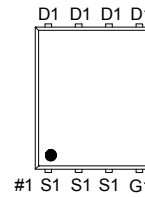
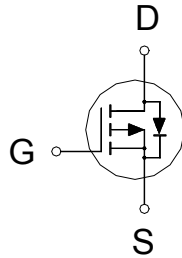


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-30V	8mΩ	-38A



G : GATE  
D : DRAIN  
S : 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		$V_{GS}$	±25	V
Continuous Drain Current	$T_C = 25\text{ °C}$	$I_D$	-38	A
	$T_C = 100\text{ °C}$		-24	
	$T_A = 25\text{ °C}$		-12	
	$T_A = 70\text{ °C}$		-10	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-100	
Avalanche Current		$I_{AS}$	-37	
Avalanche Energy	L = 0.1mH	$E_{AS}$	68.4	mJ
Power Dissipation	$T_C = 25\text{ °C}$	$P_D$	20	W
	$T_C = 100\text{ °C}$		8.3	
	$T_A = 25\text{ °C}$		2.3	
	$T_A = 70\text{ °C}$		1.4	
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150	°C

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient <sup>2</sup>	$R_{\theta JA}$		54	°C / W
Junction-to-Case	$R_{\theta JC}$		6	

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

<sup>2</sup>The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25\text{ °C}$ . The value in any given application depends on the user's specific board design.

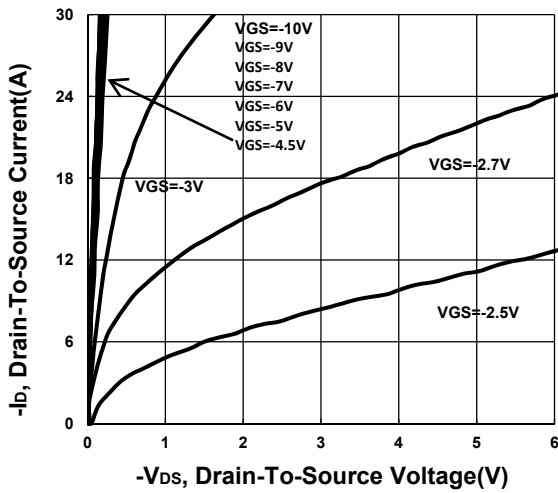
**ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA	-30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA	-1	-1.6	-3	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±25V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = -24V, V <sub>GS</sub> = 0V			-1	uA
		V <sub>DS</sub> = -20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 125 °C			-10	
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -12A		8.9	14	mΩ
		V <sub>GS</sub> = -10V, I <sub>D</sub> = -12A		5.9	8	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = -5V, I <sub>D</sub> = -12A		40		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = -15V, f = 1MHz		2464		pF
Output Capacitance	C <sub>oss</sub>			374		
Reverse Transfer Capacitance	C <sub>rss</sub>			271		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		3.9		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g(VGS=-10V)</sub>	V <sub>DS</sub> = -15V, I <sub>D</sub> = -12A		60		nC
	Q <sub>g(VGS=-4.5V)</sub>			27.6		
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			8		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			13.6		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>		V <sub>DS</sub> = -15V, I <sub>D</sub> ≅ -12A, V <sub>GS</sub> = -10V, R <sub>GS</sub> = 6Ω		22	
Rise Time <sup>2</sup>	t <sub>r</sub>			25		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			100		
Fall Time <sup>2</sup>	t <sub>f</sub>			75		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				-15	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = -12A, V <sub>GS</sub> = 0V			-1.3.	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = -12A, di <sub>F</sub> /dt = 100 A / μS		26		nS
Reverse Recovery Charge	Q <sub>rr</sub>			13		nC

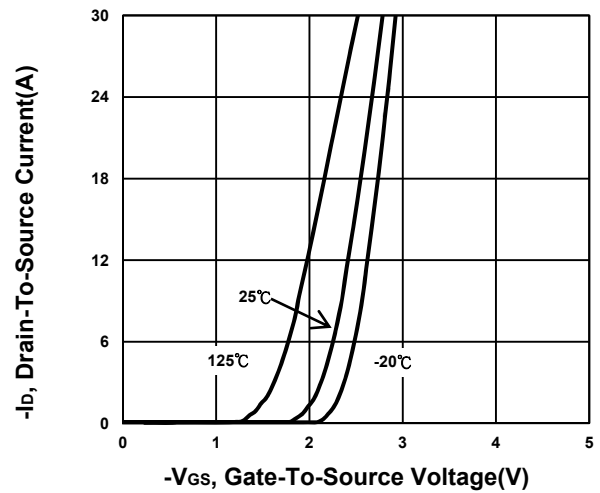
<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

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

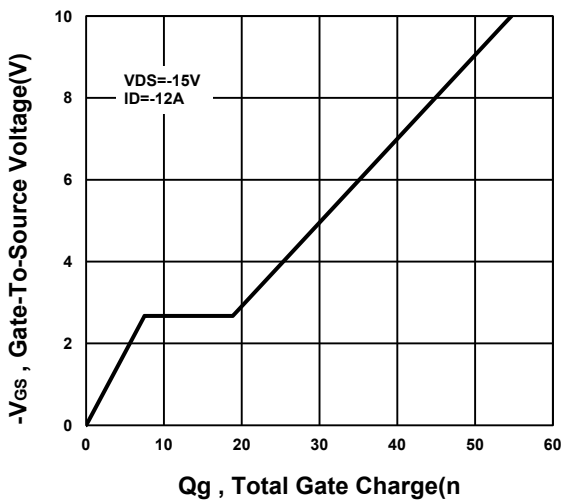
**Output Characteristics**



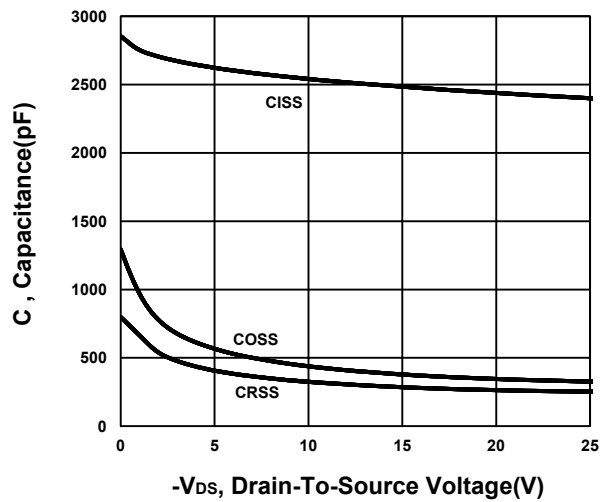
**Transfer Characteristics**



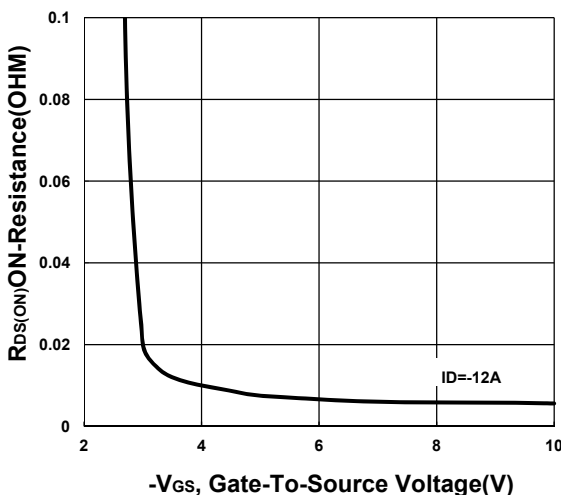
**Gate charge Characteristics**



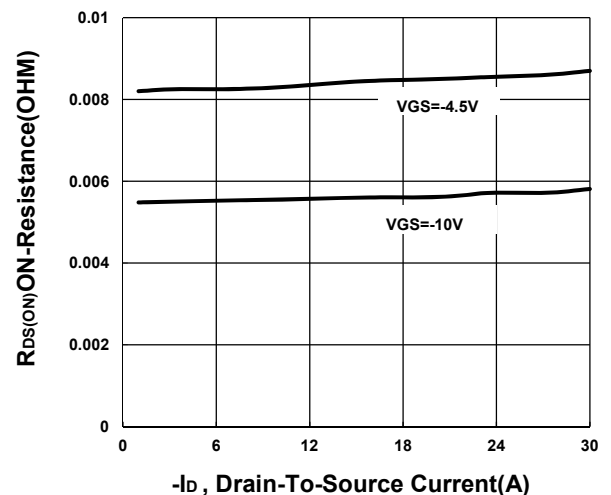
**Capacitance Characteristic**



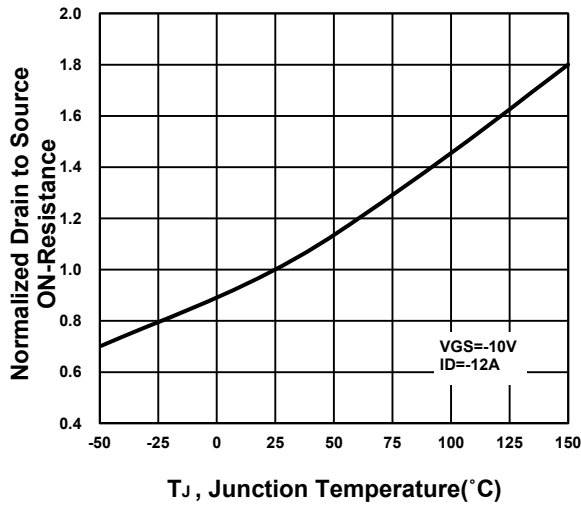
**On-Resistance VS Gate-To-Source**



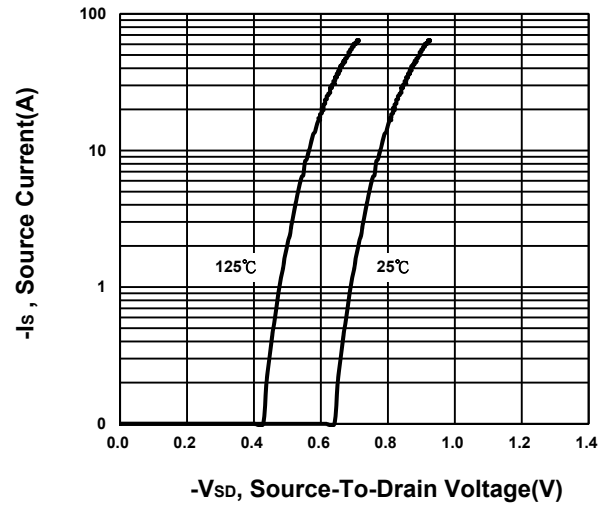
**On-Resistance VS Drain Current**



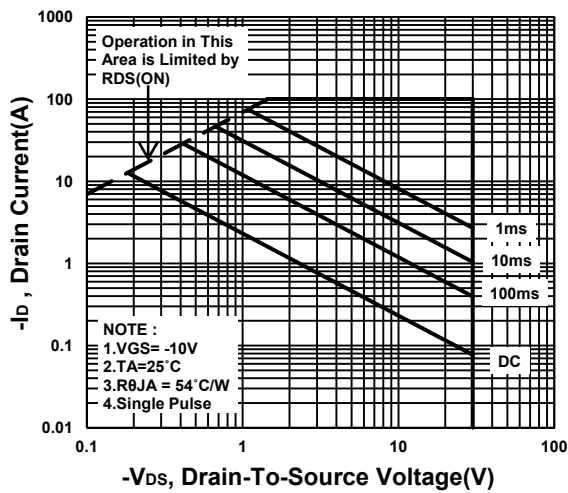
**On-Resistance VS Temperature**



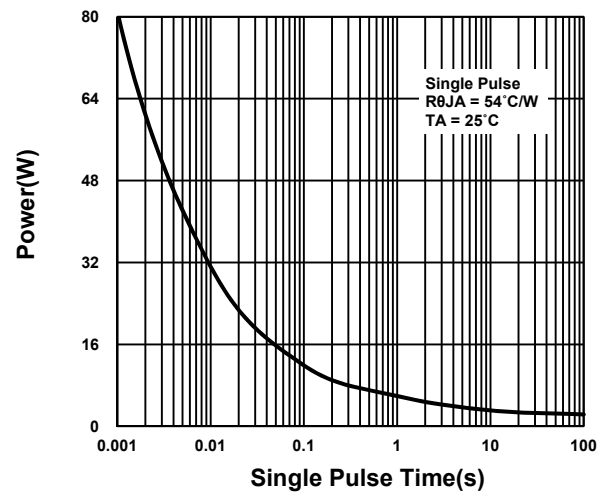
**Source-Drain Diode Forward Voltage**



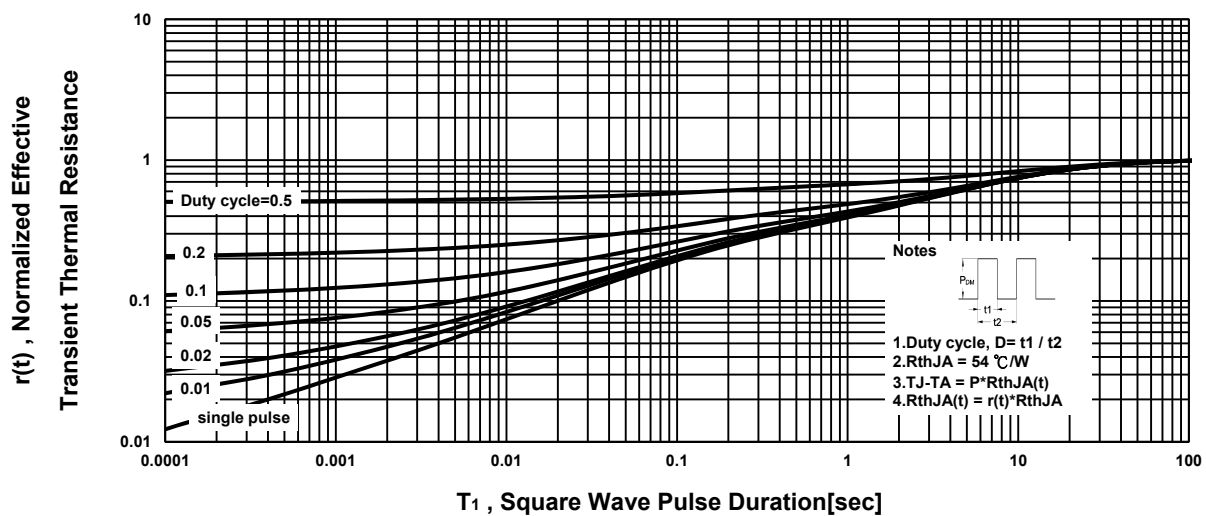
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



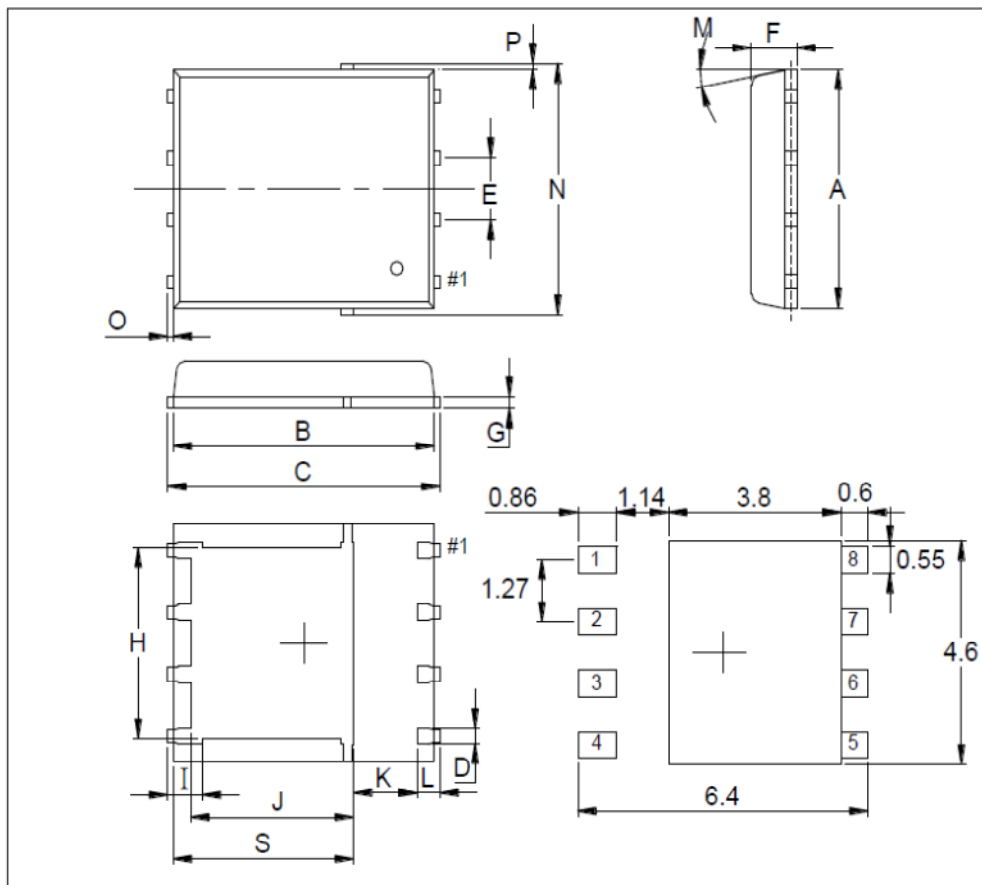
**Transient Thermal Response Curve**



**Package Dimension**

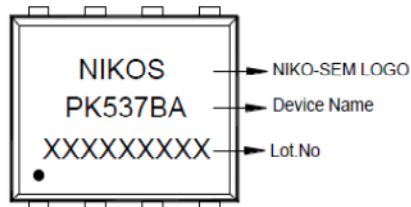
**PDFN 5x6P MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.34		3.9
B	5.42		5.9	K	0.9		
C	5.9		6.35	L	0.38		0.711
D	0.3		0.51	M	0°		12°
E	1.17	1.27	1.37	N	4.8		5.4
F	0.8	1	1.2	O	0.05		0.36
G	0.15		0.35	P	0.05		0.25
H	3.67		4.31	S	3.73		4.19
I	0.38		0.71				



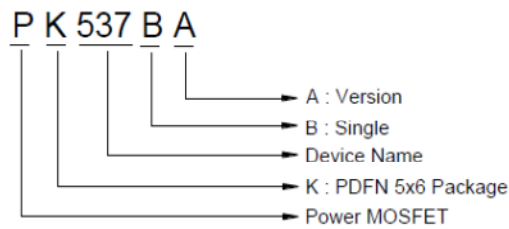
**Marking Information:(Please see the corresponding data sheet)**

1. 零件Marking 文字面說明

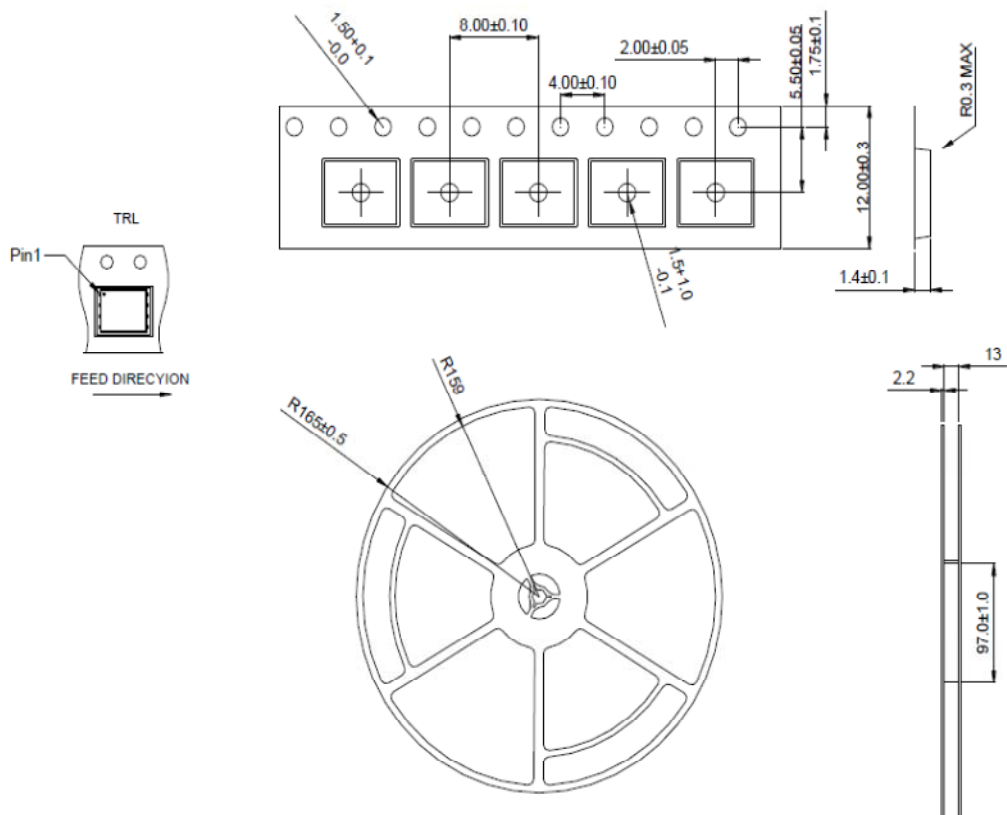


#1

2. 零件 Part number 說明



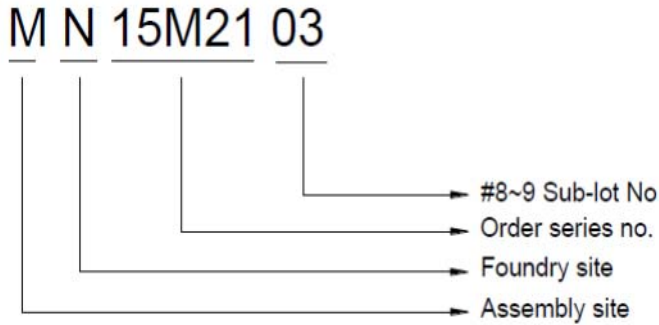
**Tape&Reel Information:3000pcs/Reel**



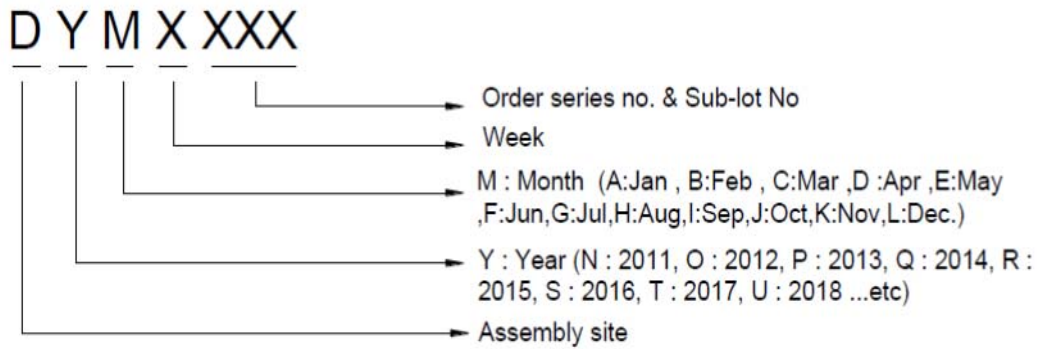
附註:All Dimension in milimeter

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

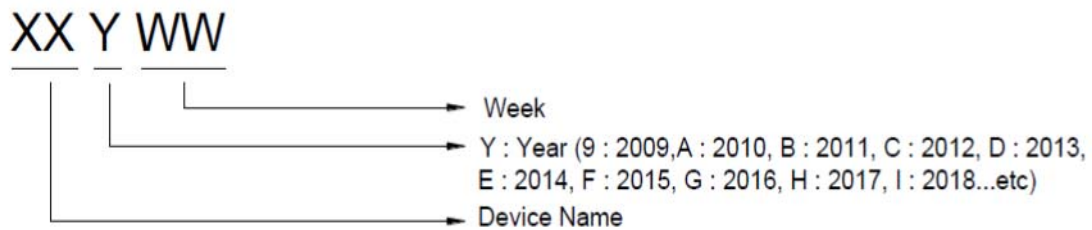
1.LOT.NO.



2.Date Code

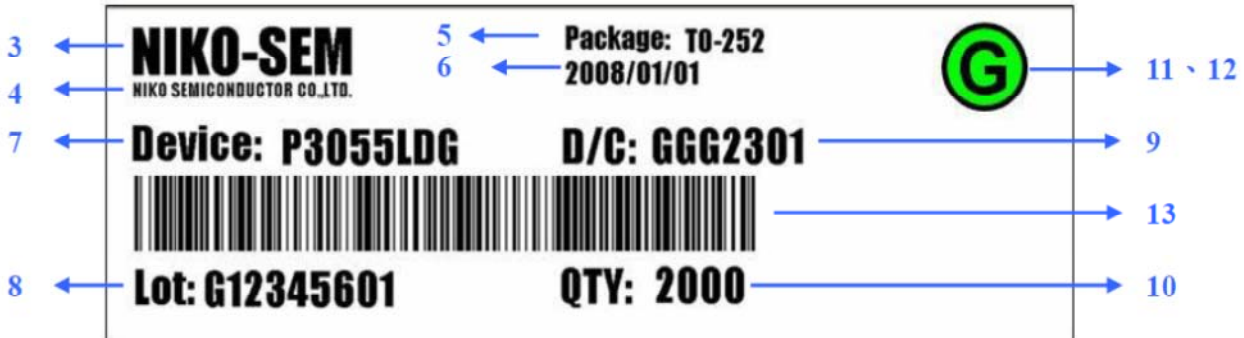




3.Date Code (for Small package)



**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



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