

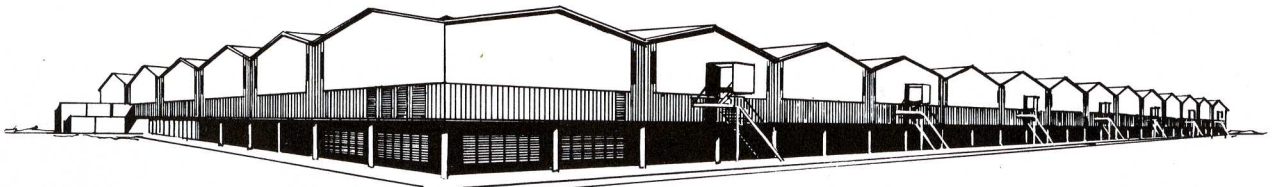


- GERMANIUM AND SILICON TRANSISTORS
- SILICON DIODES AND RECTIFIERS
- tanTi-cap** TANTALUM CAPACITORS
- PRECISION CARBON FILM RESISTORS
- sensistor** SILICON RESISTORS

TEXAS INSTRUMENTS INCORPORATED

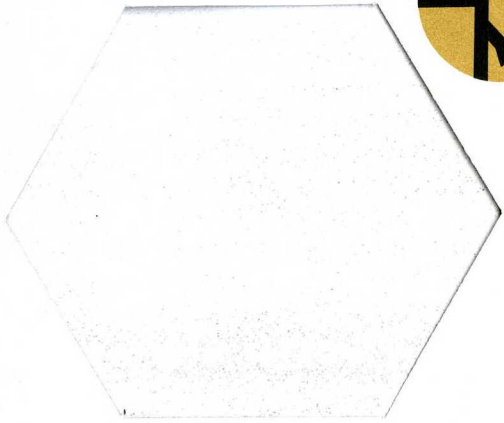
SEMICONDUCTOR-COMPONENTS DIVISION
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INDUSTRY'S MOST MODERN ELECTRONIC COMPONENTS



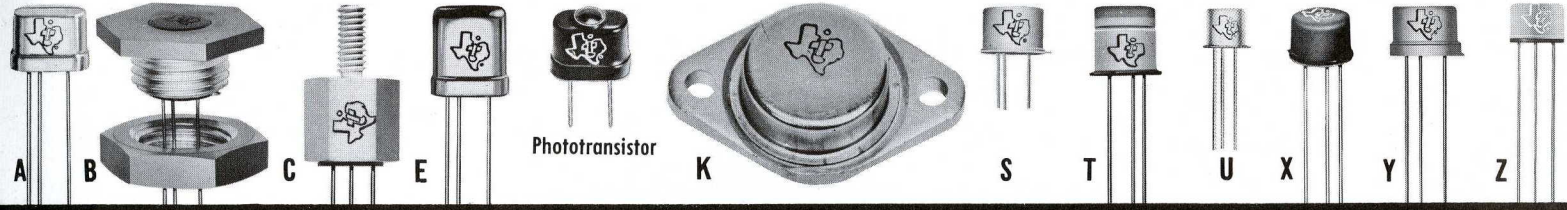
FROM THE WORLD'S LARGEST SEMICONDUCTOR PLANT

TI GERMANIUM TRANSISTORS



power	Type	Case Type*	Dissipation at 25°C	Collector Voltage-v	Collector Current Amps	h _{FE}		Collector Reverse Current I _{CO}		R _{CS} typ	Bulletin Number
						min	max	μA	v		
npn	2N456	K	50w	-40	-5	40@1a	200	-2ma	-40	0.048 ohm	DL-S 909
	2N457	K	50w	-60	-5	40@1a	200	-2ma	-60	0.048 ohm	DL-S 909
	2N458	K	50w	-80	-5	40@1a	200	-2ma	-80	0.048 ohm	DL-S 909
	2N511	K	80w	-40	-10	10 at 10a		-2ma	-20	0.025 ohm	DL-S 1050
	2N511A	K	80w	-60	-10	10 at 10a		-2ma	-30	0.025 ohm	DL-S 1050
	2N511B	K	80w	-80	-10	10 at 10a		-2ma	-40	0.025 ohm	DL-S 1050
	2N512	K	80w	-40	-15	10 at 15a		-2ma	-20	0.025 ohm	DL-S 1051
	2N512A	K	80w	-60	-15	10 at 15a		-2ma	-30	0.025 ohm	DL-S 1051
	2N512B	K	80w	-80	-15	10 at 15a		-2ma	-40	0.025 ohm	DL-S 1051
	2N513	K	80w	-40	-20	10 at 20a		-2ma	-20	0.025 ohm	DL-S 1052
pnp	2N513A	K	80w	-60	-20	10 at 20a		-2ma	-30	0.025 ohm	DL-S 1052
	2N513B	K	80w	-80	-20	10 at 20a		-2ma	-40	0.025 ohm	DL-S 1052
	2N514	K	80w	-40	-25	10 at 25a		-2ma	-20	0.025 ohm	DL-S 1053
	2N514A	K	80w	-60	-25	10 at 25a		-2ma	-30	0.025 ohm	DL-S 1053
	2N514B	K	80w	-80	-25	10 at 25a		-2ma	-40	0.025 ohm	DL-S 1053
	2N1021	K	50w	-100	-5	23 at 5a avg.		-2ma	-100	0.08 ohm	DL-S 963
	2N1022	K	50w	-120	-5	23 at 5a avg.		-2ma	-120	0.08 ohm	DL-S 963
	2N1042	B§	20w	-40	-3	20 at 3a	60	-125μa	-20	0.16 ohm	DL-S 1066
	2N1043	B§	20w	-60	-3	20 at 3a	60	-125μa	-30	0.16 ohm	DL-S 1066
	2N1044	B§	20w	-80	-3	20 at 3a	60	-125μa	-40	0.16 ohm	DL-S 1066
2N1045	B§	20w	-100	-3	20 at 3a	60	-125μa	-50	0.16 ohm	DL-S 1066	
phototransistor											
npn	800		65mw	20	5						DL-S 810

* See case outline drawings on page 7
 § To specify case type C add suffix (-1) to type number To specify case type T add suffix (-2) to type number

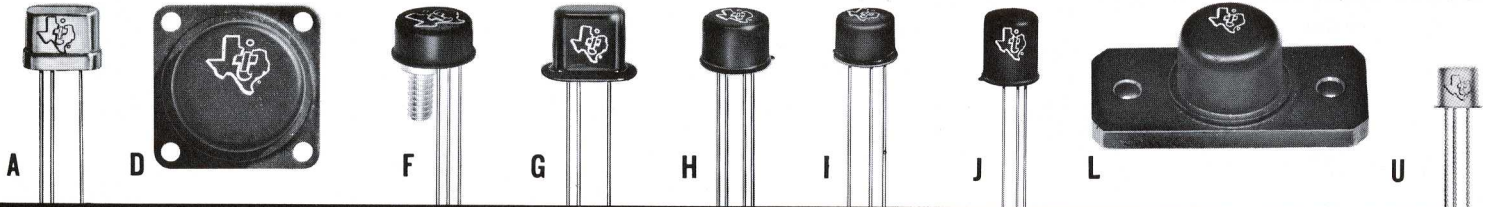
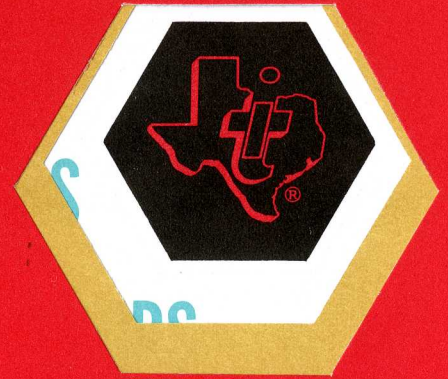


	Type	Case Type*	Former Designation	Dissipation at 25°C mW	Collector Voltage-v	Collector current ma max	h _{FE} [†] or h _{FE}		Collector Reverse Current I _{CO}		R _{CS} typ	Audio Gain db min	Alpha Cutoff Frequency mc avg	Bulletin Number	
							min	max	μA	v					
Computer—mesa type ultra-high-speed	2N705	U		300	-15	-50	25 @ 10 ma		3	-5	6 ohms		300	DL-S 1081	
	2N710	U		300	-15	-50	20 @ 10 ma		3	-5	6 ohms		300	DL-S 1128	
Computer—mesa type ultra-high-speed non-saturating	2N1385	S		750	-25	-100	8 @ 10 ma, 100 mc		10	-15			700		
	2N395	X		150	-30	-250	20 @ 10 ma		150			-15	4.5	DL-S 1119	
Computer—alloy type	2N396	X		150	-30	-250	30 @ 10 ma		150			-20	8		
	2N397	X		150	-30	-250	40 @ 10 ma		150			-15	12		
	2N1093	X	320	150	-30	-250	50		200			-20	8		
	2N1302	Y		300†	25	300	20	50 typ @ 10 ma	6	25			4.5	DL-S 1136	
	2N1303	Y		300†	-30	300	20	50 typ @ 10 ma	6	25			4.5	DL-S 1136	
	2N1304	Y		300†	25	300	40	70 typ @ 10 ma	6	25			8	DL-S 1136	
	2N1305	Y		300†	-30	300	40	70 typ @ 10 ma	6	25			8	DL-S 1136	
	2N1306	Y		300†	25	300	60	100 typ @ 10 ma	6	25			12	DL-S 1136	
	2N1307	Y		300†	-30	300	60	100 typ @ 10 ma	6	25			12	DL-S 1136	
	2N1308	Y		300†	25	300	80	150 typ @ 10 ma	6	25			20	DL-S 1136	
2N1309	Y		300†	-30	300	80	150 typ @ 10 ma	6	25			20	DL-S 1136		
Computer power core driver	2N1046	K		15w	-80	-3a	40	(70 typ)	-1 ma	-40			12	DL-S 974	
Very high frequency	2N1141	S		750	-35	-100	12db @ 10 ma, 100 mc		-5	-15			750	DL-S 1032	
	2N1142	S		750	-30	-100	10db @ 10 ma, 100 mc		-5	-15			600	DL-S 1032	
	2N1143	S		750	-25	-100	8db @ 10 ma, 100 mc		-5	-15			480	DL-S 1032	
	2N1195	S		225	-30	-40	12db @ 10 ma, 100 mc		-5	-20			750		
Radio RF, converter, osc and IF	2N248	A		30	-25	-5	(20 typ)		-10	-12			50	DL-S 661	
	2N1107	A		30	-16	-5	34 db at 455kc		-10	-12				DL-S 1017	
	2N1108	A		30	-16	-5	33 db at 455kc		-10	-12				DL-S 1018	
	2N1109	A		30	-16	-5	20 db at 455kc		-10	-12				DL-S 1019	
	2N1110	A		30	-16	-5	29 db at 455kc		-10	-12				DL-S 1020	
	2N1111	A		30	-20	-5	25 db at 455kc		-10	-12				DL-S 1020	
	2N1111A	A		30	-20	-5	25 db at 455kc		-10	-12				DL-S 1021	
Audio output	2N1111B	A		30	-27	-5	25 db at 455kc		-10	-12				DL-S 1021	
	2N185	A	352	150	-20	-150	50, (70 avg)		-15	-20		39/26†		DL-S 610	
	2N238	A	310	50	-20	-150	30 (50 avg)		-20	-20		37		DL-S 638	
	2N291	E	357	180	-25	-200	30 (45 avg)		-25	-25		31/22†		DL-S 672	
Power and medium power audio	2N680	A		150	-20	-150	(35 avg)		-14	-12					
	2N1370	Z		150	-25	-150	80		-14	-20			2	DL-S 1140	
	2N1371	Z		150	-45	-150	80		-14	-20			2	DL-S 1140	
	2N1273	Z		150	-15	-150	50		-14	-12			2	DL-S 1140	
	2N1274	Z		150	-25	-150	50		-14	-12			2	DL-S 1140	
	2N250	K	356	25w	-30	-3a	30 at 0.5a		-1ma	-30		30	12 kc	DL-S 726	
	2N251	K	356A	25w	-60	-3a	30 at 0.5a		-2ma	-60		30	12 kc	DL-S 727	
General purpose	2N1382	Z		200	-25	-200	80		-14	-20			2	DL-S 1138	
	2N1383	Z		200	-25	-200	50		-14	-20			2	DL-S 1138	
	2N364	A	200A	150	30	50	9 @ 1 ma	19	10	30			2.5	DL-S 944	
	2N365	A	201A	150	30	50	19 @ 1 ma	49	10	30			3	DL-S 944	
	2N366	A	202A	150	30	50	49 @ 1 ma	142	10	30			3.5	DL-S 944	
	204A	A		150	60	50	9 @ 1 ma	49	10	30			2.5	DL-S 943	
	2N368	A	301	150	-30	-50	19 @ 1 ma	49	-20	-30			1	DL-S 873	
	2N369	A	302	150	-30	-50	49 @ 1 ma	142	-20	-30			1.3	DL-S 873	
	2N1372	Z		250	-25	-200	45		-7	-20			2	DL-S 1139	
	2N1373	Z		250	-45	-200	45		-7	-20			2	DL-S 1139	
Medium power	2N1374	Z		250	-25	-200	80		-7	-20			2	DL-S 1139	
	2N1375	Z		250	-45	-200	80		-7	-20			2	DL-S 1139	
	2N1376	Z		250	-25	-200	95		-7	-20			2	DL-S 1139	
	2N1377	Z		250	-45	-200	95		-7	-20			2	DL-S 1139	
	2N1380	Z		250	-12	-200	100		-14	-12			2	DL-S 1139	
	2N1381	Z		250	-25	-200	100		-14	-20			2	DL-S 1139	
	2N1378	Z		250	-12	-200	200		-7	-12			2	DL-S 1139	
	2N1379	Z		250	-25	-200	200		-7	-20			2	DL-S 1139	
	2N1038	T		1.25w	-40	-3a	20	@1a	60	-125	-20	0.2 ohm			DL-S 1065
	2N1039	T		1.25w	-60	-3a	20	@1a	60	-125	-30	0.2 ohm			DL-S 1065
2N1040	T		1.25w	-80	-3a	20	@1a	60	-125	-40	0.2 ohm			DL-S 1065	
2N1041	T		1.25w	-100	-3a	20	@1a	60	-125	-50	0.2 ohm			DL-S 1065	

* See case outline drawings on page 7 † Min. audio power gain—Class A/Class B ‡ case temperature



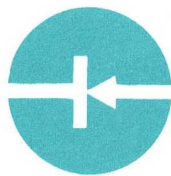
TI SILICON TRANSISTORS



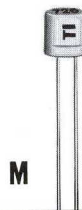
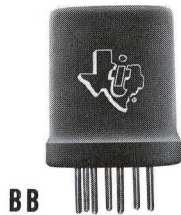
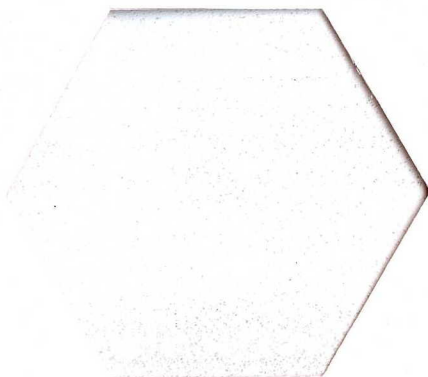
	Type	Case Type★	Dissipation at 25°C w	Small Signal Current Transfer Ratio h _{FE}		Collector Current I _C ma max	DC Current Transfer Ratio h _{FE}		Collector Breakdown Voltage-v BV _{CB0} min	Saturation Resistance R _{CS} Ohms max	Alpha Cutoff Frequency f _{αb} mc typ	Bulletin Number
				min	max		min	max				
small signal	2N1149/903	A	0.150	9	20	25	10 (typ)	45	200	4	DL-S 818	
	2N1150/904	A	0.150	18	40	25	20 (typ)	45	200	5	DL-S 819	
	2N1151/904A	A	0.150	18	90	25	25 (typ)	45	200	8 (min)	DL-S 820	
	2N1152/905	A	0.150	36	90	25	40 (typ)	45	200	6	DL-S 821	
	2N1153/910	A	0.150	76	333	25	80 (typ)	45	200	7	DL-S 822	
	2N117	G	0.150	9	20	25	10 (typ)	45	200	4	DL-S 896	
	USN2N117	G	0.150	9	20	25	10 (typ)	45	200	1 (min)	DL-S 896	
	2N118	G	0.150	18	40	25	20 (typ)	45	200	2 (min)	DL-S 897	
	JAN2N118	G	0.150	18	40	25	20 (typ)	45	200	5	DL-S 897	
	2N118A	G	0.150	18	90	25	25 (typ)	45	200	8 (min)	DL-S 898	
	2N119	G	0.150	36	90	25	40 (typ)	45	200	6	DL-S 899	
	USN2N119	G	0.150	36	90	25	40 (typ)	45	200	2 (min)	DL-S 900	
	2N120	G	0.150	76	333	25	80 (typ)	45	200	7	DL-S 900	
	2N332	I	0.150	9	20	25	10 (typ)	45	200	4	DL-S 1035	
	USN2N332	I	0.150	9	20	25	10 (typ)	45	200	4	DL-S 1035	
	2N333	I	0.150	18	40	25	20 (typ)	45	200	5	DL-S 1036	
	USN2N333	I	0.150	18	40	25	20 (typ)	45	200	5	DL-S 1036	
	2N334	I	0.150	18	90	25	25 (typ)	45	200	8 (min)	DL-S 1037	
	USN2N334	I	0.150	18	90	25	25 (typ)	45	200	8 (min)	DL-S 1037	
	2N335	I	0.150	36	90	25	40 (typ)	45	200	6	DL-S 1038	
	USN2N335	I	0.150	36	90	25	40 (typ)	45	200	6	DL-S 1038	
	2N336	I	0.150	76	333	25	80 (typ)	45	200	7	DL-S 1039	
switching	2N337	I	0.125	19		20	20	55	45	150	10 (min)	DL-S 1162
	2N338	I	0.125	39		20	45	150	45	150	20 (min)	DL-S 1163
	2N702	U§	600 mw	1	at 70mc	50	20	60	25	50	150	DL-S 1160
high frequency	2N703	U§	600 mw	1	at 70mc	50	40	100	25	50	150	DL-S 1161
	3N34	H	0.125	1	at 30mc	20	Power Gain: 22db typ at 30 mc		30	300		DL-S 960
medium power	3N35	H	0.125	1	at 70mc	20	Power Gain: 20db typ at 70 mc		30	300	150	DL-S 961
	2N1154/951	A	0.750	9		60	18 (typ)	50	300	8	DL-S 563	
intermediate power	2N1155/952	A	0.750	9		50	18 (typ)	80	350	8	DL-S 564	
	2N1156/953	A	0.750	9		40	18 (typ)	120	400	8	DL-S 565	
	2N243	A	0.750	9	30	60	14 (typ)	60	350	7	DL-S 639	
	2N244	A	0.750	25	90	60	30 (typ)	60	350	8	DL-S 640	
	2N339	J	1	9	90	60	15 (typ)	55	300	6	DL-S 1012	
	2N340	J	1	9	90	60	15 (typ)	85	350	6	DL-S 1012	
	2N341	J	1	9	90	60	20 (typ)	125	400	6	DL-S 1012	
	2N342	J	1	9	32	60	14 (typ)	60	350	6	DL-S 1012	
	2N342A	J	1	9	32	60	14 (typ)	85	350	6	DL-S 1012	
	2N343	J	1	28	90	60	30 (typ)	60	350	8	DL-S 1012	
	2N497	I§	4		30 (typ)		12	36	60	25	9	DL-S 945
	2N498	I§	4		30 (typ)		12	36	100	25	9	DL-S 945
	2N656	I§	4		60 (typ)		30	90	60	25	8	DL-S 945
	2N657	I§	4		60 (typ)		30	90	100	25	8	DL-S 945
	2N696	I	2		2 at 20 mc		20	40	60	10	35 μmf	DL-S 1146
	2N697	I	2		2.5 at 20 mc		40	120	60	10	35 μmf	DL-S 1147
	2N122	L	8.75			140	3		120	200	1	DL-S 949
	2N1047	F§	40		20 (typ)		12	36	80	15	8	DL-S 970
	2N1048	F§	40		20 (typ)		12	36	120	15	8	DL-S 970
	2N1049	F§	40		40 (typ)		30	90	80	15	7	DL-S 970
	2N1050	F§	40		40 (typ)		30	90	120	15	7	DL-S 970
	power	2N389	D	85 at 25°C 45 at 100°C		30 (typ)		12	60	60	5	7
2N424		D	85 at 25°C 45 at 100°C		30 (typ)		12	60	80	10	6	DL-S 962

★ See case outline drawings on page 7

§ Collector in electrical contact with case.



TI SILICON DIODES



HIGH CONDUCTANCE GENERAL PURPOSE SILICON DIODES

	Case Type*	PIV	V _Z	Min DC Fwd I @ 25°C ma @ 1v	Maximum I _{Ib}		P @ 25°C mw
					@ 25°C μa	@ 100°C μa	
1N645	N	225	275	400	0.2	15	600
AF1N645	N	225	275	400	0.2	15	600
1N646	N	300	360	400	0.2	15	600
1N647	N	400	480	400	0.2	20	600
AF1N647	N	400	480	400	0.2	20	600
1N648	N	500	600	400	0.2	20	600
AF1N648	N	500	600	400	0.2	20	600
1N649	N	600	720	400	0.2	25	600
AF1N649	N	600	720	400	0.2	25	600

GENERAL PURPOSE SILICON DIODES

	Case Type*	PIV	V _Z	Min DC Fwd I @ 25°C ma @ 1v	Maximum I _{Ib}		P @ 25°C mw
					@ 25°C μa	@ 150°C μa	
1N456	N	25	30	40	0.025	5	200
1N457	N	60	70	20	0.025	5	250
1N458	N	125	150	7	0.025	5	250
1N459	N	175	200	3	0.025	5	250
1N461	N	25	30	15	0.5	30	200
1N462	N	60	70	5	0.5	30	200
1N463	N	175	200	1	0.5	30	200
1N464	N	125	150	3	0.5	30	200
1N482	N	30	40	100*	0.25	30	500
1N482A	N	30	40	100	0.025	15	500
1N482B	N	30	40	100	0.025	5	500
1N483	N	60	80	100*	0.25	30	500
1N483A	N	60	80	100	0.025	15	500
1N483B	N	60	80	100	0.025	5	500
1N484	N	125	150	100*	0.25	30	500
1N484A	N	125	150	100	0.025	15	500
1N484B	N	125	150	100	0.025	5	500
1N485	N	175	200	100*	0.25	30	500
1N485A	N	175	200	100	0.025	15	500
1N485B	N	175	200	100	0.025	5	500
1N486	N	225	250	100*	0.25	50	500
1N486A	N	225	250	100	0.025	25	500
1N486B	N	225	250	100	0.025	10	500
1N487	N	300	330	100*	0.25	50	500
1N487A	N	300	330	100	0.025	25	500
1N488	N	380	420	100*	0.25	50	500
1N488A	N	380	420	100	0.025	25	500
600C	M	27	30	3	1 @ -10v	20 @ -10v**	150
601C	M	45	50	10	0.025 @ -10v	40 @ -10v	150
604C	M	4.7	5.5	60	0.1	40	150
606C	M	6.8	7.5	35	0.1	40	150
608C	M	10	11	25	0.1	40	150
610C	M	15	17	20	0.1	40	150
612C	M	22	25	20	0.1	40	150
614C	M	33	37	20	0.1	40	150
616C	M	47	52	10	0.2	40	150
618C	M	68	75	10	0.2	40	150
620C	M	100	110	10	0.2	40	150
622C	M	150	170	7	0.2	20**	150
624C	M	220	250	3	0.2	20**	150

SILICON COMPUTER DIODES

	Case Type*	PIV	V _Z	Max T _F @ 25°C μsec	Maximum I _{Ib} @ PIV		Min Fwd Current @ 1 volt ma dc
					@ 25°C μa	@ 100°C μa	
1N625	N	20	30	1 †	1	30	4*
1N626	N	35	50	1 †	1	30	4*
1N627	N	75	100	1 †	1	30	4*
1N628	N	125	150	1 †	1	30	4*
1N629	N	175	200	1 †	1	30	4*
1N643	N	175	200	0.3**	0.025 @ 10v 1 @ 100v	10 @ 10v 15 @ 100v	10
1N658	N	50	120	0.3 †	0.05	25 @ 150°C	100
1N659	N	50	55	0.3 †	5	25	6
1N660	N	100	110	0.3 †	5	50	6
1N661	N	200	220	0.3 †	10	100	6
1N662	N	80	100	0.5 ‡	1 @ 10v 20 @ 50v	20 @ 10v 100 @ 50v	10
1N663	N	80	100	0.5**	5 @ 75v	50 @ 75v	100

* E_b equals 1.5v
 † JAN 256 (30 ma forward, switched to -35 v reverse, recovery to 400 K ohms)
 ** JAN 256 (5 ma forward, switched to -40 v reverse, recovery to 200 K ohms)
 ‡ JAN 256 (5 ma forward, switched to -40 v reverse, recovery to 80 K ohms)
 § JAN 256 (5 ma forward, switched to -40 v reverse, recovery to 100 K ohms)

VOLTAGE REGULATOR DIODES

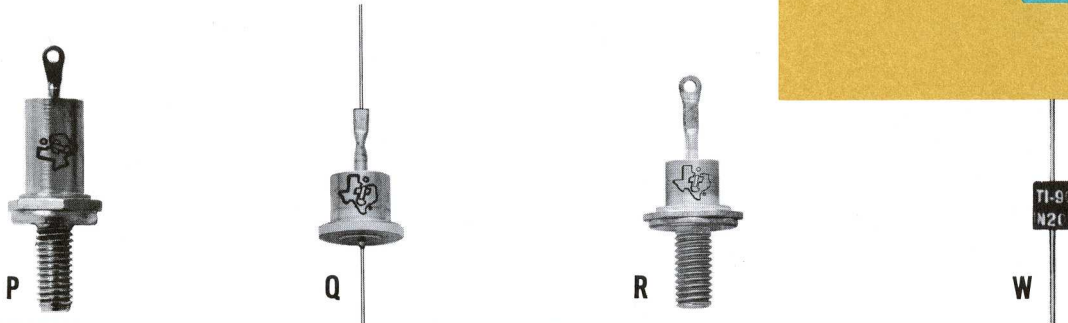
Type	Case Type*	Zener Voltage @ 25°C		Power Diss @		Max Z _Z @ 25°C @ I _Z Ohms	Typ Temp Coef %/°C
		@ 5 ma I _Z	@ 20 ma I _Z	25°C mw	150°C		
1N746†	N	3.3	4.0	100	28	-0.062	
1N747†	N	3.6	4.0	100	24	-0.055	
1N748†	N	3.9	4.0	100	23	-0.049	
1N749†	N	4.3	4.0	100	22	-0.036	
1N750†	N	4.7	4.0	100	19	-0.018	
1N751†	N	5.1	4.0	100	17	-0.008	
1N752†	N	5.6	4.0	100	11	+0.006	
1N753†	N	6.2	4.0	100	7	+0.022	
1N754†	N	6.8	4.0	100	5	+0.035	
1N755†	N	7.5	4.0	100	6	+0.045	
1N756†	N	8.2	4.0	100	8	+0.052	
1N757†	N	9.1	4.0	100	10	+0.056	
1N758†	N	10.0	4.0	100	17	+0.060	
1N759†	N	12.0	4.0	100	30	+0.060	
650C	M	3.7	-4.5	150	40		
651C	M	4.3	-5.4	150	40		
652C	M	5.2	-6.4	150	40		
653C	M	6.2	-8.0	150	40		
654C9	M	8.5	-9.5	150	40		
655C9	M	9.5	-10.5	150	40		

† Suffix A (± 5% Tolerance)

* Measured at 1.1V
 ** At 100°C

★ See case outline drawings on page 7

AND RECTIFIERS



POWER REGULATORS AND DOUBLE ANODE CLIPPERS

Available with either anode or cathode to stud

Type	Case Type*	Zener Voltage @ 25°C	I _Z ma	Power Diss @ 50°C w	Reverse Current I _{rb} 25°C μa		Max Z _Z @ 25°C @ I _Z Ohms	Typ Temp Coef %/°C
					@ -5v	@ -10v		
1N2498†	R	10	500	10	40	—	2	0.06
1N2499†	R	11	500	10	30	—	2	0.06
1N2500†	R	12	500	10	25	—	2	0.06
1N1816†	R	13	500	10	25	—	2	0.07
1N1817†	R	15	500	10	15	—	2	0.07
1N1818†	R	16	500	10	10	—	3	0.07
1N1819†	R	18	500	10	10	—	3	0.07
1N1820†	R	20	250	10	—	10	3	0.08
1N1821†	R	22	250	10	—	10	3	0.08
1N1822†	R	24	250	10	—	10	3	0.08
1N1823†	R	27	250	10	—	10	3	0.08
1N1824†	R	30	250	10	—	10	4	0.08
1N1825†	R	33	150	10	—	10	4	0.08
1N1826†	R	36	150	10	—	10	5	0.09
1N1827†	R	39	150	10	—	10	5	0.09
1N1828†	R	43	150	10	—	10	6	0.09
1N1829†	R	47	150	10	—	10	7	0.09
1N1830†	R	51	150	10	—	10	8	0.10
1N1831†	R	56	150	10	—	10	9	0.10
1N1832†	R	62	50	10	—	10	12	0.10
1N1833†	R	68	50	10	—	10	14	0.10
1N1834†	R	75	50	10	—	10	20	0.11
1N1835†	R	82	50	10	—	10	22	0.11
1N1836†	R	91	50	10	—	10	35	0.12
1N2008†	R	100	50	10	—	10	40	0.12
1N2009†	R	110	50	10	—	10	47	0.12
1N2010†	R	120	50	10	—	10	56	0.12
1N2011†	R	130	50	10	—	10	65	0.12
1N2012†	R	150	50	10	—	10	82	0.12

† Suffix A (± 5% Tolerance)

PHOTO DEVICE

Type	Case Type*	Bias Voltage v max	Dark Current @ 25°C ±50v max μa	Dark Current @ 100°C ±50v max μa	*Typ Light Current @ 25°C @ ±10v μa	*Typ Sensitivity @ 10v μa/mw/cm²
1N2175	CC	50	0.5	100	200	22.3

* Light current measured in terms of radiation. Radiation = 9 mw/cm² in a frequency bandwidth of .7 to 1 micron.

SILICON RECTIFIERS—ECONOMY PACKAGE

Type	Case Type*	PIV	I _o ma	Recurrent Peak Current @ 25°C a	Dynamic Forward Voltage Drop @ 100°C v @ ma	Dynamic Reverse Current @ 100°C μa @ v
1N2069	w	200	750	500	0.5 @ 500	50 @ 200
1N2070	w	400	750	500	0.5 @ 500	50 @ 400
1N2071	w	600	750	500	0.5 @ 500	50 @ 600

SILICON RECTIFIERS

Type	Case Type*	Mounting	PIV v	I _o ma	Recurrent Peak Current -65°C to +150°C ma	E _b @ 25°C v@a	I _{lb} @ PIV @ 25°C μa
1N588	O	Axial	1500	1000	25	150	10@10ma
1N589	O	Axial	1500	1000	50	250	8@50ma
1N1130	P	Cathode Stud	1500	1000	300	150	1 a
1N1131	P	Anode Stud	1500	1000	300	150	1 a
1N570	BB	plug in	1500	1000	37.5*	25*	1.2a@25°C*
1N538	Q	Axial	200	200	750	250	2.5a@25°C
1N539	Q	Axial	300	300	750	250	2.5a@25°C
1N540	Q	Axial	400	400	750	250	2.5a@25°C
1N547	Q	Axial	600	600	750	250	2.5a@25°C
1N1095	Q	Axial	500	500	750	250	2.5a@25°C
1N1096	Q	Axial	600	600	750	250	2.5a@25°C
1N1124	R	Cathode Stud	200	200	3 a	1 a	10a@50°C
1N1125	R	Cathode Stud	300	300	3 a	1 a	10a@50°C
1N1126	R	Cathode Stud	400	400	3 a	1 a	10a@50°C
1N1127	R	Cathode Stud	500	500	3 a	1 a	10a@50°C
1N1128	R	Cathode Stud	600	600	3 a	1 a	10a@50°C
1N1124R	R	Anode Stud	200	200	3 a	1 a	10a@50°C
1N1125R	R	Anode Stud	300	300	3 a	1 a	10a@50°C
1N1126R	R	Anode Stud	400	400	3 a	1 a	10a@50°C
1N1127R	R	Anode Stud	500	500	3 a	1 a	10a@50°C
1N1128R	R	Anode Stud	600	600	3 a	1 a	10a@50°C

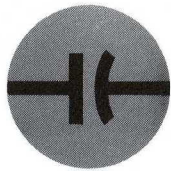
*For each half-wave section

SILICON CONTROLLED RECTIFIERS

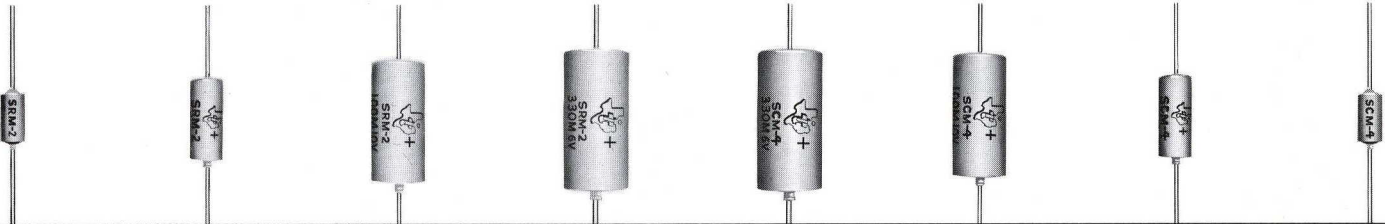
Type	Case Type*	At 50°C Stud Temp			Min Fwd Breakdown Voltage* v	PIV	Min Rev Avalanche Breakdown Voltage v	Max Stud Temp °C	Max Fwd Gate Current ma	Gate to Cathode PIV v	max Fwd Voltage Drop @ 3 Amps @ 25°C Stud Temp v	Gate Current Req to Saturate ma	
		Av Rect Fwd Current Amps	Recurrent Peak Current Amps	Non-Recurrent Surge Current 1 Cycle at 60cps Amps								Typ	Max
T1130	AA	3	10	25	50	50	150	100	5	2	5	20	
T1131	AA	3	10	25	100	100	120	150	100	5	2	5	20
T1132	AA	3	10	25	200	200	240	150	100	5	2	5	20
T1133	AA	3	10	25	300	300	360	150	100	5	2	5	20
T1134	AA	3	10	25	400	400	480	150	100	5	2	5	20

* Measured with 1K ohms resistor gate to cathode.

★ See case outline drawings on page 7



tan-TI-cap* SOLID TANTALUM CAPACITORS



TYPE SRM ±10% tolerance PREMIUM PERFORMANCE

DC Working Voltage Volts	6 Volts	10 Volts	15 Volts	20 Volts	35 Volts
Capacity Microfarads	Case Size	Case Size	Case Size	Case Size	Case Size
1.0	F	F	F	F	F
1.2	F	F	F	F	B
1.5	F	F	F	F	B
1.8	F	F	F	F	B
2.2	F	F	F	F	B
2.7	F	F	F	B	B
3.3	F	F	F	B	B
3.9	F	F	B	B	B
4.7	F	F	B	B	B
5.6	F	B	B	B	B
6.8	F	B	B	B	B
8.2	B	B	B	B	G
10	B	B	B	B	G
12	B	B	B	B	G
15	B	B	B	B	G
18	B	B	B	G	G
22	B	B	B	G	G
27	B	B	G	G	H
33	B	B	G	G	H
39	B	B	G	G	H
47	B	G	G	G	H
56	B	G	G	H	
68	G	G	G	H	
82	G	G	H	H	
100	G	G	H	H	
120	G	G	H	H	
150	G	H	H		
180	G	H			
220	H	H			
270	H				
330	H				

TYPE SRM PREMIUM PERFORMANCE

FEATURES:
High Reliability and MIL Applications
Exceeds MIL Specs
Industry and MIL Standard
10% Decade Ratings and Case Sizes
-80°C to +125°C
Low dc Leakage Limits
0.005 $\mu\text{a}/\mu\text{v}$ @ 25°C
0.05 $\mu\text{a}/\mu\text{v}$ @ 85°C
0.2 $\mu\text{a}/\mu\text{v}$ @ 125°C
6% Max Dissipation Factor
Reverse Voltage Capabilities
Hermetically Sealed, Corrosion Resistant
Specifications per TI Data Sheet DL-C 1126

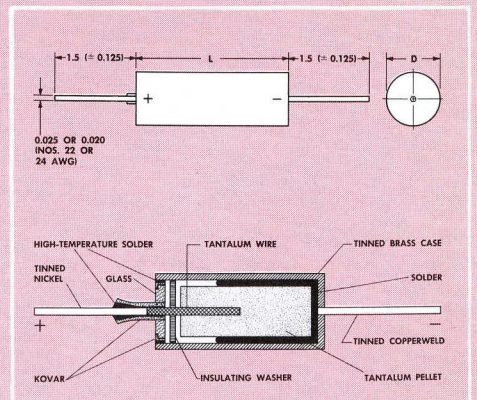
TYPE SCM MILITARY-INDUSTRIAL-COMMERCIAL APPLICATION

FEATURES:
Competitive Performance—Competitively Priced
Meets MIL Specs
Industry and MIL Standard
20% Decade Ratings and Case Sizes
-80°C to +125°C
dc Leakage Limits
0.04 $\mu\text{a}/\mu\text{v}$ @ 25°C
0.4 $\mu\text{a}/\mu\text{v}$ @ 85°C
0.5 $\mu\text{a}/\mu\text{v}$ @ 125°C
6% Max Dissipation Factor
Reverse Voltage Capabilities
Hermetically Sealed, Corrosion Resistant
Specifications per TI Data Sheet DL-C 1127

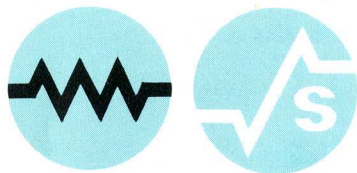
TYPE SCM ±20% tolerance MILITARY — INDUSTRIAL — COMMERCIAL APPLICATION

DC Working Voltage Volts	6 volts	10 volts	15 volts	20 volts	35 volts
Capacity Microfarads	Case Size	Case Size	Case Size	Case Size	Case Size
1.0	F	F	F	F	F
1.5	F	F	F	F	B
2.2	F	F	F	F	B
3.3	F	F	F	B	B
4.7	F	F	B	B	B
6.8	F	B	B	B	B
10	B	B	B	B	G
15	B	B	B	B	G
22	B	B	B	G	G
33	B	B	G	G	H
47	B	G	G	G	H
68	G	G	G	H	
100	G	G	H	H	
150	G	H	H		
220	H	H			
330	H				

DIMENSIONS WITH AND WITHOUT INSULATING SLEEVES	CASE SIZE CODE			
	F	B	G	H
UNINSULATED CASE				
Diameter +0.010 -0.005	0.125	0.175	0.279	0.341
Length ±0.031	0.250	0.438	0.650	0.750
WITH RIGID KEL-F SLEEVES				
Diameter +0.020 -0.010	0.162	0.210	0.315	0.377
Length ±0.062	0.337	0.525	0.735	0.835
WITH FLEXIBLE SLEEVES				
Diameter +0.010 -0.005	0.131	0.181	0.285	0.347
Length ±0.031	0.264	0.452	0.664	0.764
WITH MYLAR SLEEVES				
Diameter ±0.010	0.135	0.185	0.289	0.351
Length ±0.010	0.312	0.500	0.712	0.812
LEAD SIZE AWG	24	24	22	22



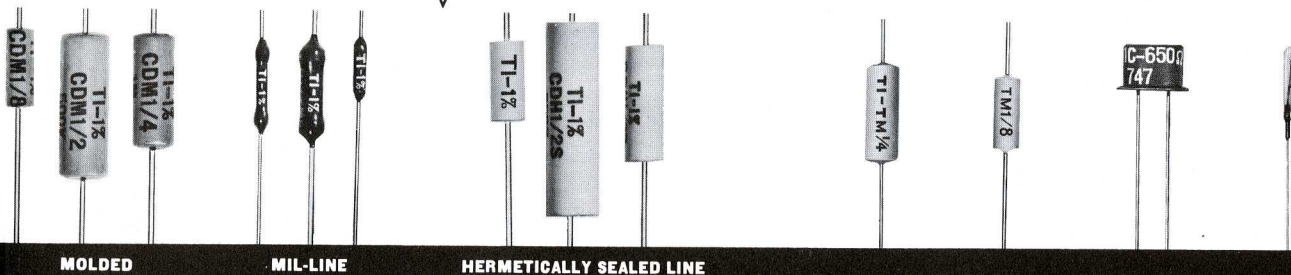
*TRADEMARK OF TEXAS INSTRUMENTS INCORPORATED



TI PRECISION CARBON FILM RESISTORS



*sensistor** SILICON RESISTORS



MOLDED

MIL-LINE

HERMETICALLY SEALED LINE

TI PRECISION CARBON FILM RESISTORS

MOLDED ($\pm 1, 2, 5\%$)†

TI type number	wattage rating watts	MIL designation	standard resistance ranges	max. recommended voltage volts	body length inches	body diameter inches
CDM $\frac{1}{8}$	$\frac{1}{8}$	RN60B	10 Ohm-1 Meg	350	0.406 (± 0.015)	0.140 (± 0.015)
CDM $\frac{1}{4}$	$\frac{1}{4}$	RN65B	10 Ohm-1 Meg	500	0.585 (± 0.015)	0.200 (± 0.020)
CDM $\frac{1}{2}$	$\frac{1}{2}$	RN70B	10 Ohm-5 Meg	750	0.750 (± 0.015)	0.250 (± 0.020)
CDM 1	1	RN75B	10 Ohm-10 Meg	1000	1.062 (± 0.020)	0.375 (± 0.025)
CDM 2	2	RN80B	50 Ohm-50 Meg	2000	2.187 (± 0.020)	0.375 (± 0.025)

MIL-LINE ($\pm 1, 2, 5\%$)†

TI type number	wattage rating watts	MIL designation	standard resistance ranges	max. recommended voltage volts	body length inches	body diameter inches
CD $\frac{1}{8}$ R	$\frac{1}{8}$	—	10 Ohm-1 Meg	350	0.325 (± 0.050)	0.095 (± 0.015)
CD $\frac{1}{4}$ R	$\frac{1}{4}$	RN10X	10 Ohm-1 Meg	500	0.480 (± 0.050)	0.095 (± 0.020)
CD $\frac{1}{2}$ PR	$\frac{1}{2}$	RN15X	10 Ohm-3 Meg	650	0.455 (± 0.050)	0.160 (± 0.025)
CD $\frac{1}{2}$ MR	$\frac{1}{2}$	RN20X	10 Ohm-5 Meg	750	0.530 (± 0.050)	0.160 (± 0.025)
CD $\frac{1}{2}$ SR	$\frac{1}{2}$	—	50 Ohm-10 Meg	850	0.800 (± 0.050)	0.160 (± 0.025)
CD1R	1	RN25X	10 Ohm-10 Meg	1000	0.915 (± 0.050)	0.300 (± 0.025)
CD2R	2	RN30X	50 Ohm-50 Meg	2000	2.050 (± 0.050)	0.300 (± 0.025)

HERMETICALLY SEALED LINE ($\pm 1, 2, 5\%$)†

TI type number	wattage rating watts	MIL designation	standard resistance ranges	max. recommended voltage volts	body length inches	body diameter inches
CDH $\frac{1}{4}$ M	$\frac{1}{4}$	—	10 Ohm-500K	250	0.285 (± 0.015)	0.160 (± 0.010)
CDH $\frac{1}{4}$	$\frac{1}{4}$	RN60B	10 Ohm-1 Meg	350	0.385 (± 0.015)	0.160 (± 0.010)
CDH $\frac{1}{4}$ P	$\frac{1}{4}$	RN65B	10 Ohm-1 Meg	500	0.585 (± 0.015)	0.180 (± 0.010)
CDH $\frac{1}{2}$ P	$\frac{1}{2}$	—	10 Ohm-3 Meg	650	0.587 (± 0.015)	0.199 (± 0.010)
CDH $\frac{1}{2}$ A	$\frac{1}{2}$	RN65B	10 Ohm-3 Meg	650	0.625 (± 0.015)	0.240 (± 0.010)
CDH $\frac{1}{2}$ M	$\frac{1}{2}$	RN70B	10 Ohm-5 Meg	750	0.750 (± 0.015)	0.250 (± 0.015)
CDH $\frac{1}{2}$ S	$\frac{1}{2}$	—	50 Ohm-10 Meg	850	1.000 (± 0.015)	0.250 (± 0.015)
CDH 1	1	RN75B	10 Ohm-10 Meg	1000	1.094 (± 0.020)	0.400 (± 0.020)
CDH 2	2	RN80B	50 Ohm-50 Meg	2000	2.250 (± 0.025)	0.400 (± 0.020)

† Nominal lead length 1.5 inches

*sensistor** SILICON RESISTORS

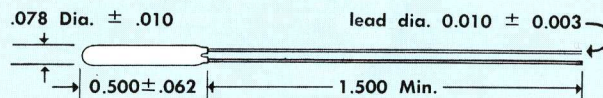
Positive TC of $+0.7\%/^{\circ}\text{C}$ for temperature compensation and sensing.

STANDARD AVAILABLE RESISTANCES $\uparrow 25^{\circ}\text{C}$: 100, 120, 150, 180, 220, 270, 330, 390, 470, 500, 560, 680, 820, and 1000 ohms.

Type No.	Wattage Rating	Body Dimensions	Average Temperature Coefficient	Resistance Tolerance
	W	Length Diameter	%/ $^{\circ}\text{C}$	%
TM $\frac{1}{4}$	$\frac{1}{4}$	0.585" 0.200"	+0.7	± 10
TM $\frac{1}{8}$	$\frac{1}{8}$	0.406" 0.140"	+0.7	± 10
TC $\frac{1}{8}$	$\frac{1}{8}$	TO-5 Transistor Package	+0.7	± 10

† Other resistance values and tolerances available on special order

*sensistor** Temperature Probe (P-100) In Hermetically Sealed Glass Package for Instrumentation and Temperature Control

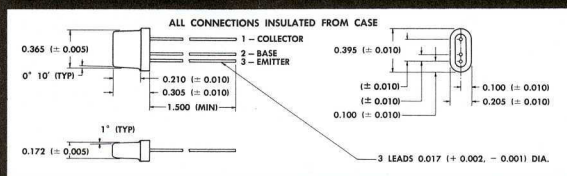


Standard Resistance Values at 25°C : 100, 500, and 1000 OHMS
Matched Pairs, Special Values, and Special Tolerances Available on Request

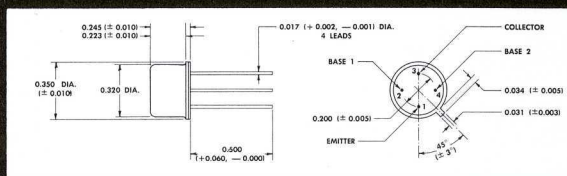
*TRADEMARK OF TEXAS INSTRUMENTS INCORPORATED

CASE OUTLINE DRAWINGS

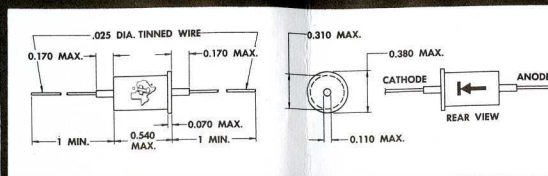
ALL DIMENSIONS IN INCHES



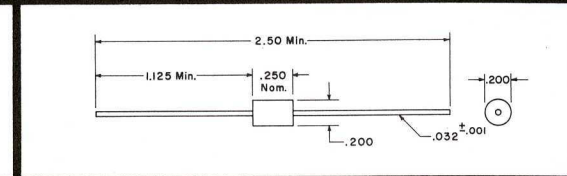
A Triode Solder Seal



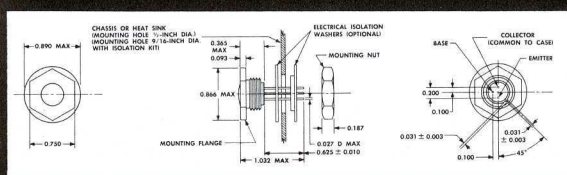
H Short Round Welded Tetrode



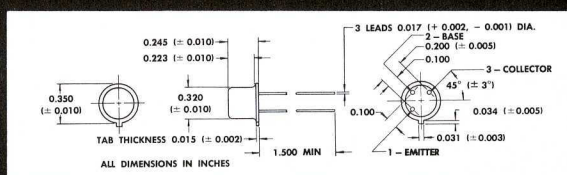
O Axial Lead Rectifier



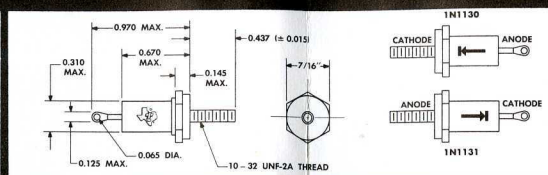
W Nylon Epoxy Rectifier



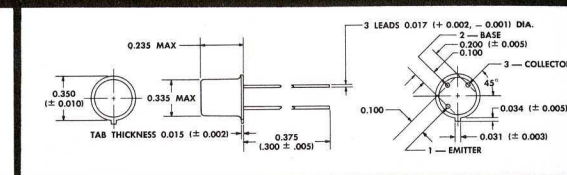
B Round Welded Triode with Heat Sink



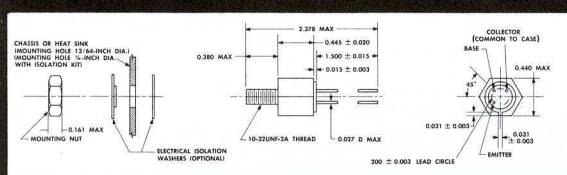
I Short Round Welded Triode



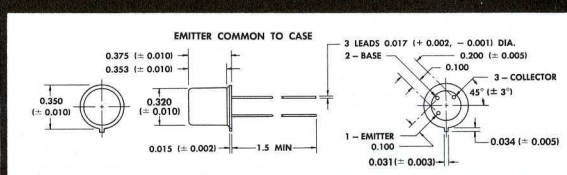
P Stud Rectifier



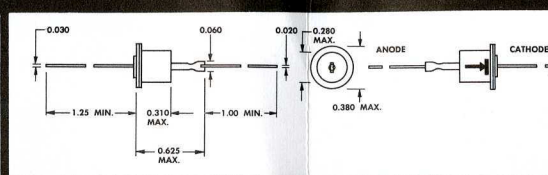
X Short Round Welded Triode Type 2



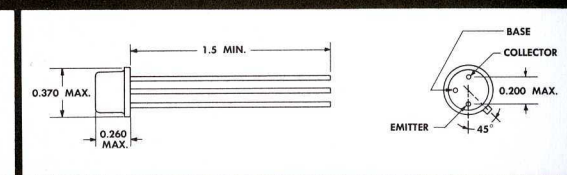
C Round Welded Triode with stud heat sink



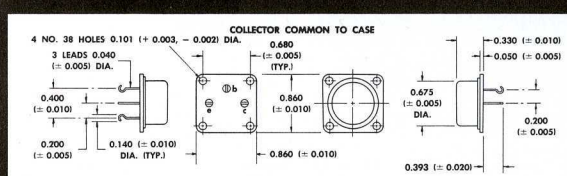
J Tall Round Welded Triode



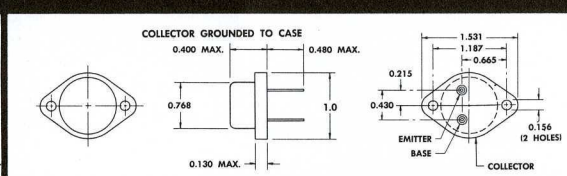
Q Top-hat Stud Rectifier



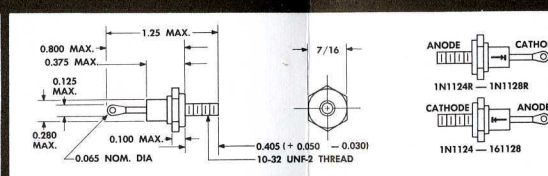
Y Short Round Welded Triode



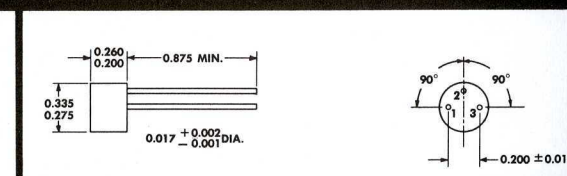
D Square Silicon Power



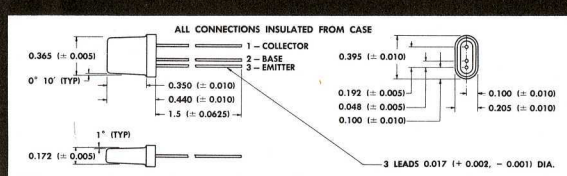
K Diamond Germanium Power



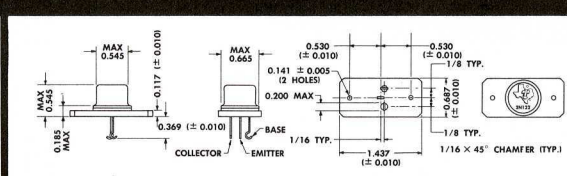
R Top-hat Axial Lead Rectifier



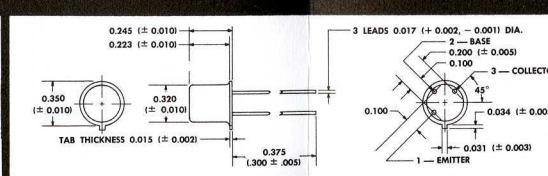
Z Short Round Glass-to-metal Seal



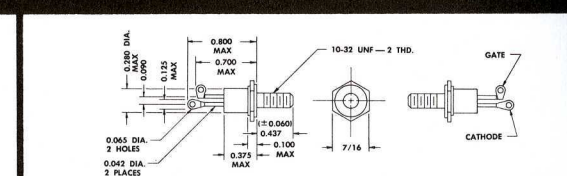
E Triode Solder Seal



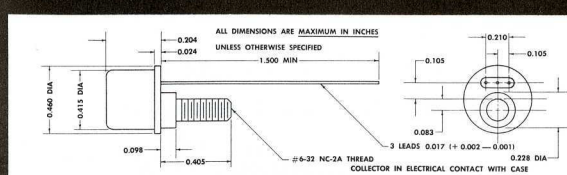
L Rectangular Silicon Power



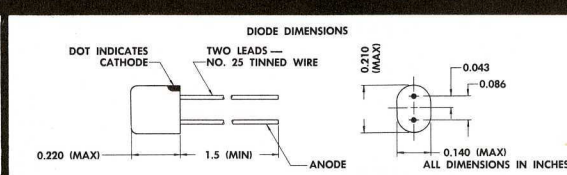
S Short Round Welded Triode Type 1



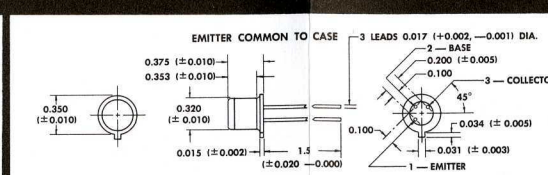
AA Top-hat Stud Rectifier



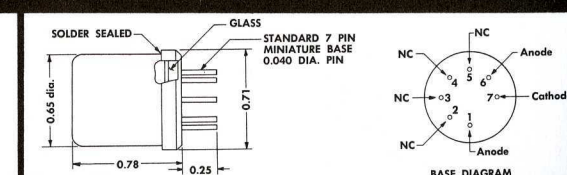
F Round Welded Stud Triode



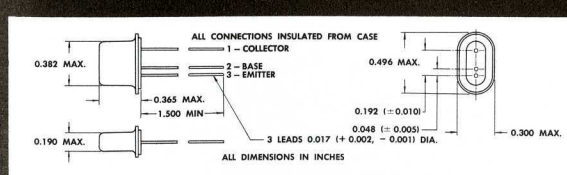
M Metal Case Diode



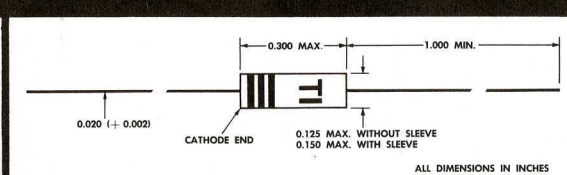
T Tall Round Welded Triode with internal heat sink



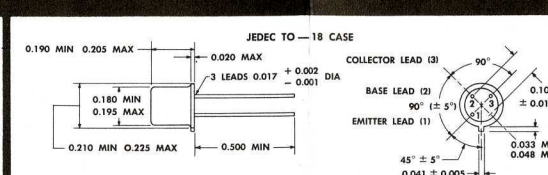
BB Plug-in - Standard 7-pin Miniature Base



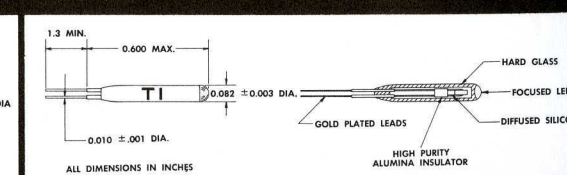
G Oval Welded Silicon



N Glass Diode



U Miniature Round Welded Triode



CC Photo Device



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