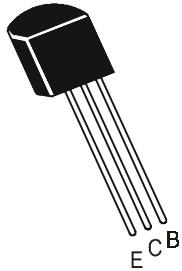


NPN SILICON PLANAR EPITAXIAL AMPLIFIER TRANSISTORS

**BC184L, BC184LB
BC184LC**



**TO-92
Plastic Package**

General Purpose Amplifier Transistors

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

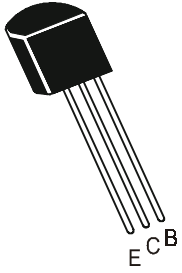
| DESCRIPTION | SYMBOL | VALUE | UNITS |
|--|----------------|-------------|-------|
| Collector -Emitter Voltage | V_{CEO} | 30 | V |
| Collector -Base Voltage | V_{CBO} | 45 | V |
| Emitter -Base Voltage | V_{EBO} | 6.0 | V |
| Collector Current Continuous | I_C | 100 | mA |
| Power Dissipation @ Ta=25°C | P_D | 350 | mW |
| Derate Above 25°C | | 2.8 | mW/°C |
| Power Dissipation @ Tc=25°C | P_D | 1.0 | W |
| Derate Above 25°C | | 8.0 | mW/°C |
| Operating And Storage Junction Temperature Range | T_j, T_{stg} | -55 to +150 | °C |
| THERMAL RESISTANCE | | | |
| Junction to Case | $R_{th(j-c)}$ | 125 | °C/W |
| Junction to Ambient | $R_{th(j-a)}$ | 357 | °C/W |

ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Specified Otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS |
|----------------------------|---------------|--------------------------|-----|-----|-----|-------|
| Collector -Emitter Voltage | V_{CEO} | $I_C=2mA, I_B=0$ | 30 | | | V |
| Collector -Base Voltage | V_{CBO} | $I_C=10\mu A, I_E=0$ | 45 | | | V |
| Emitter-Base Voltage | V_{EBO} | $I_E=100\mu A, I_C=0$ | 6 | | | V |
| Collector-Cut off Current | I_{CBO} | $V_{CB}=30V, I_E=0$ | | 0.2 | 15 | nA |
| Emitter-Cut off Current | I_{EBO} | $V_{EB}=4V, I_C=0$ | | | 15 | nA |
| DC Current Gain | h_{FE} | $I_C=10\mu A, V_{CE}=5V$ | 100 | | | |
| | BC184L | $I_C=2mA, V_{CE}=5V$ | 240 | | 800 | |
| | | $I_C=100mA, V_{CE}=5V$ | 130 | | | |

NPN SILICON PLANAR EPITAXIAL AMPLIFIER TRANSISTORS

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BC184LC**



**TO-92
Plastic Package**

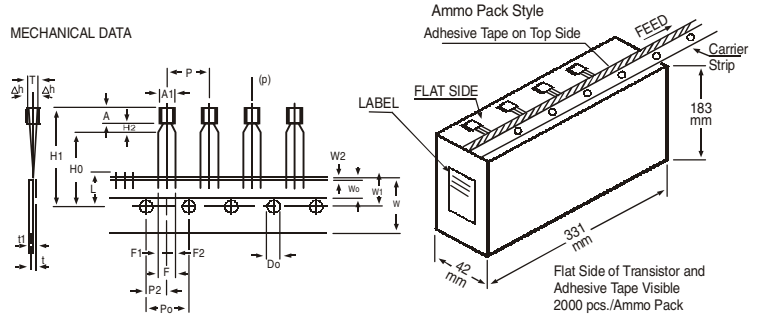
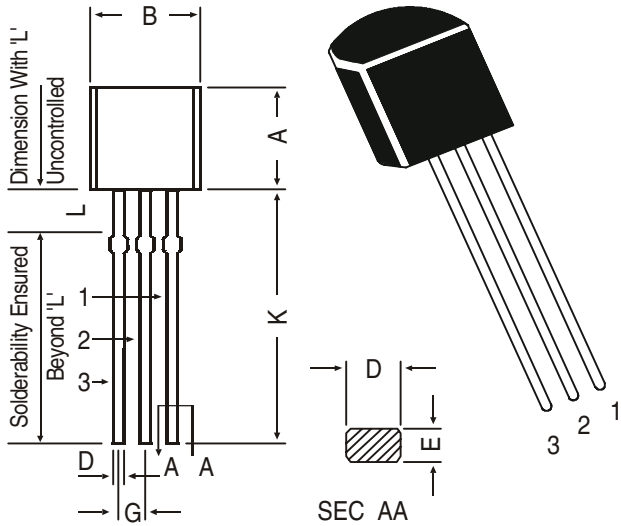
ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Specified Otherwise)

| DESCRIPTION | SYMBOL | TEST CONDITION | MIN | TYP | MAX | UNITS | | |
|---|---------------|---|------------------------------------|------|------|----------------|-----|-----|
| Collector Emitter Saturation Voltage | $V_{CE(Sat)}$ | $I_C=10mA, I_B=0.5mA$ | | 0.07 | 0.25 | V | | |
| | | $I_C=100mA, I_B=5.0mA^*$ | | 0.2 | 0.6 | V | | |
| Base Emitter Saturation Voltage | $V_{BE(Sat)}$ | $I_C=100mA, I_B=5mA^*$ | | | 1.2 | V | | |
| Base Emitter On Voltage | $V_{BE(On)}$ | $I_C=2.0mA, V_{CE}=5V$ | 0.55 | 0.62 | 0.7 | V | | |
| | | $I_C=100\mu A, V_{CE}=5V$ | | 0.5 | | V | | |
| | | $I_C=100mA, V_{CE}=5V^*$ | | 0.83 | | V | | |
| Transistors Frequency | f_T | $I_C=0.5mA, V_{CE}=3V$ $f=100MHz$ | | 140 | | MHz | | |
| | | $I_C=10mA, V_{CE}=5V$ $f=100MHz$ | 150 | 280 | | MHz | | |
| Common Base OutPut Capacitance | C_{ob} | $V_{CB}=10V, I_C=0$ $f=1MHz$ | | | 5.0 | pF | | |
| Input Capacitance | C_{ib} | $V_{BE}=0.5V, I_C=0$ $f=1MHz$ | | 8.0 | | pF | | |
| Small Signal Current Gain | BC184L | $ h_{fe} $ | $I_C=2mA, V_{CE}=5V$ $f = 1kHz$ | 240 | 900 | | | |
| | | | | | | BC184LB | 240 | 500 |
| | | | | | | BC184LC | 450 | 900 |
| Noise Figure | | $I_C=0.2mA, V_{CE}=5.0V$ $R_s=2kW, f=30Hz$ to $15kHz$ | | | 4 | dB | | |
| | | $I_C=0.2mA, V_{CE}=5.0V$ $R_s=2kW, f=1kHz$ to $F=200Hz$ | | | 4 | dB | | |

***Pulse Condition: =300us, Duty Cycle=2%**

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack



All dimensions in mm unless specified otherwise

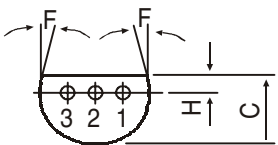
| ITEM | SYMBOL | SPECIFICATION | | | | REMARKS |
|--------------------------------------|--------|---------------|------|-------|--------------|--|
| | | MIN. | NOM. | MAX. | TOL. | |
| BODY WIDTH | A1 | 4.0 | | 4.8 | | |
| BODY HEIGHT | A | 4.8 | | 5.2 | | |
| BODY THICKNESS | T | 3.9 | | 4.2 | | |
| PITCH OF COMPONENT | P | | 12.7 | | ±1 | |
| 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 -0.2 | |
| COMPONENT ALIGNMENT | Δh | | 0 | 1 | | 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 | | t1 0.3 - 0.6 |
| LEAD - TO - LEAD DISTANCE 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. BASE
2. COLLECTOR
3. EMITTER

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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