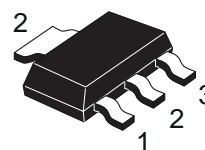


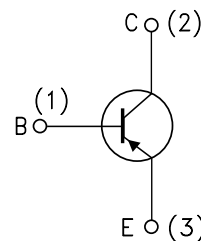
MEDIUM POWER AMPLIFIER

ADVANCE DATA

- SILICON EPITAXIAL PLANAR PNP 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
- NPN COMPLEMENTS ARE BCP55 AND BCP56 RESPECTIVELY


SOT-223

INTERNAL SCHEMATIC DIAGRAM



SC08810

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|-----------|---------------------------------------------------|------------|-------|------|
| | | BCP52 | BCP53 | |
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | -60 | -100 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | -60 | -80 | V |
| V_{CER} | Collector-Emitter Voltage ($R_{BE} = 1K\Omega$) | -60 | -100 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | -5 | | V |
| I_C | Collector Current | -1 | | A |
| I_{CM} | Collector Peak Current ($t_p < 5$ ms) | -1.5 | | A |
| I_B | Base Current | -0.1 | | A |
| I_{BM} | Base Peak Current ($t_p <$ ms) | -0.2 | | A |
| P_{tot} | Total Dissipation at $T_c = 25$ °C | 2 | | W |
| T_{stg} | Storage Temperature | -65 to 150 | | °C |
| T_j | Max. Operating Junction Temperature | 150 | | °C |

BCP52/53

THERMAL DATA

| | | | | |
|-----------------|-------------------------------------------|-----|------|-----------------------------|
| $R_{thj-amb}$ • | Thermal Resistance Junction-Ambient | Max | 62.5 | $^{\circ}\text{C}/\text{W}$ |
| $R_{thj-tab}$ • | Thermal Resistance Junction-Collector Tab | Max | 8 | $^{\circ}\text{C}/\text{W}$ |

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

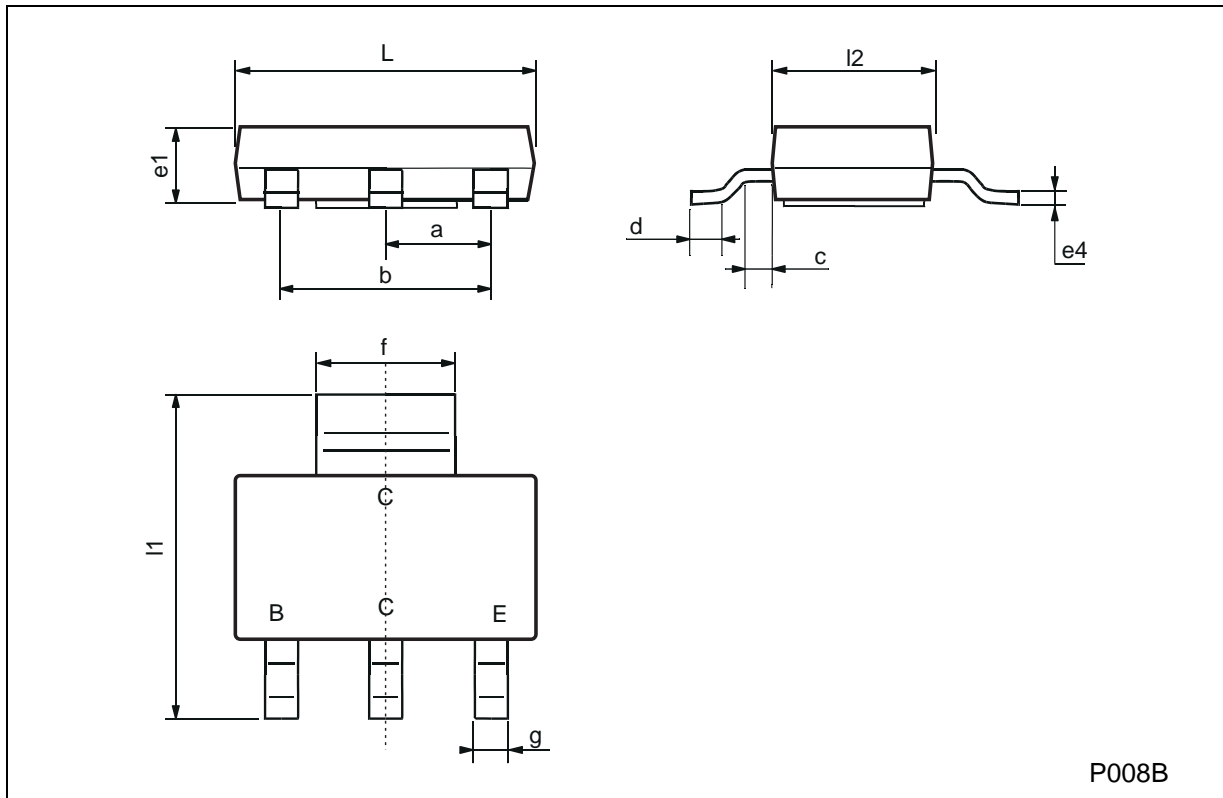
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------|-------------------|---------------------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | $V_{CB} = -30\text{ V}$ $V_{CB} = -30\text{ V}$ $T_j = 125^{\circ}\text{C}$ | | | -100 -10 | nA μA |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage ($I_E = 0$) | $I_C = -100\ \mu\text{A}$ for BCP52 for BCP53 | -60 -100 | | | V V |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = -20\text{ mA}$ for BCP52 for BCP53 | -60 -80 | | | V V |
| $V_{(BR)CER}$ | Collector-Emitter Breakdown Voltage ($R_{BE} = 1\text{ K}\Omega$) | $I_C = -100\ \mu\text{A}$ for BCP52 for BCP53 | -60 -100 | | | V V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage ($I_C = 0$) | $I_C = -10\ \mu\text{A}$ | -5 | | | V |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = -500\text{ mA}$ $I_B = -50\text{ mA}$ | | | -0.5 | V |
| $V_{BE(on)}^*$ | Base-Emitter On Voltage | $I_C = -500\text{ mA}$ $V_{CE} = -2\text{ V}$ | | | -1 | V |
| h_{FE}^* | DC Current Gain | $I_C = -5\text{ mA}$ $V_{CE} = -2\text{ V}$ $I_C = -150\text{ mA}$ $V_{CE} = -2\text{ V}$ for Gr. 6 $I_C = -150\text{ mA}$ $V_{CE} = -2\text{ V}$ for Gr. 10 $I_C = -150\text{ mA}$ $V_{CE} = -2\text{ V}$ for Gr. 16 $I_C = -500\text{ mA}$ $V_{CE} = -2\text{ V}$ | 25 40 63 100 25 | | 100 160 250 | |
| f_T | Transition Frequency | $I_C = -10\text{ mA}$ $V_{CE} = -5\text{ V}$ $f = 35\text{ MHz}$ | | 50 | | MHz |

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

SOT-223 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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