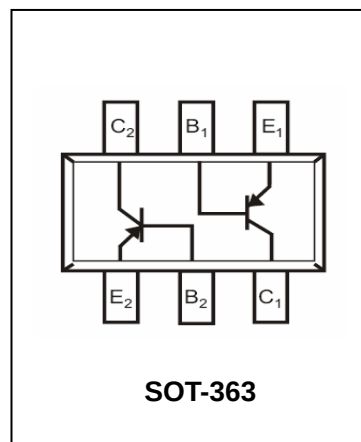


## Dual PNP Small Signal Surface Mount Transistor

**MMDT3906**

### FEATURES

- Epitaxial planar die construction.
- Ideal for low power amplification and switching.
- Ultra-small surface mount package.
- Also available in lead free version.



### APPLICATIONS

- General switching and amplification.

### ORDERING INFORMATION

| Type No. | Marking | Package Code |
|----------|---------|--------------|
| MMDT3906 | K3N     | SOT-363      |

### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| SYMBOL           | PARAMETER                               | VALUE       | UNIT |
|------------------|-----------------------------------------|-------------|------|
| V <sub>CBO</sub> | collector-base voltage                  | -40         | V    |
| V <sub>CEO</sub> | collector-emitter voltage               | -40         | V    |
| V <sub>EBO</sub> | emitter-base voltage                    | -5          | V    |
| I <sub>C</sub>   | collector current -continuous           | -0.2        | A    |
| P <sub>tot</sub> | total power dissipation                 | -0.2        | W    |
| R <sub>θJA</sub> | Thermal resistance, junction to ambient | 625         | °C/W |
| T <sub>stg</sub> | storage temperature                     | 150         | °C   |
| T <sub>j</sub>   | junction temperature                    | -55 to +150 | °C   |



## Dual PNP Small Signal Surface Mount Transistor

## MMDT3906

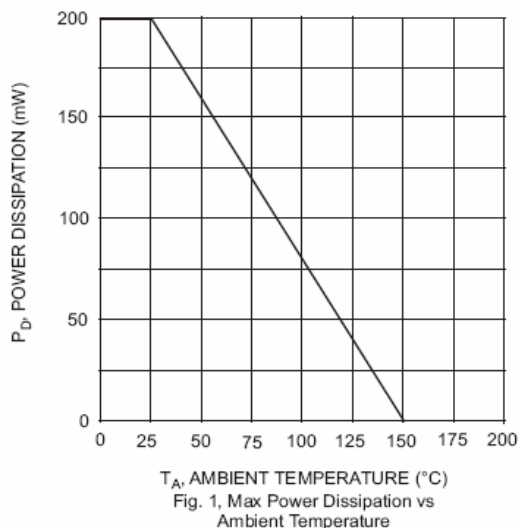
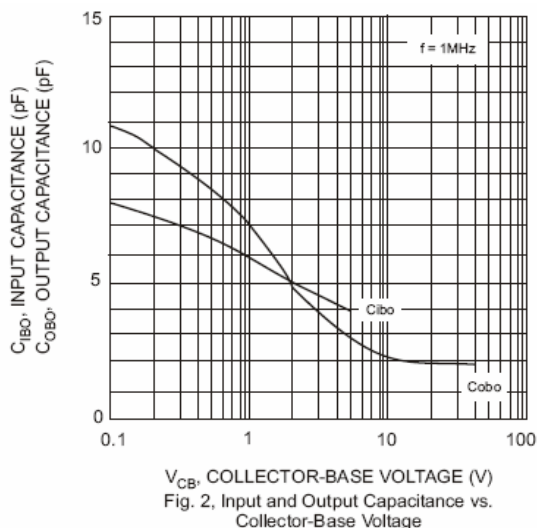
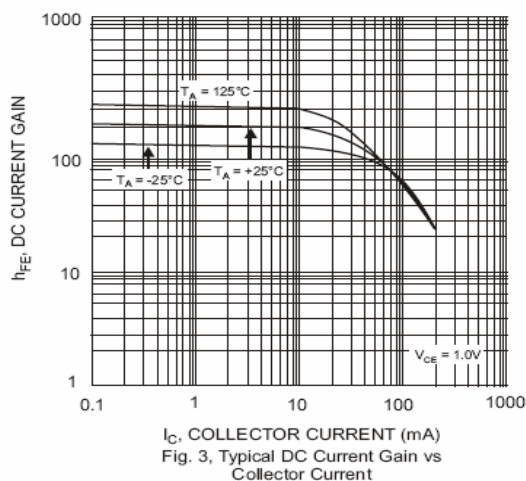
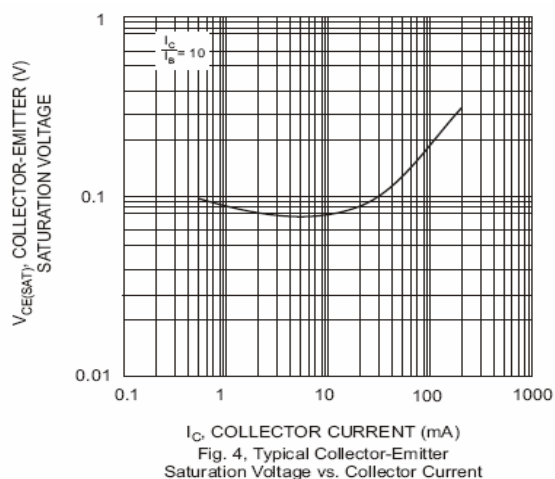
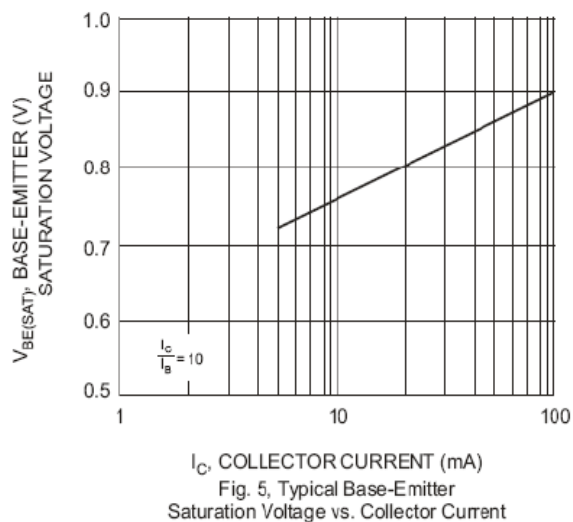
### ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| SYMBOL        | PARAMETER                            | CONDITIONS                                      | MIN. | MAX.  | UNIT    |
|---------------|--------------------------------------|-------------------------------------------------|------|-------|---------|
| $V_{(BR)CBO}$ | Collector-base breakdown voltage     | $I_C = -10\mu A, I_E = 0$                       | -40  |       | V       |
| $V_{(BR)CEO}$ | Collector-emitter breakdown voltage  | $I_C = -1mA, I_B = 0$                           | -40  |       | V       |
| $V_{(BR)EBO}$ | Emitter-base breakdown voltage       | $I_E = -10\mu A, I_C = 0$                       | -5   |       | V       |
| $I_{CEX}$     | collector cut-off current            | $V_{CE} = -30V, V_{EB(OFF)} = -3.0V$            | -    | -0.05 | $\mu A$ |
| $I_{BL}$      | Base cut-off current                 | $V_{CE} = -30V, V_{EB(OFF)} = -3.0V$            | -    | -0.05 | $\mu A$ |
| $h_{FE}$      | DC current gain                      | $V_{CE} = -1V, I_C = -0.1mA$                    | 60   | -     |         |
|               |                                      | $V_{CE} = -1V, I_C = -1mA$                      | 80   | -     |         |
|               |                                      | $V_{CE} = -1V, I_C = -10mA$                     | 100  | 300   |         |
|               |                                      | $V_{CE} = -1V, I_C = -50mA$                     | 60   | -     |         |
|               |                                      | $V_{CE} = -1V, I_C = -100mA$                    | 30   | -     |         |
| $V_{CE(sat)}$ | collector-emitter saturation voltage | $I_C = -10mA, I_B = -1mA$                       | -    | -250  | mV      |
|               |                                      | $I_C = -50mA, I_B = -5mA$                       | -    | -400  | mV      |
| $V_{BE(sat)}$ | base-emitter saturation voltage      | $I_C = -10mA, I_B = -1mA$                       | -650 | -850  | mV      |
|               |                                      | $I_C = -50mA, I_B = -5mA$                       | -    | -950  | mV      |
| $C_{obo}$     | Output capacitance                   | $I_E = 0, V_{CB} = -5V; f = 1MHz$               | -    | 4.5   | pF      |
| $C_{ibo}$     | Input capacitance                    | $I_C = 0, V_{EB} = -0.5V; f = 1MHz$             | -    | 10    | pF      |
| $f_T$         | transition frequency                 | $I_C = -1.0mA, V_{CE} = -10V, f = 1.0KHz$       | 250  | -     | MHz     |
| NF            | noise figure                         | $I_C = -0.1mA, V_{CE} = -20V, f = 100MHz$       | -    | 4     | dB      |
| $t_d$         | delay time                           | $V_{CC} = -3V, V_{BE(off)} = 0.5V, I_C = -10mA$ | -    | 35    | ns      |
| $t_r$         | rise time                            | $I_{B1} = -I_{B2} = -1mA$                       | -    | 35    | ns      |
| $t_s$         | storage time                         | $V_{CC} = -3V, I_C = -10mA$                     | -    | 225   | ns      |
| $t_f$         | fall time                            | $I_{B1} = -I_{B2} = -1mA$                       | -    | 75    | ns      |

# Dual PNP Small Signal Surface Mount Transistor

# MMDT3906

TYPICAL CHARACTERISTICS @  $T_a=25^\circ\text{C}$  unless otherwise specified



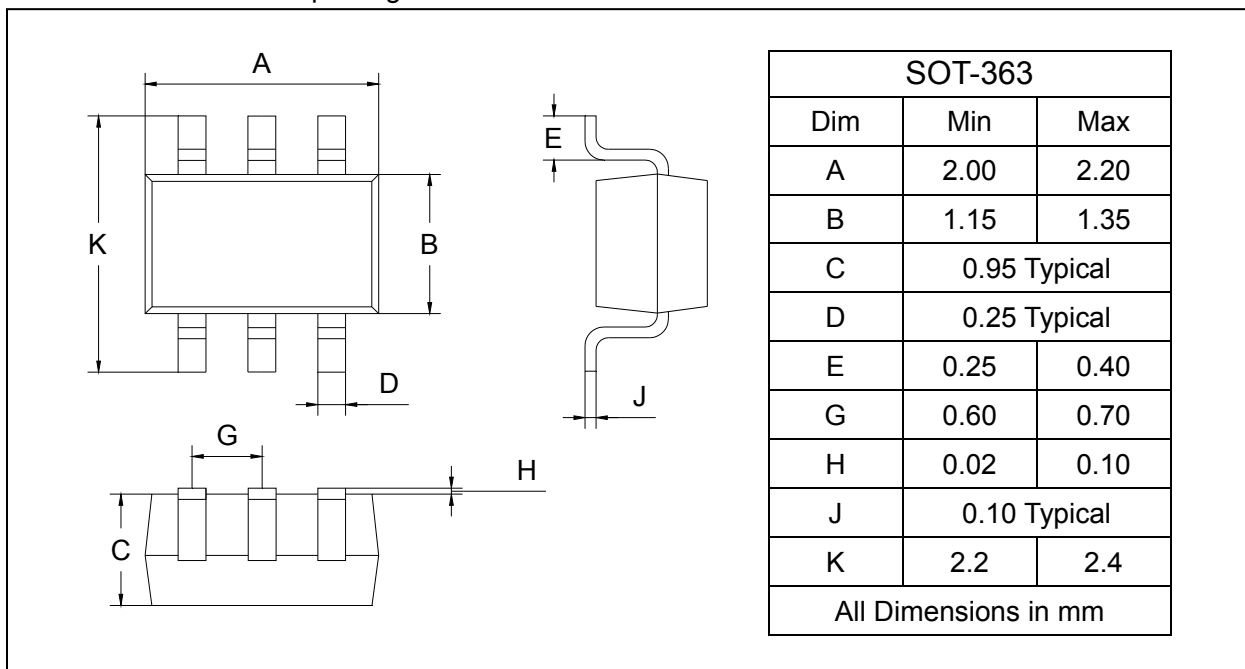
## Dual PNP Small Signal Surface Mount Transistor

**MMDT3906**

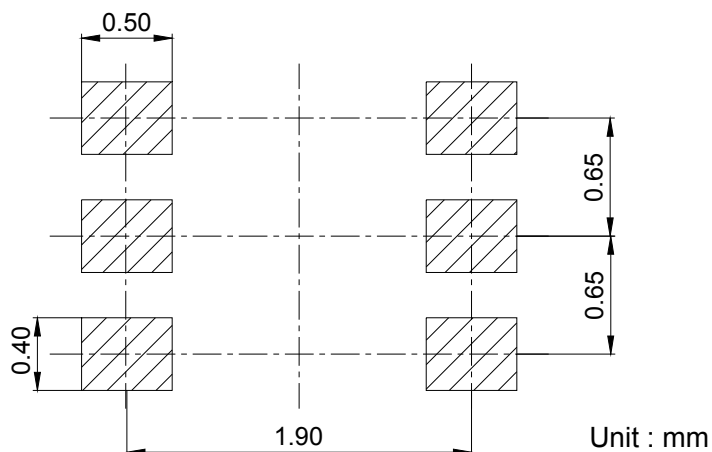
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

| Device   | Package | Shipping       |
|----------|---------|----------------|
| MMDT3906 | SOT-363 | 3000/Tape&Reel |