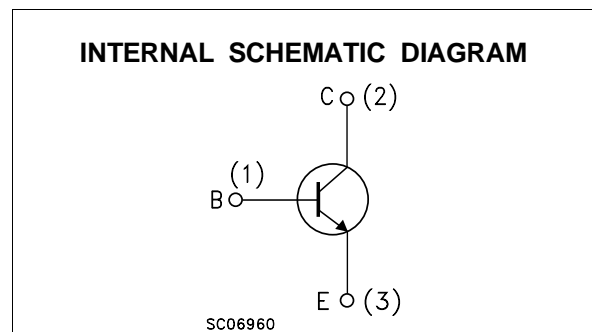
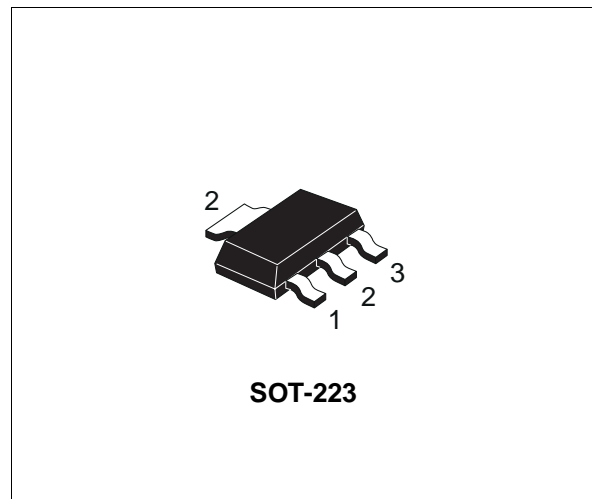


MEDIUM POWER AMPLIFIER

ADVANCE DATA

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- GENERAL PURPOSE MAINLY INTENDED FOR USE IN MEDIUM POWER INDUSTRIAL APPLICATION AND FOR AUDIO AMPLIFIER OUTPUT STAGE
- PNP COMPLEMENTS ARE STZT2907 AND STZT2907A RESPECTIVELY



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|------------------|--|------------|-----------|------|
| | | STZT2222 | STZT2222A | |
| V _{CBO} | Collector-Base Voltage (I _E = 0) | 60 | 75 | V |
| V _{CEO} | Collector-Emitter Voltage (I _B = 0) | 30 | 40 | V |
| V _{EBO} | Emitter-Base Voltage (I _C = 0) | 5 | 6 | V |
| I _C | Collector Current | 0.8 | | A |
| P _{tot} | Total Dissipation at T _c = 25 °C | 1.5 | | W |
| T _{stg} | Storage Temperature | -65 to 150 | | °C |
| T _j | Max. Operating Junction Temperature | 150 | | °C |

STZT2222/STZT2222A

THERMAL DATA

| | | | | |
|---------------|---|-----|------|-----------------------------|
| $R_{thj-amb}$ | Thermal Resistance Junction-Ambient | Max | 83.3 | $^{\circ}\text{C}/\text{W}$ |
| $R_{thj-tab}$ | Thermal Resistance Junction-Collector Tab | Max | 10 | $^{\circ}\text{C}/\text{W}$ |

• Mounted on a ceramic substrate area = 30 x 35 x 0.7 mm

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

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|---|---|---|------|------------------------|---------------------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | $V_{CB} = \text{rated } V_{CBO}$ $V_{CB} = \text{rated } V_{CBO} \quad T_{amb} = 125^{\circ}\text{C}$ | | | 10 10 | nA μA |
| I_{CEX} | Collector Cut-off Current ($V_{BE} = -3\text{V}$) | $V_{CE} = 60\text{ V}$ for STZT2222A | | | 10 | nA |
| I_{BEX} | Base Cut-off Current ($V_{BE} = -3\text{V}$) | $V_{CE} = 60\text{ V}$ for STZT2222A | | | 20 | nA |
| I_{EBO} | Emitter Cut-off Current ($I_E = 0$) | $V_{EB} = 3\text{ V}$ for STZT2222 for STZT2222A | | | 30 15 | nA nA |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_E = 0$) | $I_C = 10\ \mu\text{A}$ for STZT2222 for STZT2222A | 60 75 | | | V V |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = 10\text{ mA}$ for STZT2222 for STZT2222A | 30 40 | | | V V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C = 0$) | $I_E = 10\ \mu\text{A}$ for STZT2222 for STZT2222 | 5 6 | | | V V |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = 150\text{ mA} \quad I_B = 15\text{ mA}$ for STZT2222 for STZT2222A $I_C = 500\text{ mA} \quad I_B = 50\text{ mA}$ for STZT2222 for STZT2222A | | | 0.4 0.3 1.6 1 | V V V V |
| $V_{BE(sat)}^*$ | Base-Emitter Saturation Voltage | $I_C = 150\text{ mA} \quad I_B = 15\text{ mA}$ for STZT2222 for STZT2222A $I_C = 500\text{ mA} \quad I_B = 50\text{ mA}$ for STZT2222 for STZT2222A | | 0.6 | 1.3 1.2 2.6 2 | V V V V |
| h_{FE}^* | DC Current Gain | $I_C = 0.1\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 1\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA} \quad V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA} \quad V_{CE} = 1\text{ V}$ $I_C = 500\text{ mA} \quad V_{CE} = 10\text{ V}$ for STZT2222 for STZT2222A $I_C = 10\text{ mA} \quad V_{CE} = 10\text{ V} \quad T_c = -55^{\circ}\text{C}$ for STZT2222 | 35 50 75 100 50 30 40 35 | | 300 | |

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

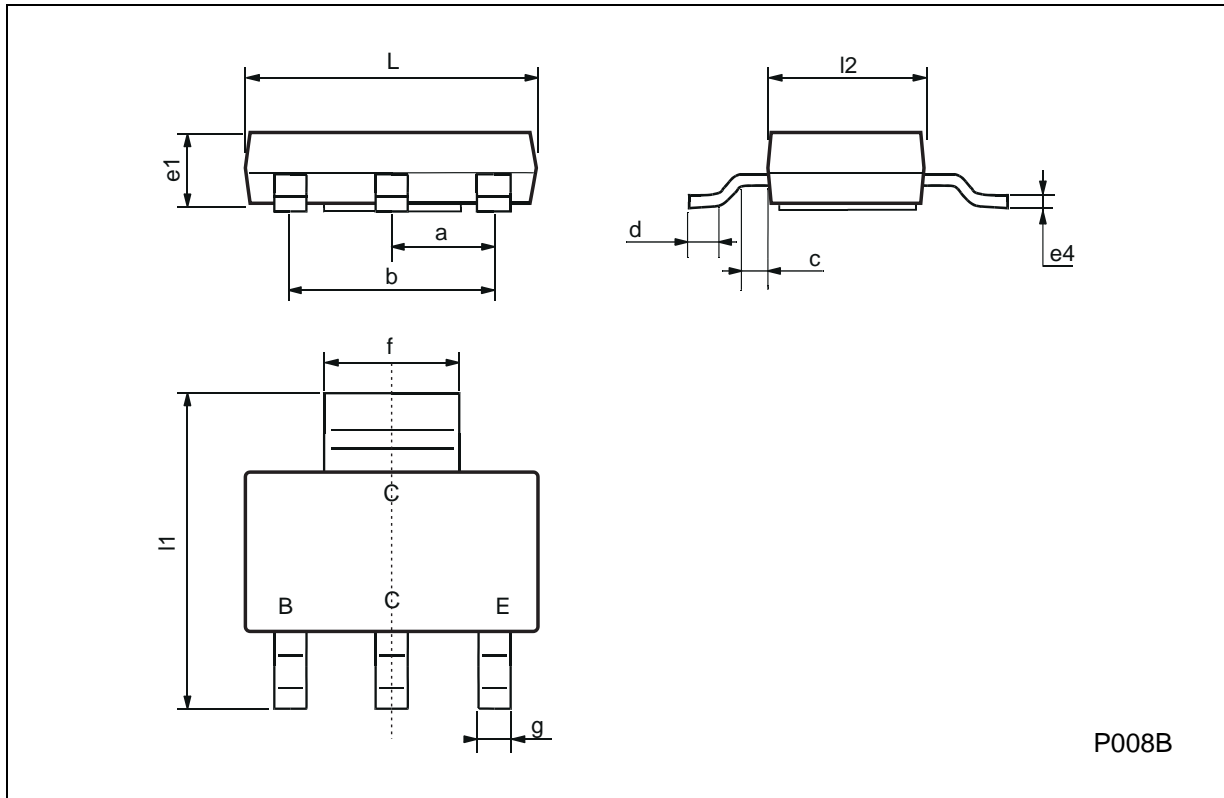
| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-------------|----------------------------|---|------------|------|------------|------------|
| h_{fe} ** | Small Signal Current Gain | $I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ | 50 75 | | 300 375 | $K\Omega$ |
| h_{ie} ** | Input Impedance | $I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ | 2 0.25 | | 8 1.25 | |
| h_{re} ** | Reverse Voltage Ratio | $I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ | | | 8 4 | 10^{-4} |
| h_{oe} ** | Output Impedance | $I_C = 1\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 1\text{ KHz}$ | 5 25 | | 35 375 | S |
| f_T | Transition Frequency | $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 100\text{ MHz}$ for STZT2222 for STZT2222A | 250 300 | | | MHz MHz |
| C_{CBO} | Collector-Base Capacitance | $I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$ | | | 8 | pF |
| C_{EBO} | Emitter-Base Capacitance | $I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$ for STZT2222 for STZT2222A | | | 30 25 | pF pF |
| NF | Noise Figure | $f = 1\text{ KHz}$ $\Delta F = 200\text{ Hz}$ $R_G = 1K\Omega$ $I_C = 0.1\text{ mA}$ $V_{CE} = 10\text{ V}$ | | | 4 | dB |
| t_d | Delay Time | $I_C = 150\text{ mA}$ $I_{C1} = 15\text{ mA}$ | | | 10 | ns |
| t_r | Rise Time | $V_{BE} = -0.5\text{ V}$ | | | 25 | ns |
| t_s | Storage Time | $I_C = 150\text{ mA}$ $I_{C1} = 15\text{ mA}$ | | | 225 | ns |
| t_f | Fall Time | $I_{B2} = 15\text{ mA}$ | | | 60 | ns |

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 1.5\%$

** Only for STZT2222A

SOT223 MECHANICAL DATA

| DIM. | mm | | | mils | | |
|------|------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| a | 2.27 | 2.3 | 2.33 | 89.4 | 90.6 | 91.7 |
| b | 4.57 | 4.6 | 4.63 | 179.9 | 181.1 | 182.3 |
| c | 0.2 | 0.4 | 0.6 | 7.9 | 15.7 | 23.6 |
| d | 0.63 | 0.65 | 0.67 | 24.8 | 25.6 | 26.4 |
| e1 | 1.5 | 1.6 | 1.7 | 59.1 | 63 | 66.9 |
| e4 | | | 0.32 | | | 12.6 |
| f | 2.9 | 3 | 3.1 | 114.2 | 118.1 | 122.1 |
| g | 0.67 | 0.7 | 0.73 | 26.4 | 27.6 | 28.7 |
| l1 | 6.7 | 7 | 7.3 | 263.8 | 275.6 | 287.4 |
| l2 | 3.5 | 3.5 | 3.7 | 137.8 | 137.8 | 145.7 |
| L | 6.3 | 6.5 | 6.7 | 248 | 255.9 | 263.8 |



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