

# GERMANIUM POWER TRANSISTORS

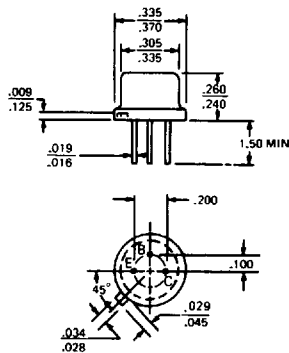
| Type<br>Number      | Case<br>Type | $V_{CBO}$<br>V | $V_{CEO}$<br>V | $V_{EBO}$<br>V | $V_{CER}$<br>V | $V_{CES}$<br>V | CURRENT GAIN |                  |                     |                  | SATURATION VOLTAGES |                  |                  |      | $\theta_{J-C}$<br>°C/W |
|---------------------|--------------|----------------|----------------|----------------|----------------|----------------|--------------|------------------|---------------------|------------------|---------------------|------------------|------------------|------|------------------------|
|                     |              |                |                |                |                |                | Min.         | $h_{FE}$<br>Max. | $V_{CE} @ I_C$<br>V | $I_C @ I_B$<br>A | $V_{CE(s)}$<br>V    | $V_{BE(s)}$<br>V | $I_C @ I_B$<br>A |      |                        |
| 3 AMP GERMANIUM PNP |              |                |                |                |                |                |              |                  |                     |                  |                     |                  |                  |      |                        |
| CA2D2               | MT-36        | 20             | 20             | 1.2            |                |                | 20           |                  | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N155               | TO-3         | 30             |                | 15.0           |                |                | 24           |                  | 2.0                 | .5               | .65                 |                  | 1.0              | .100 | 3.00                   |
| 2N176               | TO-3         | 40             |                | 10.0           |                |                | 25           | 90               | 2.0                 | .5               |                     |                  |                  |      | .80                    |
| 2N235A              | TO-3         | 50             |                | 15.0           | 40             |                | 20           | 80               | 2.0                 |                  | .80                 |                  | 1.0              | .100 | 1.50                   |
| 2N236A              | TO-3         | 50             |                | 15.0           | 35             |                | 20           | 80               | 2.0                 |                  | 1.00                |                  | 3.0              | .300 | 1.50                   |
| 2N236B              | TO-3         | 50             |                | 15.0           | 35             |                | 40           | 120              | 2.0                 |                  | 1.00                |                  | 3.0              | .300 | 1.50                   |
| 2N242               | TO-3         | 45             |                | 45.0           |                |                | 30           | 90               | 2.0                 | .5               |                     |                  |                  |      | 3.00                   |
| 2N255               | TO-3         | 15             |                | 15.0           |                |                | 20           | 100              | 2.0                 | .5               | .50                 |                  | .1               | .010 | 3.00                   |
| 2N256               | TO-3         | 30             |                | 30.0           |                |                | 20           | 100              | 2.0                 | .5               | .50                 |                  | .1               | .101 | 3.00                   |
| 2N268               | TO-3         | 80             |                | 40.0           |                |                | 28           |                  | 2.0                 | .5               |                     |                  |                  |      | 1.50                   |
| 2N285A              | TO-3         | 25             |                | 15.0           | 35             |                | 38           |                  | 2.0                 |                  |                     |                  |                  |      |                        |
| 2N285B              | TO-3         | 25             |                | 15.0           | 35             |                | 38           |                  | 2.0                 |                  |                     |                  |                  |      |                        |
| 2N297A              | TO-3         | 60             | 50             | 40.0           |                | 50             | 40           | 100              | 2.0                 | .5               | 1.00                |                  | .2               | .200 | 2.00                   |
| 2N375               | TO-3         | 80             |                | 40.0           |                | 60             | 35           | 90               | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | 1.20                   |
| 2N392               | TO-3         | 60             | 40             | 40.0           |                |                | 40           | 200              | 2.0                 | 1.0              |                     |                  |                  |      | .80                    |
| 2N399               | TO-3         | 25             |                | 15.0           | 35             |                | 36           | 40               | 2.0                 |                  |                     |                  |                  |      | 1.50                   |
| 2N538               | MT-36        | 80             | 60             | 28.0           |                |                | 20           | 50               | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N538A              | MT-36        | 80             | 60             | 28.0           |                |                | 20           | 50               | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N539               | MT-36        | 80             | 55             | 28.0           |                |                | 30           | 75               | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N539A              | MT-36        | 80             | 55             | 28.0           |                |                | 30           | 75               | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N540               | MT-36        | 80             | 55             | 28.0           |                |                | 45           | 113              | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N540A              | MT-36        | 80             | 55             | 28.0           |                |                | 45           | 113              | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N554               | TO-3         | 40             |                | 10.0           | 30             |                | 25           |                  | 2.0                 |                  | .60                 |                  | 3.0              | .300 | 1.00                   |
| 2N555               | TO-3         | 30             |                | 15.0           |                | 30             | 20           |                  | 2.0                 | .5               | .40                 |                  | .3               | .300 | 1.00                   |
| 2N618               | TO-3         | 80             |                | 40.0           |                | 60             | 60           | 140              | 4.0                 | 1.0              | .80                 |                  | 2.0              | .200 | 1.20                   |
| 2N1359              | TO-3         | 50             |                | 25.0           |                | 40             | 35           | 90               | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1360              | TO-3         | 50             |                | 25.0           |                | 40             | 60           | 150              | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1362              | TO-3         | 100            |                | 50.0           |                | 75             | 35           | 90               | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1363              | TO-3         | 100            |                | 50.0           |                | 75             | 60           | 140              | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1364              | TO-3         | 120            |                | 60.0           |                | 100            | 35           | 90               | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1365              | TO-3         | 120            |                | 60.0           |                | 100            | 40           | 100              | 4.0                 | 1.0              | 1.00                |                  | 2.0              | .200 | .80                    |
| 2N1501              | MT-36        | 60             | 40             | 28.0           |                |                | 25           | 100              | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |
| 2N1502              | MT-36        | 40             | 40             | 28.0           |                |                | 25           | 100              | 2.0                 | 2.0              | .60                 |                  | 2.0              | .200 | 2.20                   |

| Type Number         | Case Type | $V_{CEO(max)}$<br>V | $V_{EBO}$<br>V | $h_{FE}$<br>@ $I_C/V_{CE}$<br>(Min-Max<br>@ A/V) | $V_{CE(sat)}$<br>@ $I_C/I_B$<br>(V@A/A) | $V_{BE}$<br>@ $I_C/V_{CE}$<br>(V@A/V) | $I_{CEV}$<br>@ $V_{CE}$<br>(mA@V) | $P_D @$<br>$T_C = 25^\circ C$<br>(watts) | $\theta_{JC}$<br>(°C/W) | $T_{J(max)}$<br>(°C) | $f_T$<br>(KHz) |
|---------------------|-----------|---------------------|----------------|--------------------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------|------------------------------------------|-------------------------|----------------------|----------------|
| 3 AMP GERMANIUM PNP |           |                     |                |                                                  |                                         |                                       |                                   |                                          |                         |                      |                |
| 2N1038              | TO-5      | 30                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@40                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N1039              | TO-5      | 40                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@60                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N1040              | TO-5      | 50                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@80                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N1041              | TO-5      | 60                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@100                           | 20                                       | 3.75                    | 100                  | 225            |
| 2N2564              | TO-5      | 30                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@40                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2565              | TO-5      | 40                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@60                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2566              | TO-5      | 50                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@80                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2567              | TO-5      | 60                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@100                           | 20                                       | 3.75                    | 100                  | 250            |
| 2N2659              | TO-5      | 30                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@50                             | 15                                       | 5.0                     | 100                  | 280            |
| 2N2660              | TO-5      | 40                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@70                             | 15                                       | 5.0                     | 100                  | 280            |
| 2N2661              | TO-5      | 50                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@90                             | 15                                       | 5.0                     | 100                  | 280            |
| 2N2665              | TO-5      | 30                  | 20             | 50-150@.5/.5                                     | .25@.5/.025                             | .6@.5/.5                              | .6@50                             | 15                                       | 5.0                     | 100                  | 300            |
| 2N2666              | TO-5      | 40                  | 20             | 50-150@.5/.5                                     | .25@.5/.025                             | .6@.5/.5                              | .6@70                             | 15                                       | 5.0                     | 100                  | 300            |
| 2N2667              | TO-5      | 50                  | 20             | 50-150@.5/.5                                     | .25@.5/.025                             | .6@.5/.5                              | .6@90                             | 15                                       | 5.0                     | 100                  | 300            |
| 2N2552              | MT-27     | 30                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@40                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N2553              | MT-27     | 40                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@60                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N2554              | MT-27     | 50                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@80                            | 20                                       | 3.75                    | 100                  | 225            |
| 2N2555              | MT-27     | 60                  | 20             | 20-60@1/.5                                       | .25@1/.1                                | 1@1/.5                                | .65@100                           | 20                                       | 3.75                    | 100                  | 225            |
| 2N2560              | MT-27     | 30                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@40                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2561              | MT-27     | 40                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@60                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2562              | MT-27     | 50                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@80                            | 20                                       | 3.75                    | 100                  | 250            |
| 2N2563              | MT-27     | 60                  | 20             | 20-60@3/1                                        | .75@3/.3                                | 1.5@3/1                               | .65@100                           | 20                                       | 3.75                    | 100                  | 250            |
| 2N2662              | MT-27     | 30                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@50                             | 15                                       | 5.0                     | 100                  | 280            |
| 2N2663              | MT-27     | 40                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@70                             | 15                                       | 5.0                     | 100                  | 280            |
| 2N2664              | MT-27     | 50                  | 20             | 30-90@.5/.5                                      | .2@.5/.05                               | .6@.5/.5                              | .6@90                             | 15                                       | 5.0                     | 100                  | 280            |

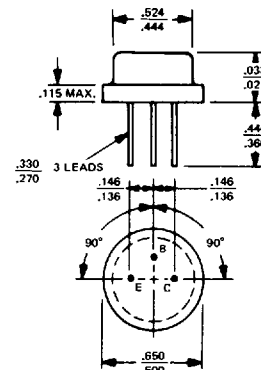
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## CASE OUTLINE DRAWINGS & DIMENSIONS

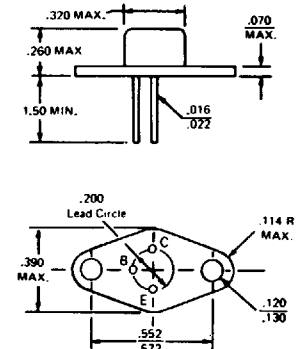
TO-5



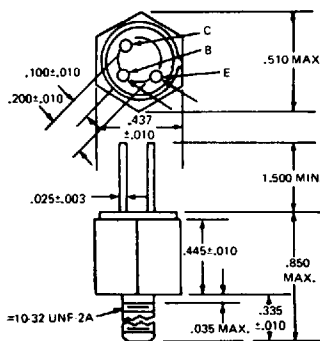
TO-8



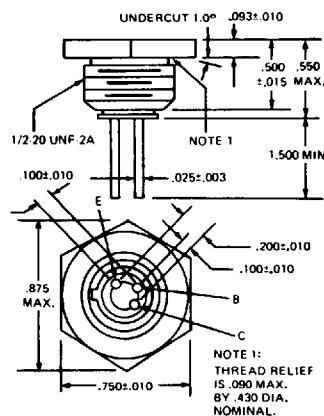
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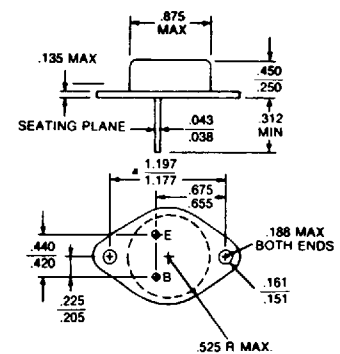
MT-27



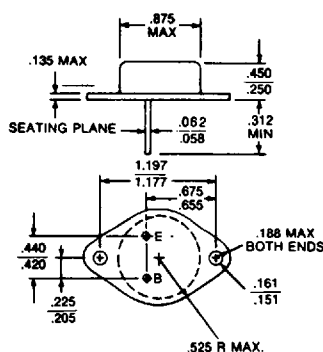
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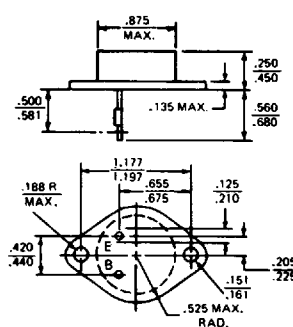
TO-3



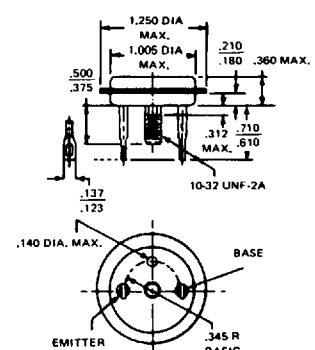
MODIFIED TO-3  
(60 mil pins)



TO-41



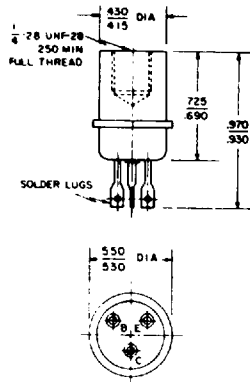
TO-36



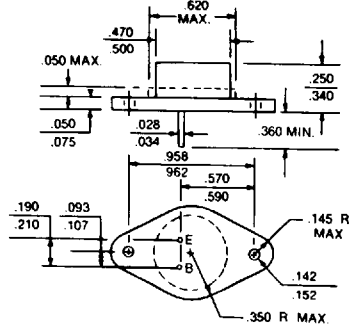
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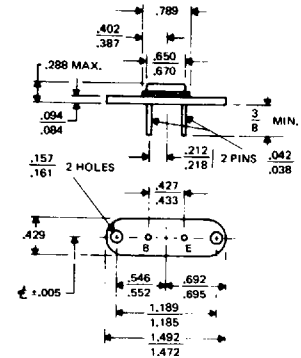
TO-13



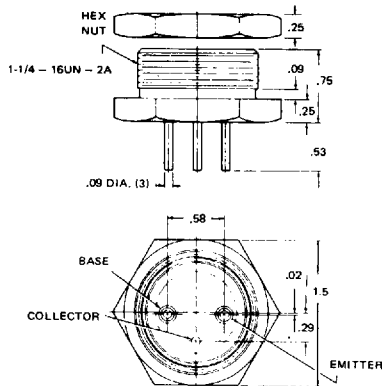
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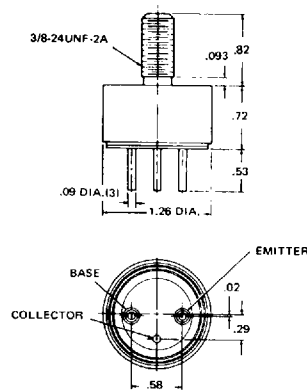
MS-7



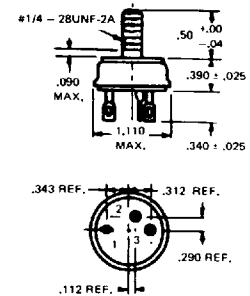
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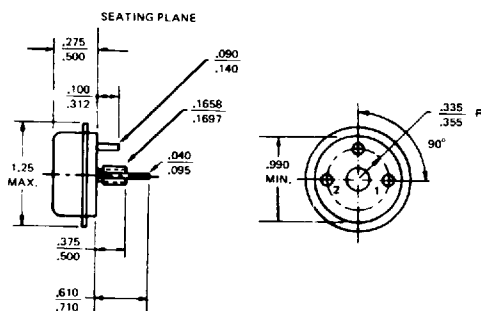
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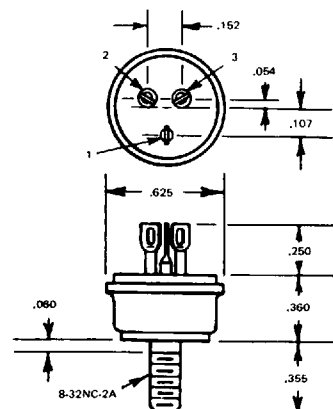
MT-7



TO-68



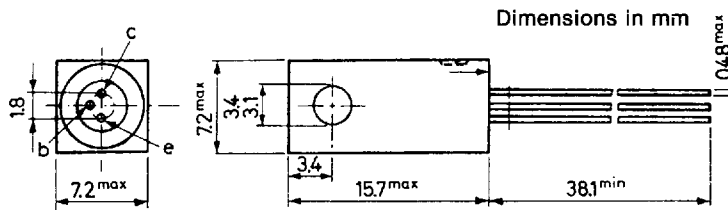
MT-36



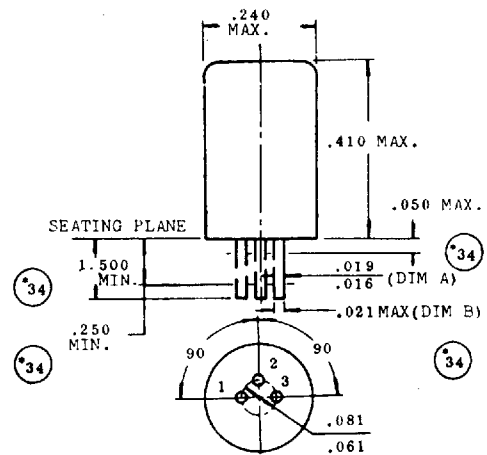
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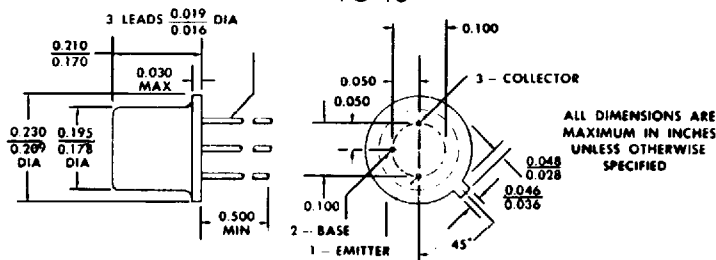
NS257



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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