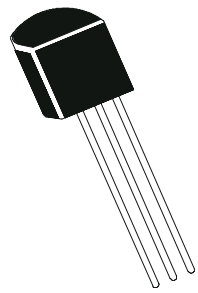


PNP SILICON PLANAR EPITAXIAL TRANSISTORS

BC 556, A, B
BC 557, 8, A, B, C
TO-92
EBC



Boca Semiconductor Corp.
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APPLICATION

PNP General Purpose Transistors, Especially Suited For Use in Driver Stages of Audio Amplifier, Low Noise Input Stages of Tape Recorders, HI-FI Amplifiers, Signal Processing Circuits of Television Receivers.

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

| DESCRIPTION | SYMBOL | BC556 | BC557 | BC558 | UNITS |
|-------------------------------|--------|-------|-------------|-------|----------|
| Collector -Emitter Voltage | VCEO | 65 | 45 | 30 | V |
| Collector -Emitter Voltage | VCES | 80 | 50 | 30 | V |
| Collector -Base Voltage | VCBO | 80 | 50 | 30 | V |
| Emitter -Base Voltage | VEBO | | 5.0 | | V |
| Collector Current Continuous | IC | | 100 | | mA |
| Peak | ICM | | 200 | | mA |
| Base Current -Peak | IBM | | 200 | | mA |
| Emitter Current- Peak | IEM | | 200 | | mA |
| Power Dissipation@ Ta=25 degC | PTA | | 500 | | mW |
| Derate Above 25 deg C | | | 4.0 | | mW/deg C |
| Storage Temperature | Tstg | | -65 to +150 | | deg C |
| Junction Temperature | Tj | | 150 | | deg C |

THERMAL RESISTANCE

| | | | | | |
|---------------------|----------|--|-----|--|---------|
| Junction to Ambient | Rth(j-a) | | 250 | | deg C/W |
|---------------------|----------|--|-----|--|---------|

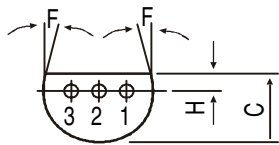
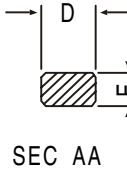
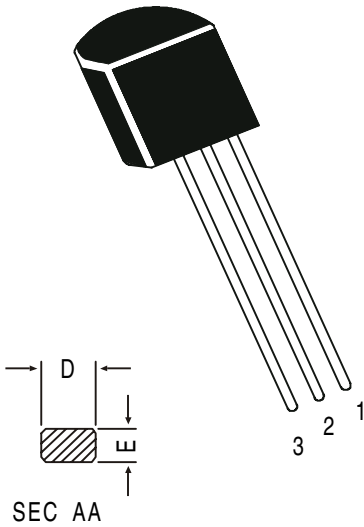
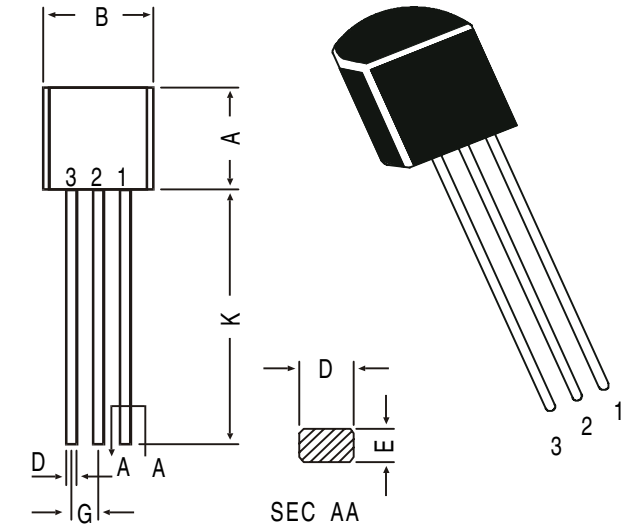
ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified)

| DESCRIPTION | SYMBOL | TEST CONDITION | BC556 | BC557 | BC558 | UNITS |
|----------------------------|--------|--------------------|-------|-------|-------|-------|
| Collector -Emitter Voltage | VCEO | IC=2mA, IB=0 | >65 | >45 | >30 | V |
| Collector -Base Voltage | VCBO | IC=100uA, IE=0 | >80 | >50 | >30 | V |
| Emitter-Base Voltage | VEBO | IE=100uA, IC=0 ALL | | >5.0 | | V |
| Collector-Cut off Current | ICBO | VCB=30V, IE=0 ALL | | <15 | | nA |
| | | Tj=150 deg C | | | | |
| | | VCB=30V, IE=0 ALL | | <5.0 | | uA |
| | ICES | VCE=80V, VBE=0 | <15 | - | - | nA |
| | | VCE=50V, VBE=0 | - | <15 | - | nA |
| | | VCE=30V, VBE=0 | - | - | <15 | nA |
| | | TJ=125 deg C | | | | |
| Collector-Cut off Current | ICES | VCE=80V, VBE=0 | <4.0 | - | - | uA |
| | | VCE=50V, VBE=0 | - | <4.0 | - | uA |
| | | VCE=30V, VBE=0 | - | - | <4.0 | uA |

| ELECTRICAL CHARACTERISTICS (Ta=25 deg C Unless Otherwise Specified) | | | BC556-558 | | |
|---|----------|---|------------------|-----------|--------|
| DESCRIPTION | SYMBOL | TEST CONDITION | | VALUE | UNITS |
| DC Current Gain | hFE | IC=10uA, VCE=5V | A | typ90 | |
| | | | B | typ150 | |
| | | | C | typ270 | |
| | | IC=2mA, VCE=5V | BC556 | 75-475 | |
| | | | BC557,8 | 75-800 | |
| | | | A | 110-220 | |
| | | | B | 200-450 | |
| | | | C | 420-800 | |
| | | | IC=100mA, VCE=5V | A | typ120 |
| B | typ200 | | | | |
| C | typ400 | | | | |
| Collector Emitter Saturation Voltage | VCE(Sat) | IC=10mA, IB=0.5mA | | <0.30 | V |
| | | IC=100mA, IB=5mA | | <0.65 | V |
| Base Emitter Saturation Voltage | VBE(Sat) | IC=10mA, IB=0.5mA | | typ0.70 | V |
| | | IC=100mA, IB=5mA | | typ0.90 | V |
| Base Emitter on Voltage | VBE(on) | IC=2mA, VCE=5V | | 0.55-0.70 | V |
| | | IC=10mA, VCE=5V | | <0.82 | V |
| <u>DYNAMIC CHARACTERISTICS</u> | | | | | |
| Transistors Frequency | ft | IC=10mA, VCE=5V f=100MHz | | typ150 | MHz |
| Collector out-put Capacitance | Ccbo | VCB=10V, f=1MHz | | <6.0 | pF |
| Emitter Input Capacitance | Cib | VEB=0.5V, f=1MHz | | typ9.0 | pF |
| Noise Figure | NF | IC=0.2mA, VCE=5V Rs=2kohm, f=1kHz B=200Hz | | <10 | dB |
| Small Signal Current Gain | hfe | ALL f=1KHz IC=2mA, VCE=5V | A | typ220 | |
| | | | B | typ330 | |
| | | | C | typ600 | |
| | | | A | 1.6-4.5 | khoms |
| Input Impedance | hie | IC=2mA, VCE=5V | B | 3.2-8.5 | |
| | | | C | 6.0-15 | |
| | | | A | typ1.5 | X`10-4 |
| Voltage Feedback Ratio | hre | IC=2mA, VCE=5V | B | typ2.0 | |
| | | | C | typ3.0 | |
| | | | A | <30 | umhos |
| Out put Adimttance | hoe | IC=2mA, VCE=5V | B | <60 | |
| | | | C | <110 | |
| | | | A | <30 | umhos |

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TO-92 Plastic Package

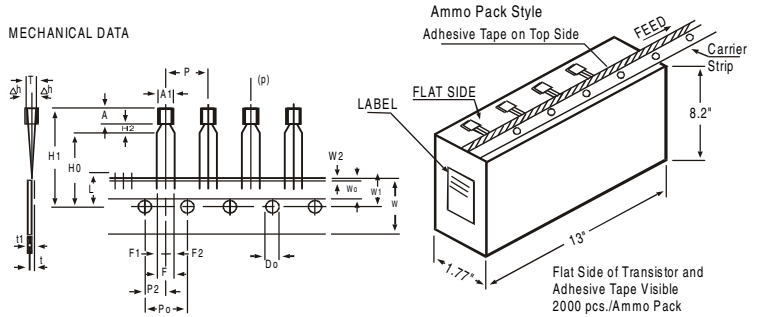


PIN CONFIGURATION
 1. EMITTER
 2. BASE
 3. COLLECTOR

All dimensions in mm.

| 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 | — |

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 | t1 0.3 - 0.6 |
| TOTAL TAPE THICKNESS | t | | | 1.2 | | |
| 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.

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