



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Micro Commercial Components

Micro Commercial Components
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MMST2222A

NPN Plastic-Encapsulate Transistors

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Power Dissipation: 0.2W
- Ultra-small surface mount package
- Marking: K3P
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings

| Symbol | Rating | Rating | Unit |
|-----------|--|-------------|------|
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{CBO} | Collector-Base Voltage | 75 | V |
| V_{EBO} | Emitter-Base Voltage | 6.0 | V |
| I_{CBO} | Collector Cut-off Current ($V_{CB}=70V, I_E=0$) | 100 | mA |
| I_{CEO} | Collector Cut-off Current ($V_{CE}=35V, I_B=0$) | 100 | mA |
| I_{EBO} | Emitter Cut-off Current ($V_{EB}=3V, I_C=0$) | 100 | mA |
| P_C | Power dissipation ⁽¹⁾ | 200 | mW |
| T_J | Junction Temperature | -55 to +150 | °C |
| T_{STG} | Storage Temperature | -55 to +150 | °C |

Electrical Characteristics @ 25°C Unless Otherwise Specified

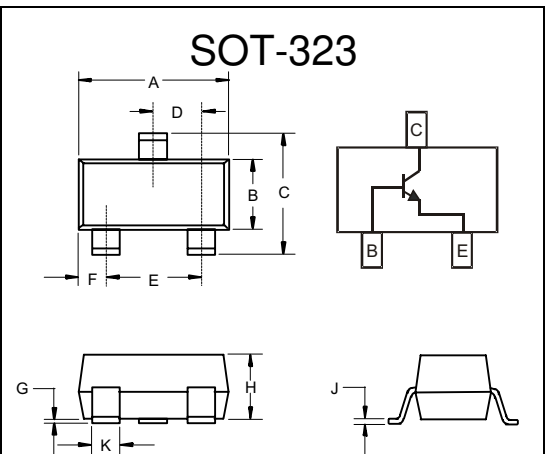
| Symbol | Parameter | Min | Max | Units |
|--------|-----------|-----|-----|-------|
|--------|-----------|-----|-----|-------|

OFF CHARACTERISTICS ⁽²⁾

| | | | | |
|---------------|---|-----|-----|-----|
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage ($I_C=1.0mA, I_B=0$) | 40 | --- | Vdc |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_C=10mA, I_E=0$) | 75 | --- | Vdc |
| $V_{(BR)EBO}$ | Collector-Emitter Breakdown Voltage ($I_E=10uA, I_C=0$) | 6.0 | --- | Vdc |

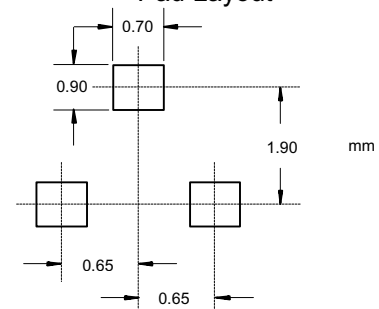
ON CHARACTERISTICS ⁽²⁾

| | | | | |
|---------------|---|-----------|------------|-----|
| h_{FE} | DC Current Gain ($I_C=150mA, V_{CE}=10Vdc$) ($I_C=1.0mA, V_{CE}=10Vdc$) | 100 50 | 300 --- | --- |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ($I_C=500mA, I_B=50mA$) | --- | 0.6 | Vdc |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage ($I_C=500mA, I_B=50mA$) | --- | 1.2 | Vdc |
| f_T | Transition Frequency ($V_{CE}=20V, I_C=20mA, f=100MHz$) | 300 | --- | Hz |
| C_{ob} | Output Capacitance ($V_{CB}=10V, I_E=0mA, f=1MHz$) | --- | 8 | pF |
| t_d | Delay Time ($V_{CC}=30V, I_{oc}=150mA, V_{BE(off)}=0.5V, I_{B1}=15mA$) | --- | 10 | ns |
| t_r | Rise Time ($V_{CC}=30V, I_{oc}=150mA, V_{BE(off)}=0.5V, I_{B1}=15mA$) | --- | 25 | ns |
| t_s | Storage Time ($V_{CC}=30V, I_{oc}=150mA, I_{B1}=I_{B2}=15mA$) | --- | 225 | ns |
| t_f | Fall Time ($V_{CC}=30V, I_{oc}=150mA, I_{B1}=I_{B2}=15mA$) | --- | 60 | ns |



| DIM | DIMENSIONS | | | | NOTE |
|-----|--------------|------|-------------|------|------|
| | INCHES | | MM | | |
| A | .071 | .087 | 1.80 | 2.20 | |
| B | .045 | .053 | 1.15 | 1.35 | |
| C | .079 | .087 | 2.00 | 2.20 | |
| D | .026 Nominal | | 0.65Nominal | | |
| E | .047 | .055 | 1.20 | 1.40 | |
| F | .012 | .016 | .30 | .40 | |
| G | .000 | .004 | .000 | .100 | |
| H | .035 | .039 | .90 | 1.00 | |
| J | .004 | .010 | .100 | .250 | |
| K | .012 | .016 | .30 | .40 | |

Suggested Solder Pad Layout





Micro Commercial Components

Ordering Information :

| Device | Packing |
|----------------|--------------------------|
| Part Number-TP | Tape & Reel; 3 Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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