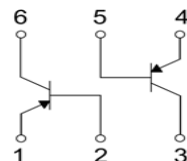
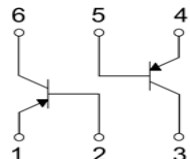
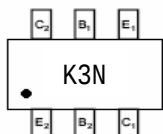


**SOT-363 Plastic-Encapsulate Transistors****MMDT3906**

DUAL TRANSISTOR (PNP+PNP)

**SOT-363****FEATURES**

- Epitaxial planar die construction
- Ideal for low power amplification and switching

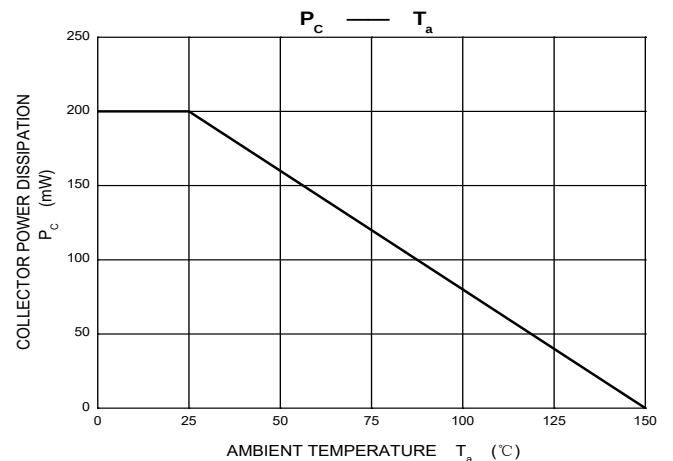
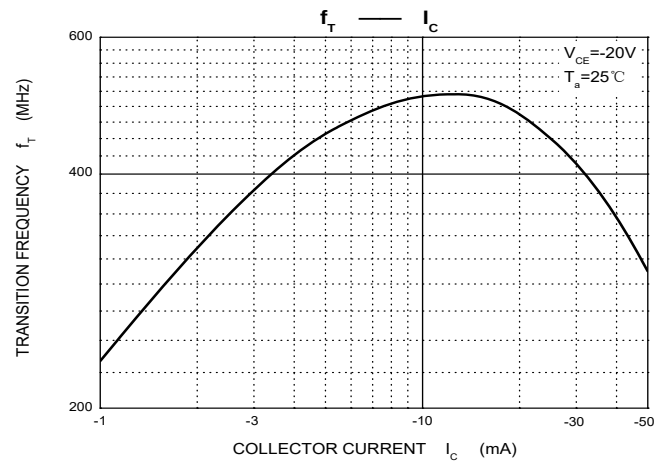
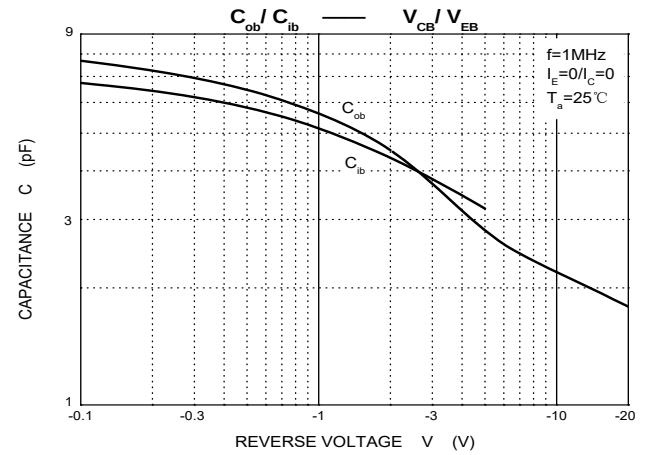
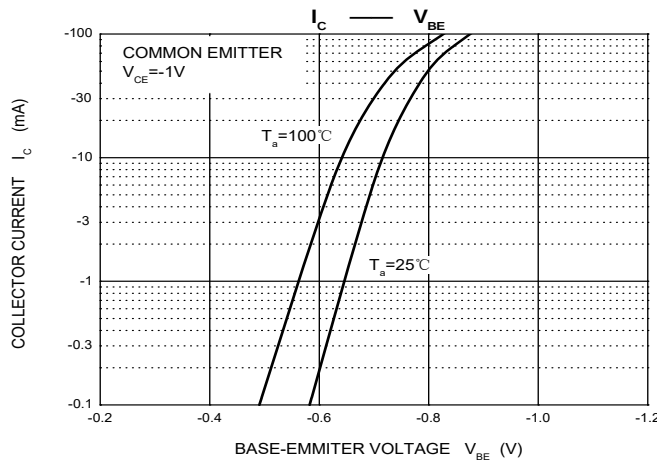
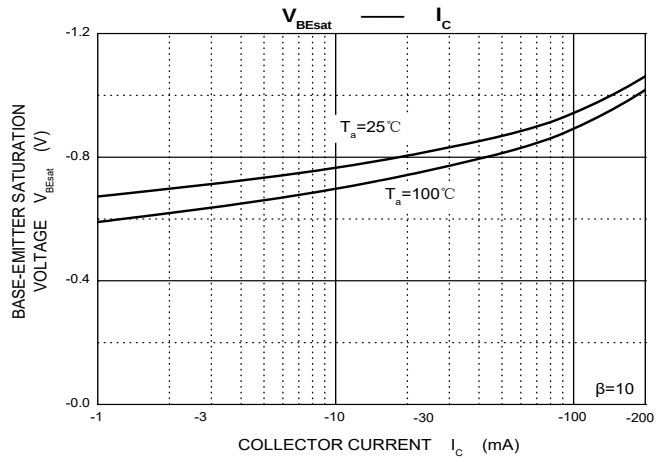
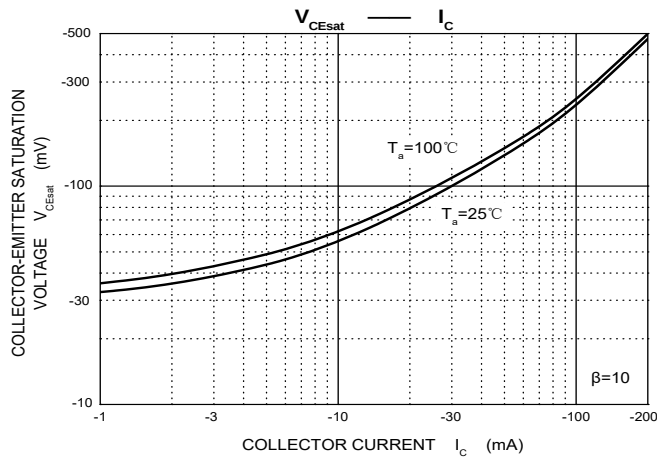
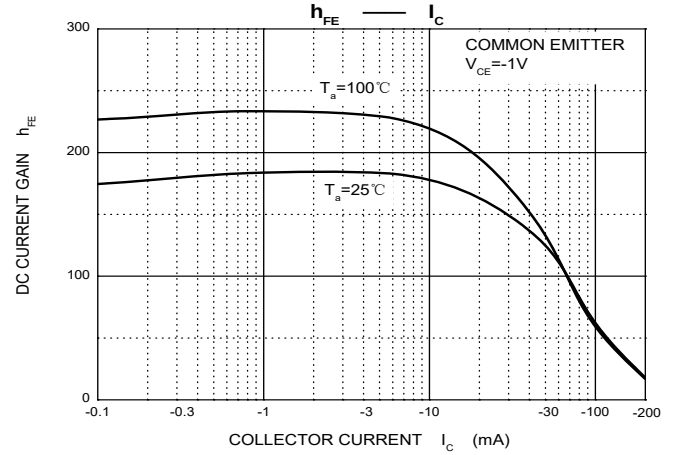
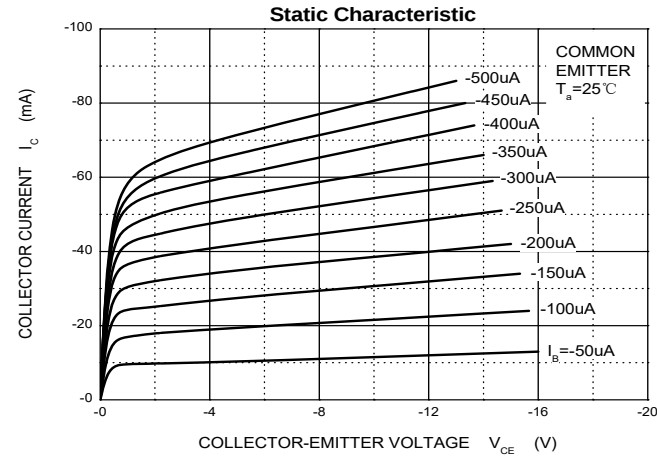
**MARKING****Equivalent Circuit****MAXIMUM RATINGS** ( $T_a=25^{\circ}\text{C}$  unless otherwise noted)

| Symbol          | Parameter                                        | Value    | Units                |
|-----------------|--------------------------------------------------|----------|----------------------|
| $V_{CBO}$       | Collector-Base Voltage                           | -40      | V                    |
| $V_{CEO}$       | Collector-Emitter Voltage                        | -40      | V                    |
| $V_{EBO}$       | Emitter-Base Voltage                             | -5       | V                    |
| $I_C$           | Collector Current -Continuous                    | -0.2     | A                    |
| $P_C$           | Collector Power Dissipation                      | 0.2      | W                    |
| $R_{\theta JA}$ | Thermal Resistance. Junction to Ambient Air      | 625      | $^{\circ}\text{C/W}$ |
| $T_J, T_{stg}$  | Operation Junction and Storage Temperature Range | -55~+150 | $^{\circ}\text{C}$   |

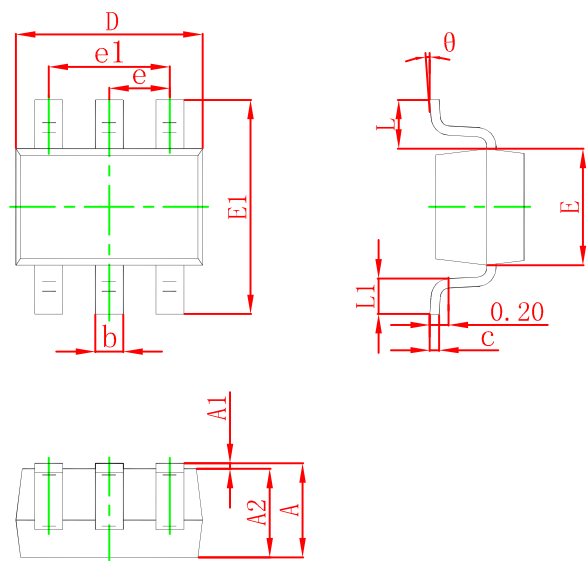
**ELECTRICAL CHARACTERISTICS** ( $T_a=25^{\circ}\text{C}$  unless otherwise specified)

| Parameter                            | Symbol         | Test conditions                                                            | Min   | Typ | Max   | Unit |
|--------------------------------------|----------------|----------------------------------------------------------------------------|-------|-----|-------|------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$  | $I_C=-10\mu\text{A}, I_E=0$                                                | -40   |     |       | V    |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$  | $I_C=-1\text{mA}, I_B=0$                                                   | -40   |     |       | V    |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$  | $I_E=-10\mu\text{A}, I_C=0$                                                | -5    |     |       | V    |
| Collector cut-off current            | $I_{CEX}$      | $V_{CE}=-30\text{V}, V_{EB(OFF)}=-3\text{V}$                               |       |     | -50   | nA   |
| Base cut-off current                 | $I_{EBO}$      | $V_{EB}=-5\text{V}, I_C=0$                                                 |       |     | -50   | nA   |
| DC current gain                      | $h_{FE(1)}$    | $V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$                                     | 60    |     |       |      |
|                                      | $h_{FE(2)}$    | $V_{CE}=-1\text{V}, I_C=-1\text{mA}$                                       | 80    |     |       |      |
|                                      | $h_{FE(3)}$    | $V_{CE}=-1\text{V}, I_C=-10\text{mA}$                                      | 100   |     | 300   |      |
|                                      | $h_{FE(4)}$    | $V_{CE}=-1\text{V}, I_C=-50\text{mA}$                                      | 60    |     |       |      |
|                                      | $h_{FE(5)}$    | $V_{CE}=-1\text{V}, I_C=-100\text{mA}$                                     | 30    |     |       |      |
| Collector-emitter saturation voltage | $V_{CE(sat)1}$ | $I_C=-10\text{mA}, I_B=-1\text{mA}$                                        |       |     | -0.25 | V    |
|                                      | $V_{CE(sat)2}$ | $I_C=-50\text{mA}, I_B=-5\text{mA}$                                        |       |     | -0.4  | V    |
| Base-emitter saturation voltage      | $V_{BE(sat)1}$ | $I_C=-10\text{mA}, I_B=-1\text{mA}$                                        | -0.65 |     | -0.85 | V    |
|                                      | $V_{BE(sat)2}$ | $I_C=-50\text{mA}, I_B=-5\text{mA}$                                        |       |     | -0.95 | V    |
| Transition frequency                 | $f_T$          | $V_{CE}=-20\text{V}, I_C=-10\text{mA}, f=100\text{MHz}$                    | 250   |     |       | MHz  |
| Collector output capacitance         | $C_{ob}$       | $V_{CB}=-5\text{V}, I_E=0, f=1\text{MHz}$                                  |       |     | 4.5   | pF   |
| Noise figure                         | NF             | $V_{CE}=-5\text{V}, I_C=-0.1\text{mA}, f=1\text{KHz}, R_g=1\text{K}\Omega$ |       |     | 4     | dB   |
| Delay time                           | $t_d$          | $V_{CC}=-3\text{V}, V_{BE}=0.5\text{V}$                                    |       |     | 35    | nS   |
| Rise time                            | $t_r$          | $I_C=-10\text{mA}, I_{B1}=-I_{B2}=-1\text{mA}$                             |       |     | 35    | nS   |
| Storage time                         | $t_s$          | $V_{CC}=-3\text{V}, I_C=-10\text{mA}$                                      |       |     | 225   | nS   |
| Fall time                            | $t_f$          | $I_{B1}=-I_{B2}=-1\text{mA}$                                               |       |     | 75    | nS   |

## Typical Characteristics

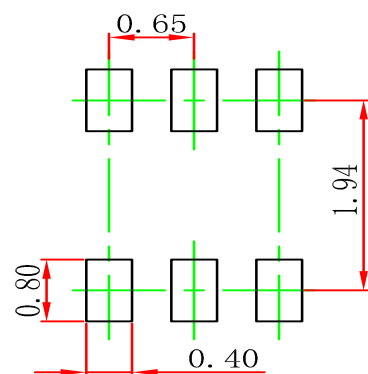


Package Outline Dimensions (SOT-363)



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 0.900                     | 1.100 | 0.035                | 0.043 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 0.900                     | 1.000 | 0.035                | 0.039 |
| b      | 0.150                     | 0.350 | 0.006                | 0.014 |
| c      | 0.100                     | 0.150 | 0.004                | 0.006 |
| D      | 2.000                     | 2.200 | 0.079                | 0.087 |
| E      | 1.150                     | 1.350 | 0.045                | 0.053 |
| E1     | 2.150                     | 2.400 | 0.085                | 0.094 |
| e      | 0.650 TYP                 |       | 0.026 TYP            |       |
| e1     | 1.200                     | 1.400 | 0.047                | 0.055 |
| L      | 0.525 REF                 |       | 0.021 REF            |       |
| L1     | 0.260                     | 0.460 | 0.010                | 0.018 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |

Suggested Pad Layout (SOT-363)



Note:  
1.Controlling dimension:in millimeters.  
2.General tolerance:± 0.05mm.  
3.The pad layout is for reference purposes only.