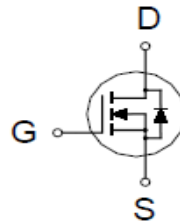
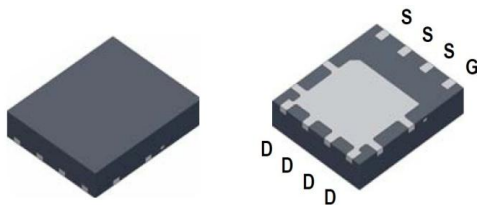


PK5E6BA

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	6m Ω @ $V_{GS} = 10V$	52A



100% UIS Tested
100% Rg Tested

PDFN 5X6P

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^{\circ}\text{C}$ 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 ⁴	$T_C = 25\text{ }^{\circ}\text{C}$	I_D	52	A
	$T_C = 100\text{ }^{\circ}\text{C}$		33	
Pulsed Drain Current ¹		I_{DM}	120	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	19	
	$T_A = 70\text{ }^{\circ}\text{C}$		15	
Avalanche Current		I_{AS}	33	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	54	mJ
Power Dissipation	$T_C = 25\text{ }^{\circ}\text{C}$	P_D	31	W
	$T_C = 100\text{ }^{\circ}\text{C}$		12.5	
Power Dissipation ³	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	4	W
	$T_A = 70\text{ }^{\circ}\text{C}$		2.7	
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	$t \leq 10\text{s}$	$R_{\theta JA}$		30	$^{\circ}\text{C} / \text{W}$
Junction-to-Ambient ²	Steady-State	$R_{\theta JA}$		51	
Junction-to-Case	Steady-State	$R_{\theta JC}$		4	

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 $T_A = 25^{\circ}\text{C}$.

³The Power dissipation is based on $R_{\theta JA} t \leq 10\text{s}$ value.

⁴Package limitation current is 35A.

PK5E6BA

N-Channel Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.3	1.5	2.3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ C$			10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 8.8A$		5.4	9	mΩ
		$V_{GS} = 10V, I_D = 11A$		3.5	6	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 11A$		36		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		1009		pF
Output Capacitance	C_{oss}			327		
Reverse Transfer Capacitance	C_{rss}			195		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		1.6		Ω
Total Gate Charge ²	Q_g	$V_{GS} = 10V$		23		nC
		$V_{GS} = 4.5V$		13		
Gate-Source Charge ²	Q_{gs}	$V_{DS} = 15V,$ $V_{GS} = 10V, I_D = 11A$		2		
Gate-Drain Charge ²	Q_{gd}			7.6		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 15V,$ $I_D \cong 11A, V_{GS} = 10V, R_{GEN} = 6\Omega$		23		nS
Rise Time ²	t_r			25		
Turn-Off Delay Time ²	$t_{d(off)}$			50		
Fall Time ²	t_f			21		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)						
Continuous Current	I_S				25	A
Forward Voltage ¹	V_{SD}	$I_F = 11A, V_{GS} = 0V$			1.2	V
Reverse Recovery Time	t_{rr}	$I_F = 11A, dl_F/dt = 100A / \mu S$		21		nS
Reverse Recovery Charge	Q_{rr}			7.8		nC

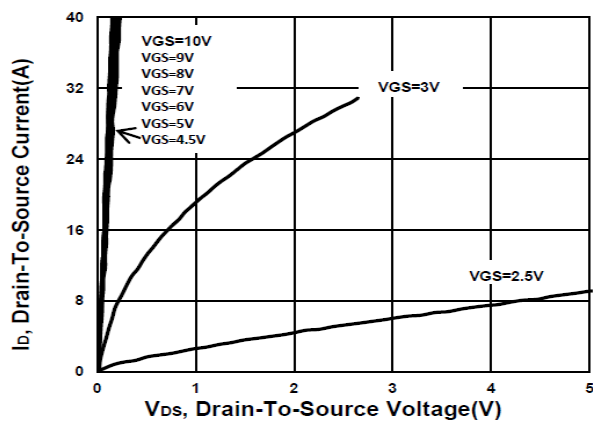
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

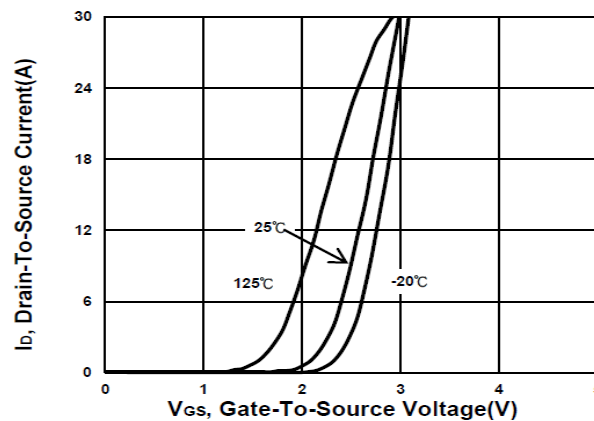
PK5E6BA

N-Channel Enhancement Mode MOSFET

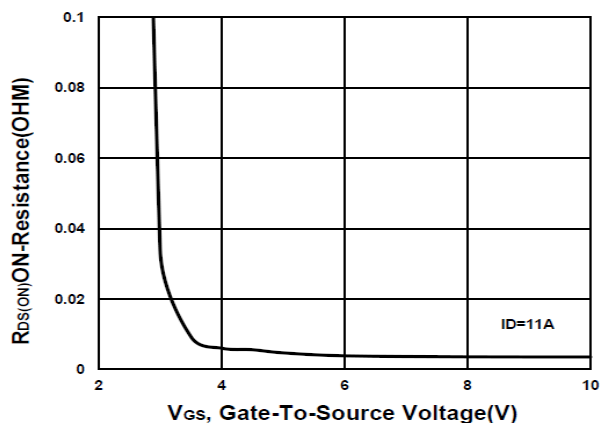
Output Characteristics



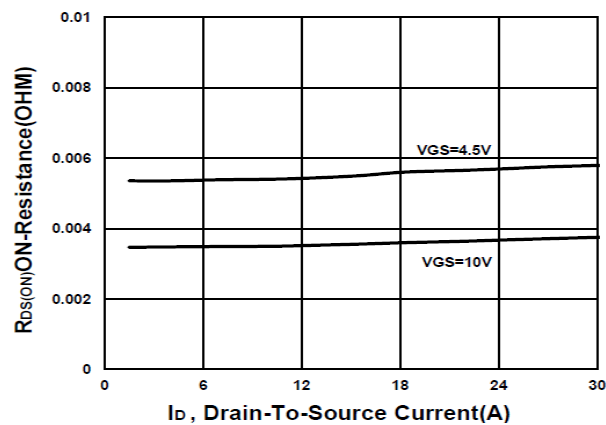
Transfer Characteristics



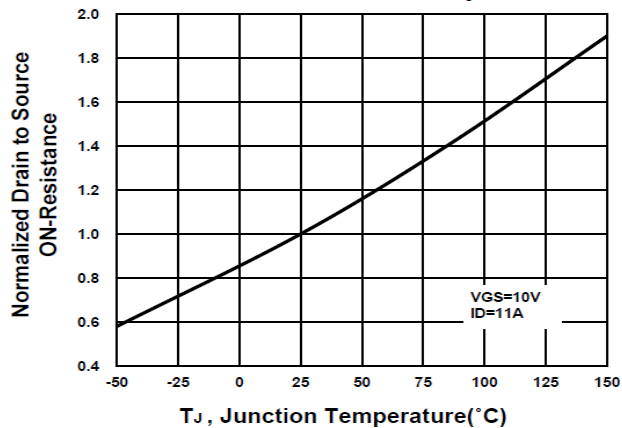
On-Resistance VS Gate-To-Source



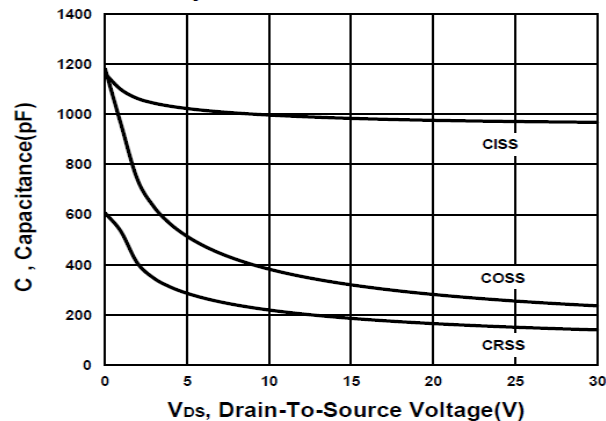
On-Resistance VS Drain Current



On-Resistance VS Temperature



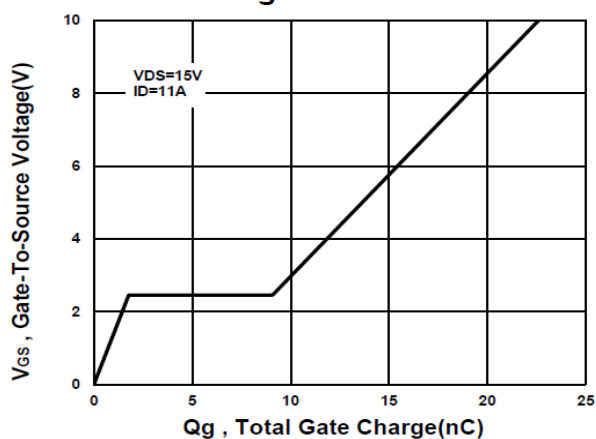
Capacitance Characteristic



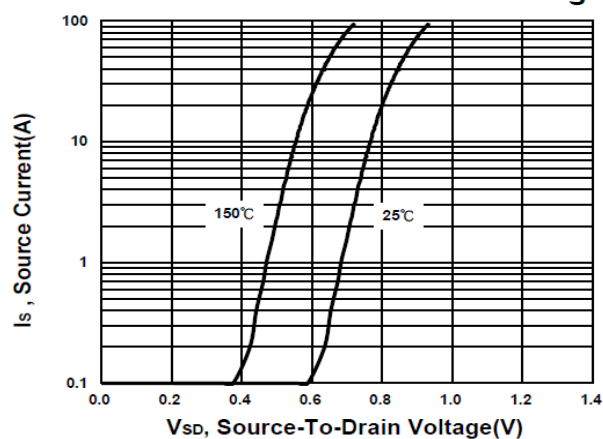
PK5E6BA

N-Channel Enhancement Mode MOSFET

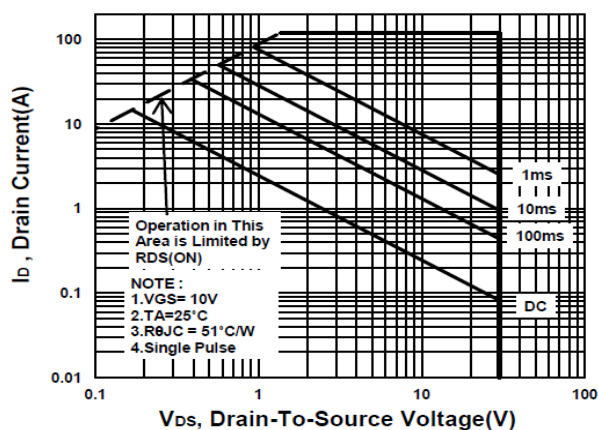
Gate charge Characteristics



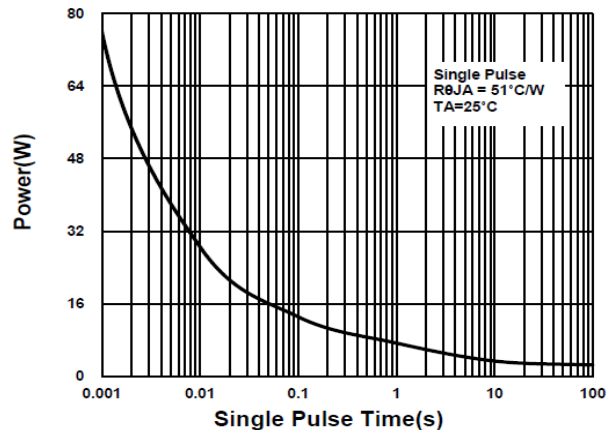
Source-Drain Diode Forward Voltage



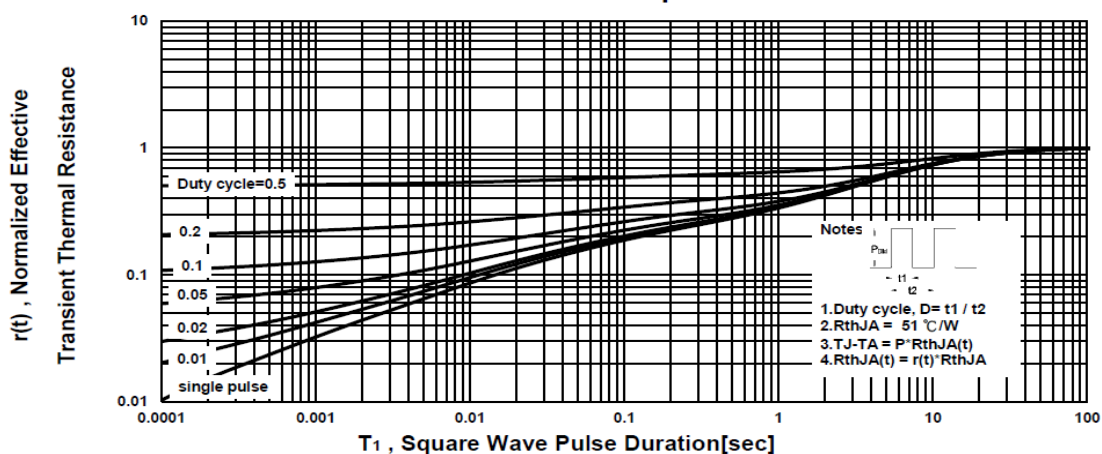
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



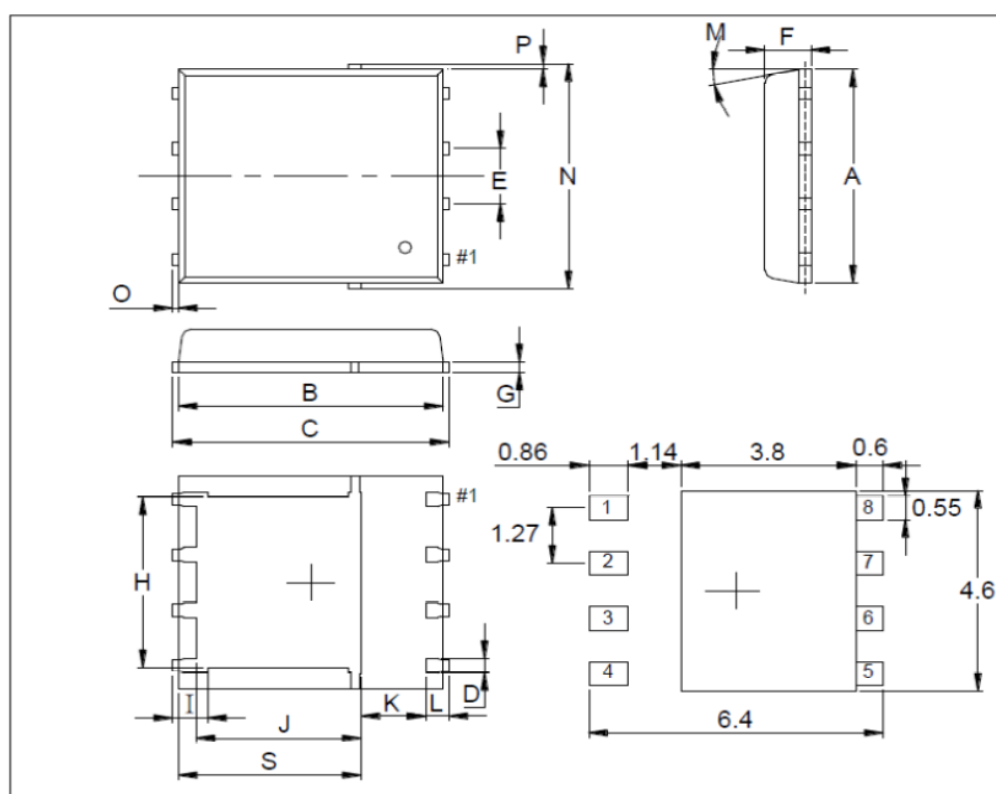
PK5E6BA

N-Channel Enhancement Mode MOSFET

Package Dimension

PDFN 5x6P MECHANICAL DATA

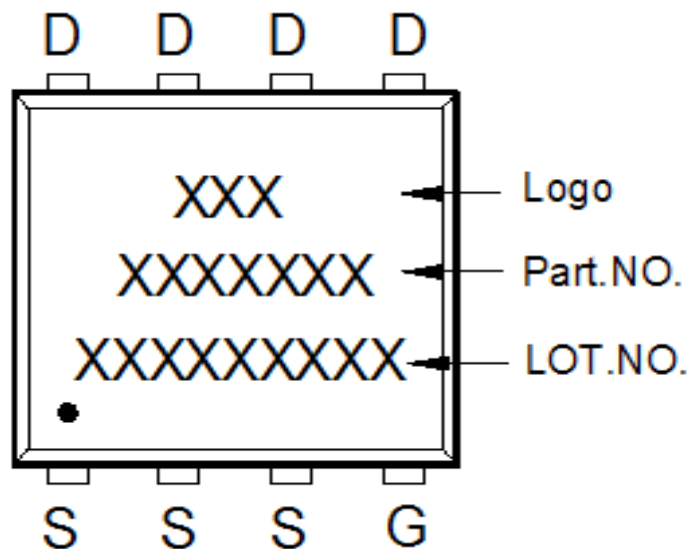
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.34		3.9
B	5.42		5.9	K	0.9		
C	5.9		6.35	L	0.38		0.711
D	0.3		0.51	M	0°		12°
E	1.17	1.27	1.37	N	4.8		5.4
F	0.8	1	1.2	O	0.05		0.36
G	0.15		0.35	P	0.05		0.25
H	3.67		4.31	S	3.73		4.19
I	0.38		0.71				



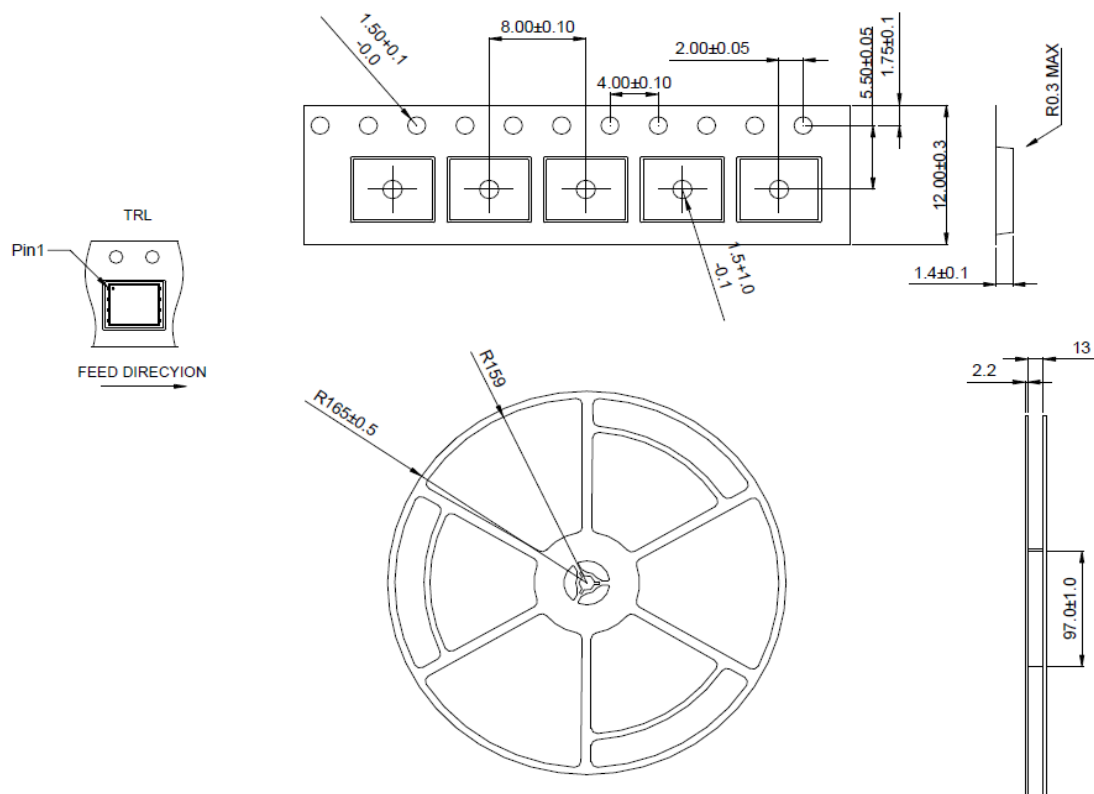
PK5E6BA

N-Channel Enhancement Mode MOSFET

A. Marking Information



B. Tape&Reel Information:3000pcs/Reel

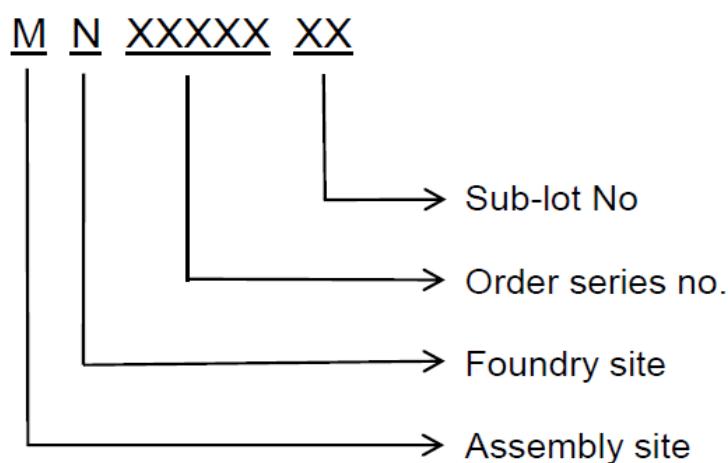


PK5E6BA

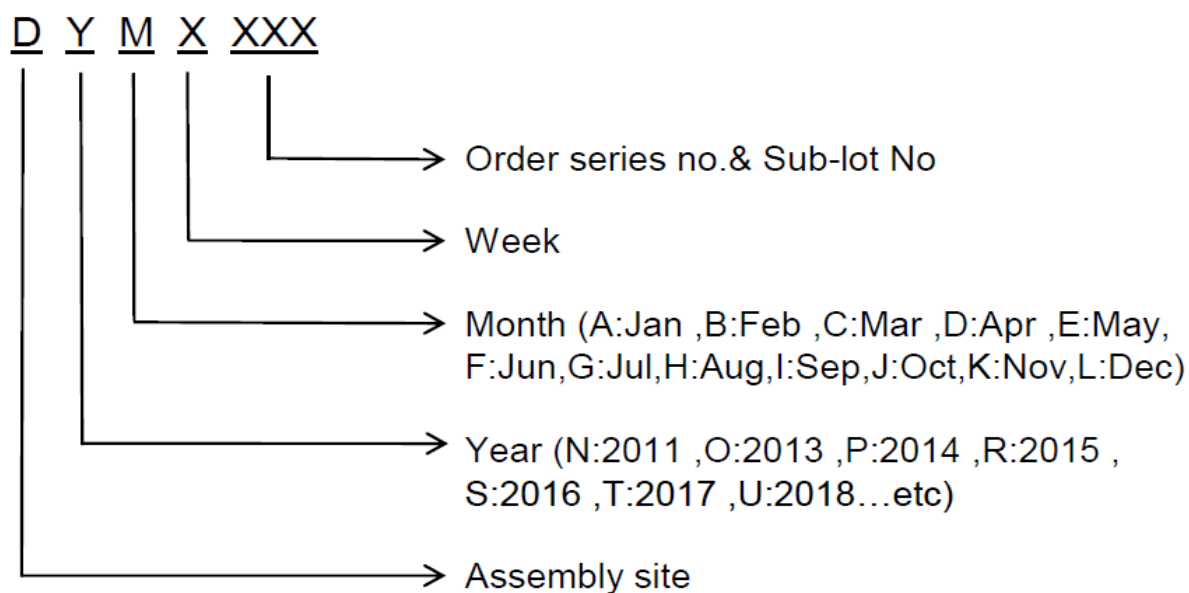
N-Channel Enhancement Mode MOSFET

C. Lot No.&Date Code rule

1.Lot No.



2.Date Code



PK5E6BA

N-Channel Enhancement Mode MOSFET

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	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	 long axis: 12 mm minor axis: 6 mm bottom color: White Font color: Black Font style: Arial
11	Halogen Free label	 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