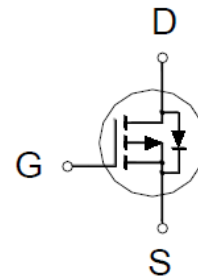
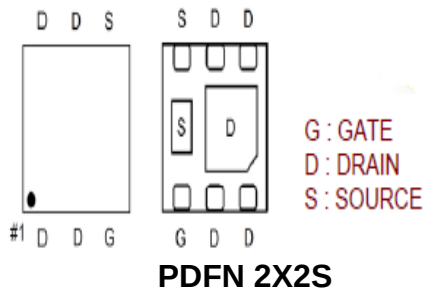


# PB555BA

## P-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

| $V_{(BR)DSS}$ | $R_{DS(ON)}$           | $I_D$ |
|---------------|------------------------|-------|
| -30V          | 25mΩ @ $V_{GS} = -10V$ | -8A   |



### 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        |                    |
| Continuous Drain Current                       | $T_A = 25\text{ }^{\circ}\text{C}$ | $I_D$          | -8         | A                  |
|                                                | $T_A = 70\text{ }^{\circ}\text{C}$ |                | -6.4       |                    |
| Pulsed Drain Current <sup>1</sup>              |                                    | $I_{DM}$       | 30         |                    |
| Power Dissipation <sup>3</sup>                 | $T_A = 25\text{ }^{\circ}\text{C}$ | $P_D$          | 2.7        | W                  |
|                                                | $T_A = 70\text{ }^{\circ}\text{C}$ |                | 1.7        |                    |
| 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 <sup>2</sup> | $t \leq 10s$ | $R_{\theta JA}$ |         | 45      | $^{\circ}\text{C} / \text{W}$ |
| Junction-to-Ambient <sup>2</sup> | Steady-State | $R_{\theta JA}$ |         | 65      |                               |

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

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## P-Channel Enhancement Mode MOSFET

### ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , 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                                                 | $V_{GS(th)}$        | $V_{DS} = V_{GS}, I_D = -250\mu A$                                | -0.8   | -1.7 | -2.5      |            |
| Gate-Body Leakage                                                      | $I_{GSS}$           | $V_{DS} = 0V, V_{GS} = \pm 20V$                                   |        |      | $\pm 100$ | nA         |
| Zero Gate Voltage Drain Current                                        | $I_{DSS}$           | $V_{DS} = -24V, V_{GS} = 0V$                                      |        |      | -1        | $\mu A$    |
|                                                                        |                     | $V_{DS} = -20V, V_{GS} = 0V, T_J = 55^{\circ}C$                   |        |      | -10       |            |
| Drain-Source On-State Resistance <sup>1</sup>                          | $R_{DS(ON)}$        | $V_{GS} = -10V, I_D = -6A$                                        |        | 18   | 25        | m $\Omega$ |
|                                                                        |                     | $V_{GS} = -4.5V, I_D = -6A$                                       |        | 29   | 40        |            |
| Forward Transconductance <sup>1</sup>                                  | $g_{fs}$            | $V_{DS} = -5V, I_D = -6A$                                         |        | 22   |           | S          |
| DYNAMIC                                                                |                     |                                                                   |        |      |           |            |
| Input Capacitance                                                      | $C_{iss}$           | $V_{GS} = 0V, V_{DS} = -15V, f = 1MHz$                            |        | 920  |           | pF         |
| Output Capacitance                                                     | $C_{oss}$           |                                                                   |        | 133  |           |            |
| Reverse Transfer Capacitance                                           | $C_{rss}$           |                                                                   |        | 115  |           |            |
| Gate Resistance                                                        | $R_g$               | $V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$                              |        | 13   |           | $\Omega$   |
| Total Gate Charge <sup>2</sup>                                         | $Q_g(V_{GS}=-10V)$  | $V_{DS} = -15V, I_D = -6A$                                        |        | 20   |           | nC         |
|                                                                        | $Q_g(V_{GS}=-4.5V)$ |                                                                   |        | 10   |           |            |
| Gate-Source Charge <sup>2</sup>                                        | $Q_{gs}$            |                                                                   |        | 2    |           |            |
| Gate-Drain Charge <sup>2</sup>                                         | $Q_{gd}$            |                                                                   |        | 5    |           |            |
| Turn-On Delay Time <sup>2</sup>                                        | $t_{d(on)}$         | $V_{DD} = -15V$<br>$I_D \cong -6A, V_{GEN} = -10V, R_G = 6\Omega$ |        | 16   |           | nS         |
| Rise Time <sup>2</sup>                                                 | $t_r$               |                                                                   |        | 18   |           |            |
| Turn-Off Delay Time <sup>2</sup>                                       | $t_{d(off)}$        |                                                                   |        | 40   |           |            |
| Fall Time <sup>2</sup>                                                 | $t_f$               |                                                                   |        | 26   |           |            |
| SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_J = 25^{\circ}C$ ) |                     |                                                                   |        |      |           |            |
| Continuous Current                                                     | $I_S$               |                                                                   |        |      | -2.7      | A          |
| Forward Voltage <sup>1</sup>                                           | $V_{SD}$            | $I_F = -6A, V_{GS} = 0V$                                          |        |      | -1        | V          |
| Reverse Recovery Time                                                  | $t_{rr}$            | $I_F = -6A, dI_F/dt = 100A / \mu S$                               |        | 11   |           | nS         |
| Reverse Recovery Charge                                                | $Q_{rr}$            |                                                                   |        | 3.8  |           | nC         |

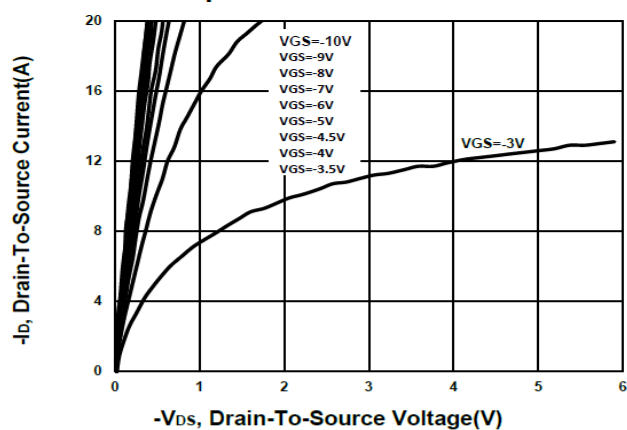
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

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

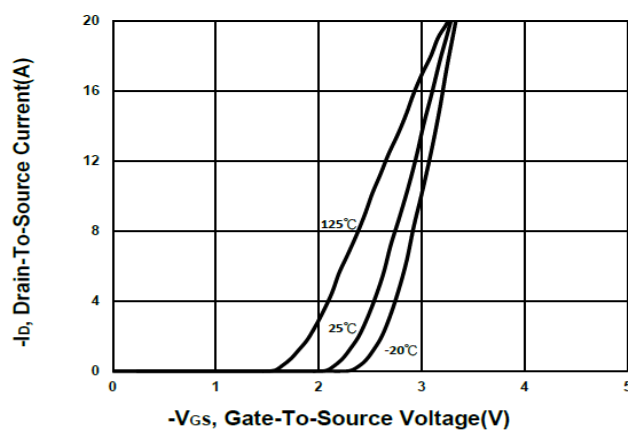
## PB555BA

### P-Channel Enhancement Mode MOSFET

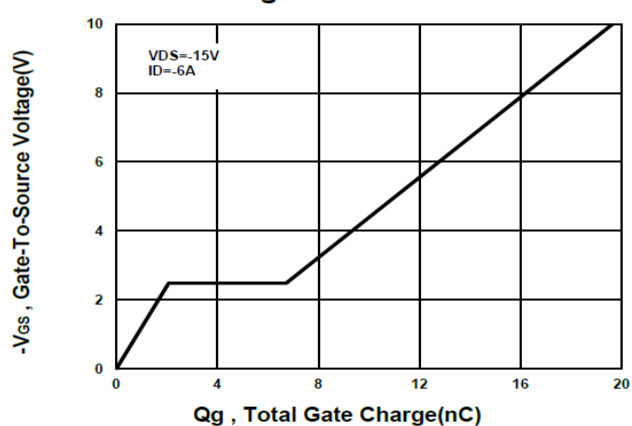
**Output Characteristics**



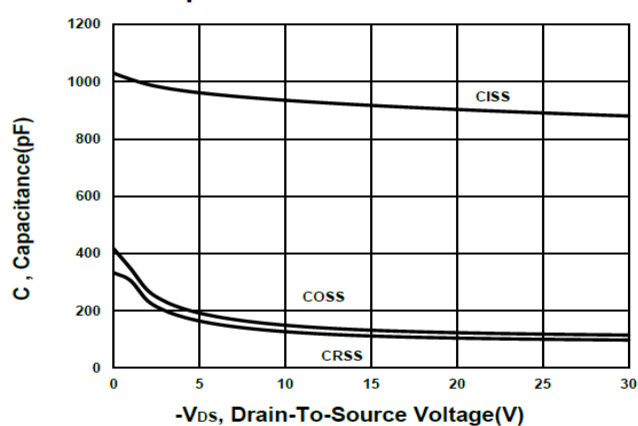
**Transfer Characteristics**



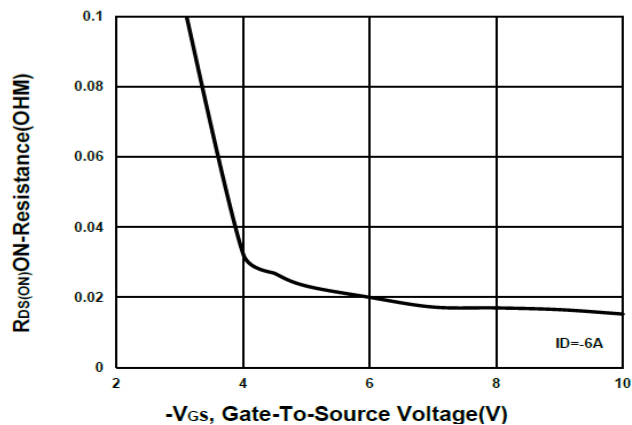
**Gate charge Characteristics**



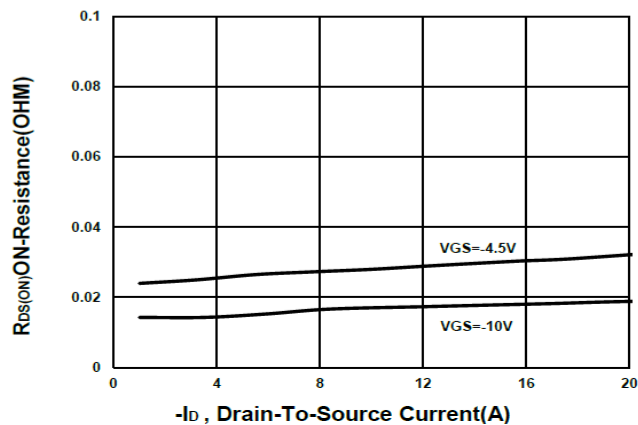
**Capacitance Characteristic**



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



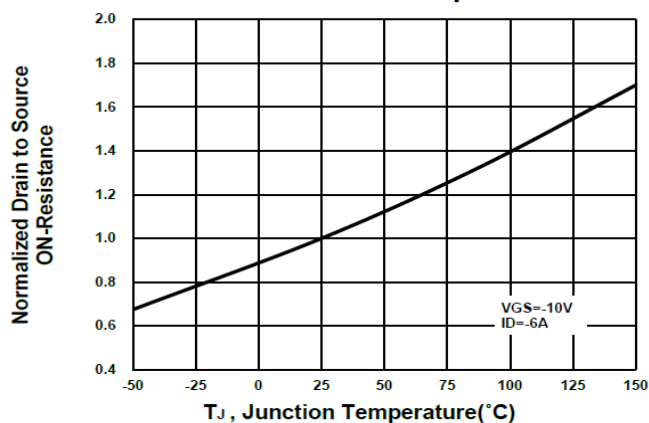
**On-Resistance VS Drain Current**



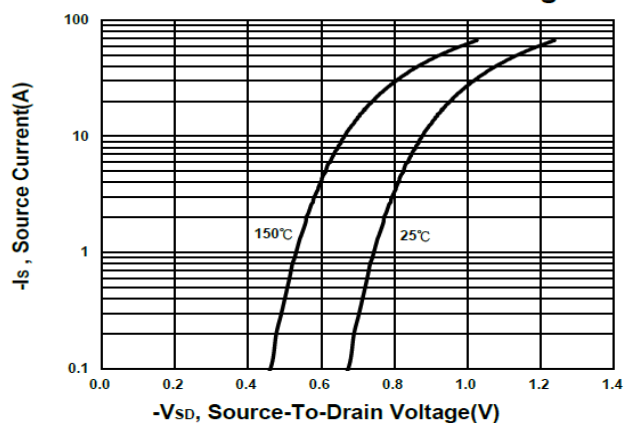
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### P-Channel Enhancement Mode MOSFET

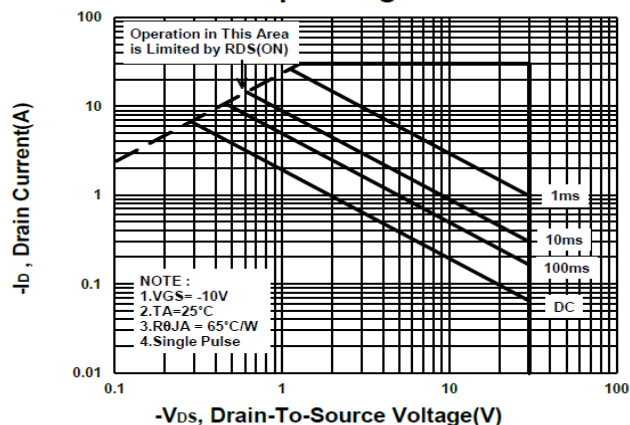
**On-Resistance VS Temperature**



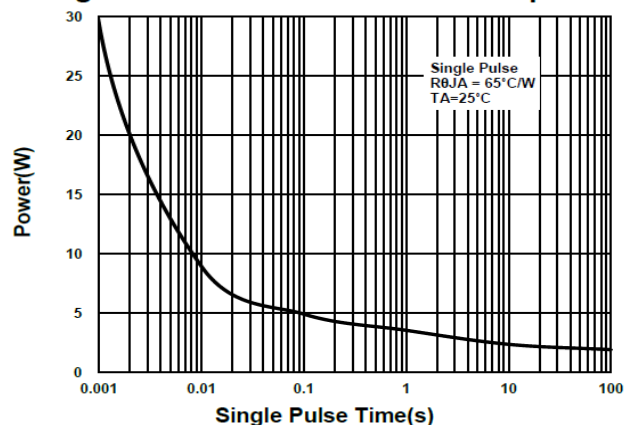
**Source-Drain Diode Forward Voltage**



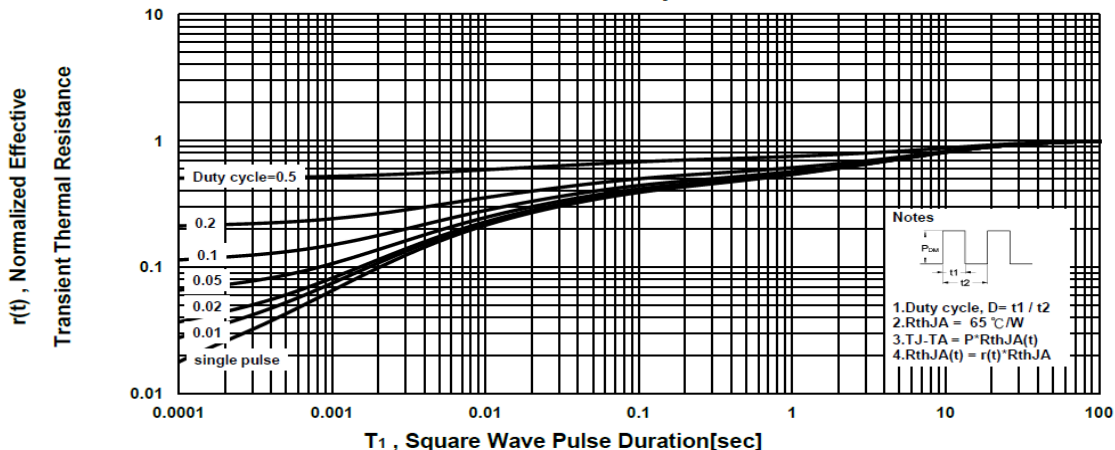
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



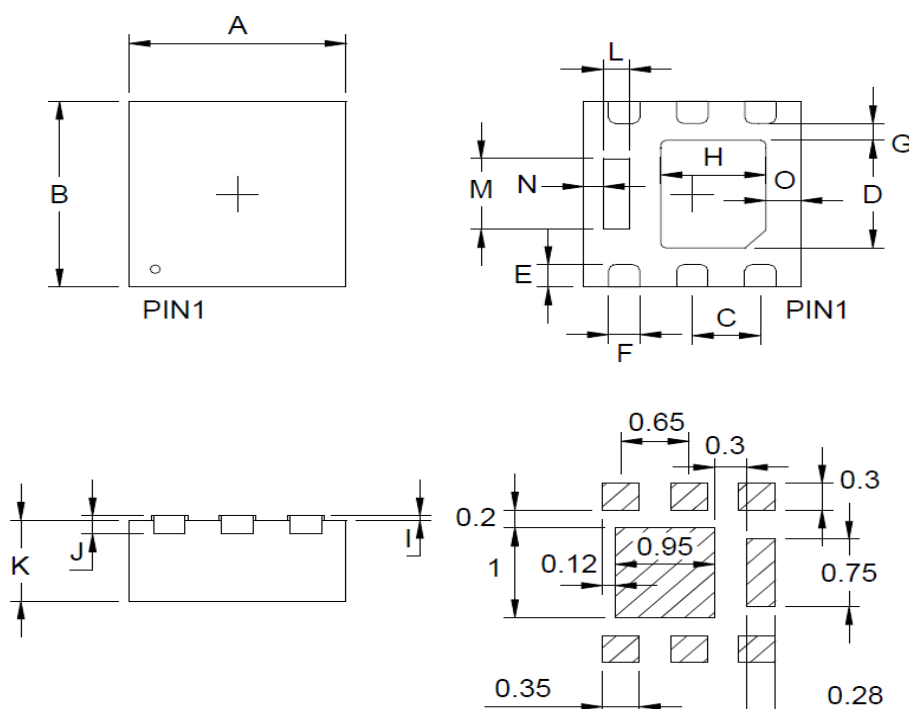
## PB555BA

### P-Channel Enhancement Mode MOSFET

#### Package Dimension

#### PDFN 2x2S MECHANICAL DATA

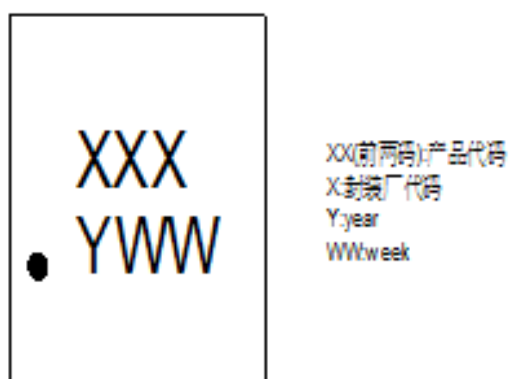
| Dimension | mm    |      |       | Dimension | mm   |       |      |
|-----------|-------|------|-------|-----------|------|-------|------|
|           | Min.  | Typ. | Max.  |           | Min. | Typ.  | Max. |
| A         | 1.9   |      | 2.1   | I         | 0    |       | 0.05 |
| B         | 1.9   |      | 2.1   | J         |      | 0.203 |      |
| C         | 0.55  | 0.65 | 0.75  | K         | 0.55 |       | 0.8  |
| D         | 0.85  |      | 1.25  | L         | 0.2  |       | 0.4  |
| E         | 0.174 | 0.25 | 0.326 | M         | 0.46 |       | 0.85 |
| F         | 0.25  |      | 0.35  | N         |      | 0.15  |      |
| G         |       | 0.2  |       | O         |      | 0.23  |      |
| H         | 0.8   |      | 1.15  |           |      |       |      |



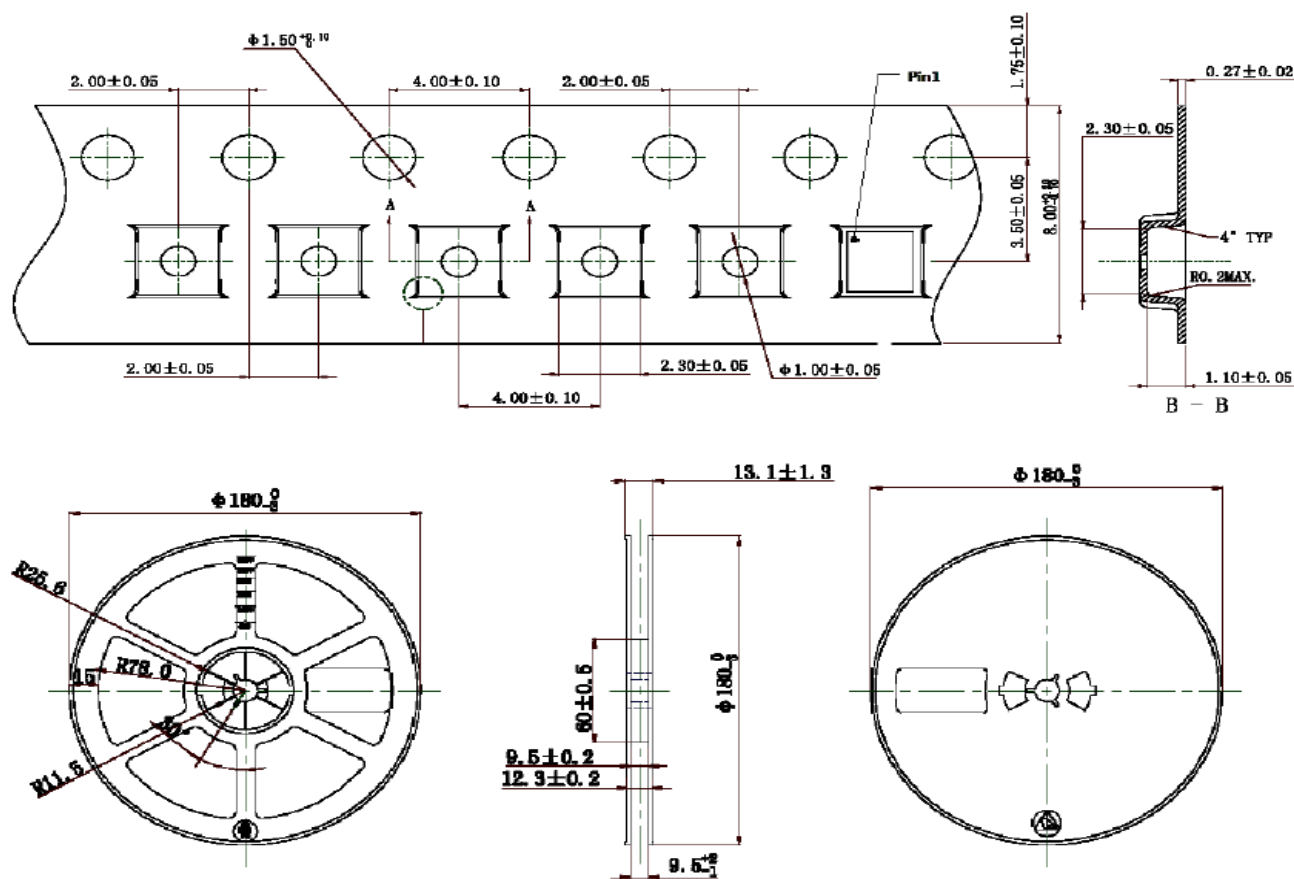
## PB555BA

### P-Channel Enhancement Mode MOSFET

#### A. Marking Information(此产品代码为: B8)



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



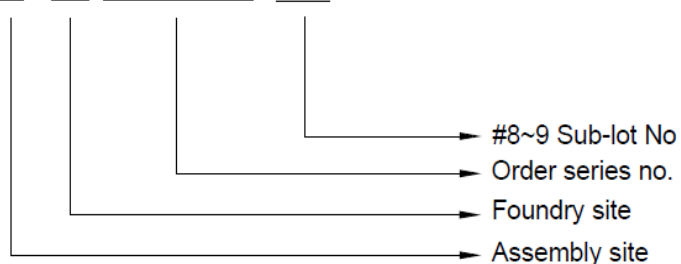
## **PB555BA**

### **P-Channel Enhancement Mode MOSFET**

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

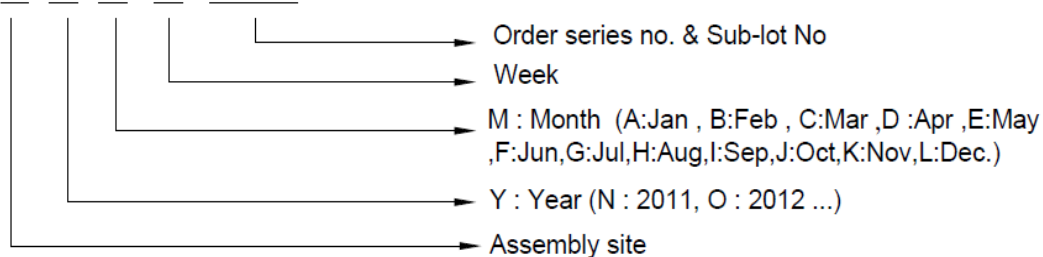
##### 1.LOT.NO.

M N 15M21 03



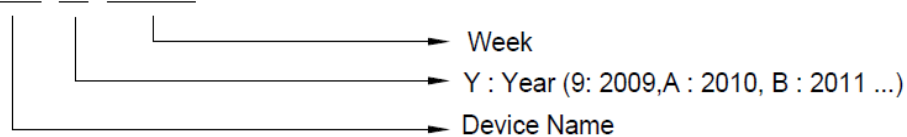
##### 2.Date Code

D Y M X XXX



##### 3.Date Code (for Small package)

XX Y WW



## PB555BA

### P-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<br>(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<br>Font color: Black    Font style: Arial                           |
| 11 | Halogen Free label |  Diameter: 1 cm    bottom color: Green<br>Font color: Black    Font style: Arial                           |
| 12 | Scan info          | Device / Lot / D/C / QTY , Insert “ / “ between every parts.<br>for example: P3055LDG/G12345601/GGG2301/2000<br>DPI (Dots per inch): Over 300 dpi<br>Code : Code 128<br>Height: 6 mm at least |