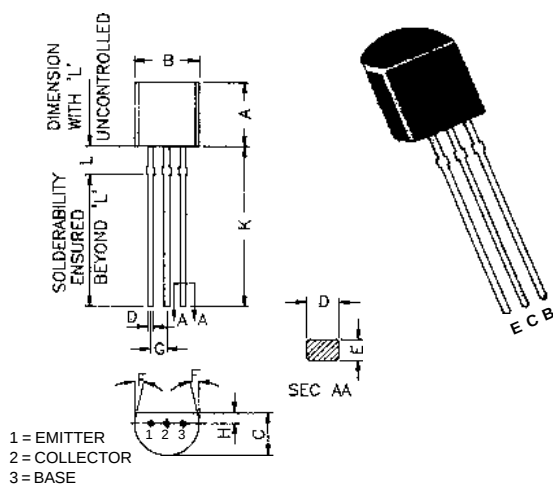


## TO-92 Plastic Package

## BC212L, BC212LA, BC212LB BC214L, BC214LB, BC214LC

### PNP SILICON PLANAR EPITAXIAL TRANSISTORS

Amplifier Transistors



| DIM | MIN   | MAX   |
|-----|-------|-------|
| A   | 4,32  | 5,33  |
| B   | 4,45  | 5,20  |
| C   | 3,18  | 4,19  |
| D   | 0,41  | 0,55  |
| E   | 0,35  | 0,50  |
| F   | 5 DEG |       |
| G   | 1,14  | 1,40  |
| H   | 1,14  | 1,53  |
| K   | 12,70 | —     |
| L   | 1.982 | 2.082 |

ALL DIMENSIONS IN M.M.

### ABSOLUTE MAXIMUM RATINGS

| Rating                                         | Symbol         | BC212L      | BC214L | Unit                 |
|------------------------------------------------|----------------|-------------|--------|----------------------|
| Collector Emitter Voltage                      | $V_{CEO}$      | 50          | 30     | V                    |
| Collector Base Voltage                         | $V_{CBO}$      | 60          | 45     | V                    |
| Emitter Base Voltage                           | $V_{EBO}$      | -           | 5      | V                    |
| Collector Current Continuous                   | $I_C$          | -           | 100    | mA                   |
| Total Power Dissipation $T_a=25^\circ\text{C}$ | $P_D$          | -           | 350    | mW                   |
| Derate Above $25^\circ\text{C}$                |                | -           | 2.8    | mW/ $^\circ\text{C}$ |
| Total Power Dissipation $T_c=25^\circ\text{C}$ | $P_D$          | -           | 1      | W                    |
| Derate Above $25^\circ\text{C}$                |                | -           | 8.0    | mW/ $^\circ\text{C}$ |
| Operating & Storage Junction Temperature Range | $T_j, T_{stg}$ | -55 to +150 |        | $^\circ\text{C}$     |

### THERMAL RESISTANCE

|                     |               |   |     |   |                    |
|---------------------|---------------|---|-----|---|--------------------|
| Junction to Ambient | $R_{th(j-a)}$ | - | 357 | - | $^\circ\text{C/W}$ |
| Junction to Case    | $R_{th(j-c)}$ | - | 125 | - | $^\circ\text{C/W}$ |

**BC212L, BC212LA, BC212LB**  
**BC214L, BC214LB, BC214LC**

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

| Characteristic                            |               | Symbol        | Min  | Typ  | Max  | Unit |
|-------------------------------------------|---------------|---------------|------|------|------|------|
| Collector Emitter Voltage                 |               |               |      |      |      |      |
| $I_C=2\text{mA}$ , $I_B=0$                | <b>BC212L</b> | $BV_{CEO}$    | 50   | -    | -    | V    |
|                                           | <b>BC214L</b> |               | 30   | -    | -    | V    |
| Collector Base Voltage                    |               |               |      |      |      |      |
| $I_C=10\mu\text{A}$ , $I_E=0$             | <b>BC212L</b> | $BV_{CBO}$    | 60   | -    | -    | V    |
|                                           | <b>BC214L</b> |               | 45   | -    | -    | V    |
| Emitter Base Voltage                      |               |               |      |      |      |      |
| $I_E=10\mu\text{A}$ , $I_C=0$             |               | $BV_{EBO}$    | 5    | -    | -    | V    |
| Collector Cutoff Current                  |               |               |      |      |      |      |
| $V_{CB}=30\text{V}$ , $I_E=0$             |               | $I_{CBO}$     | -    | -    | 15   | nA   |
| Emitter Cutoff Current                    |               |               |      |      |      |      |
| $V_{EB}=4\text{V}$ , $I_C=0$              |               | $I_{EBO}$     | -    | -    | 15   | nA   |
| DC Current Gain                           |               |               |      |      |      |      |
| $I_C=10\mu\text{A}$ , $V_{CE}=5\text{V}$  | <b>BC212L</b> | $h_{FE}$      | 40   | -    | -    | -    |
|                                           | <b>BC214L</b> |               | 100  | -    | -    | -    |
| $I_C=2\text{mA}$ , $V_{CE}=5\text{V}$     | <b>BC212L</b> |               | 60   | -    | -    | -    |
|                                           | <b>BC214L</b> |               | 140  | -    | 600  | -    |
| $I_C=100\text{mA}$ , $V_{CE}=5\text{V}^*$ |               |               | -    | 120  | -    | -    |
| Collector Emitter Sat. Voltage            |               |               |      |      |      |      |
| $I_C=10\text{mA}$ , $I_B=0.5\text{mA}$    |               | $V_{CE(sat)}$ | -    | 0.10 | -    | V    |
| $I_C=100\text{mA}$ , $I_B=5\text{mA}^*$   |               |               | -    | 0.25 | 0.6  | V    |
| Base Emitter Sat. Voltage                 |               |               |      |      |      |      |
| $I_C=100\text{mA}$ , $I_B=5\text{mA}$     |               | $V_{BE(sat)}$ | -    | 1.00 | 1.4  | V    |
| Base Emitter On Voltage                   |               |               |      |      |      |      |
| $I_C=2\text{mA}$ , $V_{CE}=5\text{V}$     |               | $V_{BE(on)}$  | 0.60 | 0.62 | 0.72 | V    |

**DYNAMIC CHARACTERISTICS**

|                                                                   |               |          |   |     |     |     |
|-------------------------------------------------------------------|---------------|----------|---|-----|-----|-----|
| Transition Frequency                                              |               |          |   |     |     |     |
| $I_C=10\text{mA}$ , $V_{CE}=5\text{V}$ , $f=50\text{MHz}$         | <b>BC212L</b> | $f_T$    | - | 280 | -   | MHz |
|                                                                   | <b>BC214L</b> |          | - | 320 | -   | MHz |
| Output Capacitance                                                |               |          |   |     |     |     |
| $V_{CB}=10\text{V}$ , $I_E=0$ , $f=1\text{MHz}$                   |               | $C_{ob}$ | - | -   | 6.0 | pF  |
| Noise Figure                                                      |               |          |   |     |     |     |
| $I_C=200\mu\text{A}$ , $V_{CE}=5\text{V}$ , $R_s=2\text{k}\Omega$ | <b>BC212L</b> | $N_F$    | - | -   | 10  | dB  |
| $f=1\text{KHz}$ , $f=200\text{Hz}$                                |               |          |   |     |     |     |
| $I_C=0.2\text{mA}$ , $V_{CE}=5\text{V}$ , $R_s=2\text{k}\Omega$   | <b>BC214L</b> |          | - | -   | 2   | dB  |
| $f=30\text{Hz}$ to $15\text{KHz}$                                 |               |          |   |     |     |     |

**BC212L, BC212LA, BC212LB**  
**BC214L, BC214LB, BC214LC**

| <b>Characteristic</b>            |               | <b>Symbol</b> | <b>Min</b> | <b>Typ</b> | <b>Max</b> | <b>Unit</b> |
|----------------------------------|---------------|---------------|------------|------------|------------|-------------|
| <i>Small Signal Current Gain</i> |               |               |            |            |            |             |
| $I_C=2mA, V_{CE}=5V, f=1KHz$     | <b>BC212L</b> | $h_{fe}$      | 60         | -          | -          | -           |
|                                  | <b>BC214L</b> |               | 140        | -          | -          | -           |
|                                  | <b>A</b>      |               | 100        | -          | 300        | -           |
|                                  | <b>B</b>      |               | 200        | -          | 400        | -           |
|                                  | <b>C</b>      |               | 350        | -          | 600        | -           |

\* Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

## Notes

### Disclaimer

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