

SILICON PLANAR TRANSISTORS — SMALL SIGNAL

TYPE	POLARITY	POWER DISPATION (mW)	B <sub>ice</sub> (volts)		MIN-MAX h <sub>FE</sub>	V <sub>CE</sub> (volts)		V <sub>BE</sub> (volts)		f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	NOISE FIGURE (dB)	V <sub>CE</sub> (volts)		CASE STYLE
			h <sub>FE</sub> (min)	h <sub>FE</sub> (max)		h <sub>FE</sub> (min)	h <sub>FE</sub> (max)	h <sub>FE</sub> (min)	h <sub>FE</sub> (max)				I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	
2N728	PNP	300	25	20	15 45	10 1	.6 1	1 10	140	5	—	1 25	25 25	To-18	
2N727	PNP	300	25	20	30 120	10 1	.6 1	1 10	140	5	—	1 25	25 25	To-18	
2N869	PNP	360	25	18	20 60	10 5	1 1	1 10	160	9	—	.01 25	10 25	To-18	
2N869A	PNP	360	25	18	40 120	10 5	.15 1	1 10	400	6	—	.01 15	25 15	To-18	
2N929	NPN	300	45	45	40 120	0.01 5	1.0 1.0	0.5 10	30	8	4	0.01 45	—	To-18	
2N929A	NPN	500	60	45	40 120	0.01 5	0.5 0.9	0.5 10	45	8	4	0.002 45	2 45	To-18	
2N930	NPN	300	45	45	100 300	0.01 5	1 1	0.5 10	30	8	3	0.01 45	—	To-18	
2N930A	NPN	500	60	45	100 300	0.01 5	0.5 0.9	0.5 10	45	8	3	.002 45	2 45	To-18	
2N1572	NPN	600	125	80	15 50	5 5	1 1.5	2 10	30	10	—	1 40	—	To-5	
2N1573	NPN	600	125	80	30 100	5 5	1 1.5	2 10	60	10	—	1 40	—	To-5	
2N1574	NPN	600	125	80	60 200	5 5	1 1.5	2 10	60	10	—	1 40	—	To-5	
2N2483	NPN	360	60	60	40 120	0.01 5	0.35 —	0.1 1	60	6	3	0.01 45	10 45	To-18	
2N2484	NPN	360	60	60	100 500	0.01 5	0.35 —	0.1 1	60	6	2	0.01 45	10 45	To-18	
2N2588	NPN	300	60	45	120 360	0.01 5	0.5 0.9	0.5 10	60	7	2	0.02 45	—	To-18	
2N3494	PNP	600	80	80	40	10 10	.3 .9	1 10	200	7	—	.1 50	—	To-5	
2N3495	PNP	600	120	120	40	10 10	.35 .9	1 10	150	6	—	.1 90	—	To-5	
2N3496	PNP	400	80	80	40	10 10	.3 .9	1 10	200	7	—	.1 50	—	To-18	
2N3497	PNP	400	120	120	40	10 10	.35 .9	1 10	150	6	—	.1 90	—	To-18	
2N4269	NPN	360	200	140	40 200	10 10	1 1.3	1 10	—	5	—	1 150	—	To-18	
2N4270	NPN	400	200	140	40 200	10 10	1 1.3	1 10	—	5	—	1 150	—	To-5	

NPN SILICON PLANAR EPITAXIAL LOGIC TRANSISTORS

TYPE	POWER DISPATION (mW)	B <sub>ice</sub> (volts)		MIN-MAX h <sub>FE</sub>	V <sub>CE</sub> (volts)		V <sub>BE</sub> (volts)		f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	f <sub>sw</sub> (MHz)	f <sub>sw</sub> (MHz)	f <sub>sw</sub> (MHz)	V <sub>CE</sub> (volts)		CASE STYLE
		h <sub>FE</sub> (min)	h <sub>FE</sub> (max)		h <sub>FE</sub> (min)	h <sub>FE</sub> (max)	h <sub>FE</sub> (min)	h <sub>FE</sub> (max)						I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	
2N706	300	25	20	20 —	10 1	0.6 0.9	1 10	400	6	60	—	—	—	0.5 15	30 15	To-18
2N706A	300	25	20	20 60	10 1	0.6 0.9	1 10	400	5	25	40	75	—	0.5 15	30 15	To-18
2N706B	300	25	20	(A) 20 60	10 1	0.4 0.9	1 10	400	5	25	40	75	—	0.5 15	30 15	To-18
2N708	360	40	15	30 120	10 1	0.4 0.8	1 10	400	6	25	40	70	—	.25 20	15 20	To-18
2N709	300	15	6	20 120	10 0.5	0.3 0.85	0.15 3	600	3	6	15	15	—	.05 5	5 5	To-18
2N709A	300	15	6	30 90	10 0.5	0.3 0.85	0.15 3	900	3	6	15	15	—	.005 5	5 5	To-18
2N914	360	40	15	30 120	10 1	0.7 0.8	20 200	60	6	20	40	40	—	.025 20	15 20	To-18
2N2369	360	40	15	20 60	10 1	0.25 0.85	1 10	400	4	10	12	15	—	0.4 20	30 20	To-18
2N2369	360	40	15	40 120	10 1	0.25 0.85	1 10	500	4	13	12	18	—	0.4 20	30 20	To-18
2N2369A	360	40	15	40 120	10 1	0.25 1.5	3 30	500	4	13	12	18	—	—	30 20	To-18
2N2475	300	15	6	30 150	20 0.4	0.4 1	0.68 20	600	3	6	20	15	—	0.05 5	5 5	To-18
2N2501	360	40	20	50 150	10 1	0.2 0.85	1 10	350	4	15	—	—	—	—	—	To-18
2N2784	300	15	6	40 120	10 0.5	0.26 0.85	0.15 3	1000	3	5	9	9	—	0.005 5	5 5	To-18
2N3010	300	15	6	25 125	10 0.4	0.25 0.85	0.1 1	600	3	6	12	12	—	—	—	To-18
2N3013	360	40	15	30 120	30 0.4	0.28 1.2	10 100	350	5	18	15	25	—	—	—	To-18
2N3014	360	40	20	30 120	30 0.4	0.35 1.2	10 100	350	5	18	16	25	—	—	—	To-18
2N3633	300	15	6	50 150	10 0.5	0.21 0.85	0.15 3	1300	2.5	5	9	9	—	0.005 5	5 5	To-18

Notes: (A) h<sub>FE</sub> @ f = 1 kc.

PNP SILICON PLANAR EPITAXIAL LOGIC TRANSISTORS.

TYPE	POWER DISSIPATION (mW)	BV <sub>CEO</sub> (Volts)	BV <sub>CE0</sub> (Volts)	MIN-MAX I <sub>B</sub> (mA)		I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>B</sub> (used)	I <sub>C</sub> (used)	I <sub>CE</sub> (used)	I <sub>CE</sub> @ 25°C (µA)		I <sub>CE</sub> @ 150°C (µA)		CASE STYLE
				V <sub>CE</sub>	I <sub>C</sub>												V <sub>CE</sub>	I <sub>C</sub>	V <sub>CE</sub>	I <sub>C</sub>	
2N2411	300	25	20	20	60	10	.5	.2	.9	1	10	200	5	30	25	100	.01	25	—	—	To-18
2N2412	300	25	20	40	120	10	.5	.2	.9	1	10	200	5	30	25	100	.01	25	—	—	To-18
2N2894	360	12	12	30	—	10	0.3	.15	.98	1	10	400	6	60	20	90	.08	6	—	—	To-18
2N2894A	360	12	12	30	—	10	0.3	.13	.92	1	10	800	4.5	20	25	20	.05	10	—	—	To-18
2N3011	360	30	12	30	—	10	0.35	—	—	—	—	40	—	—	—	—	.01	5	—	—	To-18
2N3012	360	12	12	25	—	10	0.3	.15	.98	1	10	400	6	—	60	75	.08	6	—	—	To-18
2N3208	360	20	20	25	—	10	0.3	.15	.98	1	10	400	5	—	60	90	.08	10	—	—	To-18
2N3248	360	15	12	80	150	10	1	.125	.90	1	10	250	8	60	15	20	.05	10	—	—	To-18
2N3248	360	15	12	100	300	10	1	.125	.90	1	10	300	8	60	15	20	.05	10	—	—	To-18
2N3250	360	50	40	50	.50	10	1	.25	.90	1	10	250	6	175	35	50	.02	40	—	—	To-18
2N3250A	360	60	60	50	150	10	1	.25	.90	1	10	250	6	175	35	50	.02	40	—	—	To-18
2N3251	360	50	40	100	300	10	1	.25	.90	1	10	300	6	200	35	50	.02	40	—	—	To-18
2N3251A	360	60	60	100	300	10	1	.25	.90	1	10	300	6	200	35	50	.02	40	—	—	To-18

SILICON PLANAR GENERAL PURPOSE TRANSISTORS

TYPE	POLARITY	POWER DISSIPATION (mWatts)	BV <sub>CEO</sub> (Volts)	BV <sub>CE0</sub> (Volts)	MIN-MAX I <sub>B</sub> (mA)		I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CE</sub> @ 25°C (µA)		I <sub>CE</sub> @ 150°C (µA)		CASE STYLE
					V <sub>CE</sub>	I <sub>C</sub>									V <sub>CE</sub>	I <sub>C</sub>			
2N698	NPN	.600	60	40	20	60	150	10	1.5	1.3	15	150	80	35	1	30	100	30	To-5
2N697	NPN	.600	60	40	40	120	150	10	1.5	1.3	15	150	100	35	1	30	100	30	To-5
2N698	NPN	.800	120	60	20	60	150	10	5.0	1.3	15	150	60	20	0.005	75	15	75	To-5
2N699	NPN	.800	120	60	40	120	150	10	5.0	1.3	15	150	60	20	2	60	—	—	To-5
2N718	NPN	.400	60	40	40	120	150	10	1.5	1.3	15	150	90	20	1	30	100	30	To-18
2N718A	NPN	.500	75	32	40	120	150	10	1.5	1.3	15	150	60	25	0.01	60	10	60	To-18
2N720	NPN	.400	120	80	40	120	150	10	5	1.3	15	150	50	20	2	60	200	60	To-18
2N720A	NPN	.500	120	80	40	120	150	10	5	1.3	15	150	50	15	0.01	90	15	90	To-18
2N1254	PNP	0.275	30	30	25	50	10	1	0.3	—	2	10	—	10	0.2	—	25	—	To-5
2N1255	PNP	0.275	30	30	40	80	10	1	0.3	—	2	10	—	10	0.2	—	25	—	To-5
2N1256	PNP	0.275	40	40	25	50	10	1	0.3	—	2	10	—	10	0.2	—	35	—	To-5
2N1257	PNP	0.275	40	40	40	80	10	1	0.3	—	2	10	—	10	0.2	—	35	—	To-5
2N1258	PNP	0.275	30	30	75	150	10	1	0.6	—	2	10	—	10	0.2	—	25	—	To-5
2N1259	PNP	0.275	50	50	25	100	10	1	0.3	—	2	10	—	10	0.2	—	40	—	To-5
2N1420	NPN	(A) 2	60	—	100	300	150	10	—	—	—	—	50	35	1	30	100	30	To-5
2N1711	NPN	.800	75	50	100	300	150	10	1.5	1.3	15	150	70	25	0.010	60	10	60	To-5
2N2217	NPN	(A) 3.0	60	30	20	60	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-5
2N2218	NPN	(A) 3.0	60	30	40	120	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-5
2N2218A	NPN	(A) 3.0	75	40	40	120	150	10	0.3	1.2	15	150	250	8	0.01	60	10	60	To-5
2N2219	NPN	(A) 3.0	60	30	100	300	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-5
2N2219A	NPN	(A) 3.0	75	40	100	300	150	10	0.3	1.2	15	150	250	8	0.01	60	10	60	To-5
2N2220	NPN	(A) 1.8	60	30	20	60	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-18
2N2221	NPN	(A) 1.8	60	30	40	120	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-18
2N2221A	NPN	(A) 1.8	75	40	40	120	150	10	0.3	1.2	15	150	250	8	0.01	60	10	60	To-18
2N2222	NPN	(A) 1.8	60	30	100	300	150	10	0.4	1.3	15	150	250	8	0.01	50	10	50	To-18
2N2222A	NPN	(A) 1.8	75	40	100	300	150	10	0.3	1.2	15	150	250	8	0.01	50	10	60	To-18
2N2243	NPN	(A) 2.3	120	80	40	120	150	10	.35	1.3	15	150	50	15	10	60	15	60	To-5
2N2243A	NPN	(A) 2.3	120	80	40	120	150	10	.25	1.3	15	150	50	15	10	60	15	60	To-5
2N2270	NPN	(A) 5	60	45	50	200	150	10	0.9	1.2	15	150	100	15	0.05	60	50	60	To-5
2N2297	NPN	(A) 5	80	35	40	120	150	10	1	2	100	1000	60	12	0.01	60	10	60	To-5
2N2594	NPN	(A) 5	80	80	80	150	100	5	1	2	20	200	40	20	0.1	60	50	60	To-5
2N2728	NPN	(A) 5	200	180	30	90	200	10	2	—	40	200	5	—	1	100	100	100	To-5
2N2727	NPN	(A) 5	200	180	75	150	200	10	2	—	40	200	5	—	1	100	100	100	To-5
2N2904	PNP	0.6	60	40	40	120	150	10	0.4	1.3	15	150	200	8	0.02	50	20	50	To-5
2N2904A	PNP	0.6	60	60	40	120	150	10	0.4	1.3	15	150	200	8	0.01	50	10	50	To-5

Notes: (A) P.D. @ 25°C case

SILICON PLANAR GENERAL PURPOSE TRANSISTORS ... cont'd

TYPE	POLARITY	POWER DISSIPATION (Watts)	B <sub>ice</sub> (Volts)	B <sub>ice</sub> (Volts)	h <sub>FE</sub> MIN-MAX	I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CO</sub> @ 25°C (mA)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	CASE STYLE
2N2905	PNP	0.6	60	40	100 300	150 10	0.4 1.3	15 150	200	8	0.02 50	20 50	To-5				
2N2905A	PNP	.600	60	60	100 300	150 10	0.4 1.3	15 150	200	8	0.01 50	10 50	To-5				
2N2906	PNP	.400	60	40	40 120	150 10	0.4 1.3	15 150	200	8	0.02 50	20 50	To-18				
2N2906A	PNP	.400	60	60	40 120	150 10	0.4 1.3	15 150	200	8	0.01 50	10 50	To-18				
2N2907	PNP	.400	60	40	100 300	150 10	0.4 1.3	15 150	200	8	0.02 50	20 50	To-18				
2N2907A	PNP	.400	60	60	100 300	150 10	0.4 1.3	15 150	200	8	0.01 50	10 50	To-18				
2N3019	NPN	(A) 5	140	80	100 300	150 10	0.2 1.1	15 150	100	12	0.01 90	10 90	To-5				
2N3020	NPN	(A) 5	140	80	40 120	150 10	0.2 1.1	15 150	100	12	0.01 90	10 90	To-5				
2N3053	NPN	(A) 5	60	40	50 250	150 10	1.4 1.7	15 150	100	15	—	—	To-5				
2N3058	NPN	(A) 5	100	60	40 120	150 10	.25 1.1	15 150	80	12	.01 60	10 60	To-46				
2N3058A	NPN	(A) 5	140	80	30 120	150 10	.25 1.1	15 150	80	12	.01 80	10 60	To-46				
2N3057	NPN	(A) 5	100	60	100 300	150 10	.25 1.1	15 150	100	12	.01 60	10 60	To-46				
2N3057A	NPN	(A) 5	140	80	80 300	150 10	.25 1.1	15 150	100	12	.01 80	10 60	To-46				
2N3502	PNP	(A)3.0	45	45	100 300	150 10	0.25 1	2.5 50	200	8	—	—	To-5				
2N3503	PNP	(A)3.0	60	60	100 300	150 10	0.25 1	2.5 50	200	8	—	—	To-5				
2N3504	PNP	(A)1.2	45	45	100 300	150 10	0.25 1	2.5 50	200	8	—	—	To-18				
2N3655	NPN	(A) 5	120	80	40 120	150 10	0.5 1.2	15 150	—	12	0.05 60	50 60	To-5				
2N3656	NPN	(A) 5	120	80	100 300	150 10	0.5 1.2	15 150	—	12	0.05 60	50 60	To-5				
2N3700	NPN	1.8	140	80	100 300	150 10	.2 1.1	.015 .150	100	12	.010 90	10 90	To-18				
2N3701	NPN	1.8	140	80	40 120	150 10	.2 1.1	.015 .150	100	12	.010 90	10 90	To-18				
2N3945	NPN	(A) 5	70	50	40 250	150 10	0.5 1.2	15 150	60	12	—	—	To-5				

Notes: (A) P.D. @ 25°C case

NPN SILICON PLANAR HIGH CURRENT CORE DRIVERS

TYPE	P <sub>D</sub> @ 25°C (Watts)	B <sub>ice</sub> (Volts)	B <sub>ice</sub> (Volts)	B <sub>ice</sub> (Volts)	h <sub>FE</sub> MIN-MAX	I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	T <sub>on</sub> (microsec)	T <sub>off</sub> (microsec)	I <sub>C</sub> (mA)	CASE STYLE
2N3015	3	60	30	5	30-120	150	10	0.4 1.2	15	150	250	8	40	60	300	To-5
2N3252	5	60	30	5	30-90	500	1	0.5 1.3	50	500	200	12	—	40(a)	500	To-5
2N3253	5	75	40	5	25-75	375	1	0.6 1.3	50	500	175	12	—	40(a)	500	To-5
2N3444	5	80	50	5	20-60	500	1	0.6 1.3	50	500	150	12	—	40(a)	500	To-5
2N3724	3.5	50	30	6	35-	500	1	0.42 1.2	50	500	300	12	35	60	500	To-5
2N3725	3.5	80	50	6	35-	500	1	0.42 1.2	50	500	300	12	35	60	500	To-5
2N4013	1.2	50	30	6	35-	500	1	0.42 1.2	50	500	300	12	35	60	500	To-18
2N4014	1.2	80	50	6	35-	500	1	0.52 1.2	50	500	300	12	35	60	500	To-18
2N4046	3.5	50	30	6	30-	500	1	0.42 1.2	50	500	250	12	35	60	500	To-5
2N4047	3.5	80	50	6	20-	500	1	0.52 1.2	50	500	250	10	35	60	500	To-5

NOTE: (a) = t<sub>s</sub> (storage time)

SILICON PLANAR TRANSISTORS — MEDIUM POWER

TYPE	POLARITY	POWER DISSIPATION (WATTS)	V <sub>BE</sub> (VOLTS)	V <sub>CE</sub> (VOLTS)	MIN-MAX I <sub>BE</sub> (MA)	I <sub>C</sub> (MA)	V <sub>CE</sub> (VOLTS)	V <sub>CE</sub> (VOLTS)	I <sub>C</sub> (MA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CO</sub> @ 25°C (µA)	V <sub>CE</sub> (VOLTS)	I <sub>CO</sub> @ 150°C (µA)	V <sub>CE</sub> (VOLTS)	CASE STYLE
2N497	NPN	(B) 4	60	60	12 36	200 10	2	—	40 200	—	60	10 30	250 30	—	—	To-5
2N497A	NPN	(B) 5	60	60	12 36	200 10	2	—	40 200	—	60	10 30	250 30	—	—	To-5
2N498	NPN	(B) 4	100	100	12 36	200 10	2	—	40 200	—	60	10 30	—	—	—	To-5
2N498A	NPN	(B) 5	100	100	12 36	200 10	2	—	40 200	—	60	10 30	250 30	—	—	To-5
2N545	NPN	(C) 5	60	40	15 80	500 6	5	6	50 500	—	100	15 60	200 60	—	—	To-5
2N546	NPN	(C) 5	30	30	15 80	500 6	3	4	50 500	—	*80	15 30	200 30	—	—	To-5
2N547	NPN	(C) 5	60	60	20 80	500 6	5	6	50 500	4	*80	15 60	200 60	—	—	To-5
2N548	NPN	(C) 5	30	30	20 80	500 6	3	4	50 500	4	*80	15 30	200 30	—	—	To-5
2N549	NPN	(C) 5	60	60	20 80	200 6	4	5	20 200	—	100	15 60	200 60	—	—	To-5
2N550	NPN	(C) 5	30	30	20 80	200 6	4	5	20 200	—	100	15 30	200 30	—	—	To-5
2N551	NPN	(C) 3	60	60	20 80	50 6	2	2.5	5 50	—	100	15 60	200 60	—	—	To-5
2N552	NPN	(C) 3	30	30	20 80	50 6	2	2.5	5 50	—	60	15 30	200 30	—	—	To-5
2N658	NPN	(B) 4	60	60	30 90	200 10	5	—	40 200	12	60	10 30	60 30	—	—	To-5
2N658A	NPN	(B) 5	60	60	30 90	200 10	2	—	10 200	—	60	10 30	250 30	—	—	To-5
2N657	NPN	(B) 4	100	100	30 90	200 10	5	—	40 200	12	60	10 30	60 30	—	—	To-5
2N657A	NPN	(B) 5	100	100	30 90	200 10	2	—	10 200	—	60	10 30	250 30	—	—	To-5
2N721	PNP	0.4	50	35	20 45	150 10	1.5	1.3	15 150	50	45	1 30	100 30	—	—	To-18
2N722	PNP	0.4	50	35	30 90	150 10	1.5	1.3	15 150	60	45	1 30	100 30	—	—	To-18
2N722A	PNP	0.5	50	35	30 90	150 10	1.5	1.3	15 150	60	45	0.1 30	10 30	—	—	To-18
2N728	PNP	(B) 1	25	20	15 45	10 1	0.6	1	1 10	140	5	1 25	25 25	—	—	To-18
2N727	PNP	(B) 1	25	20	30 120	10 1	0.6	1	1 10	140	5	1 25	25 25	—	—	To-18
2N1052	NPN	(C) 5	200	155	20 80	200 6	5	4	20 200	8	*50	10 200	100 200	—	—	To-5
2N1053	NPN	(C) 5	180	135	20 80	200 6	5	4	20 200	8	*50	10 180	100 180	—	—	To-5
2N1054	NPN	(C) 5	125	115	20	200 6	4	4	20 200	8	*50	5 125	—	—	—	To-5
2N1055	NPN	0.15	100	100	20 80	50 6	2	—	5 50	3	—	15 100	200 100	—	—	To-5
2N1084	PNP	(C) 5	60	50	15 60	1500 10	1.5	3	50 500	25	—	1 30	200 30	—	—	To-5
2N1116	NPN	(C) 5	60	60	40 150	500 6	5	4	50 500	6	*80	15 60	200 60	—	—	To-5
2N1117	NPN	(C) 5	60	60	40 150	200 6	4	3	20 200	4	—	15 60	200 60	—	—	To-5
2N1131	PNP	0.6	50	35	20 45	150 10	1.5	1.3	15 150	90	45	1 30	100 30	—	—	To-5
2N1131A	PNP	0.6	60	40	20 45	150 10	1.5	1.3	15 150	90	45	0.5 45	50 45	—	—	To-5
2N1132	PNP	0.6	50	35	30 90	150 10	1.5	1.3	15 150	90	45	1 30	100 30	—	—	To-5
2N1132A	PNP	0.6	60	40	30 90	150 10	1.5	1.3	15 150	90	45	0.5 45	50 45	—	—	To-5
2N1132B	PNP	0.6	70	50	30 75	150 10	1.5	1.3	15 150	90	30	0.010 50	10 50	—	—	To-5
2N1445	NPN	(B) 4	120	120	20 80	200 10	4	—	40 200	—	—	10 120	200 30	—	—	To-5
2N1478	NPN	(B) 5	60	40	20 60	200 4	1.4	—	20 200	1.5	—	10 30	500 30	—	—	To-5
2N1480	NPN	(B) 5	100	55	20 60	200 4	1.4	—	20 200	1.5	—	10 30	500 30	—	—	To-5
2N1481	NPN	(B) 5	60	40	35 100	200 4	1.4	—	10 200	1.5	—	10 30	500 30	—	—	To-5
2N1482	NPN	(B) 5	100	55	35 100	200 4	1.4	—	10 200	1.5	—	10 30	500 30	—	—	To-5
2N1615	NPN	(C) 5	100	100	25	5 10	5	5	5 50	5	100	2 60	200 60	—	—	To-5
2N1647	NPN	(B) 40	80	60	15 45	500 10	3	—	100 1000	10	—	100 60	1000 60	—	—	1G-39
2N1648	NPN	(B) 40	120	80	15 45	500 10	3	—	100 1000	10	—	100 60	1000 60	—	—	1G-39
2N1649	NPN	(B) 40	80	60	30 90	500 10	3	—	100 1000	10	—	100 60	1000 60	—	—	1G-39
2N1650	NPN	(B) 40	120	80	30 90	500 10	3	—	100 1000	10	—	100 60	1000 60	—	—	1G-39
2N1700	NPN	(B) 5	60	40	20 80	100 4	10	—	10 100	—	100	500 60	—	60	—	To-5
2N1714	NPN	(C) 10	60	60	20 60	200 5	2	—	20 200	16	50	2 60	—	—	—	To-5
2N1715	NPN	(C) 10	100	100	20 60	200 5	2	—	20 200	16	50	2 60	—	—	—	To-5
2N1718	NPN	(C) 10	60	60	40 120	200 5	2	—	20 200	16	50	2 60	—	—	—	To-5
2N1717	NPN	(C) 10	100	100	40 120	200 5	2	1.6	20 200	16	50	—	—	—	—	To-5
2N1718	NPN	(C) 10	60	60	20 60	200 5	2	1.6	20 200	16	50	—	—	—	—	To-5
2N1719	NPN	(C) 10	100	100	20 60	200 5	2	—	20 200	16	50	2 60	—	—	—	1G-32
2N1720	NPN	(C) 10	60	60	40 120	200 5	2	—	20 200	16	50	2 60	—	—	—	1G-32
2N1721	NPN	(C) 10	100	100	40 120	200 5	2	1.6	20 200	16	50	—	—	—	—	To-5
2N1888	NPN	(B) 40	80	60	20 80	500 10	5	—	100 1000	10	—	350 60	1000 60	—	—	1G-39
2N2018	NPN	(B) 40	150	125	20 60	500 10	6	—	100 1000	10	—	100 100	3000 100	—	—	1G-39
2N2019	NPN	(B) 40	200	140	20 60	500 10	6	—	100 1000	10	—	100 100	3000 100	—	—	1G-39
2N2020	NPN	(B) 40	150	125	40 90	500 10	6	—	100 1000	10	—	100 100	3000 100	—	—	1G-39
2N2021	NPN	(B) 4	200	140	40 90	500 10	6	—	100 1000	10	—	100 100	3000 100	—	—	1G-39
2N2108	NPN	1	60	60	12 36	200 10	5	—	40 200	—	—	10 30	—	—	—	To-5
2N2107	NPN	1	60	60	30 90	200 10	2	—	40 200	—	—	10 30	—	—	—	To-5

(B) P.D. @ 25°C case (C) P.D. @ 100°C case \* Typical

SILICON PLANAR TRANSISTORS — MEDIUM POWER . . . cont'd

TYPE	POLARITY	POWER DISSIPATION (Watts)	V <sub>CE0</sub> (Volts)	V <sub>CE0</sub> (Volts)	MIN.-MAX. I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CO</sub> @ 25°C (μA)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	V <sub>CE</sub> (Volts)	I <sub>C</sub> (mA)	CASE STYLE
2N2108	NPN	1	60	60	75 200	200 10	2	—	10	200	—	—	—	10	30	—	—	To-5
2N2150	NPN	(C) 30	125	80	20 60	1(A) 5	1.25	2	100	1000	10	—	—	10	120	100	120	1G-57†
2N2151	NPN	(C) 30	125	80	40 120	1(A) 5	1.25	2	100	1000	10	—	—	10	120	100	120	1G-57†
2N2201	NPN	(B) 15	120	100	30 90	200 10	1.7	—	40	200	—	—	—	50	120	200	30	To-5
2N2303	NPN	0.6	50	35	75 200	150 10	1.5	1.3	15	150	60	45	—	1	30	100	30	To-5
2N2866	NPN	(C) 20	120	80	20 60	500 5	2	—	200	2000	10	*170	—	100	120	—	—	1G-57†
2N2867	NPN	(C) 20	120	80	40 120	500 5	2	—	200	2000	10	*170	—	100	120	—	—	1G-57†
2N2877	NPN	30	80	60	20 60	1 2	.25	1.2	.100	1	20	150	—	—	—	—	—	To-59
2N2878	NPN	30	80	60	40 120	1 2	.25	1.2	.100	1	20	150	—	—	—	—	—	To-59
2N2878	NPN	30	100	80	20 60	1 2	.25	1.2	.100	1	20	150	—	—	—	—	—	To-59
2N2880	NPN	30	100	80	40 120	1 2	.25	1.2	.100	1	20	150	—	—	—	—	—	To-59
2N2890	NPN	(B) 5	100	80	30 90	1000 2	.5	1.2	100	1000	30	70	—	.1	60	100	60	To-5
2N2891	NPN	(B) 5	100	80	50 150	1000 2	.5	1.2	100	1000	30	70	—	.1	60	100	60	To-5
2N2892	NPN	(B) 30	100	80	30 90	1000 2	.5	1.2	100	1000	30	70	—	.1	60	100	60	1G-57
2N2893	NPN	(B) 30	100	80	50 150	1000 2	.5	1.2	100	1000	30	70	—	.1	60	100	60	1G-57
2N2987	NPN	15	95	80	25 75	.200 5	.8	1.0	.020	.200	30	50	—	.025	90	—	—	To-5
2N2988	NPN	15	155	100	25 75	.200 5	.8	1.0	.020	.200	30	50	—	.025	150	—	—	To-5
2N2989	NPN	15	95	80	60 120	.200 5	.8	1.0	.020	.200	30	50	—	.025	90	—	—	To-5
2N2990	NPN	15	155	100	60 120	.200 5	.8	1.0	.020	.200	30	50	—	.025	150	—	—	To-5
2N2991	NPN	15	95	80	25 75	.200 5	.8	1.0	.020	.200	30	50	—	.03	95	—	—	MT-13
2N2992	NPN	15	155	100	25 75	.200 5	.8	1.0	.020	.200	30	50	—	.03	155	—	—	MT-13
2N2993	NPN	15	95	80	60 120	.200 5	.8	1.0	.020	.200	30	50	—	.03	95	—	—	MT-13
2N2994	NPN	15	155	100	60 120	.200 5	.8	1.0	.020	.200	30	50	—	.03	155	—	—	MT-13
2N3114	NPN	5	150	150	30 120	.030 10	1	1.9	.005	.050	40	9	—	.010	100	10	100	To-5
2N3418	NPN	10	80	60	20 60	1 2	.25	1.2	.100	1	40	130	—	.030	80	50	80	To-5
2N3418	NPN	10	125	80	20 60	1 2	.25	1.2	.100	1	40	130	—	.030	120	50	120	To-5
2N3420	NPN	10	85	60	40 120	1 2	.25	1.2	.100	1	40	130	—	.030	80	50	80	To-5
2N3421	NPN	10	125	80	40 120	1 2	.25	1.2	.100	1	40	130	—	.030	120	50	120	To-5
2N3054	NPN	(B) 25	90	60	25 100	500 4	1	1.7	50	500	—	—	—	—	—	—	—	To-66
2N3441	NPN	(B) 25	160	140	20 80	500 4	6	6.7	900	2700	—	—	—	—	—	—	—	To-66
2N3634	PNP	(A) 5	140	140	50 150	50 10	.6	.9	5	50	150	10	—	.1	100	—	—	To-5
2N3635	PNP	(A) 5	140	140	100 300	50 10	.6	.9	5	50	200	10	—	.1	100	—	—	To-5
2N3636	PNP	(A) 5	175	175	50 150	50 10	.6	.9	5	50	150	10	—	.1	100	—	—	To-5
2N3637	PNP	(A) 5	175	175	100 300	50 10	.6	.9	5	50	200	10	—	.1	100	—	—	To-5
2N3496	NPN	5.0	100	100	40 120	.150 10	.6	1.4	.030	.300	150	80	—	.05	100	—	—	To-5
2N3499	NPN	5.0	100	100	100 300	.150 10	.6	1.4	.030	.300	150	80	—	.05	100	—	—	To-5
2N3500	NPN	5.0	150	150	40 120	.150 10	.6	1.4	.030	.30	150	80	—	.05	150	—	—	To-5
2N3501	NPN	5.0	150	150	100 300	.150 10	.6	1.4	.030	300	150	80	—	.05	150	—	—	To-5
2N3589	NPN	10	200	150	30 90	.200 8	2	—	.040	.200	15	—	—	1	100	100	100	MD-14
2N3590	NPN	10	200	150	75 150	.200 8	2	—	.040	.200	15	—	—	1	100	100	100	MD-14
2N3710	PNP	6	40	40	25 180	1 1.5	.75	1.5	.100	1	60	120	—	10	80	—	—	To-5
2N3720	PNP	6	60	60	25 180	1 1.5	.75	1.5	.100	1	60	120	—	10	60	—	—	To-5
2N3740	PNP	25	60	60	30 100	.250 1	.6	—	.125	1	3	100	—	100	60	—	—	To-66
2N3741	PNP	25	80	80	30 100	.250 1	.6	—	.125	1	3	100	—	100	80	—	—	To-66
2N3744	NPN	30	60	40	20 60	1 5	.25	1.2	.100	1	20	150	—	.400	30	—	—	*To-59
2N3745	NPN	30	80	60	20 60	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3746	NPN	30	100	80	20 60	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3747	NPN	30	60	40	40 120	1 5	.25	1.2	.100	1	20	150	—	.400	30	—	—	*To-59
2N3748	NPN	30	80	60	40 120	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3749	NPN	30	100	80	40 120	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3750	NPN	30	60	40	100 300	1 5	.25	1.2	.100	1	20	150	—	.400	30	—	—	*To-59
2N3751	NPN	30	80	60	100 300	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3752	NPN	30	100	80	100 300	1 5	.25	1.2	.100	1	20	150	—	.400	60	—	—	*To-59
2N3766	NPN	(B) 20	80	60	40 160	500 5	1	—	50	500	15	50	—	.1	80	—	—	To-66
2N3860	PNP	(C) 5	40	30	25 100	500 10	1.2	—	50	500	30	275	—	0.1	100	20	20	To-5
2N3861	PNP	(C) 5	60	50	25 100	500 10	1.2	1.8	50	500	30	275	—	0.1	100	20	20	To-5
2N3767	NPN	(B) 20	100	80	40 160	500 5	1	—	50	500	15	50	—	.1	100	—	—	To-66
2N4026	PNP	(A) 2	60	60	40 120	100 5	.5	1.1	50	500	100	20	—	.05	50	50	50	To-18
2N4027	PNP	(A) 2	80	80	100 300	100 5	.5	1.1	50	500	150	20	—	.05	60	50	60	To-18
2N4028	PNP	(A) 2	60	60	40 120	100 5	.5	1.1	50	500	100	20	—	.05	50	50	50	To-18

Notes: (A) h<sub>fe</sub> @ f = 1 kc (B) P.D. @ 25°C case (C) P.D. @ 100°C case

\*Collector isolated from case † Also available in Isolated TO-59 package

SILICON PLANAR TRANSISTORS — MEDIUM POWER ... cont'd

TYPE	POLARITY	POWER DISSIPATION (watts)	V <sub>CE</sub> (volts)		I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	V <sub>CE</sub> (volts)	V <sub>CE</sub> (volts)	I <sub>C</sub> (mA)	I <sub>C</sub> (mA)	f <sub>T</sub> (mc)	C <sub>ob</sub> (pF)	I <sub>CE</sub> @ 25°C (mA)		I <sub>CE</sub> @ 150°C (mA)		CASE STYLE
			MIN.	MAX.									V <sub>CE</sub> (volts)	V <sub>CE</sub> (volts)	I <sub>CE</sub> (mA)	I <sub>CE</sub> (mA)	
2N4029	PNP	(A) 2	80	80	100	300	100	5	.5	1.1	50	500	150	20	.05	60	To-18
2N4030	PNP	(S) 4	60	60	40	120	100	5	.5	1.1	50	500	100	20	.05	50	To-5
2N4031	PNP	(S) 4	80	80	100	300	100	5	.5	1.1	50	500	150	20	.05	60	To-5
2N4032	PNP	(S) 4	60	60	40	120	100	5	.5	1.1	50	500	100	20	.05	50	To-5
2N4033	PNP	(S) 4	80	80	100	300	100	5	.5	1.1	50	500	150	20	.05	60	To-5
2N3850	NPN	30	100	80	50	150	1	1	.25	1.2	.050	1	20	125	1	100	To-59
2N3867	PNP	6	40	40	40	200	1.5	2	.75	1.4	.150	1.5	60	120	1	40	To-5
2N3868	PNP	6	60	60	30	150	1.5	2	.75	1.4	.150	1.5	60	120	1	60	To-5
2N4000	NPN	15	100	80	30	120	.500	2	.3	1.0	.050	.500	40	60	2	90	To-5
2N4001	NPN	15	120	100	40	120	.500	2	.3	1.0	.050	.500	40	60	2	110	To-5
2N4111	NPN	30	100	60	40	120	2	5	0.6	1.3	0.2	2.0	50	120	2ma	100	To-3
2N4112	NPN	30	100	60	100	300	2	5	0.6	1.3	0.2	2.0	60	120	2ma	100	To-3
2N4113	NPN	30	120	80	40	120	2	5	0.6	1.3	0.2	2.0	50	120	2ma	100	To-3
2N4114	NPN	30	120	80	100	300	2	5	0.6	1.3	0.2	2.0	60	120	2ma	100	To-3
2N4231	NPN	35	40	40	25	100	0.5	2	0.7	—	0.15	1.5	4	200	50	40	To-66
2N4232	NPN	35	60	60	25	100	0.5	2	0.7	—	0.15	1.5	4	200	50	60	To-66
2N4233	NPN	35	80	80	25	100	0.5	2	0.7	—	0.15	1.5	4	200	50	80	To-66
2N4234	PNP	6	40	40	30	150	.250	1	.6	1.5	.125	1	3	100	100	40	To-5
2N4235	PNP	6	60	60	30	150	.250	1	.6	1.5	.125	1	3	100	100	60	To-5
2N4236	PNP	6	80	80	30	150	.250	1	.6	1.5	.125	1	3	100	100	80	To-5
2N4237	NPN	5	50	40	30	150	.250	1	.6	1.5	.125	1	1	100	100	50	To-5
2N4238	NPN	5	80	60	30	150	.250	1	.6	1.5	.125	1	1	100	100	80	To-5
2N4239	NPN	5	100	80	30	150	.250	1	.6	1.5	.125	1	1	100	100	100	To-5
2N4271	NPN	(C) 5	175	140	20	140	200	10	.8	1	20	200	20	25	.5	30	To-5
2N4272	NPN	(C) 5	175	140	20	140	200	10	2	1.1	667	2000	10	75	.1	50	To-5
2N4273	NPN	(B)25*	175	140	20	140	1000	10	2	1.1	667	2000	10	75	.1	50	To-66
2N4300	NPN	15	100	80	30	120	1	2	.3	—	.100	1	30	—	10	90	To-5
2N4387	PNP	(B)20	40	40	25	100	500	10	3	1.5	100	1000	25	275	—	—	To-66
2N4388	PNP	(B)20	60	60	25	100	500	10	3	1.5	100	1000	25	275	—	—	To-66
2N4862	NPN	4	140	120	50	150	0.5	5	0.2	1.2	0.05	0.5	50	50	0.1	60	To-46
2N4863	NPN	4	140	120	50	150	0.5	5	0.2	1.2	0.05	0.5	50	50	0.1	60	To-5
2N4864	NPN	16	140	120	50	150	0.5	5	0.2	1.2	0.05	0.5	50	50	0.1	60	To-66
2N4877	NPN	10	70	60	20	100	4	2	1.0	1.8	0.4	4	4	100	100	70	To-5
2N4898	PNP	25	40	40	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	40	To-66
2N4899	PNP	25	60	60	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	60	To-66
2N4900	PNP	25	80	80	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	80	To-66
2N4910	NPN	25	40	40	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	40	To-66
2N4911	NPN	25	60	60	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	60	To-66
2N4918	NPN	25	80	80	20	100	0.5	1.0	0.6	1.3	0.1	1	3	100	100	80	To-66
2N4928	PNP	3	100	100	25	200	0.01	10	0.5	—	0.001	0.01	1	6	0.5	50	To-5
2N4929	PNP	5	150	150	25	200	0.01	10	0.5	—	0.001	0.01	1	6	0.5	75	To-5
2N4930	PNP	5	200	200	20	200	0.01	10	5.0	—	0.001	0.01	1	20	1.0	150	To-5
2N4931	PNP	5	250	250	20	200	0.01	10	5.0	—	0.001	0.01	1	20	1.0	150	To-5
2N4998	NPN	30	100	80	30	90	1	5	0.46	1.2	0.1	1	50	70	1.0	60	To-59
2N4999	PNP	30	100	80	30	90	1	5	0.85	1.5	0.2	2.0	50	120	50	60	To-59
2N5000	NPN	30	100	80	70	200	1	5	0.46	1.2	0.1	1	60	70	1	60	To-59
2N5001	PNP	30	100	80	70	200	1	5	0.85	1.5	0.2	2.0	60	120	50	60	To-59
2N5002	NPN	50	100	80	30	90	2.5	5	0.75	1.45	0.25	2.5	60	250	1	60	To-59
2N5003	PNP	50	100	80	30	90	2.5	5	0.75	1.45	0.25	2.5	60	250	50	60	To-59
2N5004	NPN	50	100	80	70	200	2.5	5	0.75	1.45	0.25	2.5	70	250	1	60	To-59
2N5005	PNP	50	100	80	70	200	2.5	5	0.75	1.45	0.25	2.5	70	250	50	60	To-59
2N5074	NPN	40	200	200	30	110	0.5	5	2.0	2.2	0.3	3.0	40	100	.25	200	To-59
2N5075	NPN	40	200	200	90	250	0.5	5	2.0	2.2	0.3	3.0	40	100	.25	200	To-59
2N5076	NPN	40	250	250	30	110	0.5	5	2.0	2.2	0.3	3.0	40	100	.25	250	To-59
2N5077	NPN	40	250	250	90	250	0.5	5	2.0	2.2	0.3	3.0	40	100	.25	250	To-59
2N5083	NPN	35	60	60	40	120	2	2	1.0	1.8	2	10	50	80	1	120	To-59
2N5084	NPN	35	60	60	100	300	2	2	1.0	1.8	2	10	80	80	1	120	To-59
2N5085	NPN	35	80	80	40	120	2	2	1.0	1.8	2	10	50	80	1	150	To-59
2N5110	PNP	0.5	40	40	15	60	0.5	4	0.9	1.4	0.050	0.500	8	500	75μ	40	To-5
2N5111	PNP	0.5	80	80	15	60	0.5	4	0.9	1.4	0.050	0.500	8	500	75μ	80	To-5
2N5112	PNP	34	40	40	15	60	0.5	4	0.9	1.4	0.050	0.500	8	500	75μ	40	To-5
2N5113	PNP	34	80	80	15	60	0.5	4	0.9	1.4	0.050	0.500	8	500	75μ	80	To-5

Notes: (B) P.D. @ 25°C case (C) P.D. @ 100°C case

SILICON PLANAR POWER TRANSISTORS

TYPE	POLARITY	POWER DISSIPATION (WATTS) (B)			MIN-MAX I <sub>h</sub> (mA)	V <sub>ce</sub> (volts)	I <sub>c</sub> (amps)	V <sub>ce(sat)</sub> (volts)	V <sub>be</sub> (volts)	I <sub>c</sub> (amps)	I <sub>c</sub> (amps)	f <sub>t</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>co</sub> @ 25°C (μA)		I <sub>co</sub> @ 150°C (μA)		CASE STYLE
		V <sub>ce</sub> (volts)	I <sub>c</sub> (amps)	I <sub>c</sub> (amps)										V <sub>ce</sub> (volts)	I <sub>c</sub> (amps)			
2N389	NPN	45	60	60	12 60	1 15	5	—	0.2	1	8	—	—	—	—	—	To-53	
2N389A	NPN	45	60	60	12 60	1 4	0.75	—	0.2	1	8	—	—	—	—	—	To-53	
2N424	NPN	45	80	80	12 60	1 15	10	—	0.2	1	8	—	—	—	—	—	To-53	
2N424A	NPN	45	80	80	12 60	1 4	0.75	—	0.2	1	8	—	—	—	—	—	To-53	
2N1208	NPN	45	60	60	15 —	2 12	5	—	.25	2	—	—	—	10	60	—	To-61	
2N1209	NPN	45	45	45	20 80	2 12	5	—	0.25	2	—	—	—	20	45	—	To-61	
2N1210	NPN	30	60	60	15 75	2 12	2	—	0.25	2	—	—	—	—	—	10	60	To-53
2N1211	NPN	30	80	80	15 75	2 12	2	—	0.25	2	—	—	—	—	—	10	80	To-53
2N1212	NPN	45	60	60	12 36	1 15	5	—	0.2	1	—	—	—	—	—	—	—	To-61
2N1235	NPN	45	120	120	12 60	1 15	5	—	0.2	1	—	—	—	—	—	—	—	To-53
2N1250	NPN	45	60	60	15 —	2 12	5	—	.25	2	—	—	—	20	45	—	—	To-53
2N1260	NPN	50	120	120	12 60	1 15	10	—	.2	1	3	—	—	—	—	10	60	To-61
2N1616	NPN	30	60	60	15 75	2 12	2	—	0.25	2	—	—	—	(C) 10	120	—	—	To-53
2N1616A	NPN	30	60	60	20 60	2 4	—	—	—	—	3	—	—	—	—	1	60	To-61
2N1617	NPN	30	80	70	15 75	2 12	2	—	.25	2	3	—	—	—	—	10	80	To-61
2N1617A	NPN	30	80	70	20 60	2 4	—	—	—	—	3	—	—	—	—	1	80	To-61
2N1618	NPN	30	100	80	15 75	2 12	2	—	0.25	2	3	—	—	—	—	10	100	To-61
2N1618A	NPN	30	100	80	20 60	2 4	—	—	—	—	3	—	—	—	—	1	100	To-61
2N1620	NPN	30	100	80	15 75	2 12	2	—	.25	2	3	—	—	—	—	10	100	To-53
2N1722	NPN	50	120	80	20 90	2 15	1 2	—	0.25	2	10	550	(A) 1	60	(A) 2	60	—	To-53
2N1722A	NPN	50	180	120	30 90	2 15	1.5	2	0.5	5	10	550	0.5	9	—	—	—	To-53
2N1723	NPN	50	120	80	50 150	2 15	1.0	2	0.2	2	10	550	0.1	30	—	—	—	To-53
2N1724	NPN	50	120	80	20 90	2 15	1.0	2	0.2	2	10	550	(A) 1	60	(A) 2	60	—	To-61
2N1724A	NPN	50	180	120	30 90	2 15	1.5	2	0.5	5	10	550	0.5	9	—	—	—	To-61
2N1725	NPN	50	120	80	50 150	2 15	1.0	2	0.2	2	10	550	0.1	30	—	—	—	To-61
2N1936	NPN	150	125	60	7 50	10 3	.75	1.5	1.6	10	4	1800	—	—	—	—	—	To-63
2N1937	NPN	150	125	80	7 50	10 3	.75	1.5	1.6	10	4	1800	—	—	—	—	—	To-63
2N2875	PNP	20	60	50	20 60	0.5 6	1.5	—	0.05	0.5	25	—	—	0.001	30	0.2	30	1G-57†
2N3149	NPN	300	80	80	10 —	50 3	1.5	2.5	10	50	10	—	—	—	—	—	—	To-114
2N3150	NPN	300	100	100	10 —	50 3	1.5	2.5	10	50	10	—	—	—	—	—	—	To-114
2N3151	NPN	300	150	150	10 —	50 3	1.5	2.5	10	50	10	—	—	—	—	—	—	To-114
2N3597	NPN	100	60	40	40 120	10 2	.5	1.5	1	10	30	700	.1	60	—	—	—	To-63
2N3598	NPN	100	80	60	40 120	10 2	.5	1.5	1	10	30	700	.1	60	—	—	—	To-63
2N3599	NPN	100	100	80	40 120	10 2	.5	1.5	1	10	30	700	.1	60	—	—	—	To-63
2N3713	NPN	150	60	60	25 90	1 2	1	2	0.5	5	4	—	1ma	60	10ma	60	—	To-3
2N3714	NPN	150	80	80	25 90	1 2	1	2	0.5	5	4	—	1ma	80	10ma	80	—	To-3
2N3715	NPN	150	60	60	50 150	1 2	0.8	1.5	0.5	5	4	—	1ma	60	10ma	60	—	To-3
2N3716	NPN	150	80	80	50 150	1 2	0.8	1.5	0.5	5	4	—	1ma	80	10ma	80	—	To-3
2N3789	PNP	150	60	60	25 90	1 2	1.0	2.0	0.4	4	4	—	1ma	60	5ma	60	—	To-3
2N3790	PNP	150	80	80	25 90	1 2	1.0	2.0	0.4	4	4	—	1ma	80	5ma	80	—	To-3
2N3791	PNP	150	60	60	50 150	1 2	1.0	1.5	0.5	5	4	—	1ma	60	5ma	60	—	To-3
2N3792	PNP	150	80	80	50 150	1 2	1.0	1.5	0.5	5	4	—	1ma	80	5ma	80	—	To-3
2N3851	NPN	30	100	80	30 90	1 1	.25	1.2	.050	1	20	125	.1	100	—	—	—	To-59
2N3852	NPN	30	60	40	50 150	1 1	.25	1.2	.050	1	20	125	.1	60	—	—	—	To-59
2N3853	NPN	30	60	40	30 80	1 1	.25	1.2	.050	1	20	125	.1	60	—	—	—	To-59
2N3878	NPN	35	120	50	50 200	.500 5	2	—	.400	4	40	175	—	—	—	—	—	To-66
2N3996	NPN	30	100	80	40 120	1 2	.25	1.2	.100	1	30	150	5	90	50	90	—	To-59*
2N3997	NPN	30	100	80	80 240	1 2	.25	1.2	.100	1	30	150	5	90	50	90	—	To-59*
2N3998	NPN	30	100	80	40 120	1 2	.25	1.2	.100	1	30	150	5	90	50	90	—	To-59

† Also available in TO-59 package \* Typical

SILICON PLANAR POWER TRANSISTORS . . . cont'd

TYPE	POLARITY	POWER DISSIPATION (mWatts) (B)	P <sub>CEC</sub> (Volts)	P <sub>CEO</sub> (Volts)	MIN-MAX. V <sub>BE</sub>	I <sub>C</sub> (amps)	V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)		I <sub>C</sub> (amps)	I <sub>C</sub> (amps)	f <sub>T</sub> (mHz)	C <sub>ob</sub> (pF)	I <sub>CEO @ 25°C (µA)</sub>		I <sub>CEO @ 150°C (µA)</sub>		CASE STYLE
								V <sub>CE</sub> (Volts)	V <sub>CE(sat)</sub> (Volts)					I <sub>CEO</sub> (µA)	I <sub>CEO</sub> (µA)	V <sub>CE</sub> (Volts)	V <sub>CE</sub> (Volts)	
2N3999	NPN	30	100	80	80 240	1 2	.25	1.2	.100	1	30	150	5	90	50	90	To-59	
2N4002	NPN	100	100	80	20 80	15 4	1.2	—	4	30	30	—	1000	90	2000	90	To-63	
2N4003	NPN	100	120	100	20 80	15 4	1.2	—	4	30	30	—	1000	110	2000	110	To-63	
2N4070	NPN	65	120	100	40 120	5 5	0.6	—	0.5	5.0	40	200	0.1	60	—	—	To-3	
2N4071	NPN	65	200	150	40 120	5 5	0.6	—	0.5	5.0	40	200	0.1	60	—	—	To-3	
2N4075	NPN	17	100	80	30 90	1 2	1.1	1.8	0.2	2.0	30	70	0.1	60	—	—	To-59*	
2N4076	NPN	17	100	80	50 150	1 2	1.1	1.8	0.2	2.0	30	70	0.1	60	—	—	To-59*	
2N4210	NPN	100	80	60	20 100	10 6	1	—	1	10	10	850	(A)0.5	60	—	—	To-63	
2N4211	NPN	100	100	80	20 100	10 6	1	—	1	10	10	850	(A)0.5	80	—	—	To-63	
2N4301	NPN	50	100	80	30 120	5 4	.4	—	.500	5	40	—	10	90	500	90	To-61	
2N4347	NPN	100	140	120	15 60	2 4	1.0	—	0.2	2	2	—	—	—	—	—	To-3	
2N4348	NPN	120	140	120	15 60	5 4	1.0	—	0.5	5.0	2	—	—	—	—	—	To-3	
2N4864	NPN	16	140	120	50 150	.500 5	.2	1.2	.050	.050	30	50	.100	60	—	—	To-66	
2N4865	NPN	350	100	80	10 40	70 5	2.5	2.5	7	70	10	—	1	60	—	—	To-114	
2N4866	NPN	350	140	120	10 40	70 5	2.5	2.5	7	70	10	—	1	60	—	—	To-114	
2N5007	PNP	100	100	80	30 90	5 5	0.9	1.8	0.5	5.0	30	500	50	60	500	60	To-61	
2N5009	PNP	100	100	80	70 200	5 5	0.9	1.8	0.5	5.0	40	500	50	60	500	60	To-61	
2N5239	NPN	100	300	225	20 80	2 10	5	—	1.125	4.5	5	—	4	300	5	300	To-3	
2N5240	NPN	100	375	300	20 80	2 10	5	—	1.125	4.5	5	—	2	375	3	300	To-3	
2N5250	NPN	200	125	100	15 60	40 5	1.0	1.8	4	40	10	—	100	125	—	—	To-114	
2N5251	NPN	200	180	150	15 60	40 5	1.5	1.8	4	40	10	—	100	180	—	—	To-114	
2N5404	PNP	5	80	80	20 60	2 5	0.6	1.2	.2	2	40	150	10µa	80	500µa	80	To-5	
2N5405	PNP	5	100	100	20 60	2 5	0.6	1.2	.2	2	40	150	10µa	100	500µa	100	To-5	
2N5406	PNP	5	80	80	40 120	2 5	0.6	1.2	.2	2	40	150	10µa	80	500µa	80	To-5	
2N5407	PNP	5	100	100	40 120	2 5	0.6	1.2	.2	2	40	150	10µa	100	500µa	100	To-5	
2N5408	PNP	30	80	80	20 60	2 5	0.6	1.2	.2	2	40	150	10µa	80	500µa	80	To-111	
2N5409	PNP	30	100	100	20 60	2 5	0.6	1.2	.2	2	40	150	10µa	100	500µa	100	To-111	
2N5410	PNP	30	80	80	40 120	2 5	0.6	1.2	.2	2	40	150	10µa	80	500µa	80	To-111	
2N5411	PNP	30	100	100	40 120	2 5	0.6	1.2	.2	2	40	150	10µa	100	500µa	100	To-111	
2N5477	NPN	60	80	80	30 120	2 2	0.7	1.2	.2	2	30	250	10µa	75	1ma	75	To-59	
2N5478	NPN	60	80	80	60 240	2 2	0.7	1.2	.2	2	30	250	10µa	75	1ma	75	To-59	
2N5479	NPN	60	100	100	30 120	2 2	0.7	1.2	.2	2	30	250	10µa	90	1ma	90	To-59	
2N5480	NPN	60	100	100	60 240	2 2	0.7	1.2	.2	2	30	250	10µa	90	1ma	90	To-59	
ST14011	NPN	200	100	60	40 200	20 5	0.6	2.0	2	20	10	850	10	80	100	80	To-63	
ST14012	NPN	200	125	80	40 200	20 5	0.6	2.0	2	20	10	850	10	100	100	100	To-63	
ST14013	NPN	200	150	100	40 200	20 5	0.6	2.0	2	20	10	850	10	120	100	120	To-63	
ST15013	NPN	125	100	60	40 200	10 5	0.6	2.0	1	10	10	550	10	80	100	80	To-63	
ST15014	NPN	125	125	80	40 200	10 5	0.6	2.0	1	10	10	550	10	100	100	100	To-63	
ST15015	NPN	125	150	100	40 200	10 5	0.6	2.0	1	10	10	550	10	120	100	120	To-63	
ST72011	PNP	30	40	40	30 200	1.5 2	0.75	1.5	.150	1.5	30	150	1	30	—	—	To-59	
ST72012	PNP	30	60	60	30 200	1.5 2	0.75	1.5	.150	1.5	30	150	1	40	—	—	To-59	
ST72013	PNP	30	80	80	30 200	1.5 2	0.75	1.5	.150	1.5	30	150	1	60	—	—	To-59	
ST72014	PNP	30	100	100	30 200	1.5 2	0.75	1.5	.150	1.5	30	150	1	80	—	—	To-59	
ST72015	PNP	50	60	60	30 200	3 2	1.0	2.0	.500	5	10	400	10	60	—	—	To-61	
ST72016	PNP	50	80	80	30 200	3 2	1.0	2.0	.500	5	10	400	10	60	—	—	To-61	
ST72017	PNP	50	100	100	30 200	3 2	1.0	2.0	.500	5	10	400	10	80	—	—	To-61	
ST72018	PNP	100	40	40	20 200	10 5	.75	1.5	1	10	10	800	10	30	—	—	To-63	
ST72019	PNP	100	60	60	20 200	10 5	.75	1.5	1	10	10	800	10	40	—	—	To-63	
ST72020	PNP	100	80	80	20 200	10 5	.75	1.5	1	10	10	800	10	60	—	—	To-63	
ST72021	PNP	100	100	100	20 200	10 5	.75	1.5	1	10	10	800	10	80	—	—	To-63	

\* Also available in isolated TO-59 package



SILICON PLANAR TRANSISTORS — HIGH POWER

TYPE	POLARITY	POWER DISSIPATION (watts)	V <sub>CEO</sub> (volts)	V <sub>CE(sat)</sub> (volts)	I <sub>C</sub> (mA)	I <sub>C</sub> (MAX) (mA)	V <sub>CE</sub> (volts)	V <sub>CE(sat)</sub> (volts)	I <sub>C</sub> (MAX) (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CEO</sub> @ 25°C (μA)	V <sub>CE</sub> (volts)	I <sub>CEO</sub> @ 150°C (μA)	V <sub>CE</sub> (volts)	I <sub>CEO</sub> @ 150°C (μA)	CASE STYLE		
2N4901	NPN	87.5	40	40	20	80	1	2	0.4	4	4	100	40	100	40	100	To-3		
2N4902	NPN	87.5	60	60	20	80	1	2	0.4	4	4	100	60	100	60	100	To-3		
2N4903	NPN	87.5	80	80	20	80	1	2	0.4	4	4	100	80	100	80	100	To-3		
2N4904	NPN	87.5	40	40	25	100	2.5	2	1.0	4	4	100	40	100	40	100	To-3		
2N4905	NPN	87.5	60	60	25	100	2.5	2	1.0	4	4	100	60	100	60	100	To-3		
2N4906	NPN	87.5	80	80	25	100	2.5	2	1.0	4	4	100	80	100	80	100	To-3		
2N4950	PNP	300	80	60	10	—	50	3	1.5	2.5	10	50	1	2ma	60	100	To-114		
2N5006	PNP	100	100	80	30	90	5	5	0.9	1.8	0.5	5	30	1	60	100	To-61		
2N5008	PNP	100	100	80	10	200	5	5	0.9	1.8	0.5	5	40	1	60	100	To-61		
2N5038	PNP	140	120	90	20	100	12	5	2.5	3.3	5	20	60	50ma	140	10ma	100	To-3	
2N5039	PNP	140	120	90	20	100	10	5	2.5	3.3	5	20	60	50ma	110	10ma	85	To-3	
2N5048	PNP	100	120	100	15	60	10	4	2.0	3.0	1	10	10	1ma	120	10ma	120	To-61	
2N5049	PNP	100	60	50	15	60	10	4	2.5	3.0	1	10	10	10ma	60	20ma	60	To-61	
2N5067	PNP	87.5	40	40	20	80	1	2	.4	—	0.1	1	4	1	40	2ma	40	To-3	
2N5068	PNP	87.5	60	60	20	80	1	2	.4	—	0.1	1	4	1	60	2ma	60	To-3	
2N5069	PNP	87.5	80	80	20	80	1	2	.4	—	0.1	1	4	1	80	2ma	80	To-3	
2N5218	PNP	—	220	200	15	120	5	5	0.6	1.5	0.5	5	40	10μa	220	2ma	220	To-61	
2N5264	PNP	87	300	180	30	300	1	2.5	0.65	1.4	0.5	5	50	1ma	300	1ma	200	To-3	
2N5301	PNP	200	40	40	15	60	15	2	2.0	2.5	2	20	2	1ma	Vrated	10ma	Vrated	To-3	
2N5302	PNP	200	60	60	15	60	15	2	2.0	2.5	2	20	2	1ma	Vrated	10ma	Vrated	To-3	
2N5303	PNP	200	80	80	15	60	15	2	2.0	2.5	4	20	2	1ma	Vrated	10ma	Vrated	To-3	
2N5312	NPN	50	80	80	30	90	10	5	1.5	1.5	1.0	10.0	30	500	10μa	80	500μa	80	To-61
2N5313	PNP	50	80	80	30	90	10	5	1.5	1.5	1.0	10.0	30	500	10μa	80	500μa	80	To-61
2N5314	NPN	50	100	100	30	90	10	5	1.5	1.5	1.0	10.0	30	500	10μa	100	500μa	100	To-61
2N5315	PNP	50	100	100	30	90	10	5	1.5	1.5	1.0	10.0	30	500	10μa	100	500μa	100	To-61
2N5316	NPN	50	80	80	30	90	5	5	0.6	1.2	0.5	5.0	30	500	10μa	80	500μa	80	To-61
2N5317	PNP	50	80	80	30	90	5	5	0.6	1.2	0.5	5.0	30	500	10μa	80	500μa	80	To-61
2N5318	NPN	50	100	100	30	90	5	5	0.6	1.2	0.5	5.0	30	500	10μa	100	500μa	100	To-61
2N5319	PNP	50	100	100	30	90	5	5	0.6	1.2	0.5	5.0	30	500	10μa	100	500μa	100	To-61
2N5320	PNP	10	75	75	40	250	0.5	4	.8	1.4	0.05	.500	50	—	0.1ma	75	5ma	70	To-5
2N5321	PNP	10	100	75	30	130	0.5	4	.5	1.4	0.05	.500	50	—	0.1ma	100	5ma	45	To-5
2N5322	NPN	10	75	50	40	250	0.5	4	0.7	1.4	0.05	0.50	50	—	0.1ma	75	5ma	70	To-5
2N5323	NPN	10	100	75	30	130	0.5	4	1.2	1.4	0.05	0.50	50	—	0.1ma	100	5ma	45	To-5
2N5348	PNP	60	80	80	30	120	2	2	1.2	2	0.7	7	30	250	10ma	75	1ma	75	To-59
2N5347	PNP	60	80	80	60	240	2	2	1.2	2	0.7	7	30	250	10ma	75	1ma	75	To-59
2N5348	PNP	60	100	100	30	120	2	2	1.2	2	0.7	7	30	250	10ma	90	1ma	90	To-59
2N5349	PNP	60	100	100	60	240	2	2	1.2	2	0.7	7	30	250	10ma	90	1ma	90	To-59
2N5384	NPN	30	100	80	20	80	2	4	1.4	—	1	5	30	—	10ma	90	500μa	50	To-59
2N5385	NPN	30	900	80	20	80	2	4	1.4	—	1	5	30	—	10ma	90	500μa	50	To-59
2N5386	NPN	50	100	80	20	80	6	4	1.4	—	2.4	12	30	—	10ma	90	500μa	50	To-61
2N5387	PNP	100	200	200	25	100	2	5	2	—	1	5	15	—	1ma	180	10ma	100	To-61
2N5388	PNP	100	250	250	25	100	2	5	2	—	1	5	15	—	1ma	225	10ma	125	To-61
2N5389	PNP	100	300	300	25	100	2	5	2	—	1	5	15	—	1ma	270	10ma	150	To-61

SILICON PLANAR — GROWN JUNCTION REPLACEMENT TRANSISTORS

TYPE	POLARITY	POWER DISSIPATION (mW)	V <sub>CE</sub> (volts)		h <sub>FE</sub> MIN.-MAX.		V <sub>CE</sub> (volts)	V <sub>BE</sub> (volts)	I <sub>C</sub> (mA)	I <sub>B</sub> (mA)	f <sub>T</sub> (MHz)	C <sub>ob</sub> (pF)	I <sub>CO</sub> @ 25°C (µA)		I <sub>CO</sub> @ 150°C (µA)		CASE STYLE	
			MIN.	MAX.	MIN.	MAX.							V <sub>CE</sub>	V <sub>BE</sub>	V <sub>CE</sub>	V <sub>BE</sub>		
2N332	NPN	150	45	—	9	20	1	—	2.2	5	4	—	2	50	30	5	To-5	
2N332A	NPN	500	45	45	9	20	1	—	2.5	—	2.5	15	5	30	20	30	To-5	
2N333	NPN	150	45	—	18	40	1	—	2.2	5	5	—	2	50	30	5	To-5	
2N333A	NPN	500	45	45	18	40	1	—	—	—	2.5	15	5	30	20	30	To-5	
2N334	NPN	150	45	—	18	90	1	—	2.2	5	8	—	2	50	30	5	To-5	
2N334A	NPN	500	45	45	18	90	1	—	—	—	2.5	15	5	30	20	30	To-5	
2N335	NPN	150	45	—	37	90	1	—	2.2	5	6	—	2	50	30	5	To-5	
2N335A	NPN	500	45	45	37	90	1	—	—	—	2.5	15	5	30	20	30	To-5	
2N336	NPN	150	45	—	78	333	1	—	2.2	5	7	—	2	50	30	5	To-5	
2N336A	NPN	500	45	45	76	332	1	—	—	—	2.5	15	5	30	20	30	To-5	
2N337	NPN	150	45	—	(B) 20	55	10	5	1	10	20	—	1	100	20	20	To-5	
2N337A	NPN	500	45	45	(B) 40	55	10	5	—	—	15	3	5	30	20	30	To-5	
2N338	NPN	125	45	—	(B) 45	150	10	5	1.5	—	0.5	10	30	1	100	20	20	1G-30
2N338A	NPN	500	45	45	(B) 45	150	10	5	—	—	25	3	5	30	20	30	To-5	
2N479	NPN	200	30	30	40	100	1	5	1.5	—	2.2	5	8	0.5	50	30	30	To-5
2N478A	NPN	200	30	30	40	100	1	5	1	—	2.2	5	20	0.5	50	30	30	To-5
2N480	NPN	200	45	45	40	100	1	5	1.5	—	2.2	5	8	0.5	50	45	45	To-5
2N480A	NPN	200	45	45	40	100	1	5	1	—	2.2	5	20	0.5	50	45	45	To-5
2N541	NPN	200	15	15	(A) 80	200	1	6	1.5	—	2.2	5	10	0.5	50	15	—	To-5
2N542	NPN	200	30	30	(A) 80	200	1	6	1.5	—	2.2	5	10	0.5	50	30	—	To-5
2N542A	NPN	200	30	30	20	—	0.1	5	1	—	2.2	5	10	0.5	50	30	—	To-5
2N543	NPN	200	45	45	(A) 80	200	1	6	1.5	—	2.2	5	10	0.5	50	45	—	To-5
2N543A	NPN	200	50	50	20	—	0.1	5	1	—	2.2	5	10	0.5	50	45	—	To-5
2N1247	NPN	30	6	6	15	—	.005	3	—	—	—	—	5	.005	10	3	3	To-5
2N1248	NPN	30	6	6	15	—	.02	3	—	—	—	—	—	.01	20	3	3	To-5

Notes: (A) h<sub>FE</sub> @ f = 1 kc (B) H<sub>FE</sub>