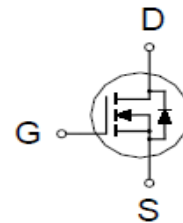
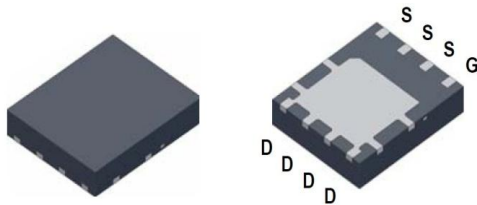


PK650BA

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	3.3m Ω @ $V_{GS} = 10V$	70A



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}	± 20	V
Continuous Drain Current ²	$T_C = 25\text{ }^\circ\text{C}$	I_D	70	A
	$T_C = 100\text{ }^\circ\text{C}$		44.6	
Pulsed Drain Current ¹		I_{DM}	100	
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}	37	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	68	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	$T_A = 25\text{ }^\circ\text{C}$	P_D	2.4	W
	$T_A = 70\text{ }^\circ\text{C}$		1.5	
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 ³	$R_{\theta JA}$		52	$^\circ\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		4	

¹Pulse width limited by maximum junction temperature.

²Package limitation current is 35A.

³The 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 $T_A = 25^\circ\text{C}$.

PK650BA

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 = 250μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.3	1.7	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} = 4.5V, I _D = 15A		3.6	4.4	mΩ
		V _{GS} = 10V, I _D = 19A		2.7	3.3	
Forward Transconductance ¹	g _{fs}	V _{DS} = 5V, I _D = 19A		60		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = 15V, f = 1MHz		1741		pF
Output Capacitance	C _{oss}			311		
Reverse Transfer Capacitance	C _{rss}			198		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		1.23		Ω
Total Gate Charge ²	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 19A	V _{GS} = 10V	35		nC
			V _{GS} = 4.5V	19		
Gate-Source Charge ²	Q _{gs}			5		
Gate-Drain Charge ²	Q _{gd}			9		
Turn-On Delay Time ²	t _{d(on)}	I _D ≅ 19A, V _{GS} = 10V, R _{GEN} = 6Ω		23		nS
Rise Time ²	t _r			10		
Turn-Off Delay Time ²	t _{d(off)}			40		
Fall Time ²	t _f			10		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				25.8	A
Forward Voltage ¹	V _{SD}	I _F = 19A, V _{GS} = 0V			1.2	V
Reverse Recovery Time	t _{rr}	I _F = 19A, di _F /dt = 100A / μS		20.4		nS
Reverse Recovery Charge	Q _{rr}				8.1	

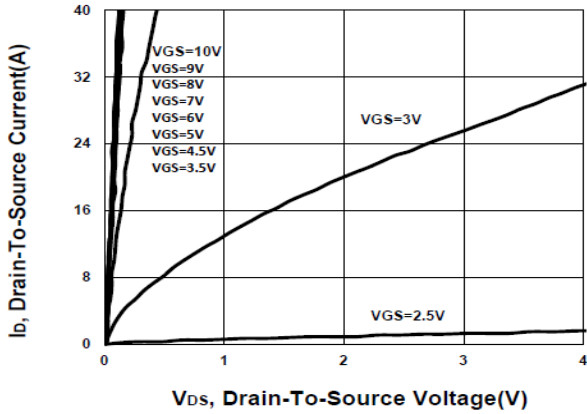
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

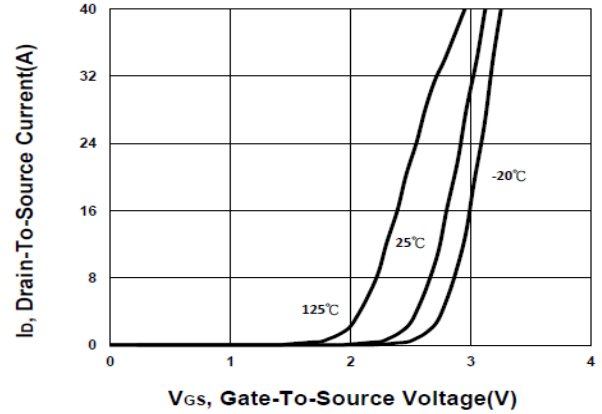
PK650BA

N-Channel Enhancement Mode MOSFET

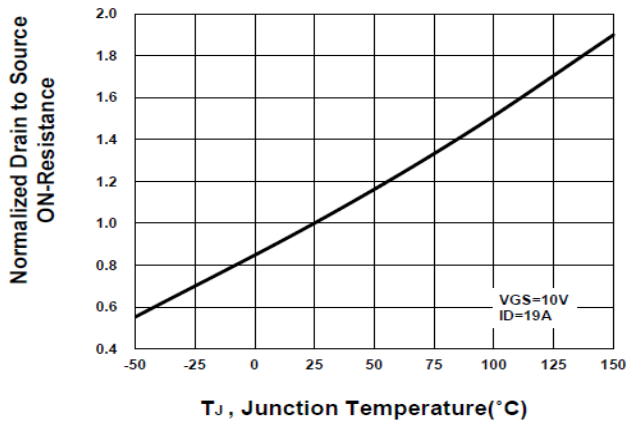
Output Characteristics



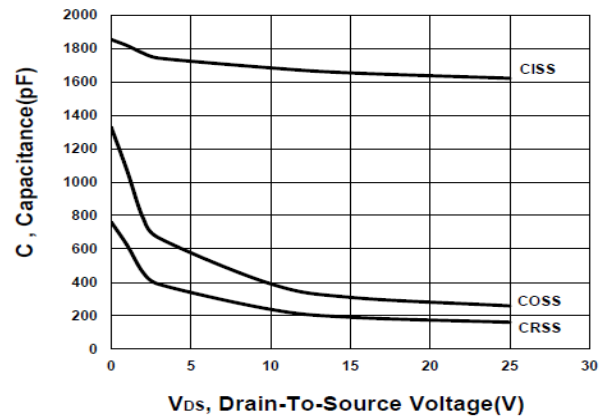
Transfer Characteristics



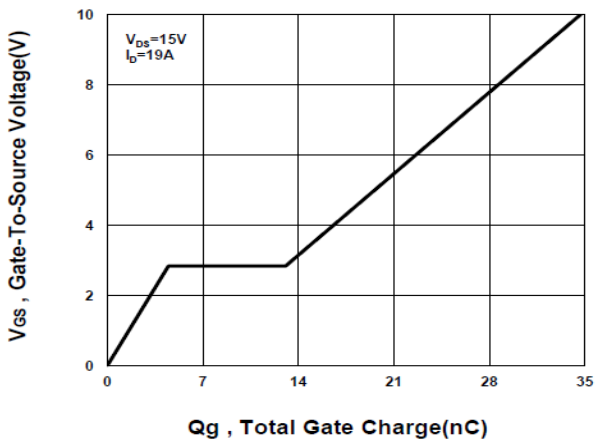
On-Resistance VS Temperature



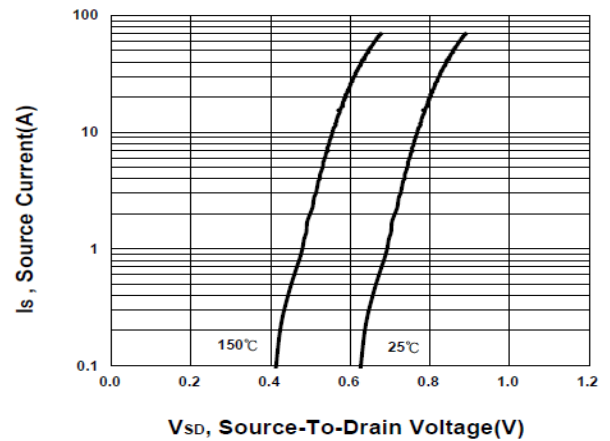
Capacitance Characteristic



Gate charge Characteristics



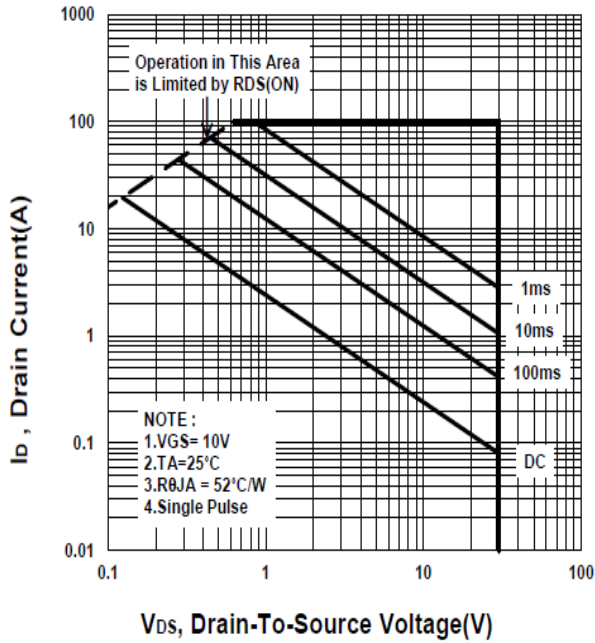
Source-Drain Diode Forward Voltage



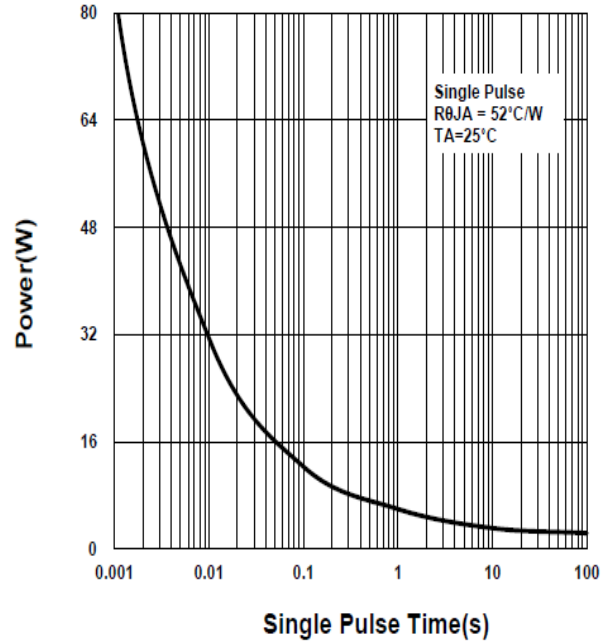
PK650BA

N-Channel Enhancement Mode MOSFET

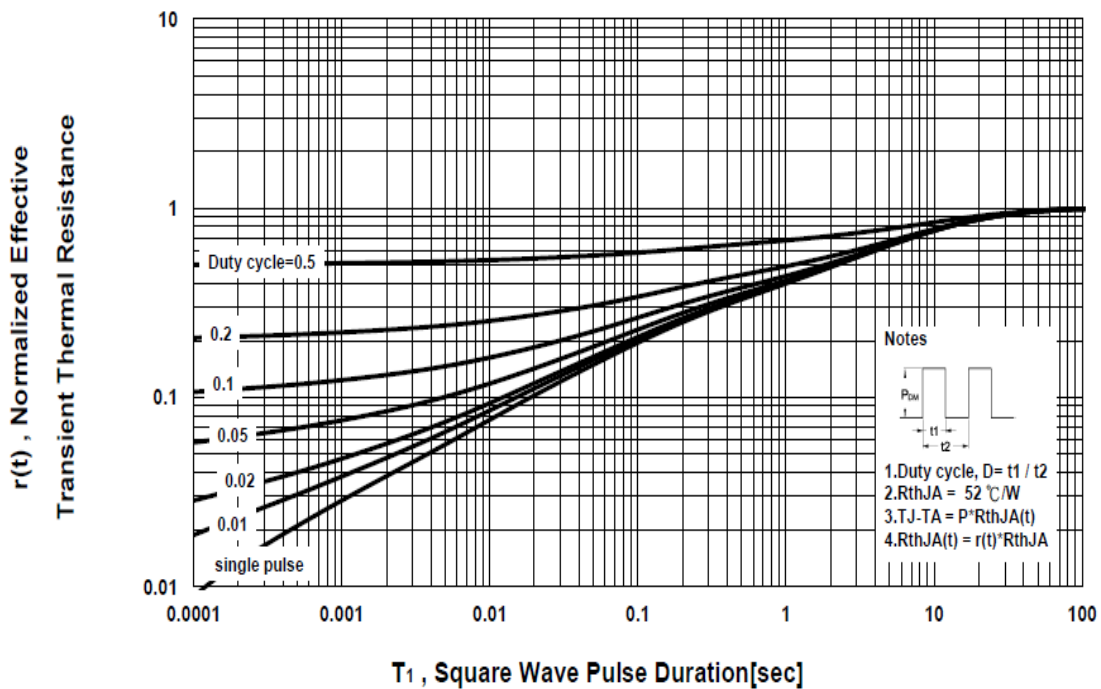
Safe Operating Area



Single Pulse Maximum Power Dissipation



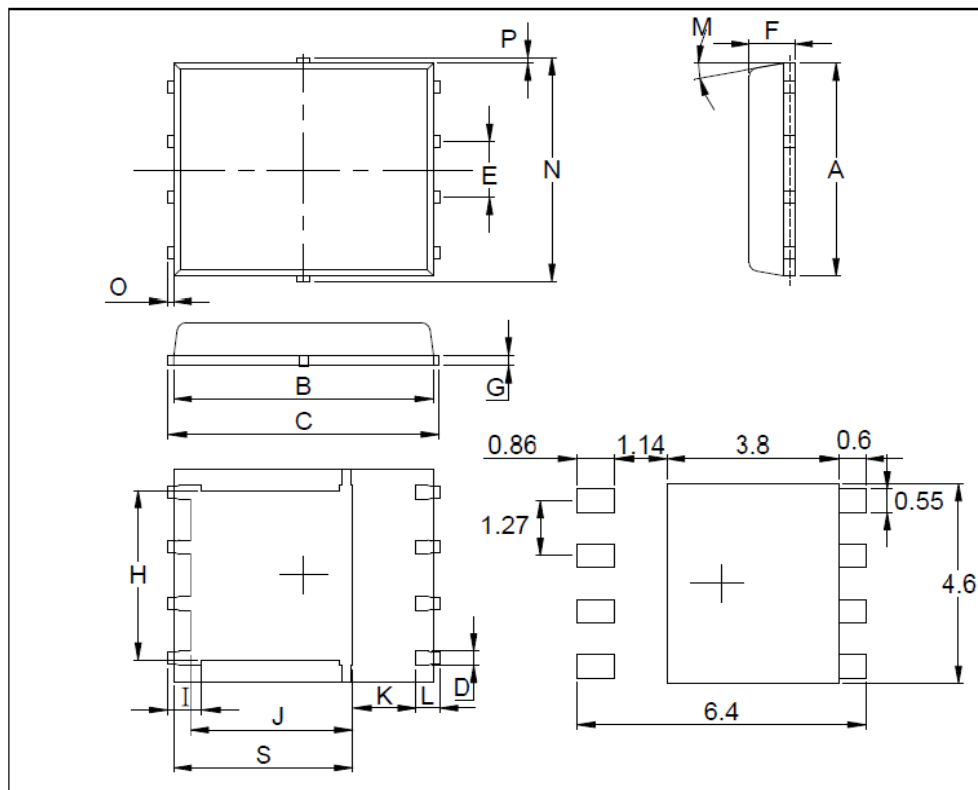
Transient Thermal Response Curve



PK650BA
N-Channel Enhancement Mode MOSFET

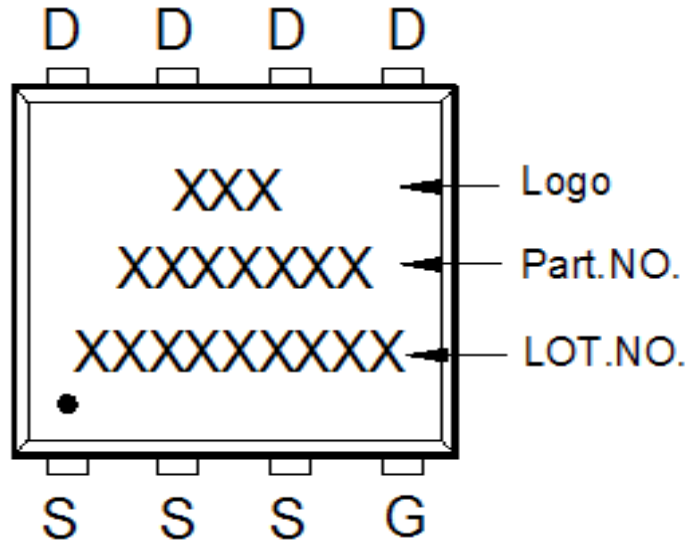
PDFN 5x6P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.33		3.78
B	5.44		5.9	K	0.9		
C	5.9		6.35	L	0.35		0.712
D	0.33		0.51	M	0°		12°
E		1.27		N	4.8		5.5
F	0.8		1.25	O	0.05		0.3
G	0.15		0.34	P	0.06		0.2
H	3.61		4.31	S	3.69		4.19
I	0.35		0.71				

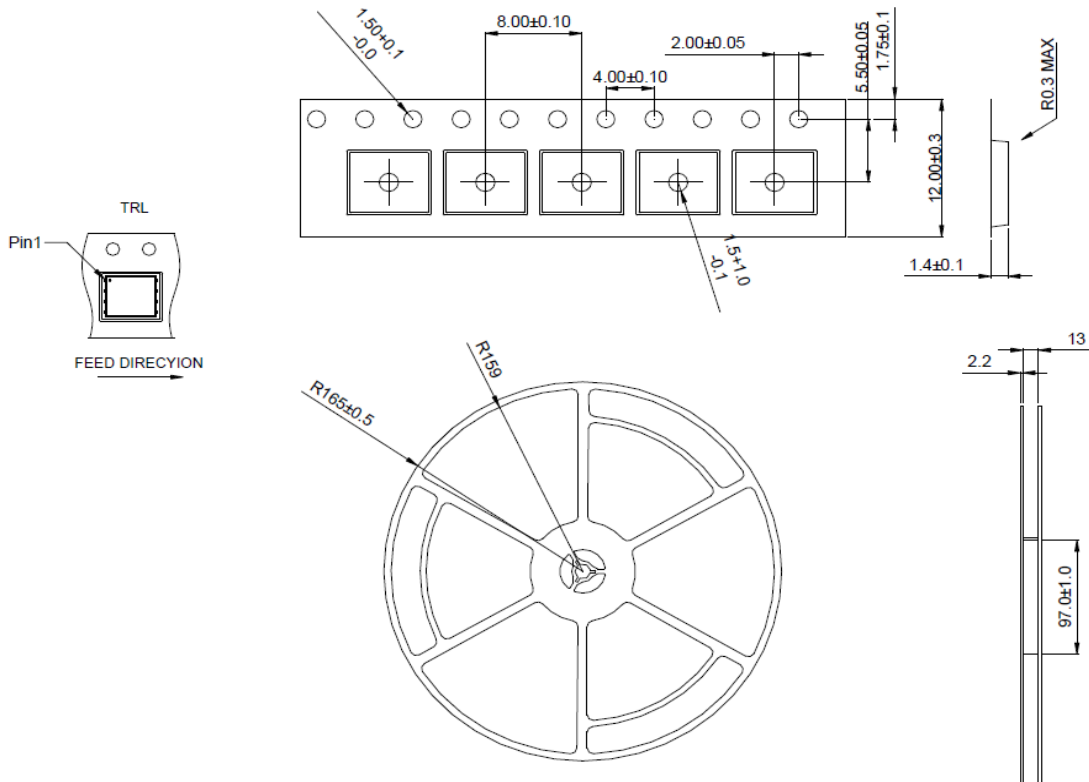


PK650BA
N-Channel Enhancement Mode MOSFET

A. Marking Information



B. Tape&Reel Information:3000pcs/Reel

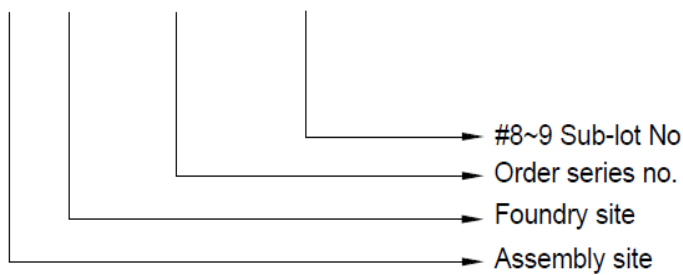


PK650BA
N-Channel Enhancement Mode MOSFET

C. Lot.No. & Date Code rule

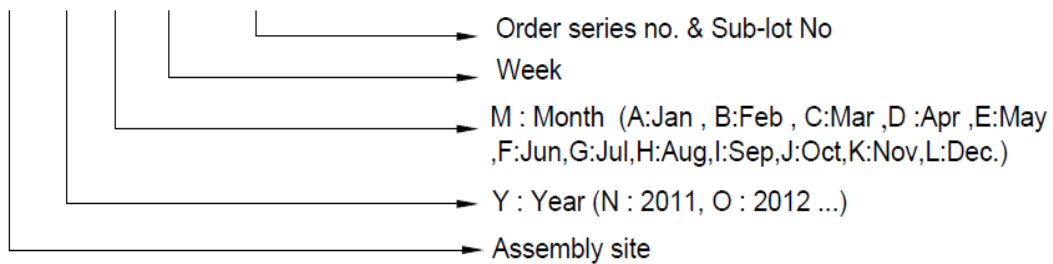
1.LOT.NO.

M N 15M21 03



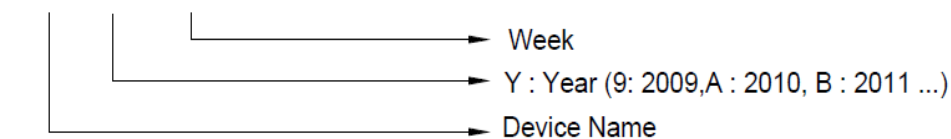
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW





PK650BA

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	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