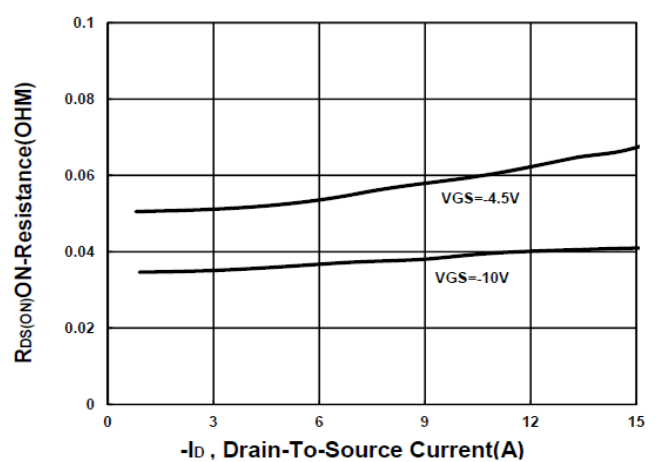
Capacitance Characteristic



On-Resistance VS Gate-To-Source



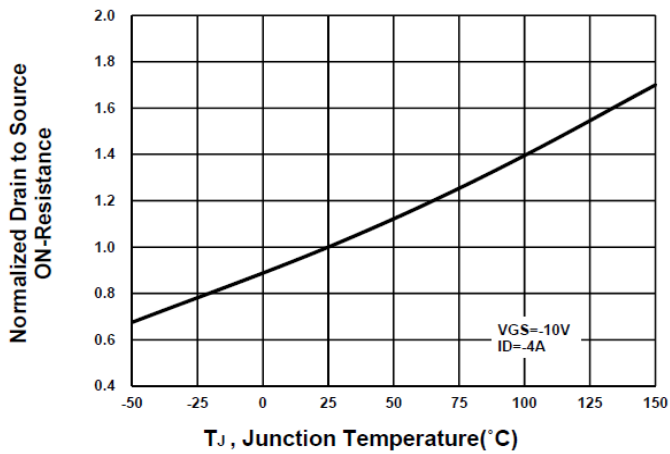
On-Resistance VS Drain Current



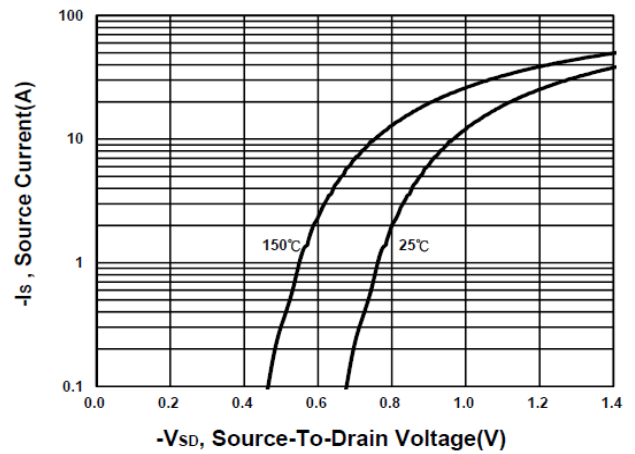
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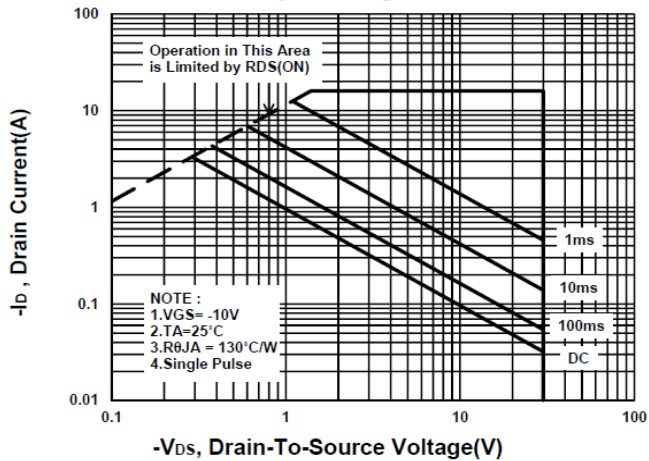
On-Resistance VS Temperature



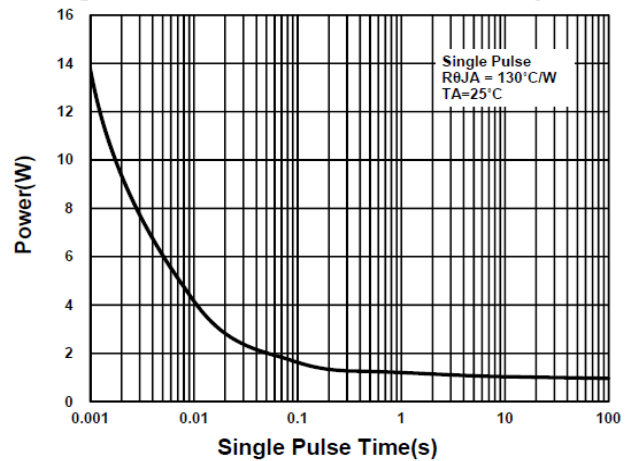
Source-Drain Diode Forward Voltage



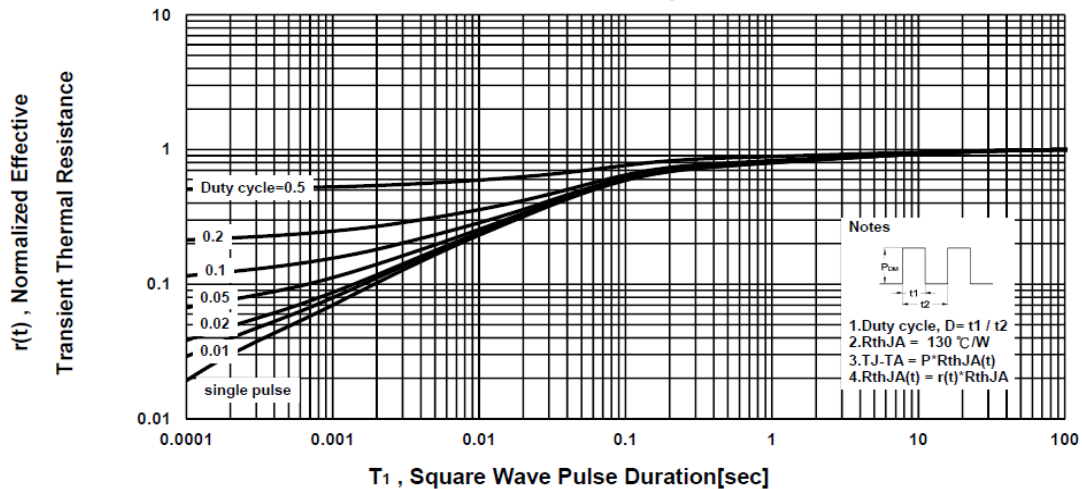
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



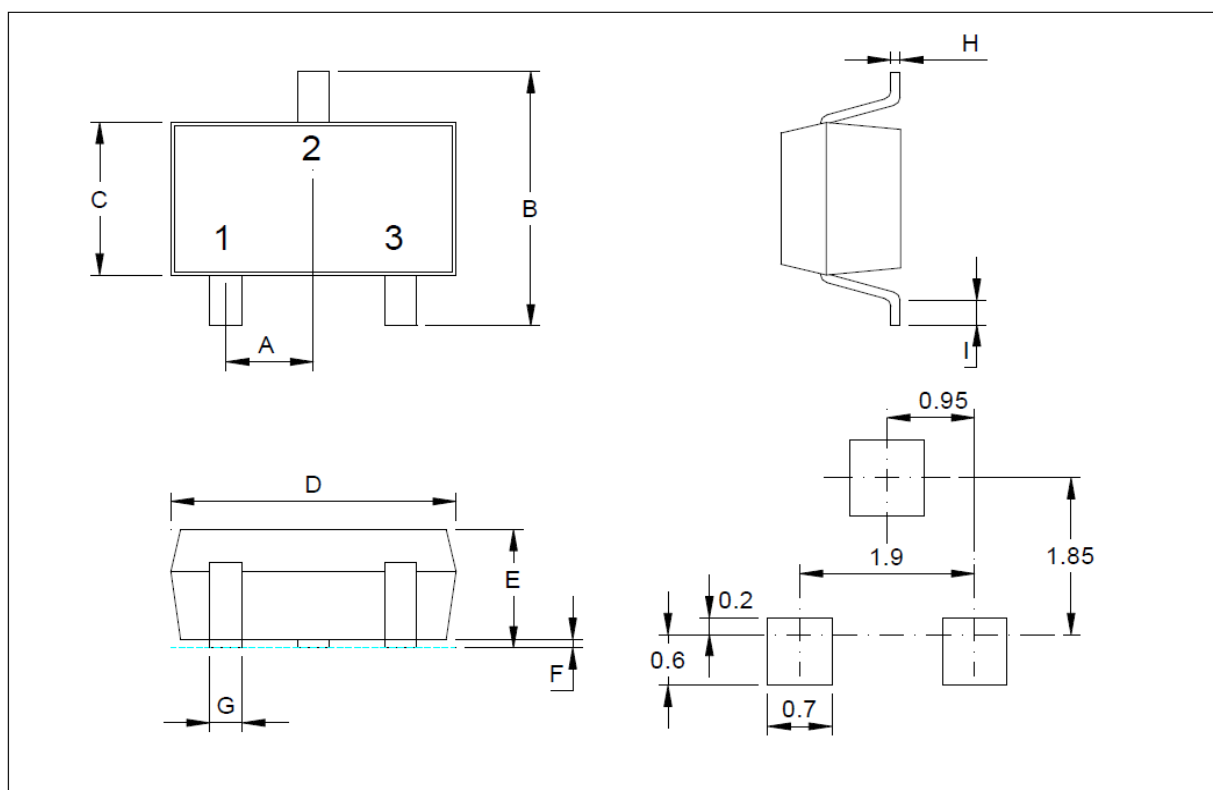
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Package Dimension

SOT-23 (S) MECHANICAL DATA

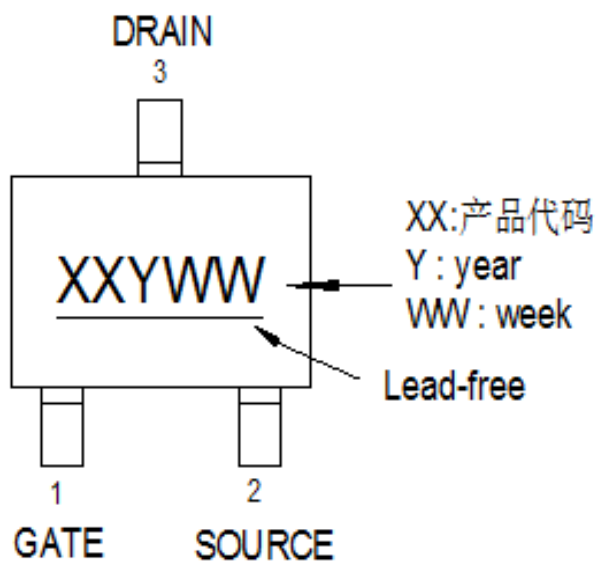
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.9		1	H	0.08		0.2
B	2.25		2.85	I	0.15		0.6
C	1.2		1.4				
D	2.8		3.04				
E	0.89		1.2				
F	0		0.1				
G	0.3		0.5				



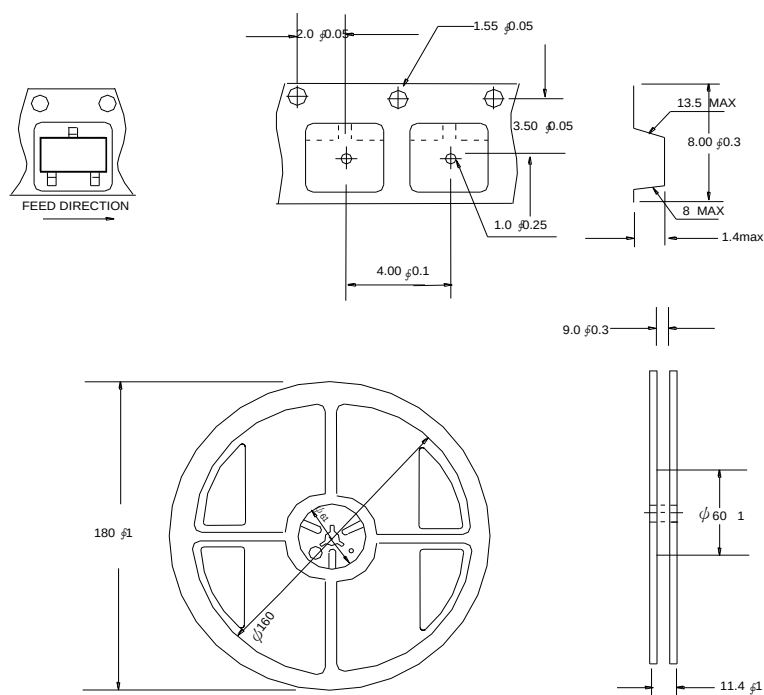
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A. Marking Information (此产品代码为：7C)



B. Tape&Reel Information: 3000pcs/Reel



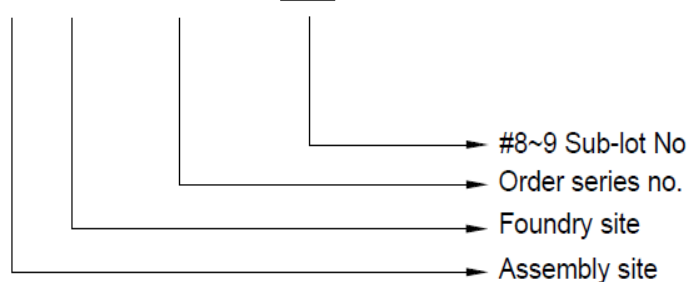
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C. Lot.No. & Date Code rule

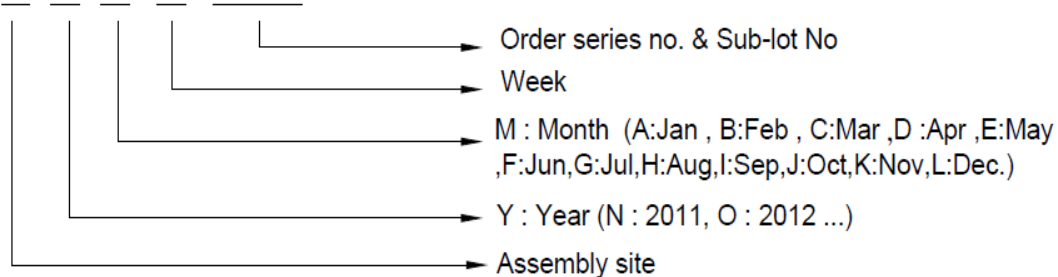
1.LOT.NO.

M N 15M21 03



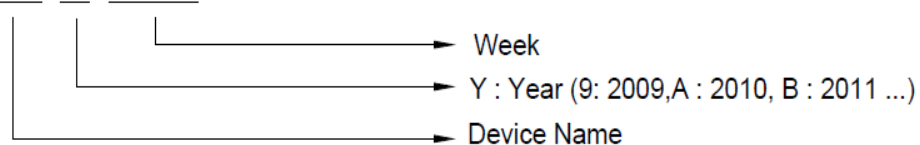
2.Date Code

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