



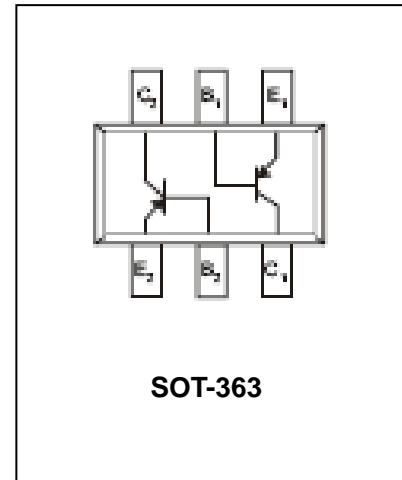
Dual PNP Small Signal Surface Mount Transistor **MMDT2907A**

FEATURES

- Epitaxial planar die construction.
- Complementary NPN type available MMDT2222A.
- Ultra-small surface mount package.



Lead-free



APPLICATIONS

- For Low power amplification and switching.

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|-----------|---------|--------------|
| MMDT2907A | K2F | SOT-363 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Unit |
|-----------------------------------|---|-------------|------|
| V _{CBO} | Collector-Base Voltage | -60 | V |
| V _{CEO} | Collector-Emitter Voltage | -60 | V |
| V _{EBO} | Emitter-Base Voltage | -5 | V |
| I _C | Collector Current -Continuous | -600 | mA |
| P _D | Power Dissipation | 200 | mW |
| R _{θJA} | Thermal Resistance, Junction to Ambient | 625 | °C/W |
| T _j , T _{stg} | Junction and Storage Temperature | -55 to +150 | °C |



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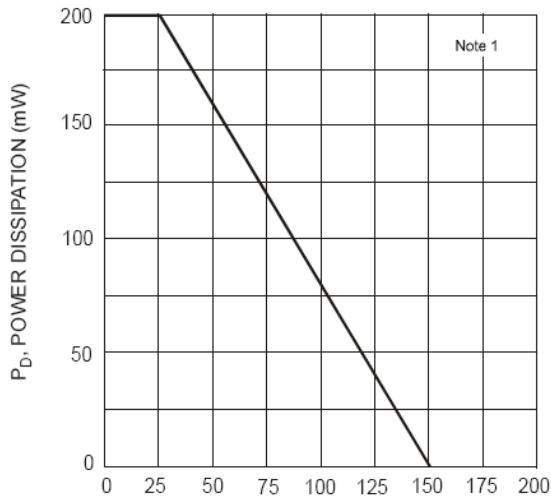
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | MAX | UNIT |
|--------------------------------------|---------------|--|-----|--------------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=-10\mu A$ $I_E=0$ | -60 | - | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=-10mA$ $I_B=0$ | -60 | - | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=-10\mu A$ $I_C=0$ | -5 | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=-50V$ $I_E=0$ $V_{CB}=-50V$ $I_E=0$ $T_A=125^\circ C$ | - | -10 | nA μA |
| Collector cut-off current | I_{CEX} | $V_{CE}=-30V$, $V_{EB(OFF)}=-0.5V$ | - | -50 | nA |
| Base cut-off current | I_{BL} | $V_{CE}=-30V$, $V_{EB(OFF)}=-0.5V$ | - | -50 | nA |
| DC current gain | h_{FE} | $V_{CE}=-10V$ $I_C=-100\mu A$ | 75 | - | - |
| | | $V_{CE}=-10V$ $I_C=-1.0mA$ | 100 | - | |
| | | $V_{CE}=-10V$ $I_C=-10mA$ | 100 | - | |
| | | $V_{CE}=-10V$ $I_C=-150mA$ | 100 | 300 | |
| | | $V_{CE}=-10V$ $I_C=-500mA$ | 50 | - | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-150mA$ $I_B=-15mA$ $I_C=-500mA$ $I_B=-50mA$ | - | -0.4 -1.6 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=-150mA$ $I_B=-15mA$ $I_C=-500mA$ $I_B=-50mA$ | - | -1.3 -2.6 | V |
| Transition frequency | f_T | $V_{CE}=-20V$ $I_C=-50mA$ $f=100MHz$ | 200 | - | MHz |
| Output Capacitance | C_{obo} | $V_{CB}=-10V$, $f=1.0MHz$, $I_E=0$ | - | 8 | pF |
| Input Capacitance | C_{ibo} | $V_{EB}=-2.0V$, $f=1.0MHz$, $I_C=0$ | - | 30 | pF |
| Turn-On Time | t_{on} | $V_{CC}=-30V$, $I_C=-150mA$, $I_{B1}=-15mA$ | - | 45 | ns |
| Delay time | t_d | | - | 10 | ns |
| Rise time | t_r | | - | 40 | ns |
| Turn-Off Time | T_{off} | | - | 100 | ns |
| Storage time | t_s | $V_{CC}=-6V$, $I_C=-150mA$ $I_{B1}=-I_{B2}=-15mA$ | - | 225 | ns |
| Fall time | t_f | | - | 60 | ns |



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



T_A, AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs. Ambient Temperature (Total Device)

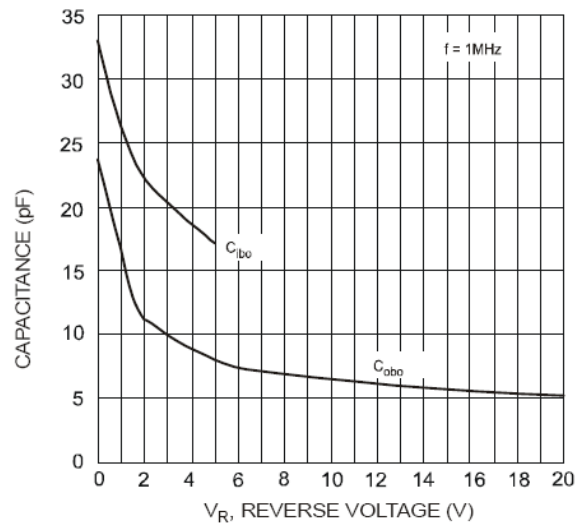


Fig. 2, Typical Capacitance Characteristics

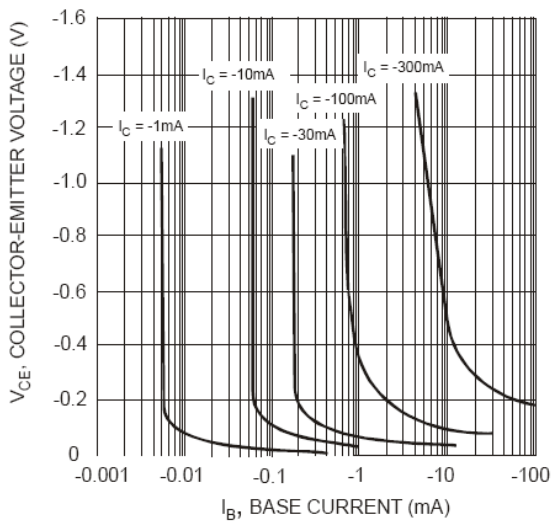


Fig. 3, Typical Collector Saturation Region

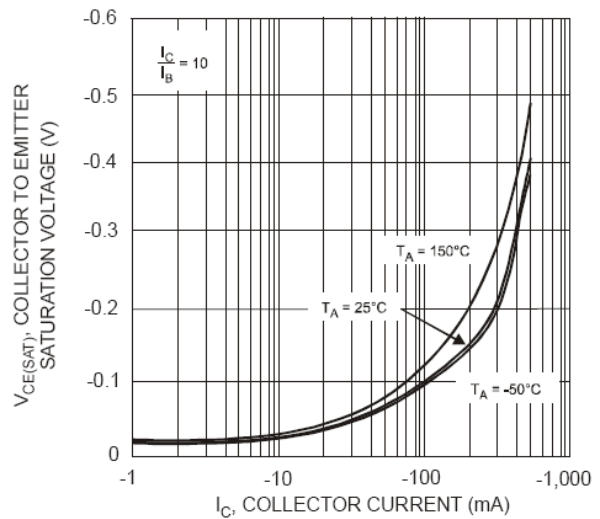


Fig. 4, Collector Emitter Saturation Voltage vs. Collector Current



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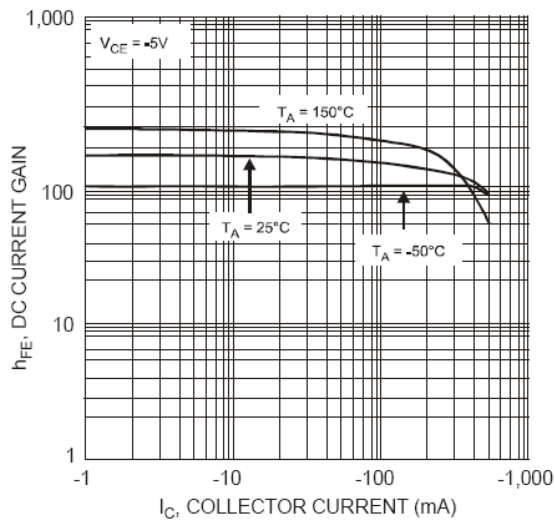


Fig. 5, DC Current Gain vs. Collector Current

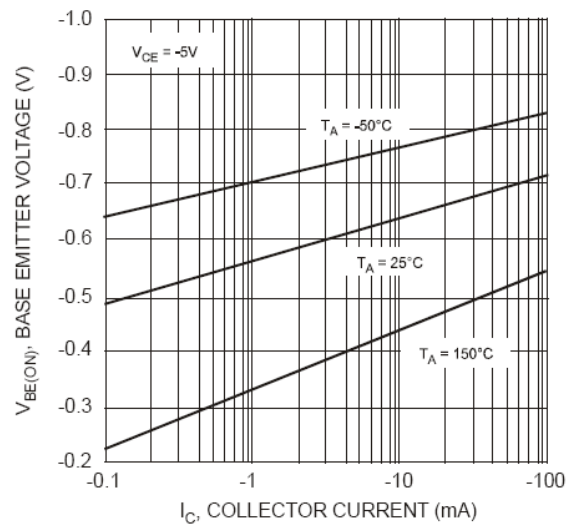


Fig. 6, Base Emitter Voltage vs. Collector Current

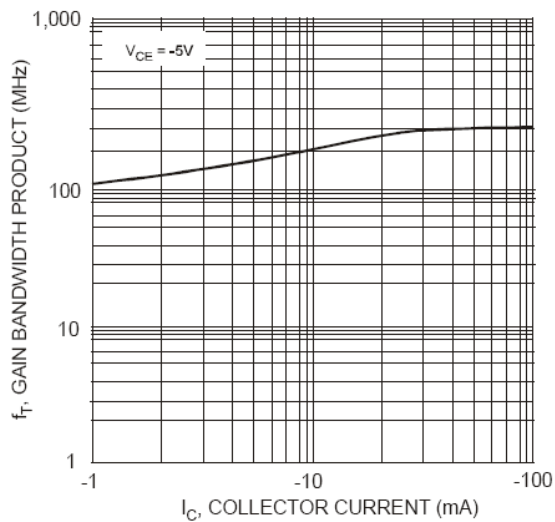


Fig. 7, Gain Bandwidth Product vs. Collector Current

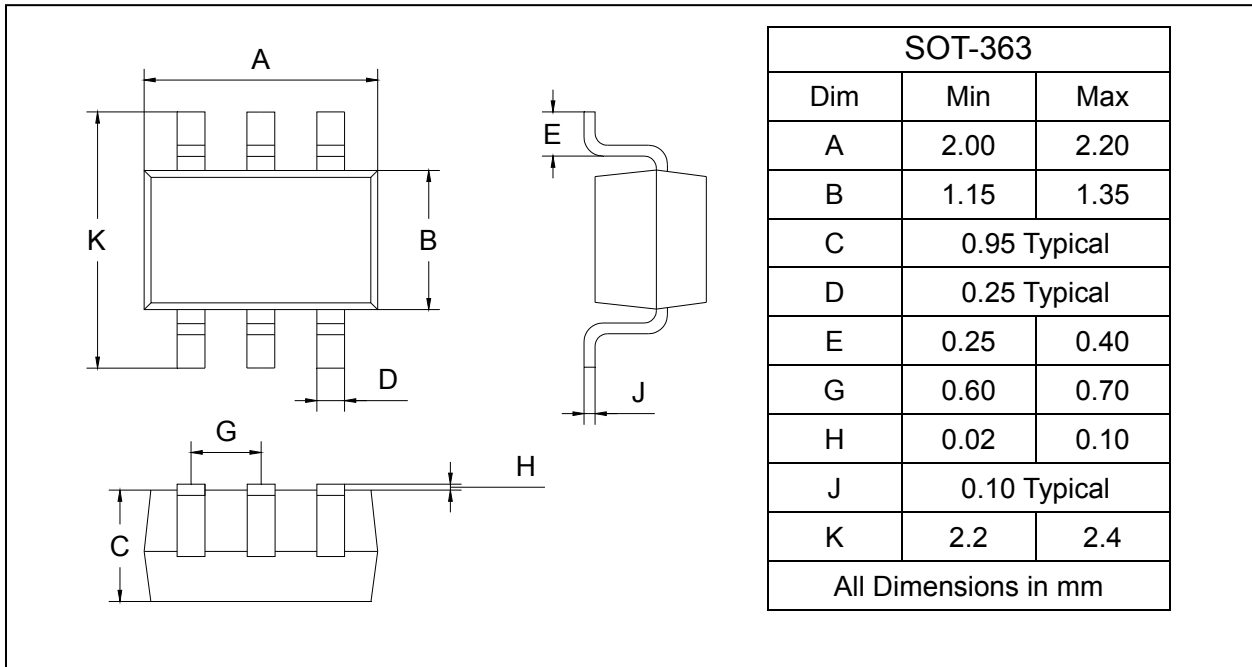


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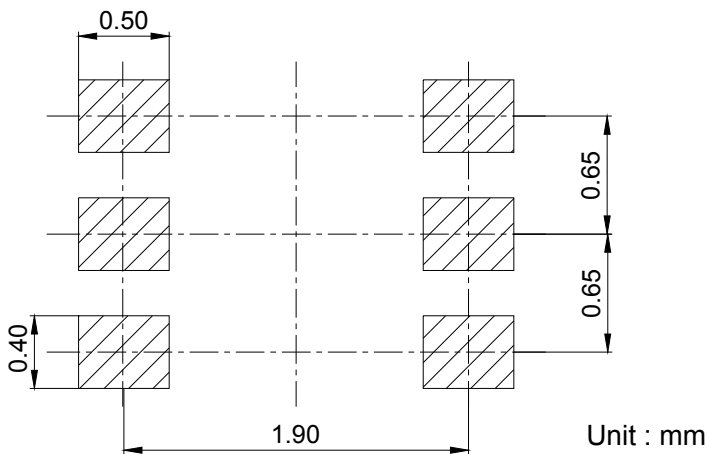
PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|-----------|---------|----------------|
| MMDT2907A | SOT-363 | 3000/Tape&Reel |