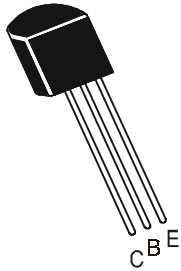


SILICON PLANAR EPITAXIAL TRANSISTORS



BC 307, A, B, C
 BC 308, A, B, C
 BC 309, A, B, C

TO-92
 Plastic Package

General Purpose Transistors Deisgned For Small Signal Amplification

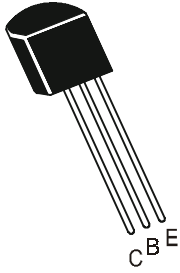
From DC To Low Radio Frequencies

ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL | BC307 | BC308 | BC309 | UNITS |
|--|----------------|-------|-------------|-------|-------|
| Collector Emitter Voltage | V_{CEO} | 45 | 25 | 25 | V |
| Collector Base Voltage | V_{CBO} | 50 | 30 | 30 | V |
| Emitter Base Voltage | V_{EBO} | 5 | 5 | 5 | V |
| Collector Current Continuous | I_C | | 100 | | mA |
| Power Dissipation@ Ta=25°C | P_D | | 350 | | mW |
| Derate Above 25°C | | | 2.8 | | mW/°C |
| Power Dissipation@ Tc=25°C | P_D | | 1 | | W |
| Derate Above 25°C | | | 8 | | mW/°C |
| Operating And Storage Junction Temperature Range | T_j, T_{stg} | | -55 to +150 | | °C |
| THERMAL RESISTANCE | | | | | |
| Junction to ambient | $R_{th(j-a)}$ | | 357 | | °C/W |
| Junction to case | $R_{th(j-c)}$ | | 125 | | °C/W |

SILICON PLANAR EPITAXIAL TRANSISTORS

BC 307, A, B, C
BC 308, A, B, C
BC 309, A, B, C



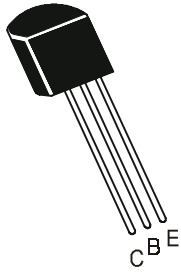
TO-92
Plastic Package

ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|--------------------------------------|---------------------|---|-----------------------------------|------|-----|---------|
| Collector Emitter Breakdown Voltage | BV_{CEO} | $I_C=2mA, I_B=0$ | | | | |
| | BC307 | | 45 | | | V |
| | BC308, BC309 | | 25 | | | V |
| Emitter Base Breakdown Voltage | BV_{EBO} | $I_E=100\mu A, I_C=0$ | 5 | | | V |
| Collector Emitter Leakage Current | BC307 | I_{CES} $V_{CES}=50V, V_{BE}=0$ | | | 15 | nA |
| | BC308, BC309 | $V_{CES}=30V, V_{BE}=0$ | | | 15 | nA |
| | BC307 | $V_{CES}=50V, V_{BE}=0,$ $T_A=125^\circ C$ | | | 4 | μA |
| | BC308, BC309 | $V_{CES}=30V, V_{BE}=0,$ $T_A=125^\circ C$ | | | 4 | μA |
| | DC Current Gain | A | h_{FE} $I_C=10\mu A, V_{CE}=5V$ | | 90 | |
| | B | | | 150 | | |
| | C | | | 270 | | |
| | BC307, BC308, BC309 | $I_C=2mA, V_{CE}=5V$ | 120 | | 800 | |
| | A | | 120 | 170 | 220 | |
| | B | | 200 | 290 | 460 | |
| | C | | 420 | 500 | 800 | |
| | A | $I_C=2mA, V_{CE}=5V^*$ | | 120 | | |
| | B | | | 180 | | |
| | C | | | 300 | | |
| Collector Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C=10mA, I_B=0.5mA$ | | 0.10 | 0.3 | V |
| | | $I_C=100mA, I_B=5mA$ | | 0.25 | | V |
| Base Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C=10mA, I_B=0.5mA$ | | 0.7 | | V |
| | | $I_C=100mA, I_B=5mA$ | | 1.0 | | V |
| Base Emitter On Voltage | $V_{BE(on)}$ | $I_C=2mA, V_{CE}=5V$ | 0.55 | 0.62 | 0.7 | V |

SILICON PLANAR EPITAXIAL TRANSISTORS

BC 307, A, B, C
BC 308, A, B, C
BC 309, A, B, C



TO-92
Plastic Package

ELECTRICAL CHARACTERISTICS (Ta=25°C unless specified otherwise)

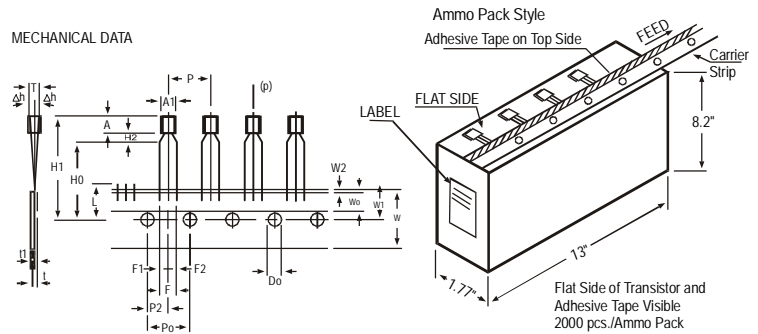
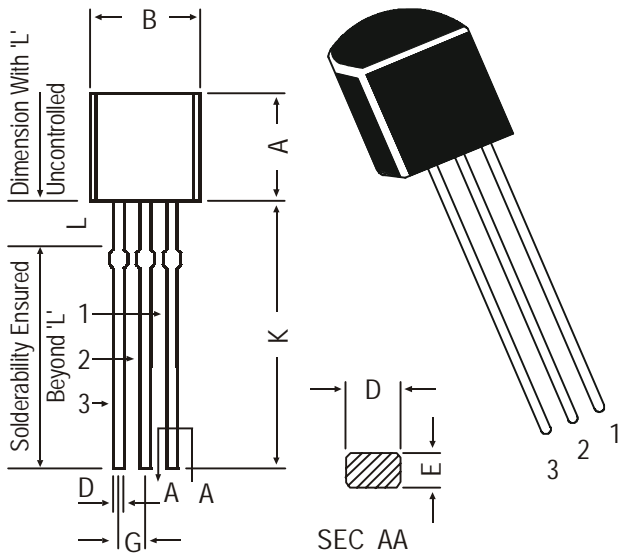
| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|--------------------------------|--------------|---------------------|--------------------------------|-----|-----|-------|
| DYNAMIC CHARACTERISTICS | | | | | | |
| Transition Frequency | | f_T | $I_C=10mA, V_{CE}=5V$ | | | |
| | BC307 | | $f=50MHz$ | 280 | | MHz |
| | BC308 | | | 320 | | MHz |
| | BC309 | | | 360 | | MHz |
| Collector Base Capacitance | C_{cbo} | $V_{CB}=10V, I_E=0$ | | | 6 | pF |
| Noise Figure | | | $f=1MHz$ | | | |
| | BC 309 | NF | $I_C=0.2mA, V_{CE}=5V$ | 2 | 4 | dB |
| | | | $R_g=2K\Omega f=30Hz$ to 15KHz | | | |
| | BC307, BC308 | | $f=1KHz, B=200Hz$ | 2 | 10 | dB |
| | BC309 | | $R_S=2K\Omega f=30Hz$ to 15KHz | 2 | 4 | dB |

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

TO-92
 Plastic Package

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

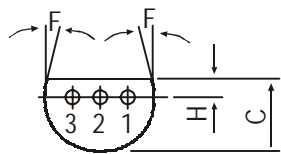
| ITEM | SYMBOL | SPECIFICATION | | | | REMARKS |
|--------------------------------------|--------|---------------|------|-------|--------------|--|
| | | MIN. | NOM. | MAX. | TOL. | |
| BODY WIDTH | A1 | 4.0 | | 4.8 | | |
| BODY HEIGHT | A | 4.8 | | 5.2 | | |
| BODY THICKNESS | T | 3.9 | | 4.2 | | |
| PITCH OF COMPONENT | P | | 12.7 | | | |
| FEED HOLE PITCH | Po | | 12.7 | | ±0.3 | CUMULATIVE PITCH ERROR 1.0 mm/20 PITCH |
| FEED HOLE CENTRE TO COMPONENT CENTRE | P2 | | 6.35 | | ±0.4 | TO BE MEASURED AT BOTTOM OF CLINCH |
| DISTANCE BETWEEN OUTER LEADS | F | | 5.08 | | +0.6 | |
| COMPONENT ALIGNMENT | Δh | | 0 | 1 | -0.2 | AT TOP OF BODY |
| TAPE WIDTH | W | | 18 | | ±0.5 | |
| HOLD-DOWN TAPE WIDTH | Wo | | 6 | | ±0.2 | |
| HOLE POSITION | W1 | | 9 | | +0.7 -0.5 | |
| HOLD-DOWN TAPE POSITION | W2 | | 0.5 | | ±0.2 | |
| LEAD WIRE CLINCH HEIGHT | Ho | | 16 | | ±0.5 | |
| COMPONENT HEIGHT | H1 | | | 23.25 | | |
| LENGTH OF SNIPPED LEADS | L | | | 11.0 | | |
| FEED HOLE DIAMETER | Do | | 4 | | ±0.2 | |
| TOTAL TAPE THICKNESS | t | | | 1.2 | | 11 0.3 - 0.6 |
| LEAD - TO - LEAD DISTANCE F1, F2 | F1, F2 | | 2.54 | | +0.4 -0.1 | |
| CLINCH HEIGHT | H2 | | | 3 | | |
| PULL - OUT FORCE | (P) | 6N | | | | |

NOTES

1. MAXIMUM ALIGNMENT DEVIATION BETWEEN LEADS NOT TO BE GREATER THAN 0.2 mm.
2. MAXIMUM NON-CUMULATIVE VARIATION BETWEEN TAPE FEED HOLES SHALL NOT EXCEED 1 mm IN 20 PITCHES.
3. HOLDDOWN TAPE NOT TO EXCEED BEYOND THE EDGE(S) OF CARRIER TAPE AND THERE SHALL BE NO EXPOSURE OF ADHESIVE.
4. NO MORE THAN 3 CONSECUTIVE MISSING COMPONENTS ARE PERMITTED.
5. A TAPE TRAILER, HAVING AT LEAST THREE FEED HOLES ARE REQUIRED AFTER THE LAST COMPONENT.
6. SPLICES SHALL NOT INTERFERE WITH THE SPROCKET FEED HOLES.

| 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 mm.



PIN CONFIGURATION

1. EMITTER
2. BASE
3. COLLECTOR

Packing Detail

| PACKAGE | STANDARD PACK | | INNER CARTON BOX | | OUTER CARTON BOX | | |
|------------|---------------|----------------|-------------------|-----|-------------------|-----|----------|
| | Details | Net Weight/Qty | Size | Qty | Size | Qty | Gr Wt |
| TO-92 Bulk | 1K/polybag | 200 gm/1K pcs | 3" x 7.5" x 7.5" | 5K | 17" x 15" x 13.5" | 80K | 23 kgs |
| TO-92 T&A | 2K/ammo box | 645 gm/2K pcs | 12.5" x 8" x 1.8" | 2K | 17" x 15" x 13.5" | 32K | 12.5 kgs |

Disclaimer

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