

TYPE	MATERIAL	POLARITY	REPLACE- MENT	PAGE NUMBER	USE	MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS									
						P _D @ 25°C	P _{Point} Ref	T _J °C	V _{CB} (volts)	V _{CE--} (volts)	Subscript	h _{FE} @ I _C		V _{CE(SAT)} @ I _C		h _{FE}	Subscript	f _T Units	Subscript		
												(min)	(max)	Units	(volts)					Units	
2N992	G	P	2N3250 2N3248	8-61 8-208 8-204	RFC	67M	A	75	20	20	R	40		1.0M		40	E				
2N993	G	P			RFC	67M	A	75	20	20	R	40		1.0M		40	E				
2N994	G	P			HSS	200M	A	150	15	6.0	0	45	140	10M	0.18	10M					
2N995	S	P			RFA	360M	A	200	20	15	0	35	140	20M	0.2	20M			100M	T	
2N995A	S	P			RFA	360M	A	200	20	15	0	35	140	20M	0.2	20M			100M	T	
2N996	S	P			RFA	360M	A	200	15	12	0	35		20M	0.3	60M			100M	T	
2N997	S	N			AFA	500M	A	175	75	40	0	35		100*	1.6	50M					
2N998	S	N			SPP	500M	A	200	100	60	0				1.2	100M	1000	E			
2N999	S	N			SPP	500M	A	200	60	60	0				1.6	100M					
2N1000	G	N			MSA	150M	A	100	40	25	0			40	10M	0.25	100M			7.0M	E
2N1003	G	N			RFA	120M	A	100	35	20	U										
2N1004	G	P			WID	120M	A	100	35	20	U										
2N1005	S	N			AFA	150M	A	175	15	15	0	10	25	10M	0.6	10M					
2N1006	S	N			AFA	150M	A	175	15	15	0	25	150	10M	0.6	10M					
2N1007	G	P	LPA	35W	C	95	25	20	0	50	250	1.0A	1.0	2.0A			60K	T			
2N1008	G	P	AFA	0.3W	C	85	20	15	R				0.25	0.1A							
2N1008A	G	P	AFA	0.3W	C	85	40	35	R				0.25	0.1A							
2N1008B	G	P	AFA	0.3W	C	85	60	55	R				0.25	0.1A							
2N1009	G	P	AFA	0.4W	C	85	35	35	R				0.25	0.1A			7.5K	E			
2N1010	G	N	APC	20M	A	55	10	10	0												
2N1011	G	P	LPA	35W	C	95	80	80	S	30	75	3.0A	1.5	3.0A			5.0K	E			
2N1012	G	N	MSA	150M	A	100	40	25	0	20		100M	0.2	100M			3.0M	E			
2N1014	G	P	LPA	50M	A	100	100	65	0	40	50	4.0A	0.8	4.0A			0.5M	E			
2N1015	S	N	PMS	150W	C	150	30	30	V	10		2.0A	1.5	2.0A							
2N1015A	S	N	PMS	150W	C	150	60	60	V	10		2.0A	1.5	2.0A							
2N1015B	S	N	PMS	150W	C	150	100	100	V	10		2.0A	1.5	2.0A							
2N1015C	S	N	PMS	150W	C	150	150	150	V	10		2.0A	1.5	2.0A							
2N1015D	S	N	PMS	150W	C	150	200	200	V	10		2.0A	1.5	2.0A							
2N1015E	S	N	PMS	150W	C	150	250	250	V	10		2.0A	1.5	2.0A							
2N1015F	S	N	PMS	150W	C	150	300	300	V	10		2.0A	1.5	2.0A							
2N1016	S	N	PMS	150W	C	150	30	30	V	10		5.0A	2.5	5.0A							
2N1016A	S	N	PMS	150W	C	150	60	60	V	10		5.0A	2.5	5.0A							
2N1016B	S	N	PMS	150W	C	150	100	100	V	10		5.0A	2.5	5.0A							
2N1016C	S	N	PMS	150W	C	150	150	150	V	10		5.0A	2.5	5.0A							
2N1016D	S	N	PMS	150W	C	150	200	200	V	10		5.0A	2.5	5.0A							
2N1016E	S	N	PMS	150W	C	150	250	250	V	10		5.0A	2.5	5.0A							
2N1016F	S	N	PMS	150W	C	150	300	300	V	10		5.0A	2.5	5.0A							
2N1017	G	P	MSA	150M	C	85	30	10	0	70		20M	2.6	200M			15M	B			
2N1018	G	P	MSS	200M	A	100	30	6.0	0	70		70M	2.6	200M			20M	B			
2N1021	G	P	LPA	50W	C	95	100	100	X	23	70	1.0A	1.0	5.0A							
2N1021A	G	P	LPA	150W	C	100	100	30	0	30	90	5.0A	0.5	5.0A			200K	T			
2N1022	G	P	LPA	50W	C	95	120	120	X	23	70	5.0A	1.0	5.0A							
2N1022A	G	P	LPA	150W	C	100	120	55	0	30	90	5.0A	0.5	5.0A			200K	T			
2N1023	G	P	RFA	120M	A	100	40	40	0	20	175	1.5M									
2N1024	S	P	AFA	0.25W	A	175	18	15	U						9.0	E	1.0M	B			
2N1025	S	P	AFA	0.25W	A	175	40	35	U						9.0	E	1.0M	B			
2N1026	S	P	AFA	0.25W	A	175	40	35	U						18	E	2.0M	B			
2N1027	S	P	AFA	0.25W	A	175	18	15	U						18	E	4.0M	B			
2N1028	S	P	AFA	0.25W	A	175	12	10	U						9.0	E	7.2M	T			
2N1029	G	P	LPA	90W	C	100	50	20	0	20	60	10A	1.0	10A							
2N1029A	G	P	LPA	90W	C	100	60	30	0	20	60	10A	1.0	10A							
2N1029B	G	P	LPA	90W	C	100	90	60	0	20	60	10A	1.0	10A							
2N1029C	G	P	LPA	90W	C	100	100	70	0	20	60	10A	1.0	10A							
2N1030	G	P	LPA	90W	C	100	50	20	0	50	100	10A	1.0	10A							
2N1030A	G	P	LPA	90W	C	100	60	30	0	50	100	10A	1.0	10A							
2N1030B	G	P	LPA	90W	C	100	90	60	0	50	100	10A	1.0	10A							
2N1030C	G	P	LPA	90W	C	100	100	70	0	50	100	10A	1.0	10A							
2N1031	G	P	LPA	90W	C	100	50	30	S	20	60	10A	1.0	10A			2.0K	E			
2N1031A	G	P	LPA	90W	C	100	60	40	S	20	60	10A	1.0	10A			2.0K	E			
2N1031B	G	P	LPA	90W	C	100	90	70	S	20	60	10A	1.0	10A			2.0K	E			
2N1031C	G	P	LPA	90W	C	100	100	80	S	20	60	10A	1.0	10A			2.0K	E			
2N1032	G	P	LPA	90W	C	100	50	30	S	50	100	10A	1.0	10A			25	E			
2N1032A	G	P	LPA	90W	C	100	60	40	S	50	100	10A	1.0	10A			25	E			
2N1032B	G	P	LPA	90W	C	100	90	70	S	50	100	10A	1.0	10A			25	E			
2N1032C	G	P	LPA	90W	C	100	100	80	S	50	100	10A	1.0	10A			25	E			
2N1034	S	P	AFA	250M	A	160	50	40	0				0.5	8.0M	9.0	E	150K	B			
2N1035	S	P	AFA	250M	A	160	50	35	0				0.4	8.0M	18	E	200K	B			
2N1036	S	P	AFA	250M	A	160	50	30	0				0.3	8.0M	34	E	300K	B			
2N1037	S	P	AFA	250M	A	160	50	35	0				0.5	8.0M	9.0	E	150K	B			
2N1038	G	P	LPA	20W	C	95	40	40	V	20	60	1.0A	0.25	1.0A			8.0K	E			
2N1039	G	P	LPA	20W	C	95	60	60	V	20	60	1.0A	0.25	1.0A			8.0K	E			
2N1040	G	P	LPA	20W	C	95	80	80	V	20	60	1.0A	0.25	1.0A			8.0K	E			
2N1041	G	P	LPA	20W	C	95	100	100	V	20	60	1.0A	0.25	1.0A	18	E	8.0K	E			
2N1042	G	P	LPA	20W	C	100	40	40	V	20	60	3.0A	0.75	3.0A	2.0	E	250K	T			
2N1043	G	P	LPA	20W	C	100	60	60	V	20	60	3.0A	0.25	1.0A			250K	T			
2N1044	G	P	LPA	20W	C	100	80	80	V	20	60	3.0A	0.25	1.0A			250K	T			
2N1045	G	P	LPA	20W	C	100	100	100	V	20	60	3.0A	0.25	1.0A			250K	T			
2N1046	G	P	HPA	50W	C	100	100	50	0	40		5.0A	0.2	500M			15M	T			
2N1046A	G	P	HPA	50W	C	100	130	50	0	40		5.0A	0.4	5.0A			15M	T			

2N869 (SILICON)
2N995



CASE 22
(TO-18)

$V_{CB} = 20-25 \text{ V}$
 $f_T = 300 \text{ MHz Typ}$

PNP silicon annular transistors for high-frequency general-purpose amplifier applications.

Collector connected to case

MAXIMUM RATINGS

Rating	Symbol	Types	Value	Unit
Base Voltage	V_{CB}	2N869 2N995	25 20	Volts Volts
Collector-Emitter Voltage	V_{CEO}	2N869 2N995	18 15	Volts Volts
Emitter-Base Voltage	V_{EB}	2N869 2N995	5 4	Volts Volts
Total Device Dissipation at 25°C Case Temperature at 100°C Case Temperature (Derate 6.86 mW/°C above 25°C)	P_D	Both Types	1.2 0.68	Watts Watt
Total Device Dissipation at 25°C Ambient Temperature (Derate 2.06 mW/°C above 25°C)	P_D	Both Types	0.36	Watt
Storage Temperature	T_{stg}	Both Types	-65 to +200	°C
Junction Temperature	T_J	Both Types	+200	°C

2N869, 2N995 (continued)

ELECTRICAL CHARACTERISTICS (At 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage ($I_C = 10 \mu\text{Adc}$, $I_E = 0$) 2N869 2N995	BV_{CBO}	25 20	---	---	Volts
Collector-Emitter Sustaining Voltage * ($I_C = 10 \text{ mAdc}$, $I_B = 0$) 2N869 2N995	$V_{CEO(sust)}^*$	18 15	---	---	Volts
Emitter-Base Breakdown Voltage ($I_E = 10 \mu\text{Adc}$, $I_C = 0$) 2N869 2N995	BV_{EBO}	5 4	---	---	Volts
Collector Cutoff Current ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$) 2N869 2N995 ($V_{CB} = 15 \text{ Vdc}$, $I_E = 0$, $T_A = 150^\circ\text{C}$) Both Types	I_{CBO}	---	---	010 005 25	μAdc
Emitter Current ($V_{EB} = 4.0 \text{ Vdc}$, $I_C = 0$) 2N995	I_{EBO}	---	---	10	μAdc
Collector Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 20 \text{ mAdc}$, $I_B = 2.0 \text{ mAdc}$) 2N869 2N995	$V_{CE(sat)}$	---	0.17 ---	1.0 0.2	Volt
Base Saturation Voltage ($I_C = 10 \text{ mAdc}$, $I_B = 1.0 \text{ mAdc}$) ($I_C = 20 \text{ mAdc}$, $I_B = 2.0 \text{ mAdc}$) 2N869 2N995	$V_{BE(sat)}$	---	0.78 ---	1.0 0.95	Volt
DC Forward-Current Transfer Ratio * ($I_C = 10 \text{ mAdc}$, $V_{CE} = 5.0 \text{ Vdc}$) ($I_C = 1.0 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$) ($I_C = 20 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$) ($I_C = 50 \text{ mAdc}$, $V_{CE} = 1.0 \text{ Vdc}$) 2N869 2N995 2N995 2N995	h_{FE}^*	20 25 35 25	---	120 ---	---
Open-Circuit Output Capacitance ($V_{CB} = 10 \text{ V}$, $I_E = 0$) 2N869 2N995	C_{ob}	---	3 3	9 10	pF
Open-Circuit Input Capacitance ($V_{BE} = 0.5 \text{ V}$, $I_C = 0$) Both Types	C_{ib}	---	7	11	pF
Small-Signal Forward-Current Transfer Ratio ($I_C = 10 \text{ mA}$, $V_{CE} = 15 \text{ V}$, $f = 100 \text{ MHz}$) ($I_C = 10 \text{ mA}$, $V_{CE} = 10 \text{ V}$, $f = 100 \text{ MHz}$) 2N869 2N995	h_{fe}	1.0 1.0	3.0 3.0	---	---

*Pulse Note: Pulse Width = 300 μs , Duty Cycle = 1%