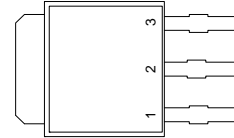
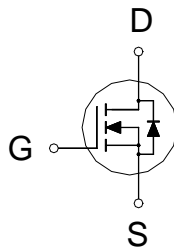




**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30V	9mΩ	47A



- 1. GATE
- 2. DRAIN
- 3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GS}$	±20	V
Continuous Drain Current <sup>2</sup>	$T_C = 25\text{ °C}$	$I_D$	47	A
	$T_C = 100\text{ °C}$		29.7	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	150	
Avalanche Current		$I_{AS}$	24	
Avalanche Energy	L = 0.1mH	$E_{AS}$	29	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	35.7	W
	$T_C = 100\text{ °C}$		14.3	
Junction & Storage Temperature Range		$T_J, T_{stg}$	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		3.5	°C / W
Junction-to-Ambient	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Package limitation current is 30A.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.7	3	V
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			±100	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 125\text{ °C}$			10	
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 15A$		10.8	12	mΩ
		$V_{GS} = 10V, I_D = 20A$		7.9	9	

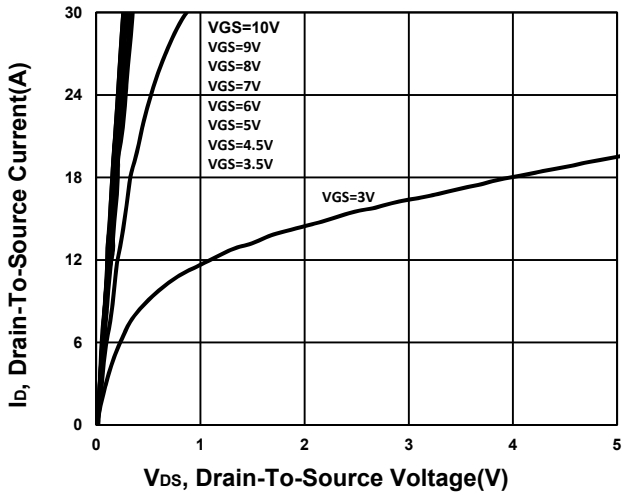
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 10V, I_D = 20A$		40		S	
<b>DYNAMIC</b>							
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		597		pF	
Output Capacitance	$C_{oss}$			157			
Reverse Transfer Capacitance	$C_{rss}$			86			
Gate Resistance	$R_g$	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		3.3		$\Omega$	
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 15V, I_D = 20A$	$V_{GS}=10V$	13.4		nC	
			$V_{GS}=4.5V$	7.2			
Gate-Source Charge <sup>2</sup>	$Q_{gs}$		1.9				
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$		4.3				
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$		$V_{DS} = 15V$ $I_D \cong 20A, V_{GS} = 10V, R_{GEN} = 6\Omega$		18		nS
Rise Time <sup>2</sup>	$t_r$				15		
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			34			
Fall Time <sup>2</sup>	$t_f$			16			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>							
Continuous Current <sup>3</sup>	$I_S$			47		A	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 20A, V_{GS} = 0V$		1.2		V	
Reverse Recovery Time	$t_{rr}$	$I_F = 20A, di_F/dt = 100A / \mu S$		15		nS	
Reverse Recovery Charge	$Q_{rr}$			5		nC	

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

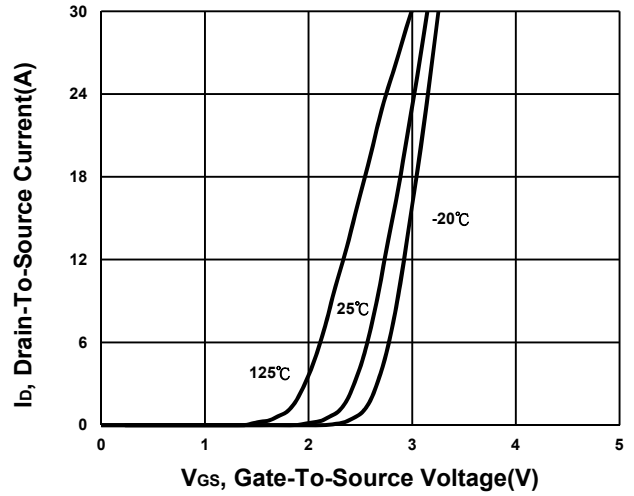
<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Package limitation current is 30A

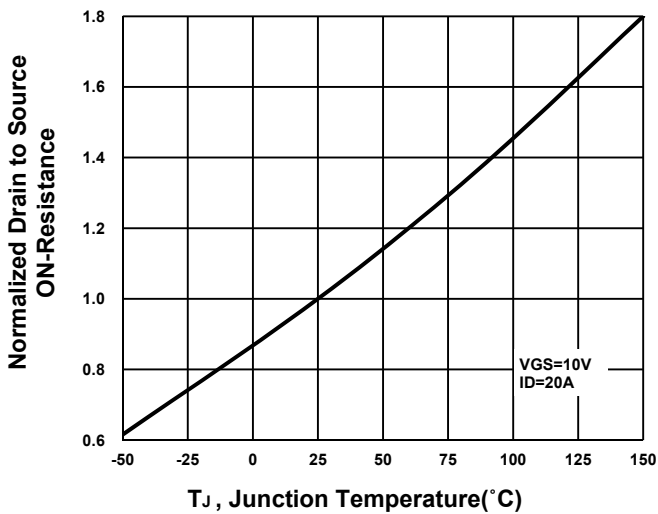
**Output Characteristics**



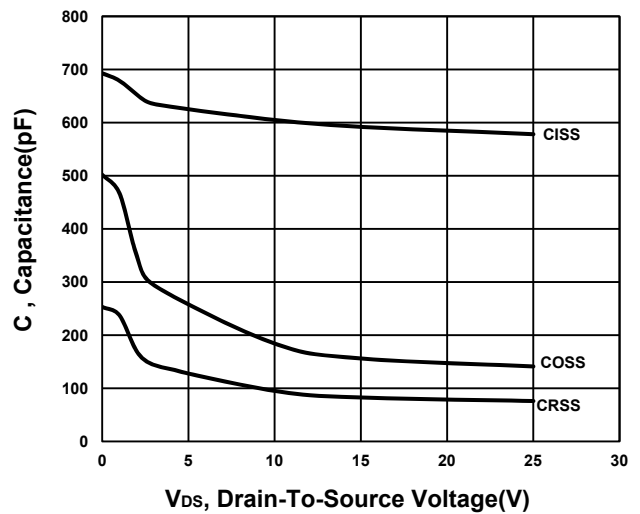
**Transfer Characteristics**



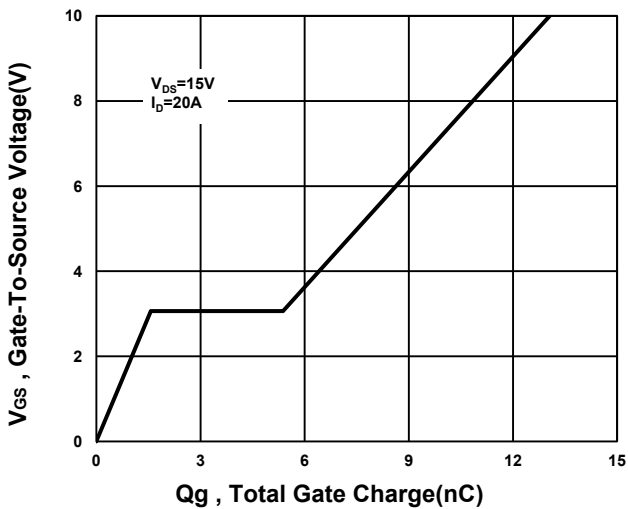
**On-Resistance VS Temperature**



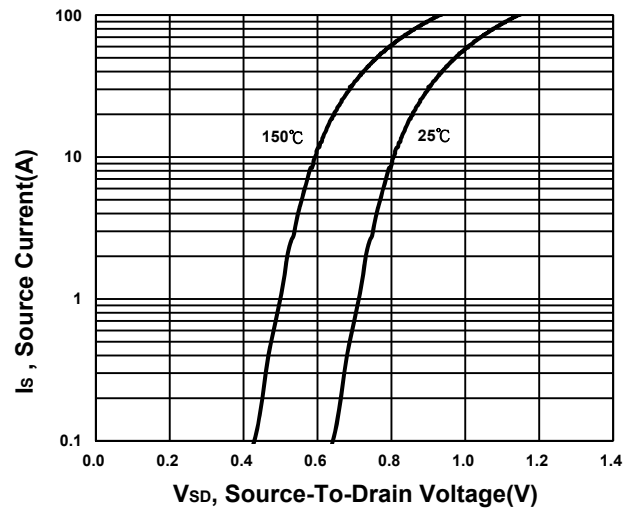
**Capacitance Characteristic**



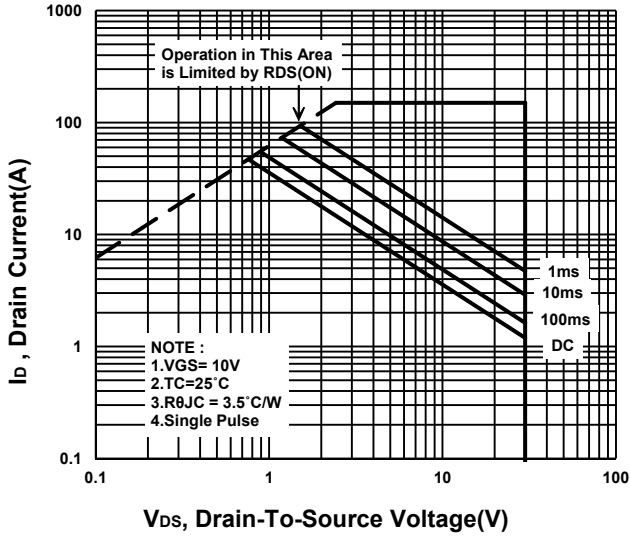
**Gate charge Characteristics**



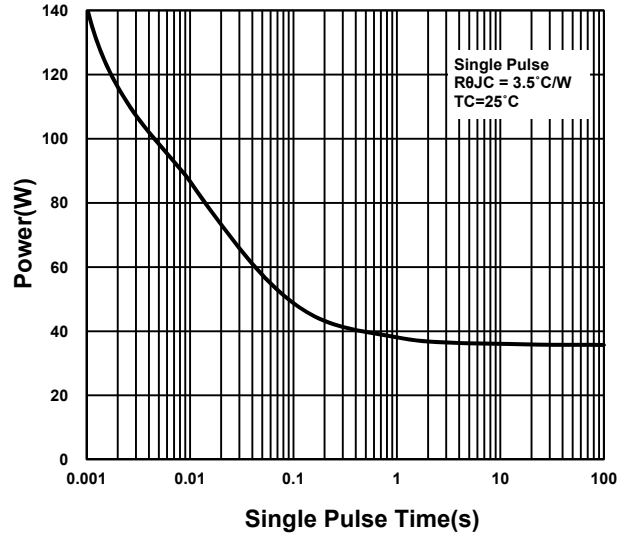
**Source-Drain Diode Forward Voltage**



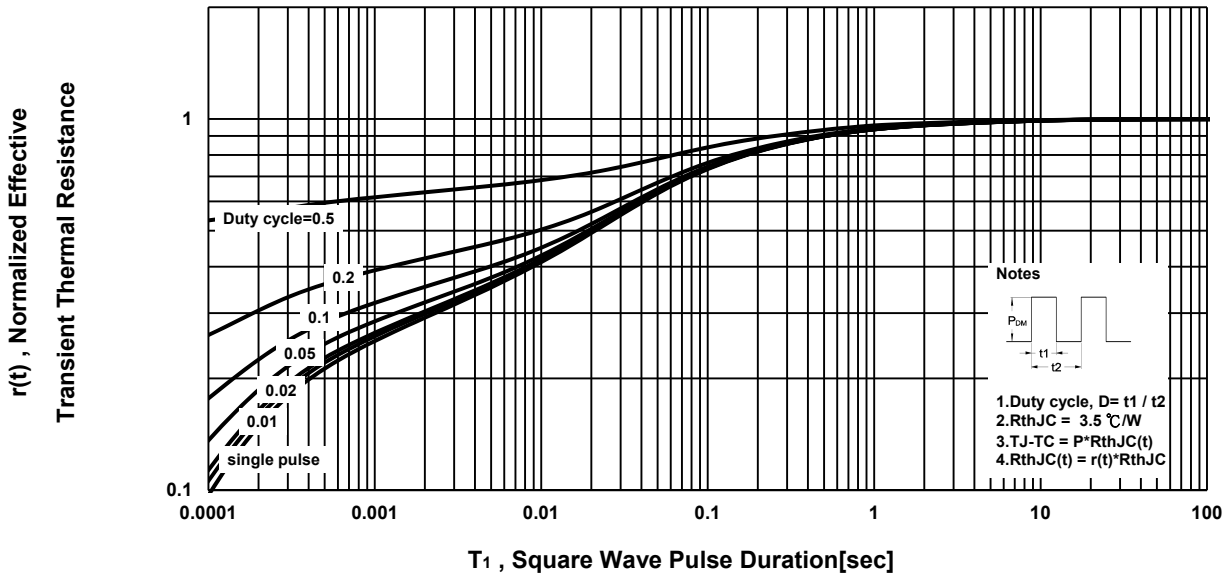
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



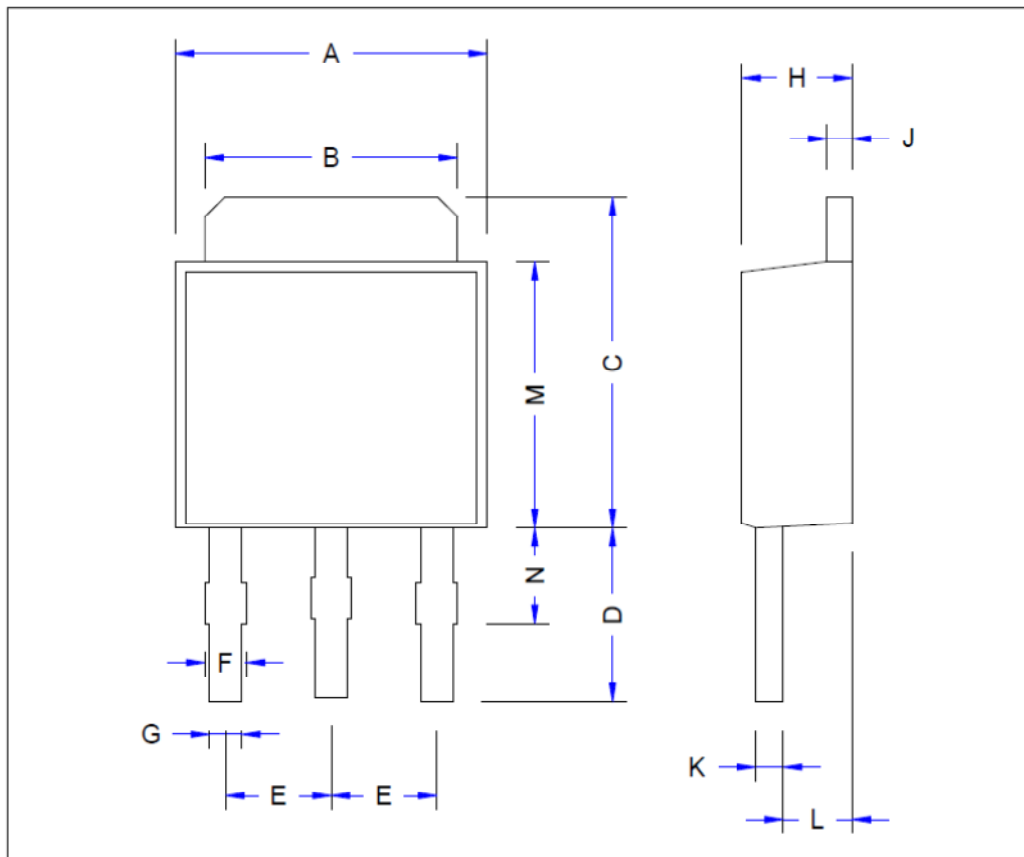
**Transient Thermal Response Curve**



**Package Dimension**

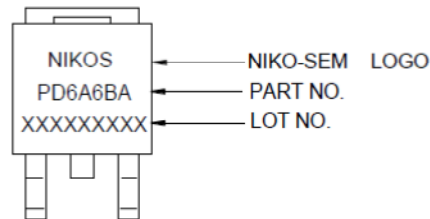
**TO-251 (IS) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	6.3	6.6	6.8	H	2.1	2.3	2.5
B	4.8	5.3	5.5	J	0.4	0.5	0.6
C	6.7		7.57	K	0.35	0.5	0.65
D	3	3.5	4.5	L	0.9		1.5
E		2.3		M	5.3		6.22
F	0.6	0.9	1.1	N	1.4	1.6	2.1
G	0.4		0.89				

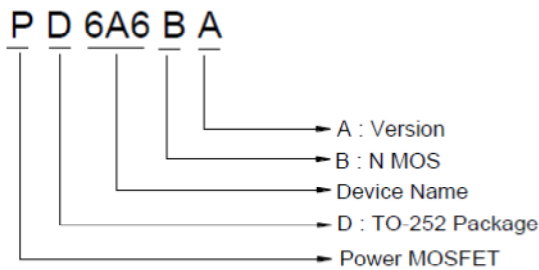


**Marking Information:(Please see the corresponding data sheet)**

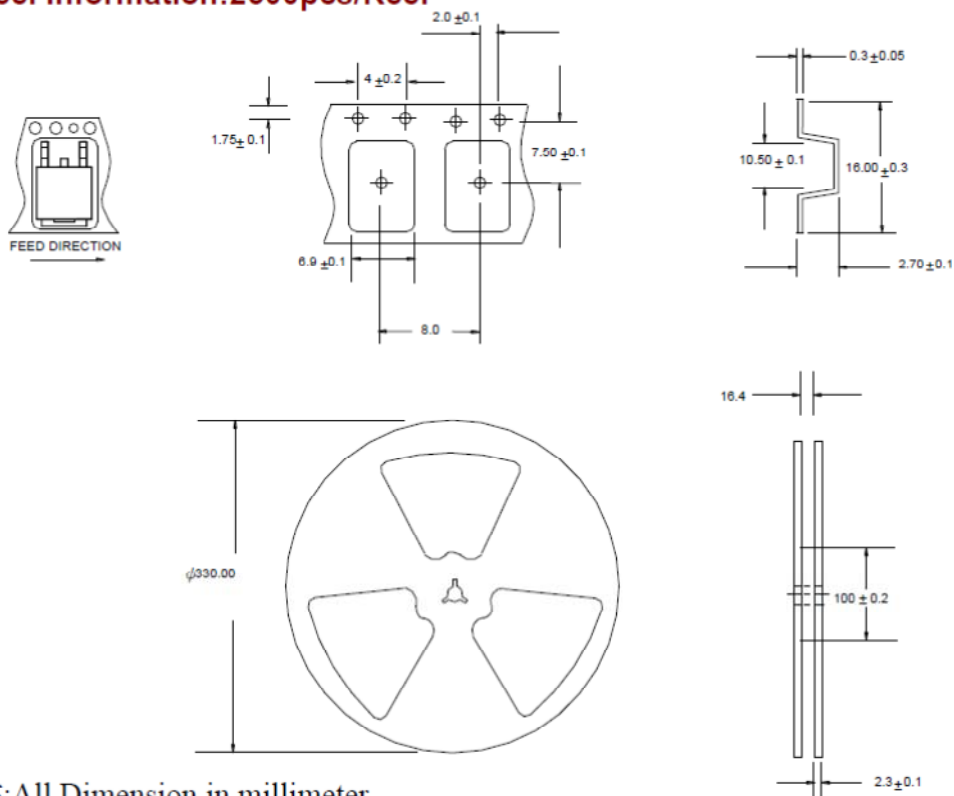
1.零件 Marking 文字面說明(Laser Marking)



2.零件 Part number 說明



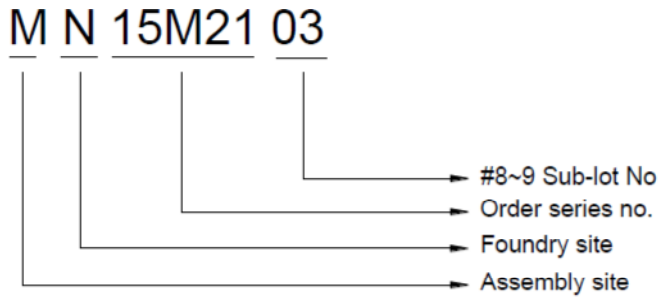
**Tape&Reel Information:2500pcs/Reel**



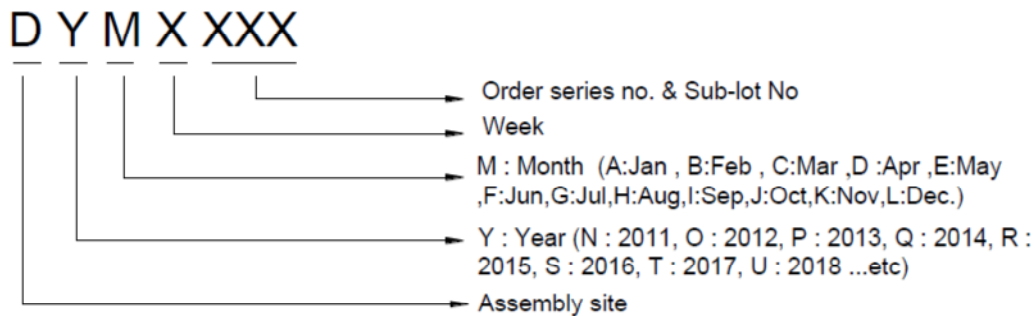
附註:All Dimension in millimeter

**Lot.No. & Date Code rule**

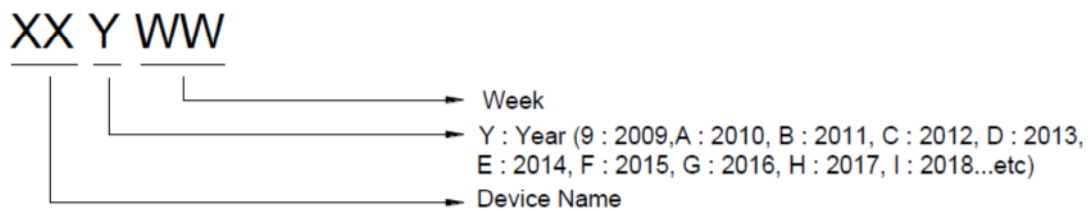
1.LOT.NO.



2.Date Code





3.Date Code (for Small package)



**Label rule**

標籤內容 (Label content)



1	Label Size	30 * 90 mm
2	Font style	Times New Roman or Arial (或可區分英文”O”和數字”0”，”G 和”Q”的字型即可) (Or any font capable of being distinguished for Letter O and digital 0, and for G and Q))
3	NIKO-SEM	Height: 4 mm
4	NIKO SEMICONDUCTOR CO., LTD.	Height: 1 mm
5	Package	Height: 2 mm
6	Date	Height: 2 mm Shipping date: YYYY/MM/DD, ex. 2008/09/12
7	Device	Height: 3 mm (Max: 16 Digit) Device Name not including Rev.
8	Lot	Height: 3 mm (Max: 9 Digit) Sub lot
9	D/C	Height: 3 mm (Max: 7 Digit)
10	QTY	Height: 3 mm (Max: 6 Digit) Thousand mark is no needed
11	Pb Free label	 Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
12	Halogen Free label	 Diameter: 1 cm bottom color: Green Font color: Black Font style: Arial
13	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