

GERMANIUM POWER TRANSISTORS

| Type Number | Case Type | V_{CBO} V | V_{CEO} V | V_{EBO} V | V_{CER} V | V_{CES} V | CURRENT GAIN | | | SATURATION VOLTAGES | | | |
|----------------|--------------|----------------|----------------|----------------|----------------|----------------|------------------|------------------|-----------------------|---------------------|------------------|--------------------|------------------------|
| | | | | | | | h_{FE} Min. | h_{FE} Max. | $V_{CE} @ I_C$ V A | $V_{CE(1)}$ V | $V_{BE(1)}$ V | $I_C @ I_B$ A A | θ_{J-C} °C/W |

10 AMP GERMANIUM PNP (Cont.)

| | | | | | | | | | | | | | | | |
|---------|--------|-----|-----|------|-----|----|----|-----|-----|------|------|------|------|-------|------|
| 2N629 | TO-3 | 80 | | 40.0 | | 60 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N630 | TO-3 | 100 | | 50.0 | | 75 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1073 | TO-3 | 40 | | .8 | 40 | | 20 | 60 | 2.0 | 5.0 | 1.00 | | 5.0 | .500 | 1.20 |
| 2N1073A | TO-3 | 80 | | .8 | 80 | | 20 | 60 | 2.0 | 5.0 | 1.00 | | 5.0 | .500 | 1.20 |
| 2N1073B | TO-3 | 120 | | .8 | 120 | | 20 | 60 | 2.0 | 5.0 | 1.00 | | 5.0 | .500 | 1.20 |
| 2N1430 | TO-41* | 120 | 100 | 1.0 | | | 30 | 120 | 2.0 | 5.0 | .40 | .90 | 10.0 | 1.000 | 1.20 |
| 2N2212 | TO-41* | 120 | 60 | 1.5 | 120 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | .80 |
| 2N2288 | TO-3 | 40 | 30 | .8 | 40 | | 20 | 60 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2289 | TO-3 | 80 | 50 | .8 | 80 | | 20 | 60 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2290 | TO-3 | 120 | 70 | .8 | 120 | | 20 | 60 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2291 | TO-3 | 40 | 30 | .8 | 40 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2292 | TO-3 | 80 | 50 | .8 | 80 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2293 | TO-3 | 120 | 70 | .8 | 120 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2294 | TO-41* | 40 | | .8 | 40 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2295 | TO-41* | 80 | | .8 | 80 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2296 | TO-41* | 120 | | .8 | 120 | | 50 | 120 | 2.0 | 5.0 | 1.00 | 1.00 | 5.0 | .500 | 1.20 |
| 2N2444 | TO-3 | 80 | 80 | 1.0 | | | 75 | 120 | 2.0 | 3.0 | 1.00 | 1.50 | 5.0 | .500 | 1.00 |
| 2N2869 | TO-3 | 60 | 50 | 10.0 | | | 50 | 165 | 2.0 | 1.0 | .75 | | 5.0 | .500 | 1.50 |
| 2N2870 | TO-3 | 80 | 50 | 10.0 | | | 50 | 165 | 2.0 | 1.0 | .50 | | 5.0 | .500 | 1.50 |
| 2N5156 | TO-3 | 100 | 60 | 60.0 | | | 25 | 60 | 2.0 | 5.0 | 1.00 | 1.80 | 10.0 | 1.000 | .80 |

*TO-3 with solder lugs

12 AMP GERMANIUM PNP

| | | | | | | | | | | | | | | | |
|--------|-------|----|----|------|--|----|----|----|-----|-----|-----|--|------|-------|------|
| 2N173 | TO-36 | 60 | 50 | 40.0 | | 50 | 35 | 70 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | 1.00 |
| 2N174A | TO-36 | 80 | 55 | 60.0 | | 70 | 25 | 70 | 2.0 | 5.0 | .90 | | 12.0 | 2.000 | .80 |
| 2N441 | TO-36 | 40 | 40 | 20.0 | | 40 | 20 | 40 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | 1.00 |
| 2N442 | TO-36 | 50 | 45 | 30.0 | | 45 | 20 | 40 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | 1.00 |
| 2N443 | TO-36 | 60 | 55 | | | 50 | 20 | 40 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | 1.00 |

15 AMP GERMANIUM PNP

| | | | | | | | | | | | | | | | |
|---------|-------|-----|----|------|--|----|----|-----|-----|------|------|--|------|-------|------|
| 2N278 | TO-36 | 50 | 45 | 30.0 | | 45 | 35 | 70 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | 1.00 |
| 2N677 | TO-3 | 50 | 20 | 25.0 | | 30 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N677A | TO-3 | 60 | 30 | 25.0 | | 40 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N677B | TO-3 | 90 | 60 | 25.0 | | 70 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N677C | TO-3 | 100 | 70 | 25.0 | | 80 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N678 | TO-3 | 50 | 20 | 25.0 | | 30 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N678A | TO-3 | 60 | 30 | 25.0 | | 40 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N678B | TO-3 | 90 | 60 | 25.0 | | 70 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N678C | TO-3 | 100 | 70 | 25.0 | | 80 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1031 | TO-3 | 50 | | 10.0 | | 30 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1031A | TO-3 | 60 | | 15.0 | | 40 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1031B | TO-3 | 90 | | 15.0 | | 70 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1031C | TO-3 | 100 | | 15.0 | | 80 | 20 | 60 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1032 | TO-3 | 50 | | 10.0 | | 30 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1032A | TO-3 | 60 | | 15.0 | | 40 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1032B | TO-3 | 90 | | 15.0 | | 70 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1032C | TO-3 | 100 | | 15.0 | | 80 | 50 | 100 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1099 | TO-36 | 80 | 55 | 40.0 | | 70 | 35 | 70 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | .80 |
| 2N1100 | TO-36 | 100 | 65 | 80.0 | | 80 | 25 | 50 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | .80 |
| 2N1120 | TO-3 | 80 | | 40.0 | | 70 | 20 | 50 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | 1.50 |
| 2N1146 | TO-3 | 40 | | 30.0 | | 30 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1146A | TO-3 | 60 | | 30.0 | | 40 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 4.0 | .200 | 2.50 |
| 2N1146B | TO-3 | 80 | | 30.0 | | 60 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 10.0 | 1.000 | 2.50 |
| 2N1146C | TO-3 | 100 | | 30.0 | | 75 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1147 | TO-3 | 40 | | 30.0 | | 30 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1147A | TO-3 | 60 | | 30.0 | | 40 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1147B | TO-3 | 80 | | 30.0 | | 60 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1147C | TO-3 | 100 | | 30.0 | | 75 | 60 | 150 | 2.0 | 5.0 | 1.00 | | 15.0 | 1.000 | .80 |
| 2N1358 | TO-36 | 80 | 40 | 60.0 | | 70 | 25 | 50 | 2.0 | 5.0 | .30 | | 12.0 | 2.000 | .80 |
| 2N1412 | TO-36 | 100 | 65 | 60.0 | | 80 | 25 | 50 | 2.0 | 5.0 | .70 | | 12.0 | 2.000 | .80 |
| 2N1412A | TO-3 | 40 | | 20.0 | | 30 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1549 | TO-3 | 40 | | 20.0 | | 30 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1549A | TO-3 | 60 | | 30.0 | | 45 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1550 | TO-3 | 60 | | 30.0 | | 45 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1550A | TO-3 | 60 | | 30.0 | | 45 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1551 | TO-3 | 80 | | 40.0 | | 60 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1551A | TO-3 | 80 | | 40.0 | | 60 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1552 | TO-3 | 100 | | 50.0 | | 75 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1552A | TO-3 | 100 | | 50.0 | | 75 | 10 | 30 | 2.0 | 10.0 | 1.00 | | 10.0 | 1.000 | .80 |
| 2N1553 | TO-3 | 40 | 20 | 20.0 | | 30 | 30 | 60 | 2.0 | 10.0 | .50 | | 10.0 | 1.000 | .80 |

CASE OUTLINE DRAWINGS & DIMENSIONS

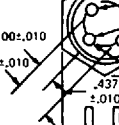
Technical drawing of a mechanical part showing front and top views with dimensions.

Front View Dimensions:

- Overall width: .335
- Top width: .370
- Inner width: .305
- Inner width: .335
- Right side height: .260
- Right side height: .240
- Left side height: .009
- Left side height: .125
- Bottom flange height: .019
- Bottom flange height: .016
- Minimum distance: 1.50 MIN

Top View Dimensions:

- Overall width: .200
- Right side width: .100
- Right side width: .029
- Right side width: .045
- Bottom left width: .034
- Bottom left width: .028
- Angle: 45°



Technical drawing of a hex head screw. The drawing includes a side view and a top view. Key dimensions and callouts are as follows:

- UNDERCUT** 1.0" $.093 \pm .010$
- 500** $\pm .015$ MAX.
- 1.500 MIN.**
- 1/2 20 UNF 2A**
- NOTE 1**
- 1000 $\pm .010$**
- .025 $\pm .003$**
- E**
- .875 MAX.**
- .200 $\pm .010$**
- .100 $\pm .010$**
- B**
- C**
- .750 $\pm .010$**
- NOTE 1:**
 THREAD RELIEF IS .080 MAX.
 BY .430 DIA.
 NOMINAL.

Technical drawing of a mechanical part showing two views: a top view and a front view.

Top View Dimensions:

- Overall width: .875 MAX
- Central hole diameter: .135 MAX
- Hole spacing (center-to-center): 1.197
- Inner hole diameter: .062
- Inner hole tolerance: .058
- Side hole diameter: .186 MAX BOTH ENDS
- Side hole position: .161 / .151
- Fillet radius: .525 R MAX

Front View Dimensions:

- Top flange thickness: .450
- Base thickness: .250
- Central hole diameter: .062
- Central hole tolerance: .058
- Seating plane indicated

Technical drawing of a mechanical part showing front and top views with dimensions.

Front View Dimensions:

- Top width: .875 MAX.
- Top thickness: .250
- Shoulder thickness: .450
- Base thickness: .560
- Base width: .500
- Base width at bottom: .581
- Internal hole diameter: .135 MAX.

Top View Dimensions:

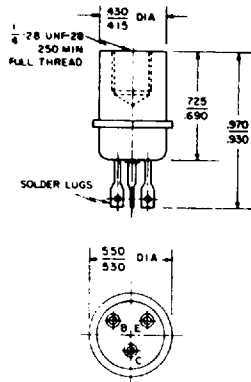
- Overall width: 1.177
- Overall depth: .675
- Distance from center to hole center: .197
- Distance from center to hole center: .655
- Distance from center to hole center: .675
- Radius of outer arc: 188 R MAX.
- Radius of inner arc: .525 MAX. RAD.
- Distance from center to hole center: .125
- Distance from center to hole center: .210
- Distance from center to hole center: .420
- Distance from center to hole center: .340
- Distance from center to hole center: .151
- Distance from center to hole center: .161
- Distance from center to hole center: .205
- Distance from center to hole center: .275

Technical drawing of a 2N3638 PNP silicon NPN transistor. The top view shows a cylindrical package with dimensions: 1.250 DIA MAX., 1.005 DIA MAX., .210, .180, .360 MAX., .500, .375, .312 MAX., .210, .610, and 10-32 UNF-2A. The bottom view shows a circular base with dimensions: .140 DIA. MAX., .137, .123, .345 R, and labels for BASE, EMITTER, and BASIC.

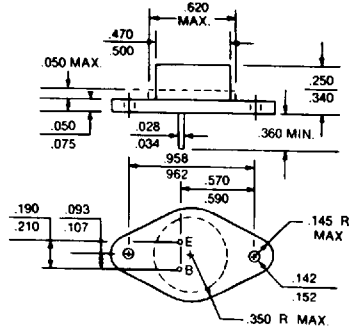
GERMANIUM POWER TRANSISTORS

CASE OUTLINE DRAWINGS & DIMENSIONS

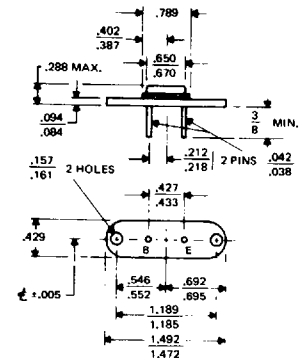
TO-13



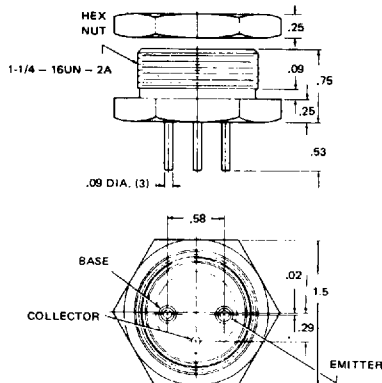
TO-66



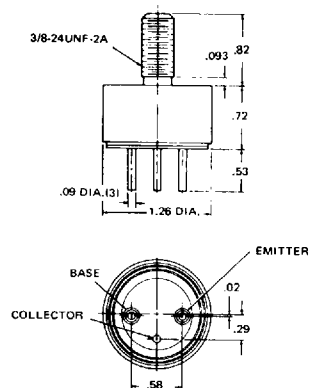
MS-7



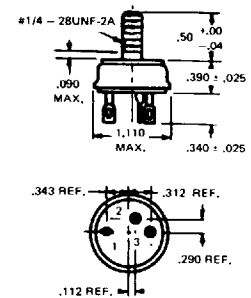
MT-22



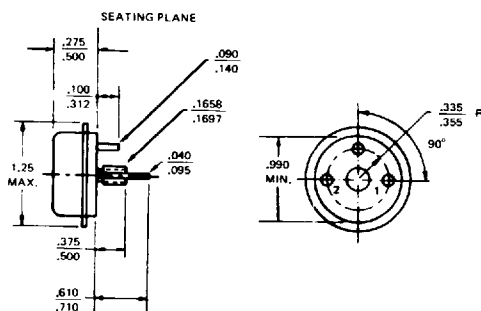
MT-23



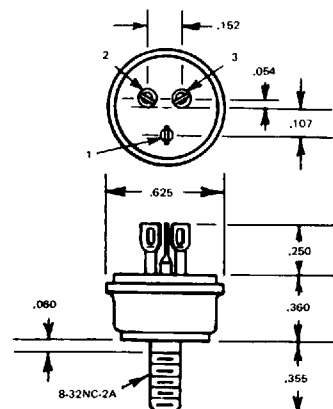
MT-7



TO-68



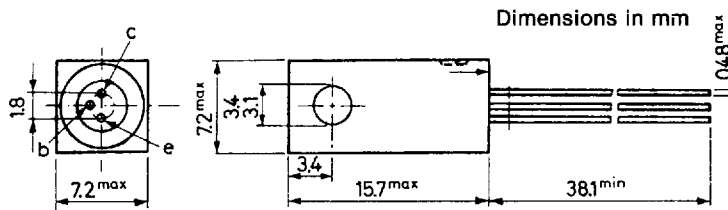
MT-36



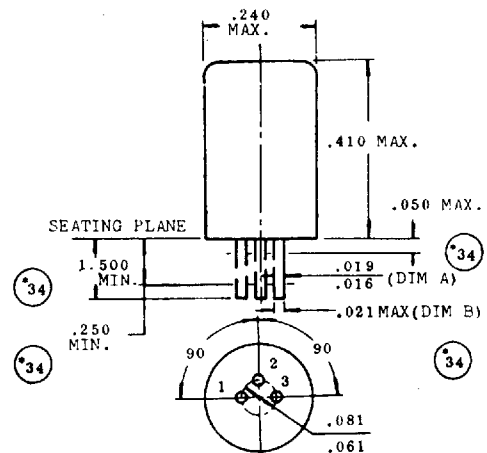
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CASE OUTLINE DRAWINGS & DIMENSIONS

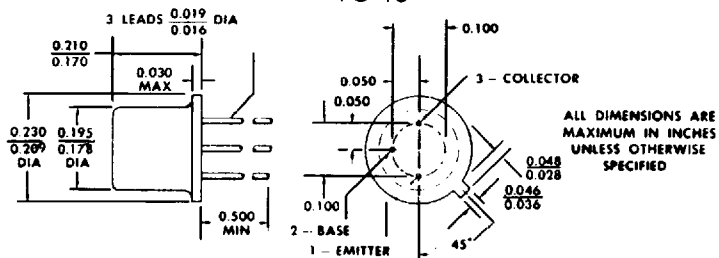
NS257



TO-1



TO-18



THE COLLECTOR IS ELECTRICAL CONTACT WITH THE CASE.

ALL JEDEC TO-18 DIMENSIONS AND NOTES ARE APPLICABLE.



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