UNIKC
Semiconductor

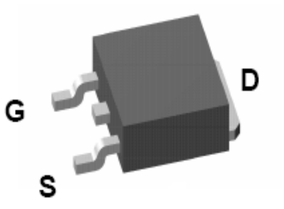
RoHS
Compliant

PD515BA

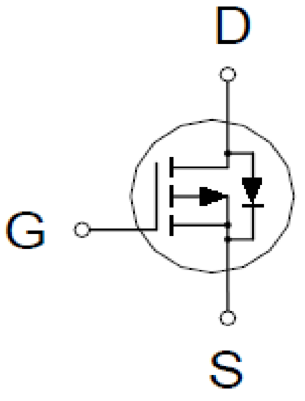
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
−20V	65mΩ @V_{GS} = -4.5V	-15A



TO-252



ABSOLUTE MAXIMUM RATINGS (T_A = 25 °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[3]	T_C= 25 °C	I_D	-15	A
	T_C= 100 °C		-9.8	
Pulsed Drain Current[1]		I_{DM}	-30	
Avalanche Current		I_{AS}	-11	
Avalanche Energy	L = 0.1mH	E_{AS}	6	mJ
Power Dissipation	T_C= 25 °C	P_D	25	W
	T_C= 100°C		10	
Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICA	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		5	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

[1] Pulse width limited by maximum junction temperature.

[2] Package limitation current is -10A.

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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	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = -250μA	-0.3	-0.7	-1	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0V, V_{GS} = ±8V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =-16V, V_{GS} = 0V			-1	μA
		V_{DS} =-10V, V_{GS} = 0V, T_J = 125°C			-10	
Drain-Source On-State Resistance[1]	$R_{DS(ON)}$	V_{GS} =-4.5V, I_D =-2.5A		50	65	mΩ
		V_{GS} =-2.5V, I_D =-2A		63	85	
		V_{GS} =-1.8V, I_D =-1A		82	120	
Forward Transconductance[1]	g_{fs}	V_{DS} = -5V, I_D = -2.5A		11		S
DYNAMIC						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = -10V, f = 1MHz		576		pF
Output Capacitance	C_{oss}			66		
Reverse Transfer Capacitance	C_{rss}			50		
Gate Resistance	R_g	V_{GS} =0V, V_{DS} = 0V, f = 1MHz		8		Ω
Total Gate Charge[2]	$Q_{g(VGS = -4.5V)}$	V_{DS} =-10V, I_D = -2.5A		6.7		nC
	$Q_{g(VGS = -2.5V)}$			4		
Gate-Source Charge[2]	Q_{gs}			0.8		
Gate-Drain Charge[2]	Q_{gd}			1.8		
Turn-On Delay Time[2]	$t_{d(on)}$	V_{DS} =-10V ,$I_D \cong$ -2.5A, V_{GS}=-4.5V,R_{GEN}=6Ω		16		nS
Rise Time[2]	t_r			37		
Turn-Off Delay Time[2]	$t_{d(off)}$			52		
Fall Time[2]	t_f			60		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current[3]	I_S				-20	A
Forward Voltage[1]	V_{SD}	I_F = -2.5A, V_{GS} = 0V			-1.2	V
Reverse Recovery Time	t_{rr}	I_F = -2.5A, dI_F/dt = 100A /μS		7		nS
Reverse Recovery Charge	Q_{rr}			1		nC

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

[2] Independent of operating temperature.

[3] Package limitation current is -10A.

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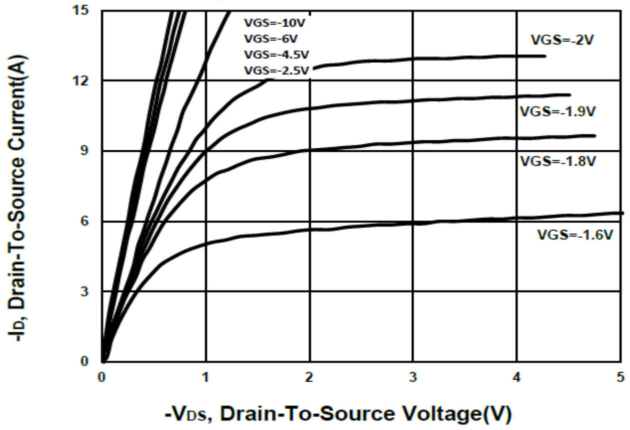
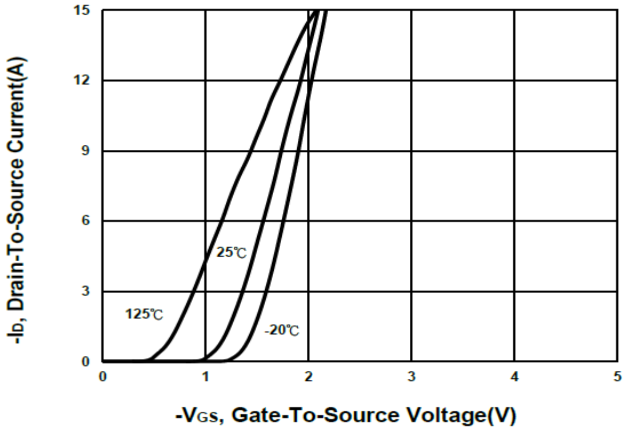
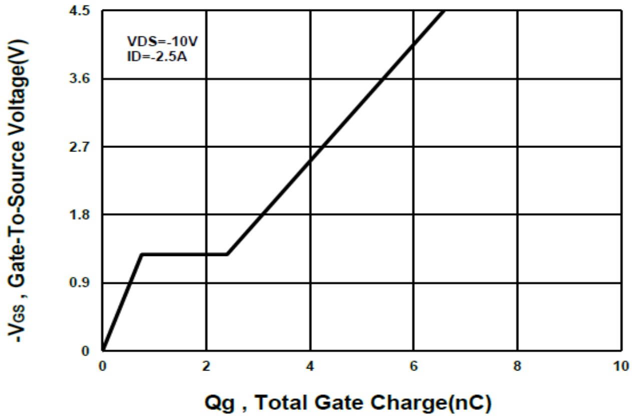


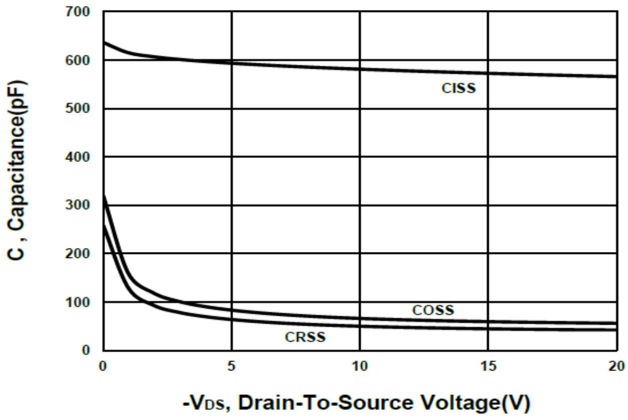
Output Characteristics



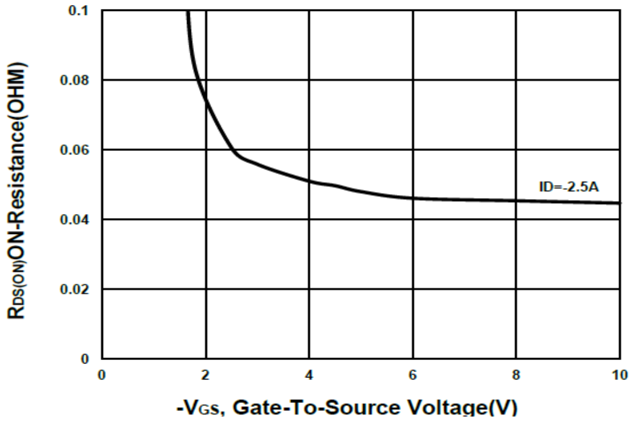
Transfer Characteristics



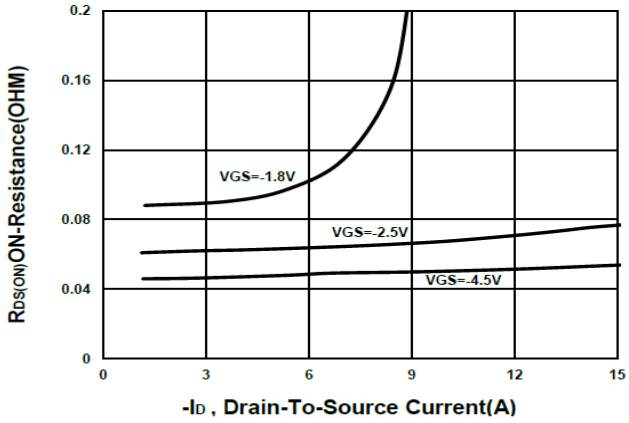
Gate charge Characteristics



Capacitance Characteristic



On-Resistance VS Gate-To-Source



On-Resistance VS Drain Current

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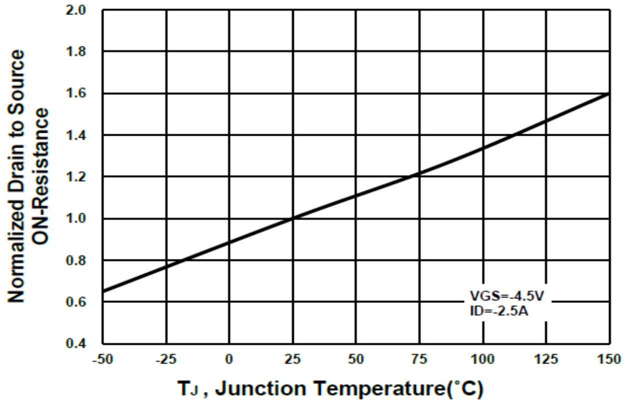
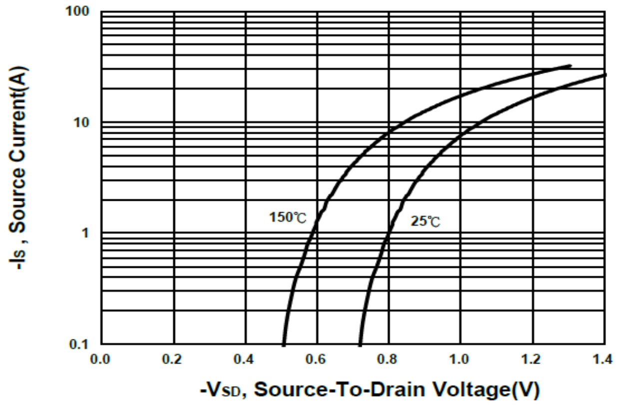
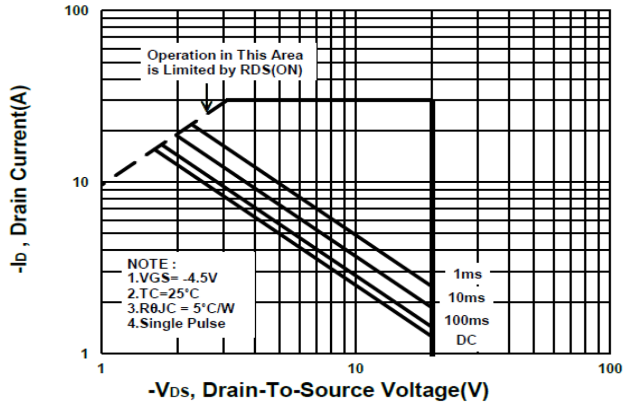
On-Resistance VS Temperature



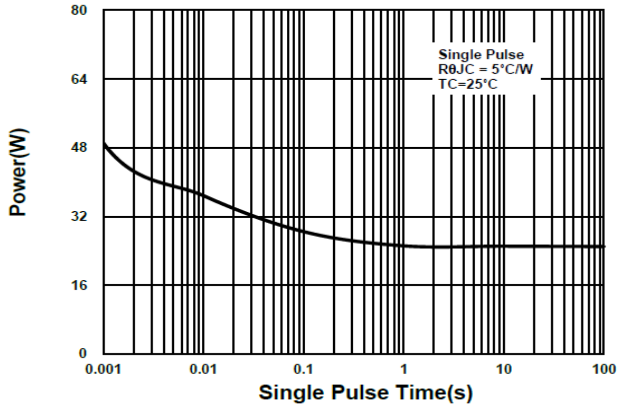
Source-Drain Diode Forward Voltage



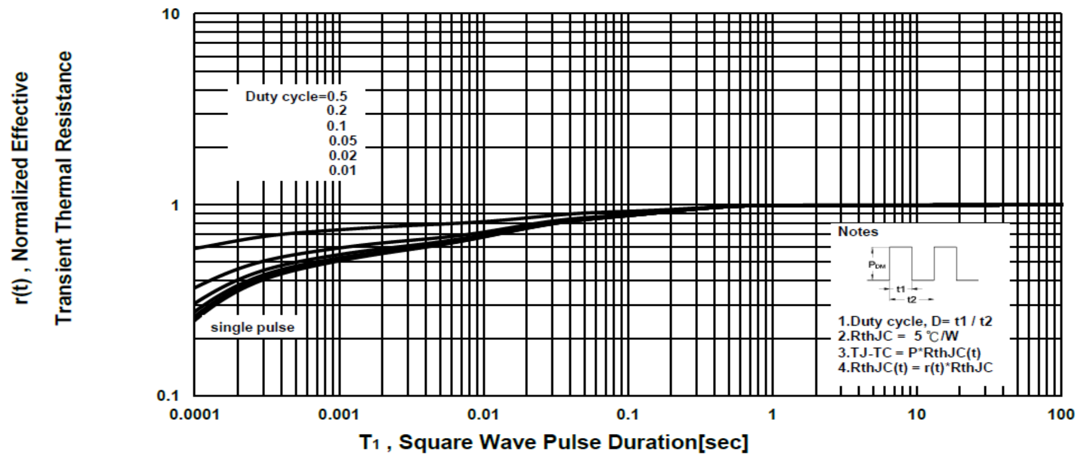
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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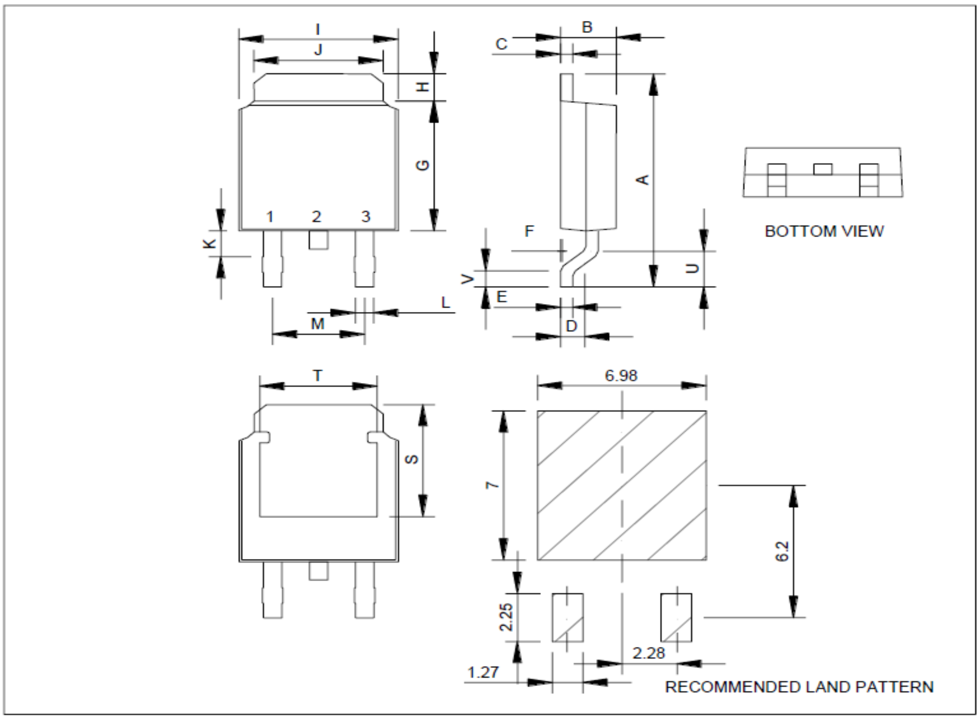
Package Dimension

TO-252 (DPAK) MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	10	10.41	J	4.8		5.64
B	2.1	2.2	2.4	K	0.15		1.1
C	0.4	0.5	0.61	L	0.4	0.76	0.89
D	0.82	1.2	1.5	M	4.2	4.58	5
E	0.4	0.5	0.61	S	4.9	5.1	5.3
F	0		0.2	T	4.6	4.75	5.44
G	5.3	6.1	6.3	U	1.4		1.78
H	0.9		1.7	V	0.55	1.25	1.7
I	6.3	6.5	6.8				



*因为各家封装模具不同而外观略有所差异，不影响电性及Layout。

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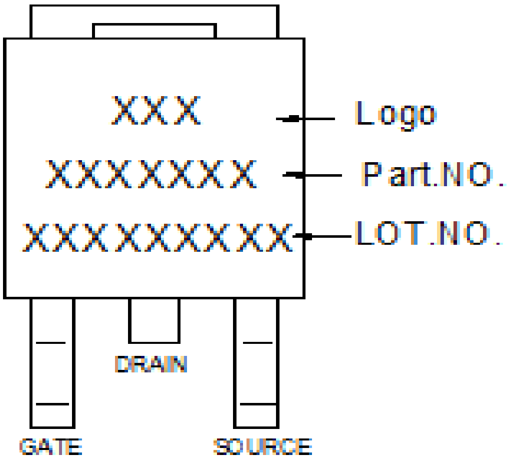
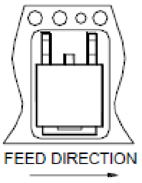
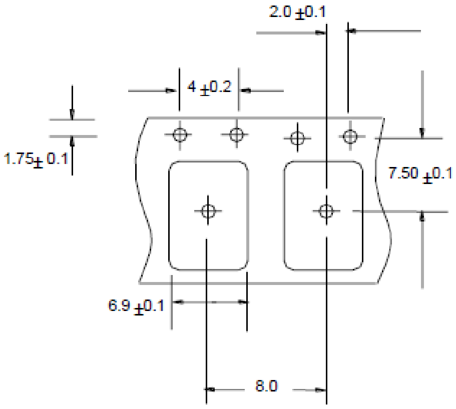
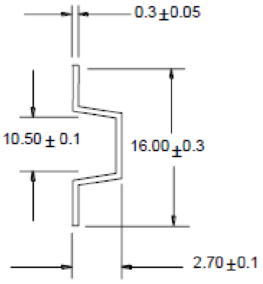
A. Marking Information

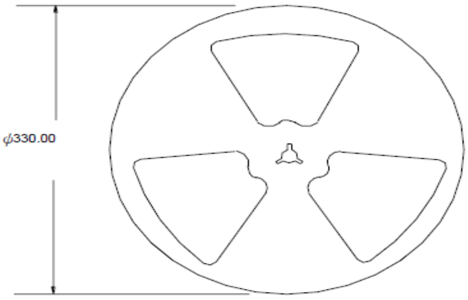


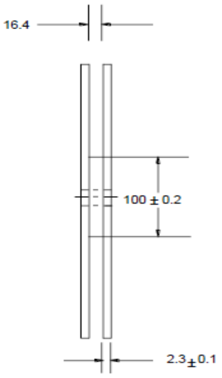
B. Tape&Reel Information:2500pcs/Reel





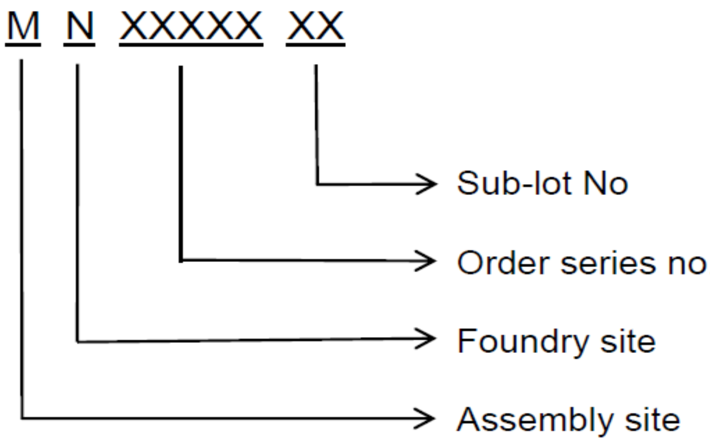




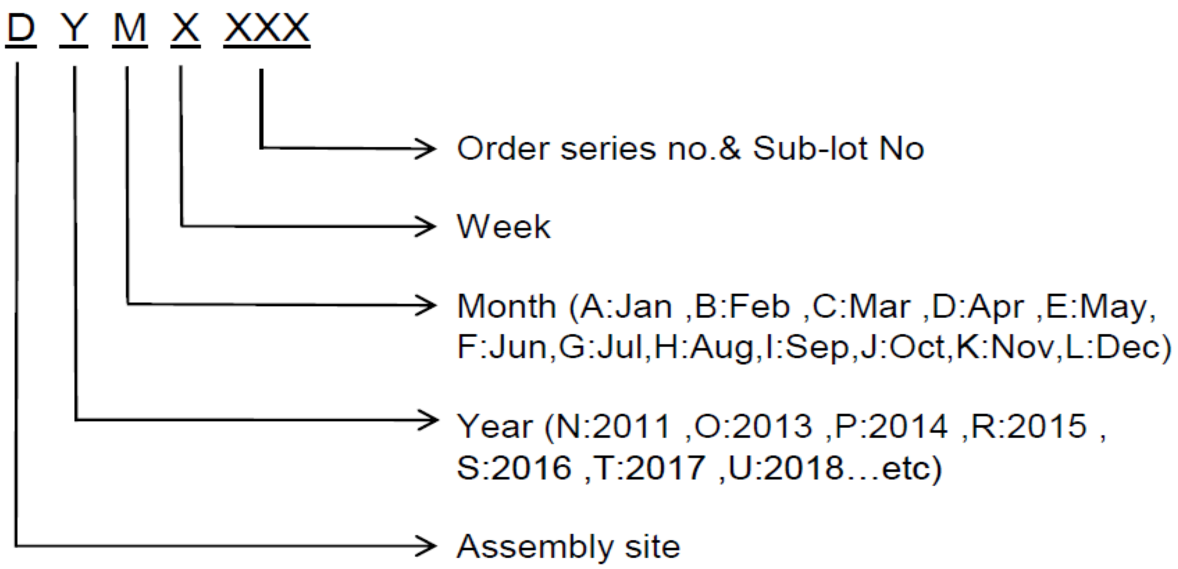


C. Lot No.&Date Code rule

1.Lot No.



2.Date Code



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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	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