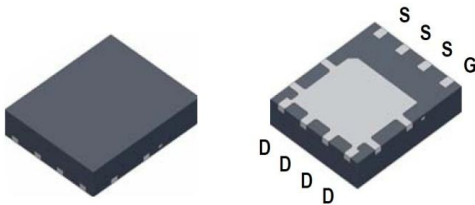


PK600BA

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

| $V_{(BR)DSS}$ | $R_{DS(ON)}$ | I_D |
|---------------|--------------------------------|-------|
| 30V | 9.5m Ω @ $V_{GS} = 10V$ | 40A |



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 ³ | I_D | $T_C = 25\text{ }^\circ\text{C}$ | 40 | |
| | | $T_C = 100\text{ }^\circ\text{C}$ | 25 | |
| Pulsed Drain Current ¹ | I_{DM} | 100 | A | |
| Continuous Drain Current | I_D | $T_A = 25\text{ }^\circ\text{C}$ | | 10.7 |
| | | $T_A = 70\text{ }^\circ\text{C}$ | | 8.6 |
| Avalanche Current | I_{AS} | 18 | | |
| Avalanche Energy | $L = 0.1\text{mH}$ | E_{AS} | 16.2 | mJ |
| Power Dissipation | P_D | $T_C = 25\text{ }^\circ\text{C}$ | 27.8 | W |
| | | $T_C = 100\text{ }^\circ\text{C}$ | 11 | |
| Power Dissipation | P_D | $T_A = 25\text{ }^\circ\text{C}$ | 2 | W |
| | | $T_A = 70\text{ }^\circ\text{C}$ | 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 ² | $R_{\theta JA}$ | | 63 | $^\circ\text{C} / \text{W}$ |
| Junction-to-Case | $R_{\theta JC}$ | | 4.5 | |

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

³Package limitation current is 20A.

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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 | 1.75 | 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 = 9A | | 9.7 | 13.5 | mΩ | |
| | | V _{GS} = 10V, I _D = 9.5A | | 7.4 | 9.5 | | |
| Forward Transconductance ¹ | g _{fs} | V _{DS} = 5V, I _D = 9.5A | | 62 | | S | |
| DYNAMIC | | | | | | | |
| Input Capacitance | C _{iss} | V _{GS} = 0V, V _{DS} = 15V, f = 1MHz | | 608 | | pF | |
| Output Capacitance | C _{oss} | | | 112 | | | |
| Reverse Transfer Capacitance | C _{rss} | | | 74 | | | |
| Gate Resistance | R _g | V _{GS} = 0V, V _{DS} = 0V, f = 1MHz | | 2.8 | | Ω | |
| Total Gate Charge ² | Q _g | V _{GS} = 10V | V _{DS} = 15V, V _{GS} = 10V, I _D = 9.5A | 14 | | nC | |
| | | V _{GS} = 4.5V | | 7.3 | | | |
| Gate-Source Charge ² | Q _{gs} | 2 | | | | | |
| Gate-Drain Charge ² | Q _{gd} | 3.7 | | | | | |
| Turn-On Delay Time ² | t _{d(on)} | V _{DS} = 15V, I _D ≅ 9.5A, V _{GS} = 10V, R _{GEN} = 6Ω | | 13 | | | nS |
| Rise Time ² | t _r | | | 37 | | | |
| Turn-Off Delay Time ² | t _{d(off)} | | 48 | | | | |
| Fall Time ² | t _f | | 25 | | | | |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C) | | | | | | | |
| Continuous Current ³ | I _S | | | | 25 | A | |
| Forward Voltage ¹ | V _{SD} | I _F = 9.5A, V _{GS} = 0V | | | 1.1 | V | |
| Reverse Recovery Time | t _{rr} | I _F = 9.5A, dI _F /dt = 100A / μS | | 11.7 | | nS | |
| Reverse Recovery Charge | Q _{rr} | | | 3 | | nC | |

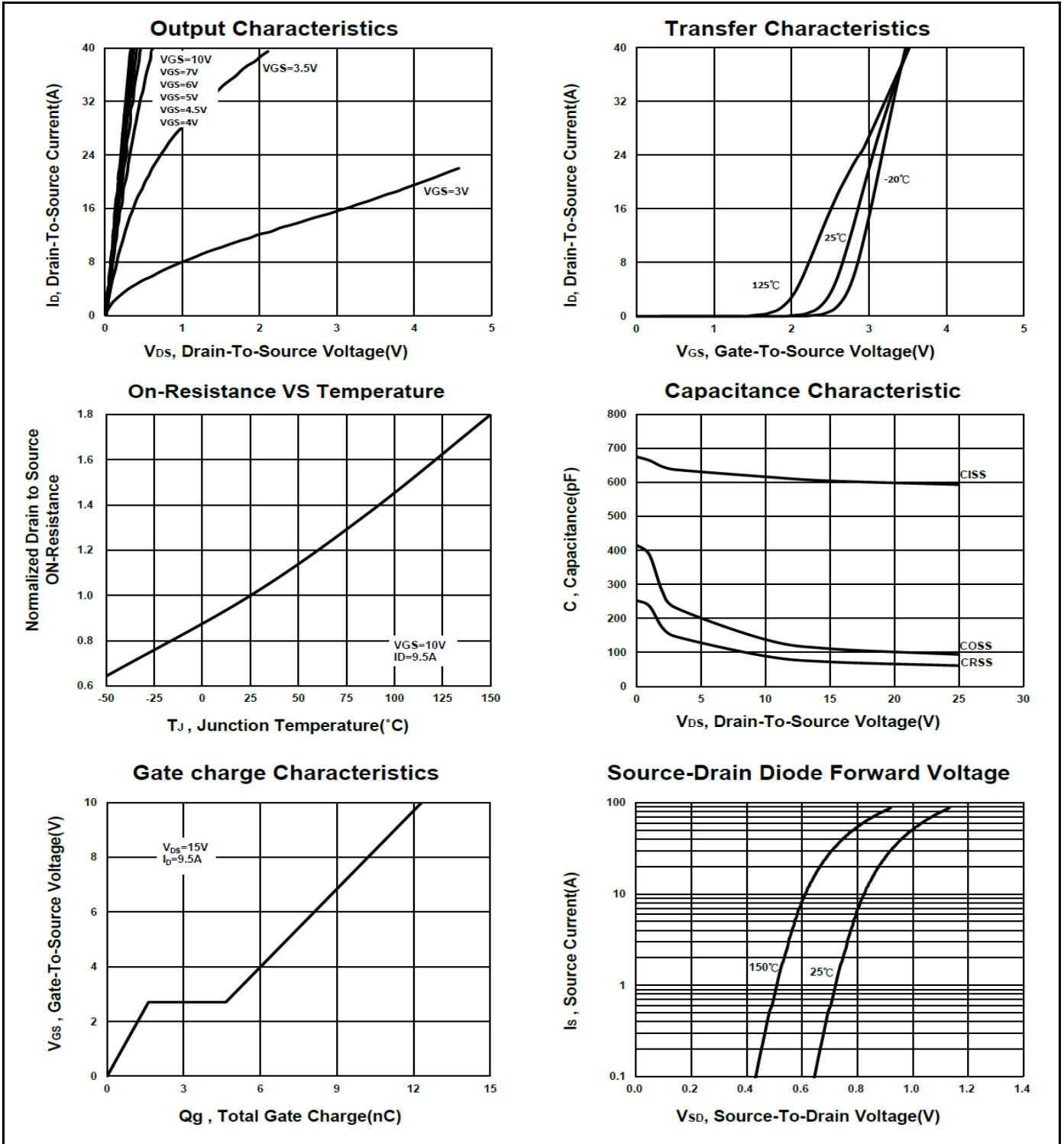
¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

³Package limitation current is 20A.

PK600BA

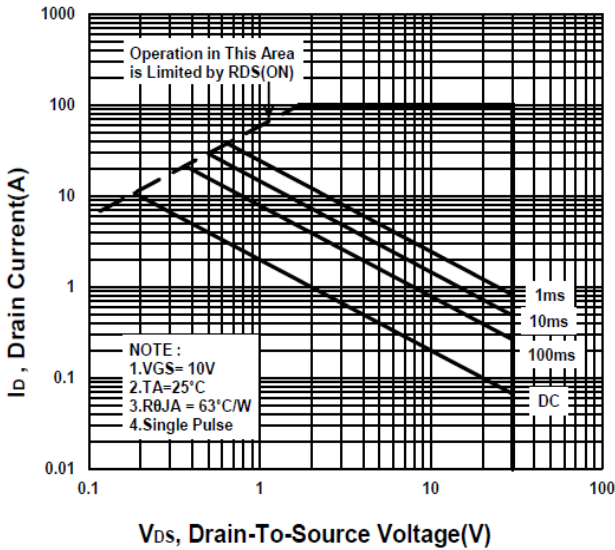
N-Channel Enhancement Mode MOSFET



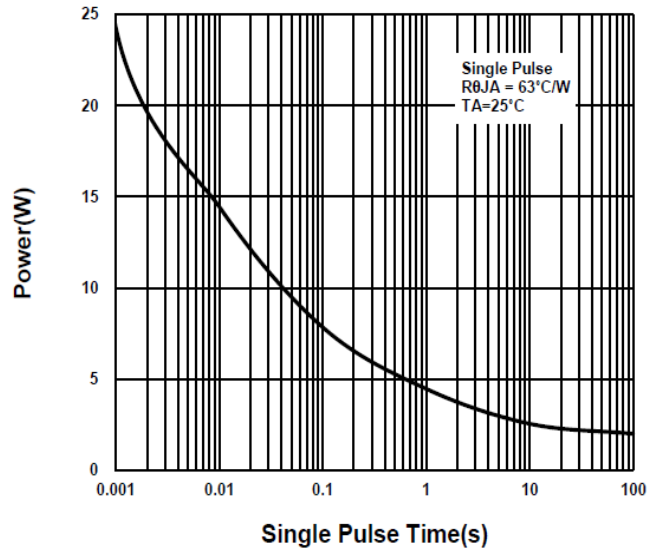
PK600BA

N-Channel Enhancement Mode MOSFET

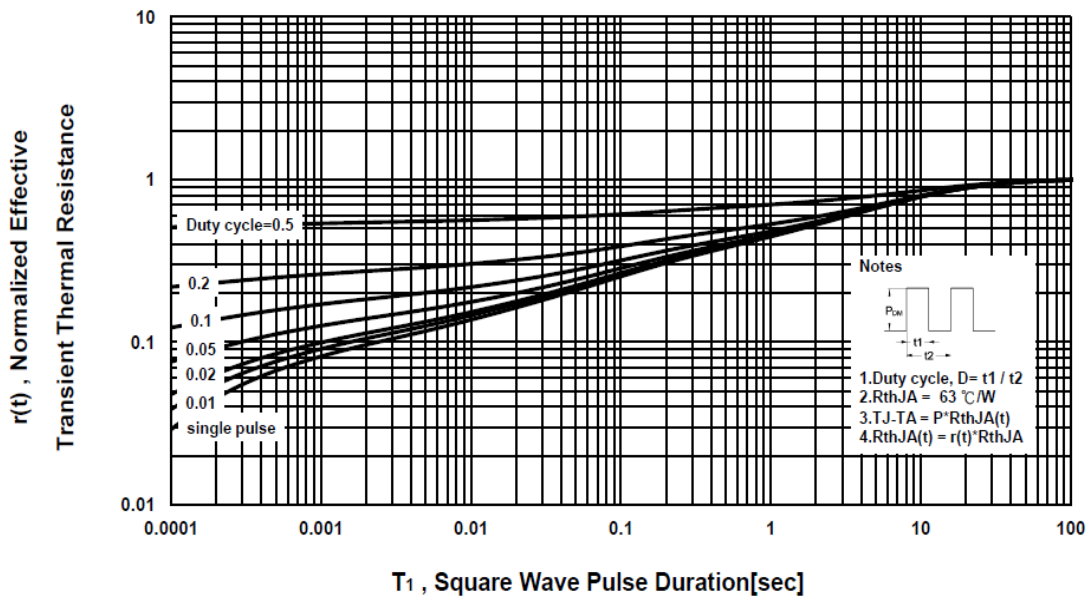
Safe Operating Area



Single Pulse Maximum Power Dissipation



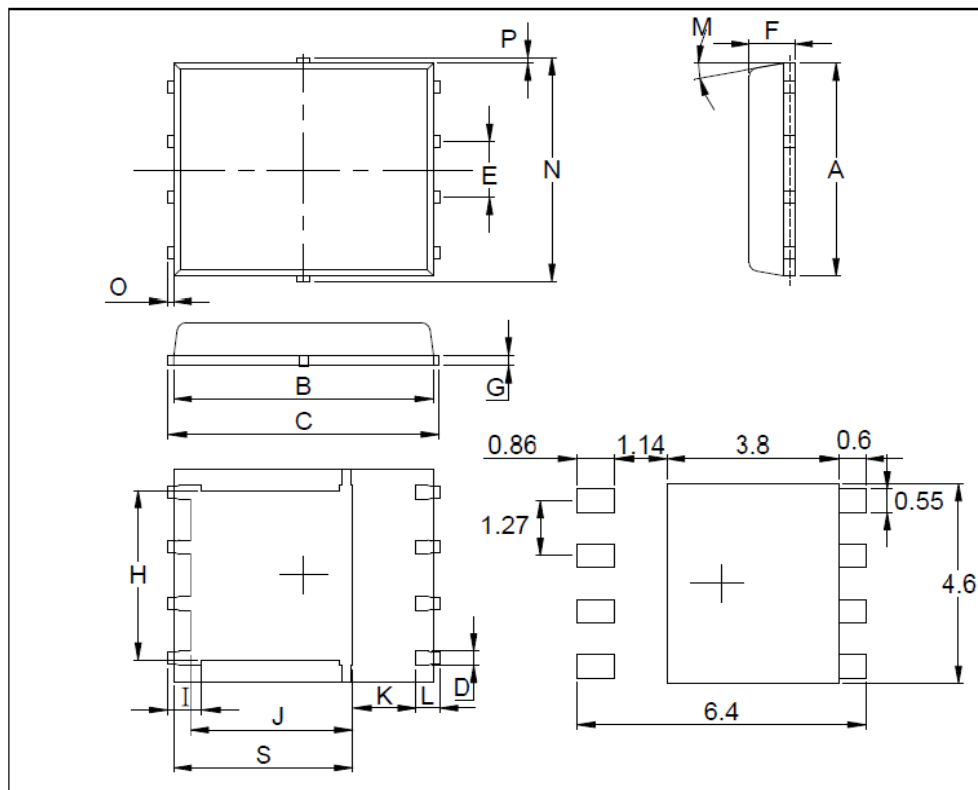
Transient Thermal Response Curve



PK600BA
N-Channel Enhancement Mode MOSFET

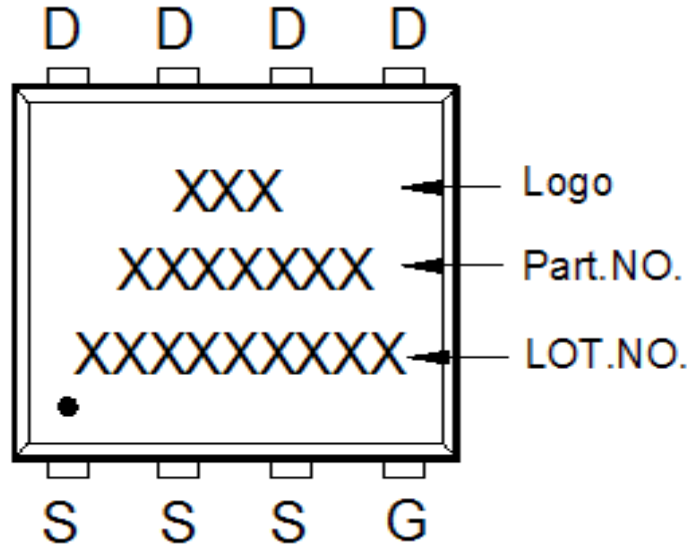
PDFN 5x6P MECHANICAL DATA

| 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 | | | | |

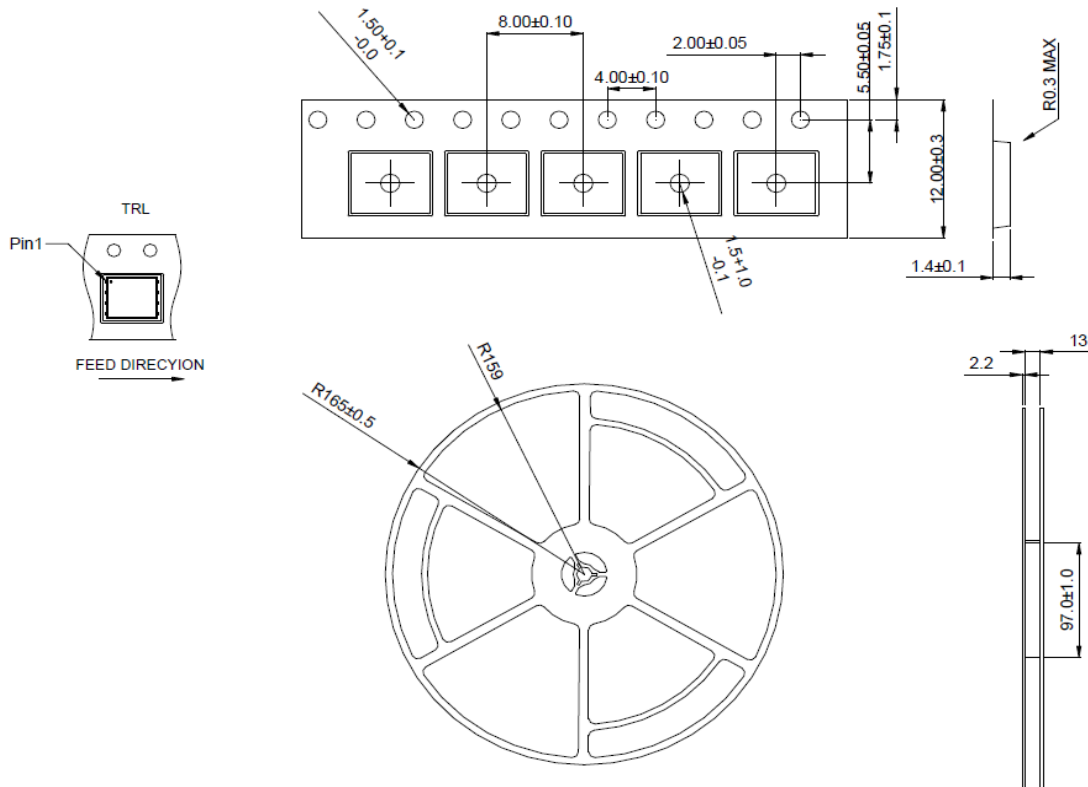


PK600BA
N-Channel Enhancement Mode MOSFET

A. Marking Information



B. Tape & Reel Information: 3000pcs/Reel

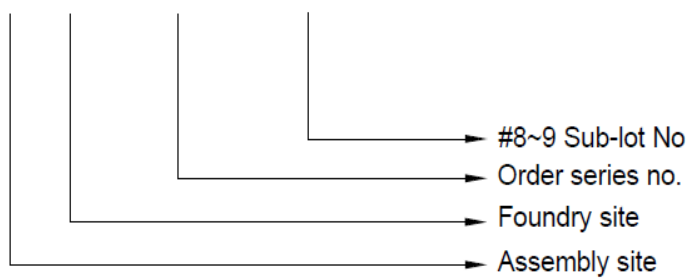


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C. Lot.No. & Date Code rule

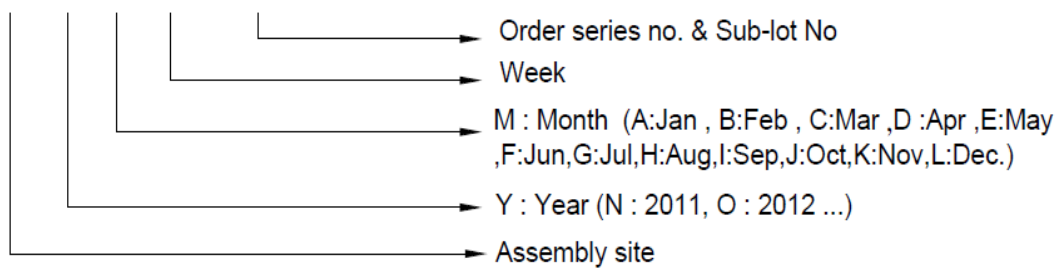
1.LOT.NO.

M N 15M21 03



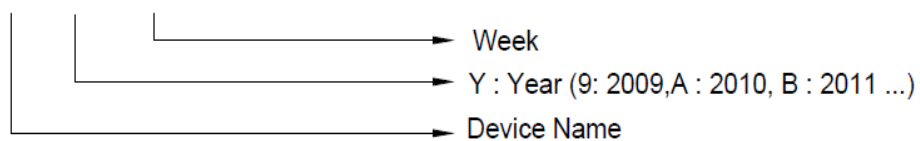
2.Date Code

D Y M X XXX



3.Date Code (for Small package)

XX Y WW





PK600BA

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 |