



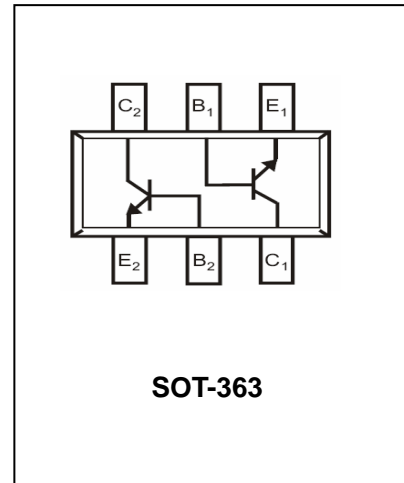
Dual NPN Small Signal Surface Mount Transistor **MMDT2222A**

FEATURES

- Epitaxial planar die construction.
- Complementary PNP type available MMDT2907A.
- Ultra-small surface mount package.



Lead-free



APPLICATIONS

- Dual NPN small signal surface mount transistor.

ORDERING INFORMATION

| Type No. | Marking | Package Code |
|-----------|---------|--------------|
| MMDT2222A | K1P | SOT-363 |

MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Value | Unit |
|-----------------------------------|---|-------------|------|
| V _{CBO} | Collector-Base Voltage | 75 | V |
| V _{CEO} | Collector-Emitter Voltage | 40 | V |
| V _{EBO} | Emitter-Base Voltage | 6 | 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 |



Dual NPN Small Signal Surface Mount Transistor MMDT2222A

ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Parameter | Symbol | Test conditions | MIN | MAX | UNIT |
|--------------------------------------|---------------|---|----------|------------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=10\mu A, I_E=0$ | 75 | - | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=10mA, I_B=0$ | 40 | - | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=10\mu A, I_C=0$ | 6 | - | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=60V, I_E=0$ $V_{CB}=60V, I_E=0, T_A=150^\circ C$ | - | 10 | nA μA |
| Collector cut-off current | I_{CEX} | $V_{CE}=60V, I_{EB(off)}=3.0V$ | - | 10 | nA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=3V, I_C=0$ | - | 10 | nA |
| Base Cut-off Current | I_{BL} | $V_{CE}=60V, I_{EB(off)}=3.0V$ | - | 20 | nA |
| DC current gain | h_{FE} | $V_{CE}=10V, I_C=100\mu A$ | 35 | - | - |
| | | $V_{CE}=10V, I_C=1.0mA$ | 50 | - | |
| | | $V_{CE}=10V, I_C=10mA$ | 75 | - | |
| | | $V_{CE}=10V, I_C=150mA$ | 100 | 300 | |
| | | $V_{CE}=10V, I_C=500mA$ | 40 | - | |
| | | $V_{CE}=10V, I_C=10mA, T_A=-55^\circ C$ | 50 | - | |
| | | $V_{CE}=1.0V, I_C=150mA$ | 35 | - | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$ | - | 0.3 1.0 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$ | 0.6 - | 1.2 2.0 | V |
| Transition frequency | f_T | $V_{CE}=20V, I_C=20mA, f=100MHz$ | 300 | | MHz |
| Output Capacitance | C_{obo} | $V_{CB}=10V, f=1.0MHz, I_E=0$ | - | 8 | pF |
| Input Capacitance | C_{ibo} | $V_{EB}=0.5V, f=1.0MHz, I_C=0$ | - | 25 | pF |
| Noise Figure | NF | $V_{CE}=10V, f=1.0kHz, I_C=100\mu A$ $R_S=1.0k\Omega$ | - | 4.0 | dB |
| Delay time | t_d | $V_{CC}=30V, V_{BE(off)}=-0.5V$ $I_C=150mA, I_{B1}=15mA$ | | 10 | ns |
| Rise time | t_r | | | 25 | ns |
| Storage time | t_s | $V_{CC}=30V, I_C=150mA$ $I_{B1}=-I_{B2}=15mA$ | | 225 | ns |
| Fall time | t_f | | | 60 | ns |

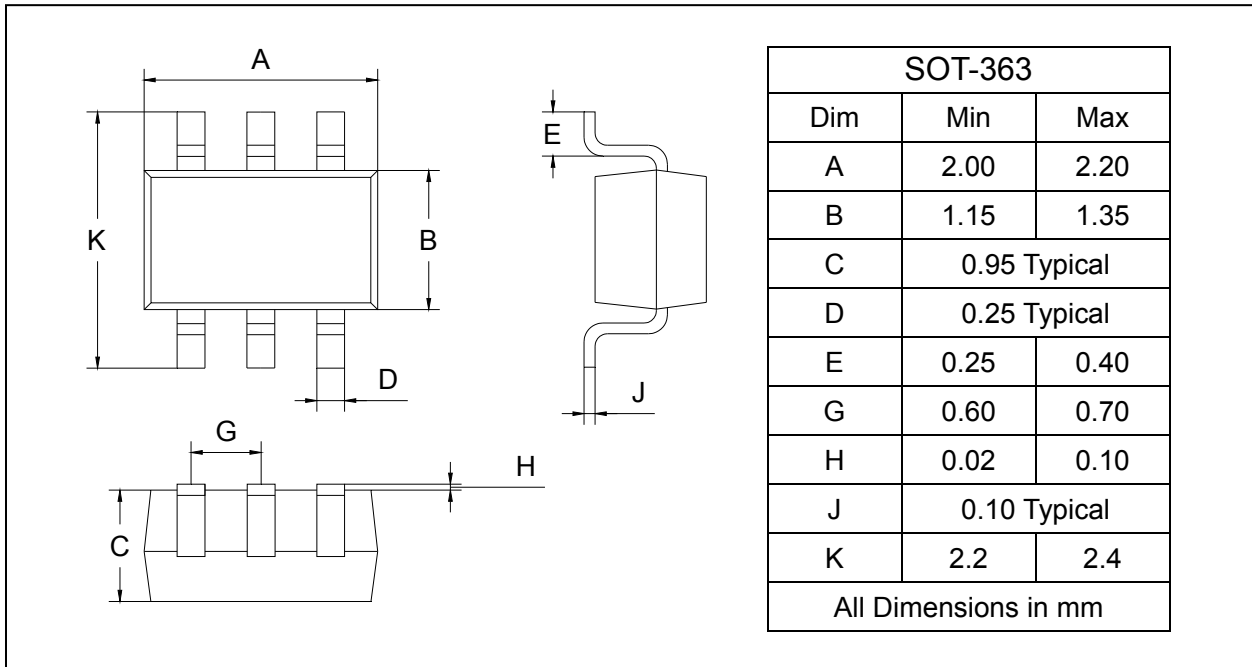


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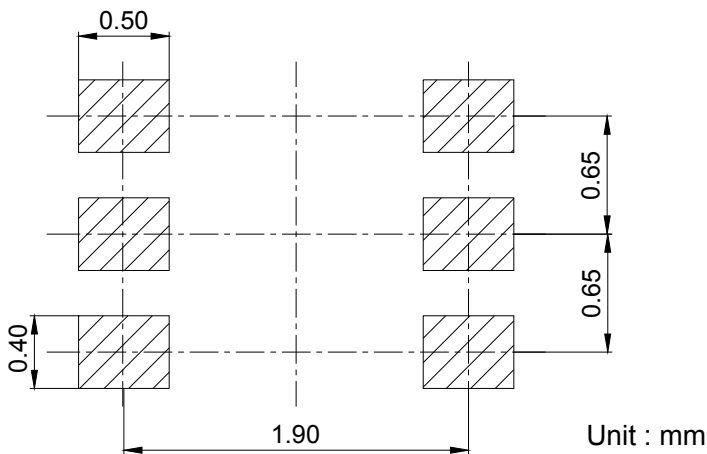
PACKAGE OUTLINE

Plastic surface mounted package

SOT-363



SOLDERING FOOTPRINT



PACKAGE INFORMATION

| Device | Package | Shipping |
|-----------|---------|----------------|
| MMDT2222A | SOT-363 | 3000/Tape&Reel |