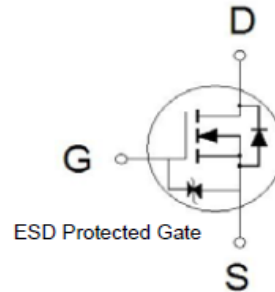
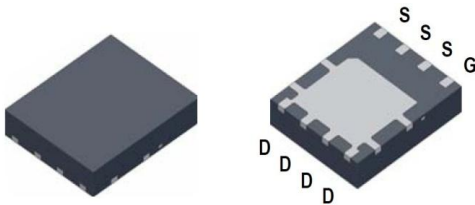


# PK5C8EA

## N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30V	2.4m $\Omega$ @ $V_{GS} = 10V$	82A



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	$V_{GS}$	$\pm 20$	V	
Continuous Drain Current <sup>3</sup>	$I_D$	$T_C = 25\text{ }^\circ\text{C}$	82	
		$T_C = 100\text{ }^\circ\text{C}$	52	
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	150	A	
Continuous Drain Current	$I_D$	$T_A = 25\text{ }^\circ\text{C}$		21
		$T_A = 70\text{ }^\circ\text{C}$		17
Avalanche Current	$I_{AS}$	58		
Avalanche Energy	$E_{AS}$	168	mJ	
Power Dissipation	$P_D$	$T_C = 25\text{ }^\circ\text{C}$	31	
		$T_C = 100\text{ }^\circ\text{C}$	12	
Power Dissipation	$P_D$	$T_A = 25\text{ }^\circ\text{C}$	2	
		$T_A = 70\text{ }^\circ\text{C}$	1.3	
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 <sup>2</sup>	$R_{\theta JA}$		60	$^\circ\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		4	

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

<sup>3</sup>Package limitation current is 50A.

# PK5C8EA

## N-Channel Enhancement Mode MOSFET

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

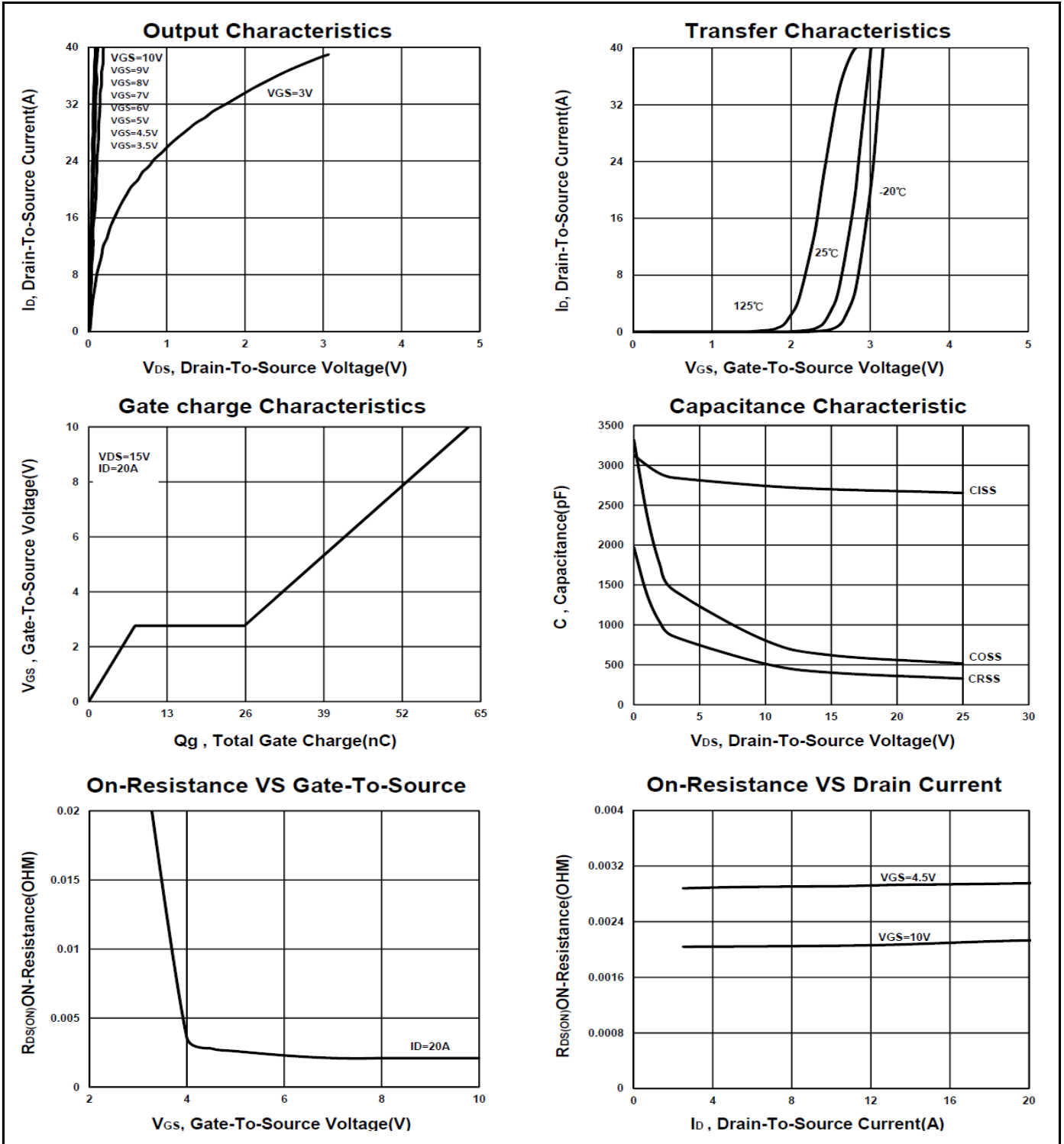
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.3	1.7	3	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±16V			±30	μA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55 °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> = 20A		2.9	3.6	mΩ
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		2	2.4	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 5V, I <sub>D</sub> = 20A		100		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz		2665		pF
Output Capacitance	C <sub>oss</sub>			624		
Reverse Transfer Capacitance	C <sub>rss</sub>			416		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		1.3		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>GS</sub> = 10V	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A	64		nC
		V <sub>GS</sub> = 4.5V		35		
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>	8				
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>	20.6				
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> ≅ 20A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> = 6Ω		44		
Rise Time <sup>2</sup>	t <sub>r</sub>		20			
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>		80			
Fall Time <sup>2</sup>	t <sub>f</sub>		15			
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				25	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 20A, V <sub>GS</sub> = 0V			1.2	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 20A, di <sub>F</sub> /dt = 100A / μS		29		nS
Reverse Recovery Charge	Q <sub>rr</sub>			14		nC

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

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

# PK5C8EA

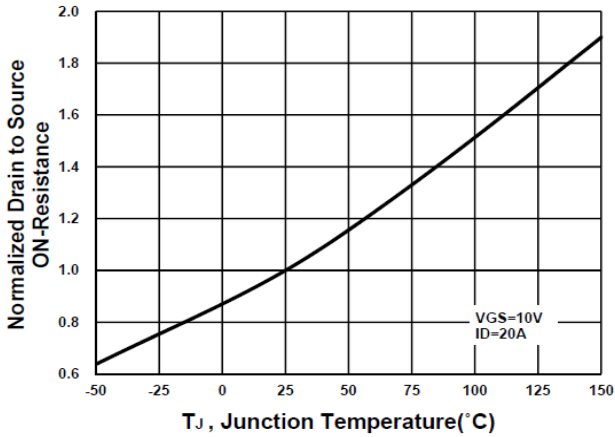
## N-Channel Enhancement Mode MOSFET



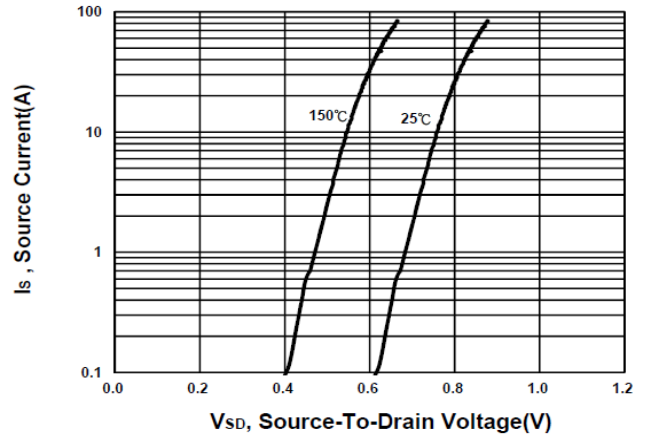
# PK5C8EA

## N-Channel Enhancement Mode MOSFET

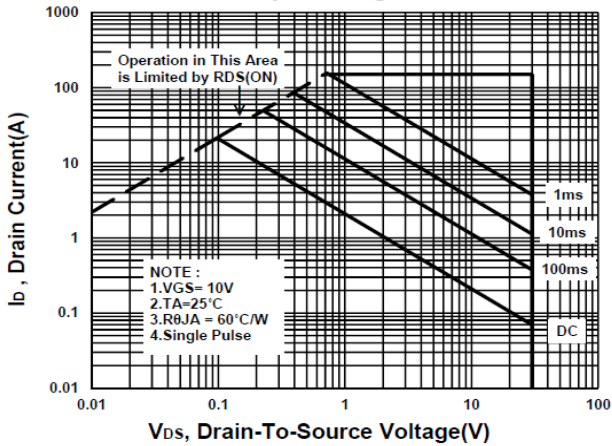
**On-Resistance VS Temperature**



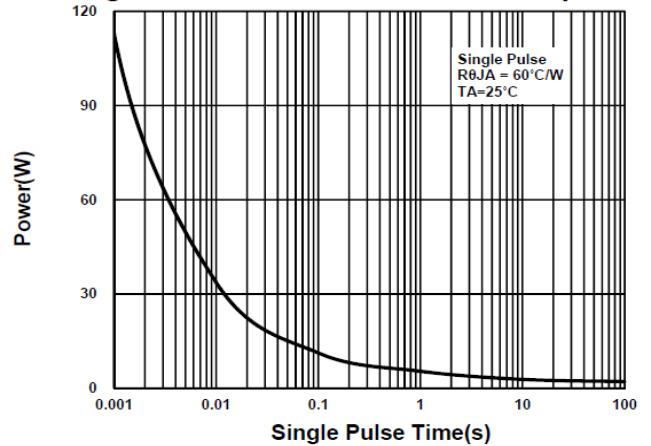
**Source-Drain Diode Forward Voltage**



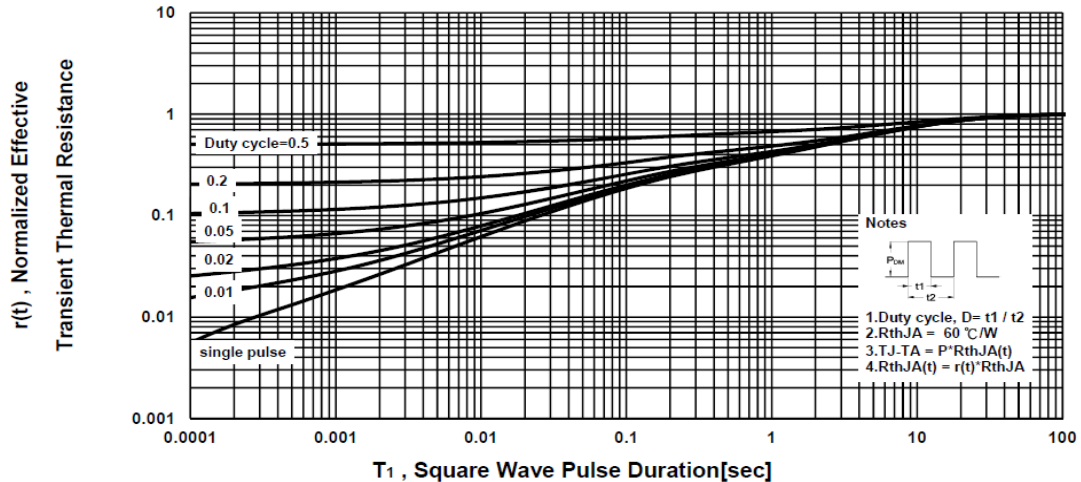
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



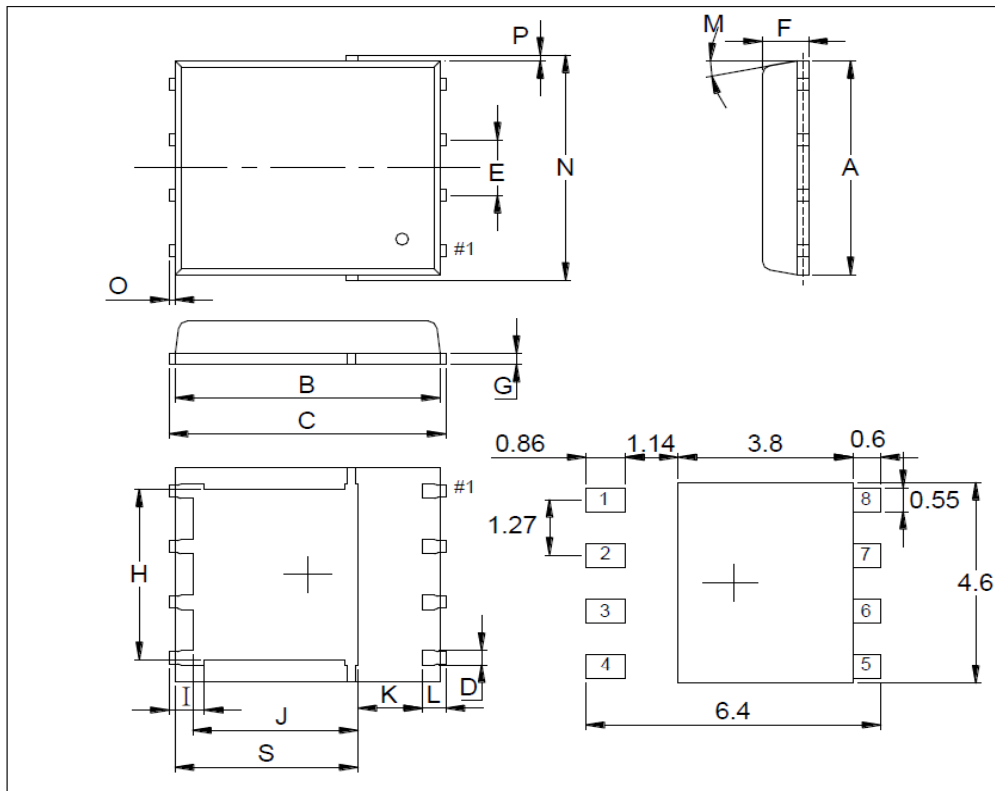
# PK5C8EA

## N-Channel Enhancement Mode MOSFET

### Package Dimension

### PDFN 5x6P MECHANICAL DATA

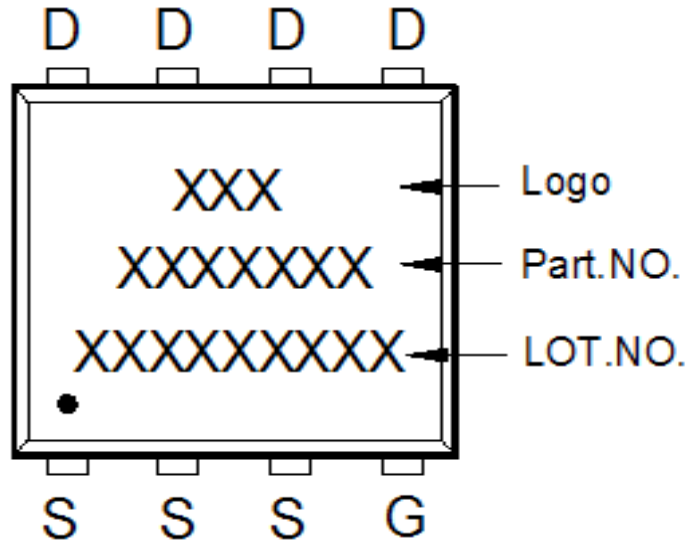
Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8		5.15	J	3.34		3.9
B	5.42		5.9	K	0.9		
C	5.9		6.35	L	0.38		0.711
D	0.3		0.51	M	0°		12°
E	1.17	1.27	1.37	N	4.8		5.4
F	0.8	1	1.2	O	0.05		0.36
G	0.15		0.35	P	0.05		0.25
H	3.67		4.31	S	3.73		4.19
I	0.38		0.71				



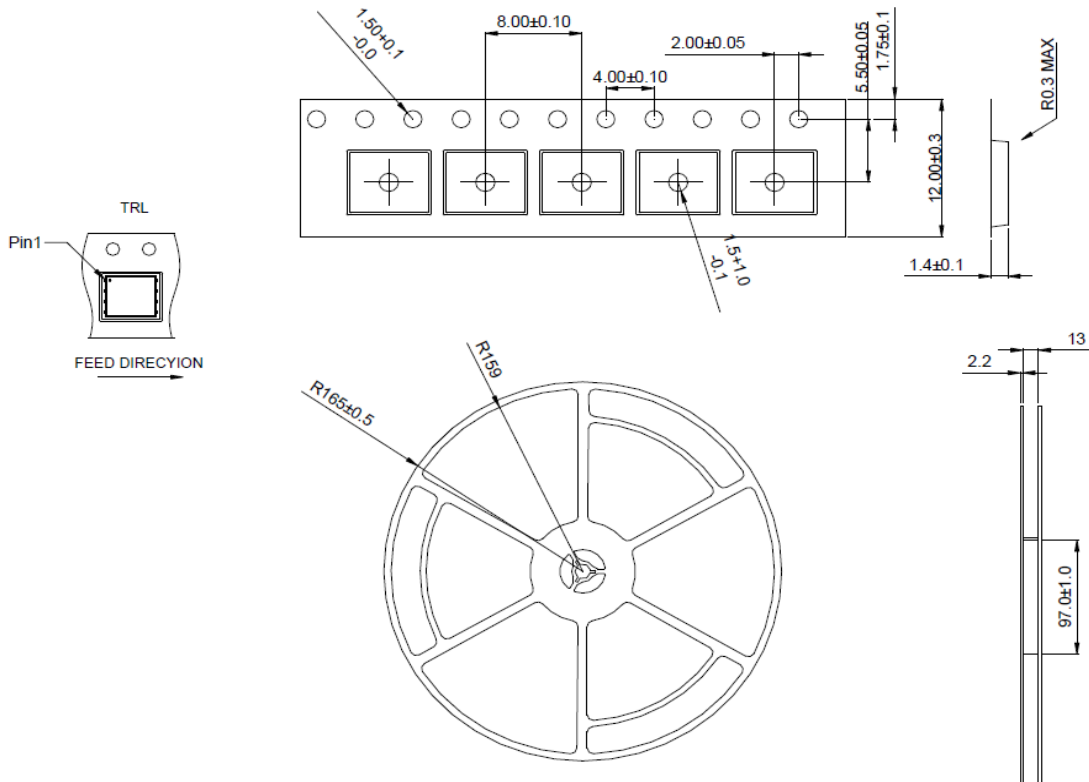
# PK5C8EA

## N-Channel Enhancement Mode MOSFET

### A. Marking Information



### B. Tape & Reel Information: 3000pcs/Reel

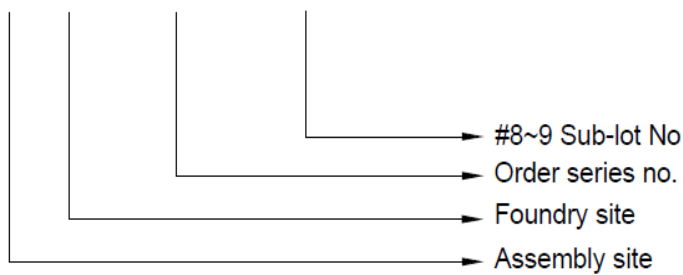


**PK5C8EA**  
**N-Channel Enhancement Mode MOSFET**

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

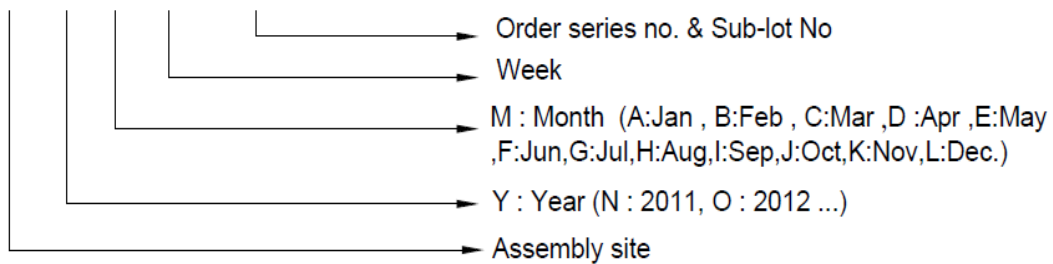
1.LOT.NO.

M N 15M21 03



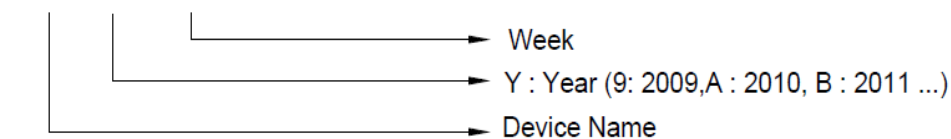
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW





# PK5C8EA

## 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