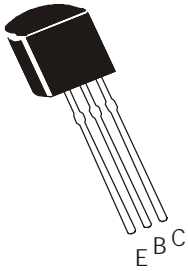




PNP SILICON PLANAR EPITAXIAL TRANSISTORS

**PN4354
PN4355
PN4356**



**TO-92
Plastic Package**

General Purpose Amplifiers

| DESCRIPTION | SYMBOL | 4354 | 4355 | 4356 | UNITS |
|--|----------------|------|-------------|------|-------|
| Collector Emitter Voltage | V_{CEO} | 60 | 60 | 80 | V |
| Collector Base Voltage | V_{CBO} | 60 | 60 | 80 | V |
| Emitter Base Voltage | V_{EBO} | | 5 | | V |
| Collector Current - Continuous | I_C | | 500 | | mA |
| Power Dissipation@Ta=25°C | P_D | | 625 | | mW |
| Power Dissipation@ Tc=25°C | P_D | | 1.0 | | mW |
| Operating And Storage Junction Temperature Range | T_j, T_{stg} | | -55 to +150 | | °C |

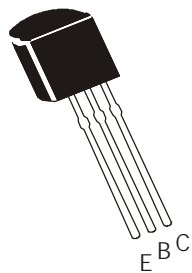
ELECTRICAL CHARACTERISTICS (Ta=25°C Unless Otherwise Specified)

| DESCRIPTION | SYMBOL | TEST CONDITION | 4354 | 4355 | 4356 | UNITS |
|--|-----------------|---|----------------------|-----------------------|----------------------|-------|
| Collector Emitter Voltage | $V_{CEO(sus)*}$ | $I_C=10mA, I_B=0$ (pulsed) | >60 | >60 | >80 | V |
| Collector Base Voltage | V_{CBO} | $I_C=10\mu A, I_E=0$ | >60 | >60 | >80 | V |
| Emitter Base Voltage | V_{EBO} | $I_E=10\mu A, I_C=0$ | | >5 | | V |
| Collector-Cut off Current | I_{CBO} | $V_{CB}=50V, I_E = 0$ $V_{CB}=50V, I_E = 0,$ $T_a =75^\circ C$ | | | <50 | nA |
| Emitter Cut off Current | I_{EBO} | $V_{BE} =4V, I_C= 0$ | | | <100 | nA |
| DC Current Gain | $h_{FE} *$ | $V_{CE}=10V, I_C=100\mu A$ $V_{CE}=10V, I_C=1mA$ $V_{CE}=10V, I_C=10mA$ $V_{CE}=10V, I_C=100mA$ $V_{CE}=10V, I_C=500mA$ | >25 >40 50-500 | >60 >75 100-400 | >25 >40 50-250 | |
| Common Emitter Small Signal Current Gain | $ h_{fe} $ | $I_C=50mA, V_{CE}=10V$ $f=100MHz$ | 1.0-5.0 | 1.0 - 1.5 | 1.0 - 5.0 | |
| Collector Emitter Sat Voltage | $V_{CE(sat) *}$ | $I_C=150mA, I_B=15mA$ $I_C=500mA, I_B=50mA$ PN4355 $I_C=1A, I_B=100mA$ | <0.15 <0.5 | <0.15 <0.5 <1.0 | <0.15 <0.5 | V |

PNP SILICON PLANAR EPITAXIAL TRANSISTORS

PN4354
PN4355
PN4356

TO-92
Plastic Package



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

| DESCRIPTION | SYMBOL | TEST CONDITION | 4354 | 4355 | 4356 | UNITS |
|--------------------------|-----------------|--------------------------|------|------|------|-------|
| Base Emitter Sat Voltage | $V_{BE(sat)}$ * | $I_C=150mA, I_B=15mA$ | <0.9 | <0.9 | <0.9 | V |
| | | $I_C=500mA, I_B=50mA$ | <1.1 | <1.1 | <1.1 | V |
| | | $I_C=1A, I_B=100mA$ | | <1.2 | | V |
| | PN4355 | | | | | |
| Base Emitter On Voltage | $V_{BE(on)}$ * | $I_C=500mA, V_{CE}=0.5V$ | <1.1 | <1.1 | <1.1 | V |
| | | $I_C=1A, V_{CE}=1V$ | | <1.2 | | V |
| | PN4355 | | | | | |

| SMALL-SIGNAL | SYMBOL | TEST CONDITION | 4354 | 4355 | 4356 | UNITS |
|--------------|--------|----------------|------|------|------|-------|
|--------------|--------|----------------|------|------|------|-------|

DYNAMIC CHARACTERISTICS

| | | | | | | |
|-------------------------------|-----------|--|------|------|------|----|
| Collector to Base Capacitance | C_{cb} | $I_E=0, V_{CB}=10V,$ $f=1.0MHz$ | <30 | <30 | <30 | pF |
| | | | | | | |
| Emitter to Base Capacitance | C_{eb} | $I_C=0, V_{EB}=0.5V,$ $f=1.0MHz$ | <110 | <110 | <110 | pF |
| | | | | | | |
| Turn On Time | t_{on} | $I_C=500mA, I_{B1}=50mA,$ $V_{CC}=30V$ | <100 | <100 | <100 | pF |
| | | | | | | |
| Turn off Time | t_{off} | $I_C=500mA, I_{B1}=I_{B2}=50mA,$ $V_{CC}=30V$ | <400 | <400 | <400 | ns |
| | | | | | | |
| Noise Figure | NF | $V_{CE}=10V, I_C=100uA$ | <3.0 | <3.0 | <3.0 | dB |
| | | $R_S=1K\Omega, f=1kHz,$ | | | | |
| | | $B_W=1Hz$ | | | | |

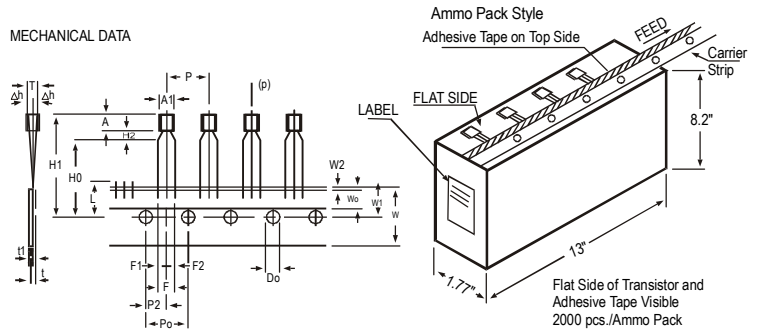
*Pulse Condition: = 300us, Duty Cycle = 1%.

**PN4354
PN4355
PN4356**

**TO-92
Plastic Package**

TO-92 Plastic Package

TO-92 Transistors on Tape and Ammo Pack

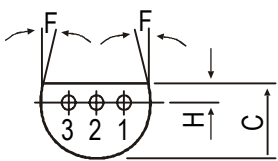
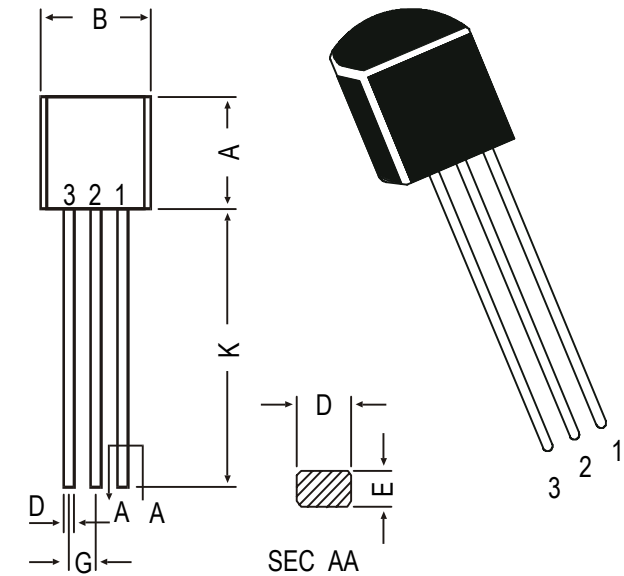


All dimensions in mm unless specified otherwise

| 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 | | ±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 | W0 | | 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.



- PIN CONFIGURATION**
1. COLLECTOR
 2. BASE
 3. EMITTER

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 | — |

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" | 5.0K | 17" x 15" x 13.5" | 80.0K | 23 kgs |
| TO-92 T&A | 2K/ammo box | 645 gm/2K pcs | 12.5" x 8" x 1.8" | 2.0K | 17" x 15" x 13.5" | 32.0K | 12.5 kgs |