

# GERMANIUM SMALL SIGNAL TRANSISTORS

## PRO ELECTRON TYPES

Type	Polar- ity	$V_{CBO}$ V Max	$V_{EBO}$ V Max	$V_{CE}$ V Max		$I_{CBO}$ @ $V_{CB}$ V $\mu A$ Max	$h_{FE}$ Min Max	@ $I_C$ mA	$C_{ob}$ pf Max	$f_{ab}$ MHz Min	Pack Outline	Power Dissipation @ 25°C mW	
ACY33	P	32	10	32		10	10	75-250	300	100	1.0	TO-1	1,000
ACY34	P	30	10	10		30	12	20-40	1 <sup>1</sup>	40	1.0 <sup>2</sup>	TO-1	200
ACY35	P	30	10	10		30	12	30-75	1 <sup>1</sup>	40	1.0 <sup>2</sup>	TO-1	200
ACY36	P	32	10	16		30	12	30-90	80	40	1.0 <sup>2</sup>	TO-1	200
ACY38	P	15	9					75-	1 <sup>1</sup>		5.0	TO-5	150
ACY39	P	110	12	40		6	10	50-150	300	40	1.0 <sup>1</sup>	TO-5	260
ACY40	P	32	12	18		6	10	30-70	300	40	1.0 <sup>1</sup>	TO-5	260
ACY41	P	32	12	18		6	10	50-250	300	40	1.0 <sup>1</sup>	TO-5	260
ACY44	P	50	12	30		6	10	40-120	300	40	1.0 <sup>1</sup>	TO-5	260
ASY26	P	30	20	15		30	7	30-80	20	16	4.0	TO-5	150
ASY27	P	25	20	15		25	7	50-150	20	16	6.0	TO-5	150
ASY28	N	30	20	15		5	3.0	30-80	20	16	4.0	TO-5	150
ASY29	N	25	20	15		5	3.0	50-150	20	16	10.0	TO-5	150
ASY48	P	64	16	45				30-150	100	40	1.2 <sup>2</sup>	TO-1	900
ASY70	P	32	16	30				30-150	100	40	1.5 <sup>2</sup>	TO-1	900
ASY76	P	40	10	32		10	10	25-130	300	60	0.5	TO-5	300
ASY77	P	60	10	60		10	10	25-130	300	60	0.5	TO-5	300
ASY80	P	40	20	40		10	10	60-165	50	60	0.7	TO-5	300
ASY81	P	60	25	35		60	15	30-100	100	25	2.0	TO-5	200
OC65	P	10	10	10		4.5	12	30-	4	40	1.0 <sup>1</sup>	TO-1	25
OC66	P	10	10	10		4.5	12	50-	4	40	1.0 <sup>1</sup>	TO-1	25
OC70	P	30	10	10		4.5	13	20-40	0.5 <sup>1</sup>	40	1.0 <sup>1</sup>	TO-1	125
OC71	P	30	10	10		4.5	13	41-	1.0 <sup>1</sup>	40	1.0 <sup>1</sup>	TO-1	125
OC72	P	32	10	16		10	10	45-120	10	40	1.0 <sup>1</sup>	TO-1	125
OC73	P	32	20	16		4.5	6	30-65	0.5 <sup>1</sup>	40	1.0 <sup>1</sup>	TO-1	125
OC74	P	20	5			9	20	60-150	50	40	1.0 <sup>1</sup>	TO-1	220
OC75	P	30	10	10		4.5	14	60-130	3 <sup>1</sup>	40	1.0 <sup>1</sup>	TO-1	125
OC76	P	32	10	16		10	10	45-	10	40	1.0 <sup>1</sup>	TO-1	125
OC77	P	60	10	15		10	10	45-	10	40	1.0 <sup>1</sup>	TO-1	125
OC78	P	20	10			10	10	20-	125	40	1.0 <sup>1</sup>	TO-1	200
OC81N	P	32	10			10	10	50-250	50	40	1.0 <sup>1</sup>	TO-1	200
OC83N	P	32	10	20		10	10	40-200	300	40	1.0 <sup>1</sup>	TO-1	220
OC84N	P	32	10	20		10	10	50-160	300	40	1.0 <sup>1</sup>	TO-1	220

<sup>1</sup>hfe

<sup>2</sup>typical

Type		$V_{CBO}$ V Max	$V_{EBO}$ V Max	$V_{CE}$ V Max		$I_{CBO}$ @ $V_{CB}$ V $\mu A$ Max	$h_{FE}$ Typical	@ $I_C$ mA	$C_{ob}$ pf Max	$f_{ab}$ MHz Min	Pack Outline	Power Dissipation @ 25°C mW
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### PNP LOW POWER

2N217		35	12	25		10	10	50-	1 <sup>1</sup>	60	1 <sup>2</sup>	TO-1	165
2N408		20	2.5	18		20	14	65-	50			TO-1	150
2N484		12				12	10	90-	1 <sup>1</sup>	12 <sup>2</sup>	10	TO-5	150
2N519		15	10	15		0.5	2.0	25-	1 <sup>1</sup>	14 <sup>2</sup>	0.5	TO-5	100
2N520		15	10	12		0.5	2.0	40-	1 <sup>1</sup>	14 <sup>2</sup>	3.0	TO-5	100
2N520A		25	10	15		0.5	2.0	40-	1 <sup>1</sup>	14 <sup>2</sup>	3.0	TO-5	150
2N522A		25	10	10		0.5	2.0	100-	1 <sup>1</sup>	14 <sup>2</sup>	15.0	TO-5	150
2N1187		65	30	45		10	10	50-	1 <sup>1</sup>		1.0	TO-5	200
2N1188		60	30	45		10	10	100-	1 <sup>1</sup>		1.2	TO-5	200
2N1729		25	20	15		3	6	30-	100	20		TO-5	150
2N1731		30	25	30		3	6	40-	10	20	5.0	TO-5	150

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### NPN LOW POWER

2N166		6				6	5	32	1.0		5.0	R5	25
2N167		30	50	30		30	1.5		1.0		8.0	OV17	65
2N169A		25	25	25		25	5			2.4 <sup>1</sup>	5.0	OV17	55
2N356		20	20	18		20	5	30	1.0	14 <sup>1</sup>	3.0	TO-5	100

## 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: .008
- Left side height: .125
- Bottom left height: .019
- Bottom left height: .016
- Bottom right height: 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 3-lead chip carrier. The top view shows a circular body with a diameter of .650. Three leads extend from the bottom, with a center-to-center distance of .146 and a lead thickness of .136. The side view shows a maximum height of .115 and a lead height of .330. The carrier has a top width of .524 and a bottom width of .444. The lead height is specified as .033, .027, .440, and .360. The carrier is labeled "3 LEADS".

Technical drawing of a hex head bolt. The drawing includes a side view at the top and an end view at the bottom. Dimensions and tolerances are specified throughout.

**Side View Dimensions:**

- UNDERCUT 1.0"  $\pm .093 \pm .010$
- Hex head height:  $.500 \pm .015$  MAX.
- Thread length: 1.500 MIN.
- Thread pitch: 1/2-20 UNF 2A
- Thread diameter:  $.025 \pm .003$
- Hex head outer diameter:  $1.00 \pm .010$

**End View Dimensions:**

- Hex head outer diameter:  $.875$  MAX.
- Hex head width across flats:  $.750 \pm .010$
- Thread diameter:  $.100 \pm .010$
- Thread pitch:  $.200 \pm .010$
- Thread relief: IS .080 MAX. BY .430 DIA. NOMINAL.

**Notes:**

- NOTE 1: THREAD RELIEF IS .080 MAX. BY .430 DIA. NOMINAL.

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:**

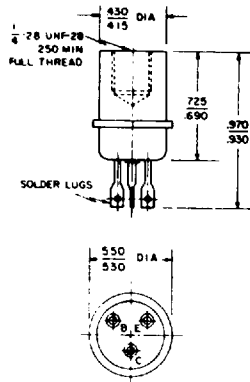
- Overall width: 1.177
- Overall depth: .675
- Inner width: .655
- Inner depth: .675
- Right side thickness: .125
- Right side thickness at bottom: .210
- Left side thickness: .420
- Left side thickness at bottom: .440
- Left side radius: 188 R MAX.
- Right side radius: .525 MAX. RAD.
- Bottom right corner radius: .151
- Bottom right corner radius at bottom: .275
- Center point labeled 'E'.
- Point labeled 'B' on the left side.
- Point labeled 'F' on the right side.

Technical drawing of a 2N4350 vacuum tube. The side view shows dimensions: 1.250 DIA. MAX., 1.005 DIA. MAX., .210 MAX., .360 MAX., .500, .375, .312 MAX., .710 MAX., .610, 10-32 UNF-2A, .137, .123, and .140 DIA. MAX. The end view shows the BASE, 345 R BASIC, and EMITTER pins.

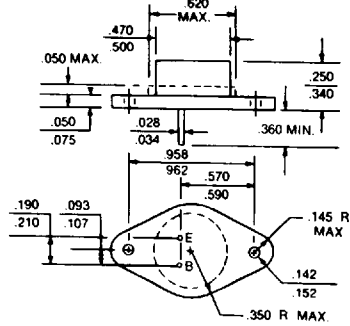
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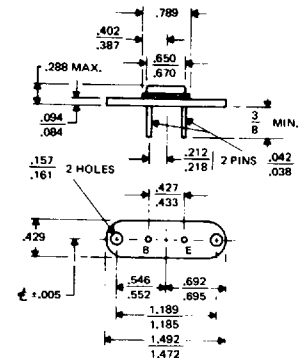
TO-13



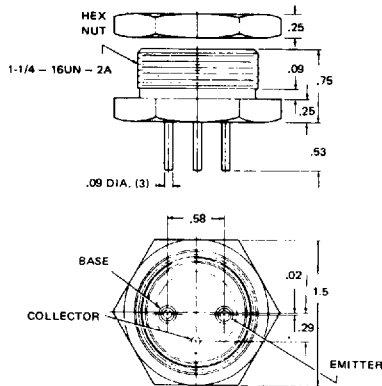
TO-66



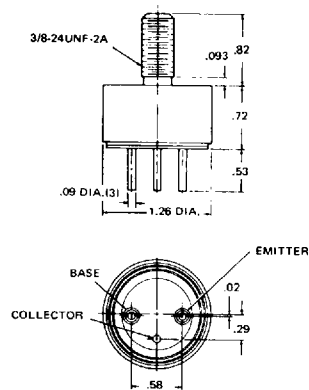
MS-7



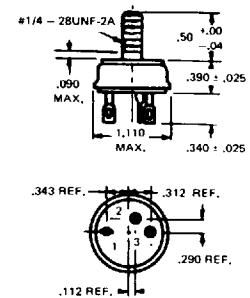
MT-22



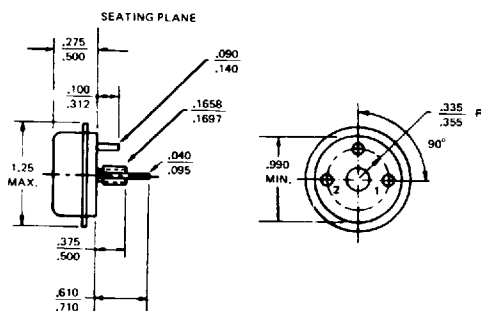
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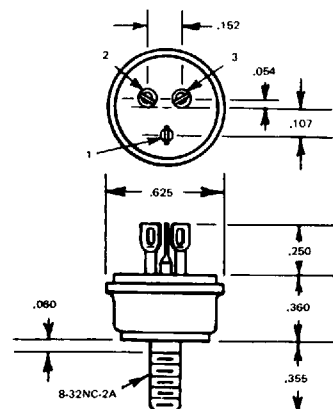
MT-7



TO-68



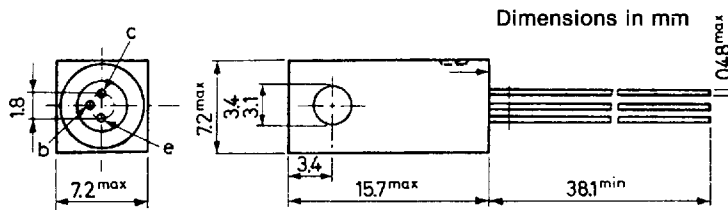
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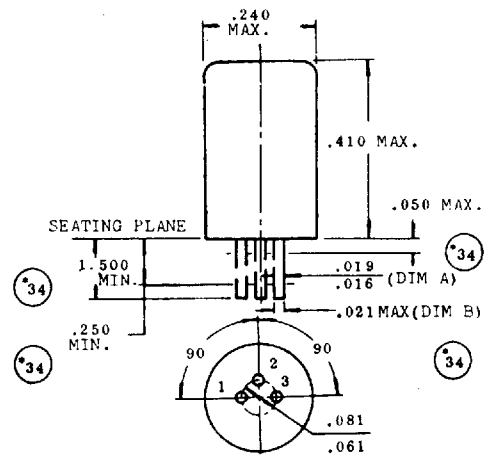
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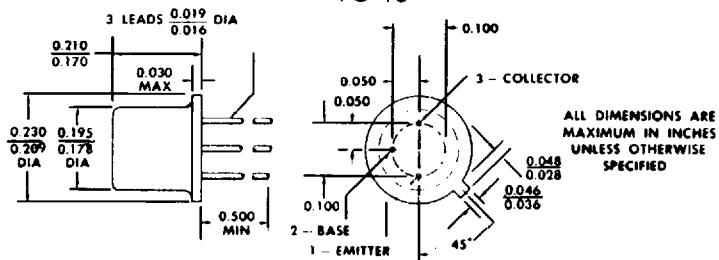
NS257



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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