TYPE	MATERIAL	POLARITY	REPLACEMENT	PAGE NUMBER	USE	MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS							
						P_D @ 25°C	Ref Point	T_J °C	V_{CB} (volts)	V_{CE-} (volts)	Subscript	h_{FE} @ I_C (min)	(max)	Units	$V_{CE(SAT)}$ @ I_C (volts)	Units	h_{f-}	Subscript	f_- Units	Subscript
2N342	S	N			AFA	1.0W	C	150	60	60	O						0.9	B		
2N342A	S	N			AFA	1.0W	C	150	85	85	O						0.9	B		
2N342B	S	N			AFA	750M	A	175	85	85	O						9.0	E		
2N343	S	N			AFA	1.0W	C	150	60	60	O						0.966	B		
2N343A	S	N			AFA	1.0W	C	150	60	60	O						0.966	B		
2N343B	S	N			AFA	750M	A	175	65	65	O						28	E		
2N344	G	P			RFC	20M	A	55	5.0	5.0	V						11	E	30M	M
2N345	G	P			RFC	20M	A	55	5.0	5.0	V						25	E	30M	M
2N346	G	P			RFC	20M	A	55	5.0	5.0	V						10	E	60M	M
2N350	G	P		7-30	LPA	10W	A	100	50	40	O	20	60	700M						
2N350A	G	P		7-30	LPA	90W	J	100	50	40	S	20	60	0.7A	1.75	3.0A			5.0K	E
2N351	G	P		7-30	LPA	10W	A	100	50	40	O	25	90	700M						
2N351A	G	P		7-30	LPA	90W	J	100	50	40	S	25	90	0.7A	1.75	4.0A			5.0K	E
2N352	G	P	2N1536	7-60	LPA	25W	C	100		40	R	30	140	1.0A					10K	E
2N353	G	P	2N1536	7-60	LPA	30W	C	100		40	R	40	150	1.0A					7.0K	E
2N354	S	P			RFA	150M	A	140	25	25	U						9.0	E	8.0M	M
2N355	S	P			MSS	150M	A	140	10	10	U				0.15	5.0M	9.0	E	8.0M	M
2N356	G	N			MSA	100M	A	85	20	18	O	20	50	100M	0.2	100M				
2N356A	G	N			MSA	150M	A	100	30	20	O	20	50	100M	0.2	100M				
2N357	G	N			MSA	100M	A	85	20	15	O	20	50	200M	0.2	200M				
2N357A	G	N			MSA	150M	A	100	30	20	O	25	75	200M	0.2	200M				
2N358	G	N			MSA	100M	A	85	20	12	O	20	50	300M	0.2	300M				
2N358A	G	N			MSA	150M	A	100	30	15	O	25	75	300M	0.2	300M				
2N359	G	P	2N652	6-20	AFC	170M	A	85	25	18	R	100	300	50M						
2N360	G	P	2N1192	6-30	AFC	170M	A	85	32	30	R	50	150	50M						
2N361	G	P	2N1191	6-30	AFC	170M	A	85	32	30	R	25	75	50M						
2N362	G	P	2N1192	6-30	AFC	170M	A	85	25	18	O						50	E		
2N363	G	P	2N1192	6-30	AFC	170M	A	85	32	28	O						25	E		
2N364	G	N			MSA	150M	A	100	30								9.0	E	1.0M	B
2N365	G	N			MSA	150M	A	100	30								19	E	1.0M	B
2N366	G	N			MSA	150M	A	100	30								49	E	1.0M	B
2N367	G	P	2N1191	6-30	MSA	100M	A	75	30								9.0	E	300K	B
2N368	G	P	2N1191	6-30	MSA	100M	A	75	30								19	E	400K	B
2N369	G	P	2N1191	6-30	MSA	100M	A	75	30								49	E	500K	B
2N370	G	P	2N3324	9-71	RFC	80M	A	71	24											
2N371	G	P	2N3324	9-71	RFC	80M	A	71	24											
2N372	G	P	2N3324	9-71	RFC	80M	A	71	24											
2N373	G	P			RFC	80M	A	71	25											
2N374	G	P	2N3325	9-71	RFC	80M	A	71	25											
2N375	G	P		7-32	LPA	58W	C	95	80	60	S	35	90	1.0A	1.0	2.0A			7.0K	E
2N376	G	P		7-30	LPA	10W	A	100	50	40	O	35	120	700M						
2N376A	G	P		7-30	LPA	90W	J	100	50	40	S	35	120	0.7A	1.75	5.0A			5.0K	E
2N377	G	N			MSS	150M	A	100	25	20	V	20	60	30M	0.5	200M			5.0M	B
2N377A	G	N			MSS	150M	A	100	40	40	V	20	60	30M						
2N378	G	P		7-35	PMS	50W	C	100	20			40	80	2.0A	1.0	2.0A			5.0K	E
2N379	G	P		7-35	PMS	50W	C	100	40			20	70	2.0A	1.0	2.0A			5.0K	E
2N380	G	P		7-35	PMS	50W	C	100	30			30	70	2.0A	1.0	2.0A			5.0K	E
2N381	G	P		6-10	AFA	0.2W	A	100	50	25	R	35	65	20M			35	E		
2N382	G	P		6-10	AFA	0.2W	A	100	50	25	R	60	95	20M			70	E		
2N383	G	P		6-10	AFA	0.2W	A	100	50	25	R	75	120	20M			90	E		
2N384	G	P	2N3325	9-71	RFC	120M	A	100	40	40	O	20	175	1.5M						
2N385	G	N			MSS	150M	A	100	25	25	R	30	110	30M					4.0M	B
2N385A	G	N			MSS	150M	A	100	40	40	V	30	110	30M					4.0M	B
2N386	G	P	2N1531	7-60	LPA	500M	C	100	60	60	V	20		2.5A					7.0K	E
2N387	G	P	2N1531	7-60	LPA	500M	C	100	80	80	V	20		2.5A					6.0K	E
2N388	G	N			MSS	150M	A	100	25	20	R	60	180	30M					5.0M	B
2N388A	G	N			MSS	150M	A	100	40	40	V	60	200	0.30M					5.0M	B
2N389	S	N	2N3445	7-111	LPA	85W	C	200		60	R	12	60	1.0A						
2N389A	S	N			LPA	85W	C	200		60	R	12	60	1.0A	0.75	1.0A			1.0M	T
2N392	G	P	2N1550	7-67	LPA	48W	C	95	60	40	R	60	150	3.0A	0.5	3.0A				
2N393	G	P	2N967	8-76	MSS	25M	A	100	6.0	6.0	S	20		50M	0.07	8.0M	40	E	25M	T
2N394	G	P			HSA	150M	A	85	10	10	O	20	150	10M					4.0M	B
2N394A	G	P			HSA	150M	A	85	10	30	O	30	120	10M					4.0M	B
2N395	G	P			HSA	200M	A	100	30	15	R	20	150	10M	0.2	50M			3.0M	B
2N396	G	P			HSA	200M	A	100	30	20	R	30	150	10M	0.2	50M			5.0M	B
2N396A	G	P			HSA	200M	A	100	30	20	O	30	150	10M	0.2	50M			5.0M	B
2N397	G	P			HSA	200M	A	100	30	15	R	40	150	10M	0.2	50M			10M	B
2N398	G	P		6-12	IND	50M	A	55	105	105	S	20		5.0M						
2N398A	G	P		6-12	AFA	150M	A	100	105	105	S	20		5.0M	0.35	5.0M	20	E		
2N398B	G	P	2N2043	6-39	IND	250M	A	100	105	105	S	20		5.0M	0.25	5.0M	40	E	1.0M	B
2N399	G	P	2N351A	7-30	LPA	25W	C	90		35	R				1.0	1.2A				
2N400	G	P	2N350A	7-30	LPA	35W	C	95	25	20	O	40	300	0.5A	0.8	1.0A	25	E	3.0K	E
2N401	G	P	2N3611	7-118	LPA	25W	C	90		35	R				1.0	1.2A				
2N402	G	P	2N1191	6-30	AFA	180M	A	85	25	20	O									
2N403	G	P	2N1191	6-30	AFA	180M	A	85	25	20	O									
2N404	G	P			MSS	150M	A	85	25											
2N404A	G	P			MSS	150M	A	100	40	35	O	30		12M	0.15	12M			4.0M	B
2N405	G	P	2N322	6-7	AFC	150M	A	71	20											
2N406	G	P	2N322	6-7	AFC	150M	A	71	20											
2N407	G	P	2N324	6-7	AFC	150M	A	71	20											
2N408	G	P	2N324	6-7	AFC	150M	A	71	20											
2N409	G	P			RFC	80M	A	71	13											
2N410	G	P			RFC	80M	A	71	13											
2N411	G	P			RFC	80M	A	71	13											
2N412	G	P			RFC	80M	A	71	13											
2N413	G	P			RFA	150M	A	85	30	18	O									
2N413A	G	P			RFA	150M	A	85	30	15	O									
2N414	G	P			RFA	150M	A	85	30	15	O									

COMPLETE NUMERICAL-ALPHABETICAL LISTING

Type	MAXIMUM RATINGS					ELECTRICAL CHARACTERISTICS					MILITARY and Hi-Rel Type
						h_{FE} @ V_{CE} & I_C				$f_{\alpha b}$	
	P_D mW	T_J °C	V_{CBO} volts	V_{CER} (R = 10 k) volts	I_C mA	min	max	volts	mA	typ MHz	
2N319	225	100	—	20	500	25	42	1	20	1.0 ⑤	
2N320	225	100	—	20	500	34	65	1	20	1.5 ⑤	
2N321	225	100	—	20	500	53	121	1	20	2.0 ⑤	
2N322	225	100	—	18	500	34	65	1	20	1.0 ⑤	
2N323	225	100	—	18	500	53	121	1	20	1.5 ⑤	
2N324	225	100	—	18	500	72	198	1	20	2.0 ⑤	
2N331	200	100	30	V_{EB} = 12	200	30	70	6	1	1.5	JAN 2N331
2N381	225	100	50	25	400	35	65	1	20	3	
2N382	225	100	50	25	400	60	95	1	20	4	
2N383	225	100	50	25	400	75	120	1	20	5	
2N398	50	85	105	V_{pt} = 105	100	20	—	0.35	5	1.0	USN 2N398
2N398A	150	100	105	V_{pt} = 105	200	20		0.35	5	1.0	
2N460	225	100	45	35 ⑦	400	31	200	6	1 ②	4	
2N461	225	100	45	35 ⑦	400	0.94 h_b	0.972	6	1 ②	1.2	USAF 2N461
2N464	200	100	45	40	100	14	—	6	1	1.0	
2N465	200	100	45	30	100	27	—	6	1	1.5	USA 2N465
2N466	200	100	35	20	100	56	—	6	1	2.0	JAN 2N466
2N467	200	100	35	15	100	112	—	6	1	2.5	USA 2N467
2N508	225	100	—	18	500	99	198	1	20	2.5 ⑤	
2N524	225	100	—	30	500	25	42	1	20	0.8 ⑤	2N524A ①
2N525	225	100	—	30	500	34	65	1	20	1.0 ⑤	2N525A ①
2N526	225	100	—	30	500	53	90	1	20	1.3 ⑤	JAN 2N526 2N526A ①
2N527	225	100	—	30	500	72	121	1	20	1.5 ⑤	2N527A ①
2N650	200	100	45	30	500	30	70	6	1	1.5	2N650A ① USN 2N650A
2N651	200	100	45	30	500	50	120	6	1	2.0	2N651A ① USN 2N651A
2N652	200	100	45	30	500	100	225	6	1	2.5	2N652A ① USN 2N652A
2N653	200	100	30	25	250	30	70	6	1	1.5	
2N654	200	100	30	25	250	50	125	6	1	2.0	
2N655	200	100	30	25	250	100	250	6	1	2.5	
2N1008	200	100	20	20 ⑥	300	40 h_{fe}	150	5	10	—	
2N1008A	200	100	40	40 ⑥	300	40 h_{fe}	150	5	10	—	
2N1008B	200	100	60	60 ⑥	300	40 h_{fe}	150	5	10	—	
2N1175	225	100	—	25	500	70	140	1	20	1.5 ⑤	
2N1185	200	100	45	30	500	190	400	6	1	3.0	
2N1186	200	100	60	45	500	30	70	6	1	1.5	
2N1187	200	100	60	45	500	50	120	6	1	2.0	
2N1188	200	100	60	45	500	100	225	6	1	2.5	
2N1189	200	100	45	30	500	60	—	1	10 ②	3.5	
2N1190	200	100	45	30	500	100	—	1	10 ②	4.5	
2N1191	200	100	40	25	200	30	70	6	1	1.5	
2N1192	200	100	40	25	200	50	125	6	1	2.0	

2N398, 2N398 A

2N398 USN/JAN

V_{CB} = 105 V
h_{FE} = 20 (min)
$f\alpha_b$ - to 1.0 MHz (typ)

CASE 31
(TO-5)

All leads isolated

PNP germanium transistor for high-voltage, audio-frequency applications.

MAXIMUM RATINGS

Rating	Symbol	2N398A	2N398	Unit
Collector-Base Voltage	V_{CB}	105	105	Vdc
Collector-Emitter Voltage	V_{CEO}	105	105	Vdc
Emitter-Base Voltage	V_{EB}	50	50	Vdc
DC Collector Current	I_C	200	100	mA
Emitter Current	I_E	200	100	mA
Junction Temperature	T_J	-65 to +100	-65 to +85	°C
Storage Temperature	T_{stg}	-65 to +100	-65 to +85	°C
Collector Dissipation @ 25°C	P_D	150	50	mW
Thermal Resistance, Junction to Air	θ_{JA} max	0.5	1.2	°C/mW

ELECTRICAL CHARACTERISTICS (Tc = 25°C unless otherwise noted)

Characteristics	Symbol	Min	Typical	Max	Unit
Collector-Base Cutoff Current (V_{CB} = 105 V, I_B = 0)	I_{CBO}	-	12.0	50	μA
Collector-Base Cutoff Current (V_{CB} = 2.5 V, I_B = 0)	I_{CBO}	-	5.0	14	μA
Emitter-Base Cutoff Current (V_{EB} = 50 V, I_C = 0)	I_{EBO}	-	3.0	50	μA
Collector-Emitter Saturation Voltage (I_C = 5 mAdc; I_B = 0.25 mAdc)	$V_{CE\ (SAT)}$	-	0.11	0.35	Vdc
Base-Emitter Saturation Voltage (I_C = 5 mAdc; I_B = 0.25 mAdc)	$V_{BE\ (SAT)}$	-	0.22	0.40	Vdc
DC Current Transfor Ratio (I_C = 5 mAdc; V_{CE} = 0.35 Vdc)	h_{FE}	20	65	-	-
DC Collector-Emitter Punch-Through Voltage (V_{CB} necessary to obtain V_{EB} of -1 V max, using instrument with Z_{in} > 11 megohm to measure V_{BE})	V_{PT}	105	160	-	Vdc
Small-Signal Short-Circuit, Forward Current Transfer Ratio Cutoff Frequency (V_{CB} = 6 Vdc; I_E = 1 mAdc)	$f_{\alpha b}$	-	1.0	-	MHz