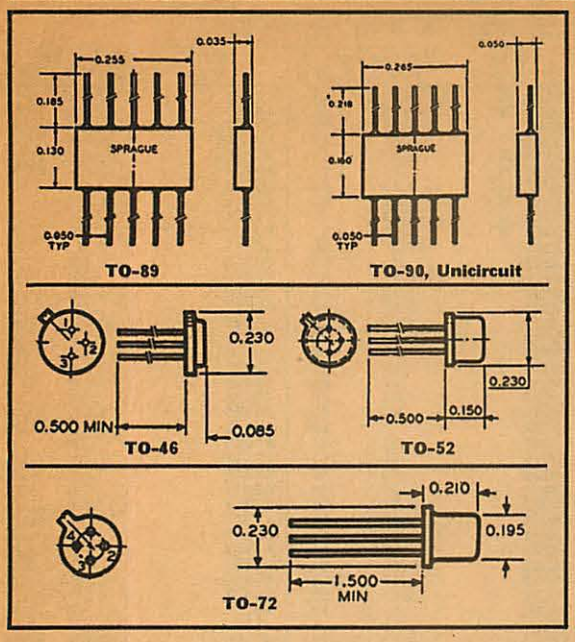
SPRAGUE Semiconductors



UNICIRCUIT® MONOLITHIC NETWORKS

Size: .265″ w. x .050″ d. x .160″ h.; pin, .218″. Other sizes available.

Sprague Type	Function	Pwr. Diss., mW V_{CC}=3V	V_{CC}=6V	Fan Out	Net Ea., 1-24
US-0100B	RS flip-flop/counter/ shift register	2	7	4	$29.95
US-0101B		3	12	4/20	33.25
US-0102B	6 input Nor/Nand gate	2	7	5	29.95
US-0103B		2	7	5/25	33.25
US-0104B	Dual 3 input Nor/ Nand gate	2/stage	7/stage	5/5	29.95
US-0105B	Exclusive Or ckt.	3	11	4/5	29.95
US-0106B	Dual 2 input Nor/ Nand gate	2*	7*	25/ 25/5	29.95
US-0107B	Clock driver ckt.	3†	12‡	20§	37.05
US-0108B	Single shot multi-vibrator	4	45♯	5*	39.45
US-0109B	Pulse exclusive Or	5.5▲	22■	5	33.25
US-0110B	RS flip-flop with dual resets	2	7	4	36.70
US-0111B		3	12	4/20	38.00
US-0112B	Triple 2 input Nor/Nand gate	2/ stage	7/ stage	5/5/5	32.20
US-0113B				20♦	34.85

*Per stage, gate "on". †Output clamped, 5 mW. ‡Output clamped, 25 mW. §To AC loads only. ♯Low input, 15 mW. •Internal pulse width: 1–3 μsec, V_{CC}=3 V; .8–2.8 μsec, V_{CC}=6 V. ▲Output clamped, 6 mW. ■Output clamped, 24 mW. ♦5/5/5/5.

PNP SILICON DUAL EMITTER CHOPPER—DUET

Case: TO-90. Pd: 200 mW max. at 25° C. TJ: 200° C. V_{CBO}: 50 V. I_{E1E2O}: 1 nA. $(\Delta V_O)_{IB}$: 25 μV. C_{1C2}: 100 ohms. C_{eb}: 3 pF.

Sprague Type	V_{E1E2O} V	V_{EBO}, V_{ECO}	$(V_O)_{A,B}$ μV	(V_O) AB μV	(ΔV_O) TA μV	Cob pF	Net Ea., Lots 1-99	100-999
3N112	30	30 V	50	20	75	8	$63.00	$42.00
3N113	50	50 V	50	20	75	8	92.00	68.00
UD-1000	20	20 V	100	100	125	8	33.00	22.00
UD-1001	30	30 V	100	100	125	10	52.50	35.00
UD-2000*	50	30 V	9	.....	5	10	40.50	27.00

*Pd, 50 mW max. at 25° C; TJ, 50° C; C_{eb}, 40 pF.

PNP SILICON DIFFERENTIAL AMPLIFIERS

Similar to 2N2904. Ratings at I_C=100 μA except as noted.

Type	Case	V_{CBO} V	hFE	hFE1/ hFE2	V_{BE1}-V_{BE2} mV	Net Ea., Lots 1-99	100-999
2N2802	TO-5	25	20/120	.9	5	$49.50	$33.00
2N2803	TO-5	25	20/120	.8	10	28.50	19.00
2N2804	TO-5	25	20/120	.....	.....	25.50	17.00
2N2805	TO-5	25	40/120	.9	5	60.00	40.00
2N2806	TO-5	25	40/120	.8	10	42.00	28.00
2N2807	TO-5	25	40/120	.....	.....	27.00	18.00
2N3049	TO-89	25	30/120	.9	5	57.00	38.00
2N3050	TO-89	25	30/120	.8	10	49.50	33.00
2N3051	TO-89	25	40/120	.....	.....	39.00	26.00
2N3347	TO-5	60	40/300†	.9†	5†	39.00	26.00
2N3348	TO-5	60	40/300†	.8†	10†	27.00	18.00
2N3349	TO-5	60	40/300†	.6†	20†	18.00	12.00
2N3350	TO-5	60	100/300†	.9†	5†	54.00	36.00
2N3351	TO-5	60	100/300†	.8†	10†	42.00	28.00
2N3352	TO-5	60	100/300†	.6†	20†	30.00	20.00

*At 10 μA.

NPN SILICON DIFFERENTIAL AMPLIFIERS

Similar to 2N2218 or 2N930. Ratings at I_C=100 μA except noted.

Sprague Type	Case ‡	V_{CBO} V	hFE	hFE1/ hFE2	V_{BE1}-V_{BE2}♯	Net Ea., Lots 1-99	100-999
2N2453	TO-5	60	150/600*	.9*	3†	$40.50	$27.00
2N2480	TO-5	75	20	.8	10	13.50	9.00
2N2639	TO-5	45	55	.9†	5†	31.50	21.00
2N2640	TO-5	45	55	.8†	10†	22.50	15.00
2N2641	TO-5	45	55	.....	.....	10.50	7.00
2N2642	TO-5	45	110	.9†	5†	40.50	27.00
2N2643	TO-5	45	110	.8†	10†	37.50	25.00
2N2644	TO-5	45	110	.....	.....	18.00	12.00
2N2720	TO-5	80	30/120	.9	.5	27.00	18.00
2N2721	TO-5	80	30/120	.9	10	24.00	16.00
2N2722	TO-5	45	50/250	.8	5	54.00	36.00
2N2903	TO-5	60	60†	.8	10†	22.50	15.00
2N2903A	TO-5	60	60†	.9	5†	31.50	21.00
2N2910	TO-5	45	70	.8	10	13.50	9.00
2N2913	TO-5	45	100	.....	.....	18.00	12.00
2N2914	TO-5	45	225	.....	.....	22.50	15.00
2N2915	TO-5	45	100	.9	3	45.00	30.00
2N2916	TO-5	45	225	.9	3	48.00	32.00
2N2917	TO-5	45	100	.8	5	27.00	18.00
2N2918	TO-5	45	225	.8	5	33.00	22.00
2N2919	TO-5	60	100	.9	3	48.00	32.00
2N2920	TO-5	60	225	.9	3	54.00	36.00
2N2936	TO-5	60	110	.9	5	54.00	36.00
2N2937	TO-5	60	110	.....	.....	21.00	14.00
2N2972	TO-18	45	100	.....	.....	19.50	13.00
2N2973	TO-18	45	225	.....	.....	24.00	16.00
2N2974	TO-18	45	100	.9	3	51.00	34.00
2N2975	TO-18	45	225	.9	3	60.00	40.00
2N2976	TO-18	45	100	.8	5	28.50	19.00
2N2977	TO-18	45	225	.8	5	33.00	22.00
2N2978	TO-18	60	100	.9	3	57.00	38.00
2N2979	TO-18	60	225	.9	3	69.00	46.00
2N3043	TO-89	45	100/300†	.9†	5†	58.50	39.00
2N3044	TO-89	45	100/300†	.8†	10†	51.00	34.00
2N3045	TO-89	45	100/300†	.....	.....	33.00	22.00
2N3046	TO-89	45	50/200†	.9†	5†	55.50	37.00
2N3047	TO-89	45	50/200†	.8†	10†	42.00	28.00
2N3048	TO-89	45	50/200†	.....	.....	25.50	17.00
2N3052	TO-89	35	12/120*	.85*	10*	39.00	26.00
2N3409	TO-5§	60	30	.8	10	18.00	12.00
2N3410	TO-5§	60	30	.9	10	24.00	16.00
2N3411	TO-5§	60	30	.9	5	36.00	24.00
2N3520	TO-89	60	80†	.9*	3†	45.00	30.00
2N3521	TO-5	70	100/300†	.8*	5†	37.50	25.00
2N3522	TO-18	70	100/300†	.8*	5†	37.50	25.00
2N3587	TO-5	60	80/500*	.8*	20*	12.00	8.00

*At 1 mA. †At 10 μA. ‡6 leads. §Low-silhouette, 6-lead pkg., 0.180″ h. from base. ♯mV.

SEPT® PNP SILICON TRANSISTORS

HIGH SPEED MEDIUM CURRENT TYPES

Min. fT, 200 Mc.

Sprague Type	Case TO-	Max. Ratings V_{CBO} V	Pd (25°C) mW	Max. I_{CBO} nA	hFE at I_C= 1mA	I_C= 150mA	Cob pF	Net Each 1-99	100-999
2N2904	5	60	600	20	25	40–120	8	$ 7.50	$5.00
2N2904A	5	60	600	10	40	40–120	8	10.50	7.00
2N2905	5	60	600	20	50	100–300	8	9.00	6.00
2N2905A	5	60	600	10	100	100–300	8	12.00	8.00
2N2906	18	60	400	20	25	40–120	8	7.20	4.80
2N2906A	18	60	400	10	40	40–120	8	10.05	6.70
2N2907	18	60	400	20	50	100–300	8	8.70	5.80
2N2907A	18	60	400	10	100	100–300	8	11.55	7.70
2N3133	5	50	600	50	25	40–120	10	4.95	3.30
2N3134	5	50	600	50	50	100–300	10	5.85	3.90
2N3135	18	50	400	50	25	40–120	10	4.95	3.30
2N3136	18	50	400	50	50	100–30	10	5.85	3.90

Max. Ratings: Pd, 400 mW at 25° C except noted; TJ, 200° C; IC, 100 mA. Case, TO-46 except noted.

SWITCHES, AMPLIFIERS AND CHOPPERS

Sprague Type	Max. V_{CB} V	Max. I_{CBO} nA	hFE Min.-Max.	Max. Cob pF	Max. Voff mV	Max. rs Ohms	Min. fT Mc	Net Ea., Lots 1-99	100-999
2N2944	15	.1	80–450	10†	6‡	20	10	$ 5.75	$3.85
2N2945	25	.2	40–250	10†	1.0‡	35	5	5.00	3.35
2N2946	40	.5	30–150	10†	2.0‡	45	3	5.75	3.85
2N3217	15	1.0	.....	14†	1.0‡	20	1	3.30	2.20
2N3218	25	1.0	.....	14†	2.0‡	35	1	3.00	2.00
2N3219	40	1.0	.....	14†	3.0‡	45	1	3.30	2.20
2N3840	50	.5	50 min.	9†	2.0‡	20	6	9.60	6.40
2N3841*	100	2	20 min.	9†	2.0‡	25	1.5	8.70	5.80
2N3842*	120	20	10 min.	9†	3.0‡	40	1	15.30	10.20

*Pd, 300 mW; case, TO-18. †Cib approx. ⅓ less. ‡IB, 1 mA.

ULTRA LOW-LEVEL AMPLIFIERS

NF, 3 db max. (2N3059).

2N3058	6	.1	40–120	10	.....	.....	....	$18.00	12.00
2N3059	10	.1	100–300	10	.....	.....	....	14.25	9.50

GENERAL-PURPOSE AMPLIFIERS

2N3060	70	5	30–90§	10•	.....	.....	....	$ 3.45	$2.30
2N3061	70	5	60–180§	10•	.....	.....	....	4.95	3.30
2N3062	90	5	20–80§	10•	.....	.....	....	3.90	2.60
2N3063	90	5	50–150§	10•	.....	.....	....	5.70	3.80
2N3064	110	5	15–45§	10•	.....	.....	....	3.45	2.30
2N3065	110	5	30–90§	10•	.....	.....	....	5.10	3.45

♯IB, 0.2 mA. §hfe max. is approx. ⅓ higher than hFE max. •Typ.

SPRAGUE Silicon Transistors

SEPT® NPN SILICON PLANAR EPITAXIAL

HIGH SPEED

Cob, 8 pF except 2N2476 and 2N2477, 10 pF.

Sprague Type	Case TO-	Max. Ratings VCBO V	Pd* W	IC A	Max. ICBO nA†	hFE at IC = 150 mA	hFE at IC = 10 mA§	Min. fT Mc	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2217	5	60	.8	.8	10	20–60	17	250	$3.35	$2.25
2N2218	5	60	.8	.8	10	40–120	35	250	3.35	2.25
2N2218A	5	75	.8	.8	10	40–120	35	250	3.75	2.50
2N2219‡	5	60	.8	.8	10	100–300	75	250	3.95	2.65
2N2219A	5	75	.8	.8	10	100–300	75	300	4.35	2.90
2N2220	18	60	.5	.8	10	20–60	17	250	3.35	2.25
2N2221‡	18	60	.5	.8	10	40–120	35	250	3.35	2.25
2N2221A	18	75	.5	.8	10	40–120	35	250	3.75	2.50
2N2222‡	18	60	.5	.8	10	100–300	75	250	3.95	2.65
2N2222A	18	75	.5	.8	10	100–300	75	300	4.35	2.90
2N2476	5	60	.6	.8	200	20	....	250	2.85	1.90
2N2477	5	60	.6	.8	200	40	....	250	3.30	2.20
2N2537	5	60	.8	.8	250	50–150	30	250	4.95	3.30
2N2538	5	60	.8	.8	250	100–300	50	250	5.85	3.90
2N2539	18	60	.5	.8	250	50–150	30	250	4.95	3.30
2N2540	18	60	.5	.8	250	100–300	50	250	5.85	3.90
2N2787	5	75	.8	.8	10	20–60	17	250	5.80	4.30
2N2788	5	75	.8	.8	10	40–120	35	250	5.80	4.30
2N2789	5	75	.8	.8	10	100–300	75	250	6.65	4.35
2N2790	18	75	.5	.8	10	20–60	17	250	5.80	4.30
2N2791	18	75	.5	.8	10	40–120	35	250	5.80	4.30
2N2792	18	75	.5	.8	10	100–300	75	250	6.65	4.95
2N2845	18	60	.36	.8	200	30–120	....	250	4.95	3.30
2N2846	5	60	.8	.8	200	30–120	....	250	4.95	3.30
2N2847	18	60	.36	.8	200	40–140	....	250	5.85	3.90
2N2848	5	60	.8	.8	200	40–140	....	250	5.85	3.90
2N2958	5	60	.6	.6	25	40–120	....	250	1.80	1.20
2N2959	5	60	.6	.6	25	100–300	....	250	1.45	.95
2N3015	5	60	.8	.8	200	30–120	....	250	1.80	1.20
2N3115	18	60	.4	.6	25	40–120	....	250	1.80	1.20
2N3116	18	60	.4	.6	25	100–300	....	250	1.45	.95
TN-53	5	75	.8	.8	10	50	40	100	.95	.63
TN-54	18	75	.5	.8	10	50	40	100	.95	.63
TN-59	5	40	.8	.8	20	100	....	100	.75	.50
TN-60	18	40	.5	.8	20	100	....	100	.75	.50
TN-61	5	40	.8	.8	20	50	40	100	.75	.50
TN-62	18	40	.5	.8	20	50	40	100	.75	.50
TN-63	5	20	.8	.8	100	25	25	20	.60	.40
TN-64	18	20	.5	.8	100	25	25	20	.60	.40

*At 25° C. †At 50 V. ‡USA type available. §Min. hFE.

HIGH SPEED LOW LEVEL

Sprague Type	Case TO-	Max. Ratings VCBO V	Pd* mW	Max. ICBO µA†	hFE at IC = 10 mA	Min. fT‡ Mc	Cob pF	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N706	18	25	300	.5	20 min.	200	5	$1.57	$1.05
2N834	18	40	300	.5	20 min.	350	4	4.10	2.75
2N835	18	25	300	.5	20 min.	350	4	3.45	2.30
2N914	18	40	360	.25	30 min.	300	6	3.45	2.30
2N2368	18	40	360	.4	20–60	500	4	4.35	2.90
2N2369	18	40	360	.4	40–120	500	4	4.65	3.10
2N2369A	18	40	360	.4	40–120	500	4	4.65	3.10
2N2501	18	40	360	.25	50 min.	350	4	4.80	3.20
2N3009	52	40	360	.5	30–120	350	5	8.40	5.60
2N3011	18	30	360	.4	30–120	400	4	1.95	1.30
2N3013	52	40	360	.3	30–120	350	5	8.85	5.90
2N3014	52	40	360	.3	25 min.	350	5	5.40	3.60
2N3227	18	40	360	.2	100–300	500	4	4.65	3.25

*At 25° C. †At 20 V. ‡IC = 10 mA.

CHOPPERS AND POWER AMPLIFIERS

Sprague Type	Case TO-	Max. VCBO V	Pd (25° C) mW	Max. ICBO nA	hFE at IC = 10mA	Min. fT Mc	Cob pF	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2330*	5	30	800	1	50	100	10§	$4.35	$2.90
2N2331*	18	30	500	1	50	100	10§	4.35	2.90
2N2951†	5	60	800	100	20‡	200	8#	3.75	2.50
2N2952†	18	60	500	100	20‡	200	8#	3.75	2.50

*Chopper—VOFF, .75 mV max. at IB = 200 µA. †Power Amplifier—Output, 600 mW min. at 50 Mc. ‡At IC = 150 mA. §Cib, 20 pF. #Maximum.

SILICON PNP DUAL EMITTER CHOPPERS—DUET

Pd, 300 mW max. at 25° C. TJ, 200° C max. Ceb, 3 pF. Cob, 10 pF. Case, TO-72: Emitter, Base, Emitter, Collector except 3N108-3N111, Emitter, Base, Collector, Emitter.

Type	Max. Ratings, Volts VE1E2O	VEBO, VECO	VCBO	IE1E2O nA	VO* µV	re1e2 Ohms	fT Mc	Net Ea., Lots 1-99	Net Ea., Lots 100-999
3N90	30	30	50	1	50	100	6	$19.50	$13.00
3N91	30	30	50	1	100	100	6	16.50	11.00
3N92	30	30	50	1	200	100	6	13.50	9.00
3N93	50	50	50	1	50	75	6	34.50	23.00
3N94	50	50	50	1	100	75	6	28.50	19.00
3N95	50	50	50	1	200	100	6	22.50	15.00
3N108	50	50	50	0.1	30	50	12	40.50	27.00
3N109	50	50	50	0.1	150	50	12	28.50	19.00
3N110	30	30	50	0.5	30	50	12	24.00	16.00
3N111	30	30	50	0.5	150	50	12	15.00	10.00
3N114	12	12	30	1	50	50	20	13.50	9.00
3N115	12	12	30	1	100	50	20	10.50	7.00
3N116	12	12	30	1	200	50	20	7.50	5.00
3N117	20	20	50	1	50	50	20	15.00	10.00
3N118	20	20	50	1	100	50	20	12.00	8.00
3N119	20	20	50	1	200	50	20	9.00	6.00

*TA(1) = −25° C, TA(2) = +100° C, IB = 1 mA.

LOW NOISE

Sprague Type	Case TO-	Max. Ratings VCBO V	Pd* mW	ICBO nA	hFE at IC = 10 µA	Max. NF† db	Cob pF	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N929	18	45	300	10	40–120	4	8	$4.50	$3.00
2N930	18	45	300	10	100–300	3	8	6.00	4.00
TN-55	5	40	800	10	100	2§	8	1.35	.90
TN-56	18	40	500	10	100	2§	8	1.35	.90

*At 25° C. †Broadband, IC = 10 µA, VCE = 5 V. §Typical.

PNP SILICON PLANAR TRANSISTORS FOR ALLOY TRANSISTOR REPLACEMENT

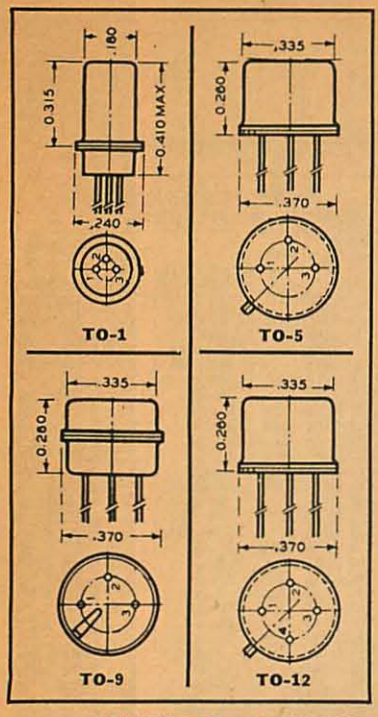
Sprague Type	TO-	Max. Ratings TJ °C	VCB V	Pd at −IC mW§	mA	Max. ICBO ƒ µA	hfe or *hFE Min.-Max.	Typ. Cob pF	Net Each 1-99	Net Each 100-999
2N327A	5	160	50	385	100	.1	9*–22*	7	$2.25	$1.50
2N327B	5	200	50	385	100	.001	9*–22*	7	2.60	1.75
2N328A‡	5	160	50	385	100	.1	18*–44*	7	4.50	3.00
2N328B	5	200	50	385	100	.001	18*–44*	7	4.85	3.25
2N329A‡	5	160	50	385	100	.1	36*–88*	7	6.50	4.35
2N329B	5	200	50	385	100	.001	36*–88*	7	6.90	4.60
2N330A	5	160	50	385	100	.1	25 typ.	7	4.80	3.20
2N923	18	200	40	250	100	.025	12–30	7	4.95	3.30
2N924	18	200	40	250	100	.025	24–70	7	7.10	4.75
2N925	18	200	50	250	100	.025	10–24	7	6.15	4.10
2N926	18	200	50	250	100	.025	20–55	7	8.75	5.85
2N927	18	200	70	250	100	.025	8–22	6	6.45	4.30
2N928	18	200	70	250	100	.025	18–50	6	8.85	5.90
2N935	18	160	50	250	100	.1	9*–22*	7	2.25	1.50
2N936	18	160	50	250	100	.1	18*–44*	7	4.50	3.00
2N937	18	160	50	250	100	.1	36*–88*	7	6.50	4.35
2N938	18	175	40	250	100	.025	9–22	7	3.35	2.25
2N939	18	175	40	250	100	.025	18–44	7	5.00	3.35
2N940	18	175	40	250	100	.025	36–88	7	8.70	5.80
2N1024	5	175	18	250	100	.025	9 min.	7	2.70	1.80
2N1025‡	5	175	40	250	100	.025	9–22	7	3.35	2.25
2N1026‡	5	175	40	250	100	.025	18–44	7	5.00	3.35
2N1027	5	175	18	250	100	.025	18 min.	7	3.00	2.00
2N1028	5	250	12	250	100	.025	9 min.	7	2.90	1.95
2N1034	5	160	50	250	50	1.0	9–22	7	2.70	1.80
2N1035	5	160	50	250	50	1.0	18–42	7	4.05	2.70
2N1036	5	160	50	250	50	1.0	34–88	7	5.10	3.40
2N1037	5	160	50	250	50	1.0	9–42	7	4.50	3.00
2N1219	5	175	30	250	100	.01†	18* min.	7	5.25	3.50
2N1220	5	175	30	250	100	.1	9* min.	7	3.15	2.10
2N1221	5	175	30	250	100	.1	18 min.	7	5.00	3.35
2N1222	5	175	30	250	100	.1	9 min.	7	2.75	1.85
2N1223	5	175	40	250	100	.1	6 min.	7	3.05	2.05
2N1275	5	160	100	250	50	1.0	9*–25*	6	4.80	3.20
2N1469‡	5	175	40	250	100	.025	36–88	7	8.70	5.80
2N1474	5	175	60	250	100	.05	12–44	6	9.95	6.65
2N1474A	5	175	60	250	100	.05	18–44	6	11.60	7.75
2N1475	5	175	60	250	100	.05	36–88	6	17.25	11.50
2N1476	5	175	100	250	100	.2	12–36	6	16.05	10.70
2N1477	5	175	100	250	100	.2	30–66	6	25.85	17.25
2N1623	5	160	50	250	50	1.0	9*–40*	7	1.95	1.30
2N1643	5	160	25	250	50	.001	10*–25*	7	4.55	3.05
2N1654	5	160	100	250	50	1.0	20*–45*	6	9.00	6.00
2N1655	5	160	125	250	50	1.0	10*–22*	6	11.75	7.85
2N1656	5	160	100	250	50	1.0	20*–45*	6	22.85	15.25
2N2175	5	175	6	100	50	.001	30* min.	7	11.00	7.35
2N2176	18	175	6	100	50	.001	30* min.	7	11.00	7.35
2N2177	5	160	6	100	50	.005	70* min.	7	6.60	4.40
2N2178	18	160	6	100	50	.005	70* min.	7	6.60	4.40
2N2370	5	200	15	200	100	.005	15 min.	7	10.40	6.95
2N2371	5	200	15	200	100	.005	20 min.	7	11.60	7.75
2N2372	18	200	15	150	100	.005	15 min.	7	10.40	6.95
2N2373	18	200	15	150	100	.005	20 min.	7	11.60	7.75
2N3342	5	175	20	250	50	.02	30* min.	7	4.80	3.20

†IEBO, 0.1 µA. ‡JAN type available. §At 25° C. ƒAlso IEBO.

FOR ALLOY CHOPPER REPLACEMENT

Sprague Type	Case TO-	Max. Ratings TJ °C	VCB V	Pd at −IC mW	mA	ICBO at VCB Max. µA	V	Voff at IB Max. mV	mA	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N941	18	175	25	250	50	.0025	4.5	1.0	.25	$6.60	$4.40
2N942	18	175	25	250	50	.0025	4.5	3.0	.25	5.30	3.55
2N943	18	175	40	250	50	.005	30	2.0	.5	7.85	5.25
2N944	18	175	40	250	50	.005	30	3.0	.5	5.70	3.80
2N945	18	175	50	250	50	.005	40	4.0	.75	3.75	2.50
2N946	18	175	80	250	50	.005	60	4.0	.75	6.45	4.30
2N1917	5	175	25	250	50	.0025	4.5	1.0	.25	6.60	4.40
2N1918	5	175	25	250	50	.025	4.5	3.0	.25	5.30	3.55
2N1919	5	175	40	250	50	.....	.....	2.0	.5	8.80	5.25
2N1920	5	175	40	250	50	.....	.....	3.0	.5	5.70	3.80
2N1921	5	175	60	250	50	.....	.....	4.0	.75	3.75	2.50
2N1922	5	175	80	250	50	.....	.....	4.0	.75	6.45	4.30
2N2002	5	200	30	250	100	.01	4.5	1.5	1.0	4.50	3.00
2N2003	5	200	30	250	100	.03	4.5	3.0	1.0	3.00	2.05
2N2004	5	175	50	250	100	.0015	10	1.5	1.0	6.00	4.05
2N2005	5	200	50	250	100	.05	10	4.0	1.0	4.35	2.90
2N2006	5	200	60	250	100	.02	30	1.75	1.0	7.05	4.75
2N2007	5	200	60	250	100	.05	30	3.75	1.0	4.55	3.05
2N2332	18	200	15	150	100	.001	4.5	2.0	1.0	4.05	2.70
2N2333	18	200	15	150	100	.03	4.5	3.0	1.0	2.60	1.75
2N2334	18	200	30	150	100	.01	4.5	2.0	1.0	5.90	3.95
2N2335	18	200	30	150	100	.05	4.5	4.0	1.0	3.95	2.65
2N2336	18	200	50	150	100	.02	30	2.25	1.0	6.90	4.60
2N2337	18	200	50	150	100	.05	30	3.75	1.0	4.35	2.90
2N3343	5	175	25	250	50	.003	6	1.8	.5	4.35	2.90
2N3344	5	175	30	250	50	.002	25	1.5	1.0	5.30	3.55
2N3345	5	175	50	250	50	.005	30	3.0	1.0	5.60	3.75
2N3346	5	175	50	250	50	.005	40	1.5	1.0	7.10	4.75

SPRAGUE Transistors



SILICON TRANSISTORS

SPAT††-PNP CHOPPERS

Max. Ratings: Junction temp. 140° C. Pd, 150 mW at 25° C and −50 mA Ic. TO-18 index tab omitted.

Sprague Type	Case	Max. −VCB V*	Max. Cut-Off ICBO µA	Max. Cut-Off At VCB† Volts	Max. Voff mV	Max. rs Ohms	Max. Cob pF	Max. Cib pF	Min. fT Mc	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
2N2162	TO-5	30	.01‡	10	2.0	20	10	10	14	$ 8.00	$ 5.95
2N2163	TO-5	15	.01‡	4.5	2.0	20	10	10	14	6.65	4.95
2N2164	TO-5	12#	.02	4.5	1.5	20	10	10	24	7.40	5.50
2N2165	TO-5	30	.02	10	3.0	20	10	10	10	5.70	4.25
2N2166	TO-5	15	.02	4.5	3.0	30	10	10	10	4.35	3.25
2N2167	TO-5	12#	.02	4.5	2.5	20	10	10	16	5.05	3.75
2N1676‡	TO-5	4.5	.01	4.5	1.0▲	.....	14	.....	16	11.70	8.60
2N1677‡	TO-5	4.5	.01	4.5	3.0	.....	14	.....	16	8.85	6.50
2N2185	TO-18	30	.001‡	10	2.0	20	9	7	6.5	15.00	11.00
2N2274	TO-18	25	.003‡	10	3.25	17	9	6	6	9.00	6.60
2N2276	TO-18	15**	.003§	10	2.25	17	9	6	6	6.00	4.40
2N2278	TO-18	15	.001‡	10	1.75	18	9	7	7.6	12.00	8.80
2N2280	TO-18	10•	.003	6	1.5	18	10	8	16	4.50	3.30
2N3317‡	TO-18	30	.001‡	10	2.25	20	9	7	6.4	12.75	9.45
2N3318‡	TO-18	15	.001‡	10	2.0	18	9	7	7.6	7.40	5.50
2N3319‡	TO-18	10•	.003	6	1.75	18	10	8	12	3.75	2.80
2N2186	Matched pair 2N2185's with Δ Voff = 50 µV at IB = −1 mA■									30.60•	22.45•
2N2187	Matched pair 2N2185's with Δ Voff = 50 µV at IB = −1 mA♦									31.50•	23.10•
2N2275	Matched pair 2N2274's with Δ Voff = 100 µV at IB = −1.5 mA■									19.50•	14.30•
2N2277	Matched pair 2N2276's with Δ Voff = 100 µV at IB = −1.5 mA■									13.20•	9.65•
2N2279	Matched pair 2N2278's with Δ Voff = 50 µV at IB = −1 mA♦									25.80•	18.90•
2N2281	Matched pair 2N2280's with Δ Voff = 100 µV at IB = −1 mA■									10.05•	7.35•

*Also −VEB and −VECO except as otherwise noted. †Also IEBO at VEB. ‡Also IECO at VCE. §Also IECO but at 6 VCE. #Max. VECO, −8 V. •Max. VECO, −6 V. ▲At 0.25 mA, IB; all others at 1.0 mA, IB. ■Ambient temp. 25° C–65° C. ♦Ambient temp. 25° C–85° C. ‡ts, 250 nsec. ‡Pd, 100 mW. **Max. VECO, −10 V. •Net per Pair.

SPAT-PNP SYMMETRICALS

Max. Ratings: Junction temp. 140° C. VCB, 30 volts. Pd, 150 mW at 25° C. Ic, 50 mA. Cut-off current, 0.01 µA ICBO at 15 VCB.

Sprague Type	Case	Max. VCEO Volts	Min. hFE, hFC	Max. VCE (SAT) mV	Max. Voff mV	Max. rs Ohms	Min. fT Mc	Net Ea., Lots of 1-99	Net Ea., Lots of 100-999
2N2968	TO-5	10	15	60	3	30	10	$39.80	$29.50
2N2969	TO-18	10	15	60	3	30	10	39.80	29.50
2N2970	TO-5	20	10	80	4	40	8	26.50	19.75
2N2971	TO-18	20	10	80	4	40	8	26.50	19.75

NPN SILICON DARLINGTON AMPLIFIERS

Sprague Type	Case	VCBO V	ICBO nA	hFE, Min. 100 µA	hFE, Min. 10 mA	Cob pF	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N997	TO-18	75	10	1000	4000	20	$13.50	$ 9.00
2N2723	TO-72	80	10	.....	2000	10	19.50	13.00
2N2724	TO-72	80	10	.....	7000	10	21.00	14.00
2N2725	TO-72	45	2	2000	.....	10	28.50	19.00
2N2785	TO-72	60	50	.....	1200	30	12.00	8.00

GERMANIUM TRANSISTORS

MADT††-PNP FOR UHF APPLICATIONS

Max. Ratings: Junction temp. 125° C. VCB, 20 V. PT, 60 mW. Ic, 50 mA. ICBO, 10 µA. Typical hFE, 33.

Sprague Type	Case	Min. fmax Mc	PG at f Min. db	PG at f At Mc	Max. NF db	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N1742	TO-9	980	14–19*	200	5.5	$2.93	$2.15
2N1743	TO-9	.....	14†	200–44	12	2.87	2.11
2N1744	TO-9	.....	1.5‡	257	.....	2.25	1.65
2N2360	TO-12	980	14–19*	200	5.5	2.40	1.80
2N2361	TO-12	.....	14†	200–44	12	2.25	1.65
2N2362	TO-12	.....	1.5‡	257	.....	2.10	1.55
2N2398	TO-12	1200	16–22*	200	4.5	3.45	2.50
2N2399	TO-12	.....	16†	200–44	9	3.35	2.45

*Min.-Max. †Conversion gain. ‡Power output, mW.

SBT††-PNP SWITCHES (TO-24)

Junction temp. 85° C. Cut-off current, 3 µA ICBO at 5 VCB (3 V, 2N128). Cob, 6 pF (5 pF, 2N128). hFE, 0.5 mA Ic at 3 VCE.

Sprague Type	Maximum VCB Volts	Maximum VCES Volts	Max. Pd at 25° C mW	Max. Ic mA	hFE Min.-Max.	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N128	10	4.5	25	5	19	$6.30	$4.60
JAN2N128	10	4.5	25	5	19	6.65	4.90
2N231	4.5	4.5	9	3	19	1.15	.85
2N240	6	6	30	15	16	5.60	4.10
JAN2N240	6	6	30	15	16	5.90	4.35
2N344	5	5	20	5	11–33	3.45	2.50
2N345	5	5	20	5	25–110	4.35	3.15
2N346	5	5	20	5	10	5.85	4.25

ECDC®-PNP HIGH POWER VHF AMPLIFIERS

Max. Ratings: Junction temp. 100° C. Ic, 300 mA. ICBO, 15 µA. Min. P.O., 500 mW at 1.60 Mc.

Sprague Type	Case	Max. VCES Volts	25° CC PT mW	PG at f Min. db	PG at f At Mc	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2095	TO-31	30	1000	6	160	$12.15	$ 8.90
2N2098	TO-9	30	1000	6	160	10.55	7.80
2N2962	S-31	40	3000	6	160	19.70	14.45
2N2963	S-31	40	3000	5	160	16.80	12.30
2N2964	S-31	30	3000	6	160	16.80	12.30
2N2965	S-31	30	3000	5	160	13.15	10.20

SPAT-PNP SWITCH AND AMPLIFIERS

Max. Ratings: Junction temp. 140° C. Pd, 150 mW at 25° C and −50 mA Ic. Cut-off current, −0.1 µA ICBO at 10 VCB except as otherwise noted. Cob, 9 pF except as otherwise noted. All Types 2N1118, 2N1119 and 2N1429, case TO-5; all others, TO-18.

Sprague Type	VCB or VCE V	hfe at −6 VCE* Min.	hfe at −6 VCE* Max.	hFE at −.5 VCE† Min.	hFE at −.5 VCE† Max.	Max. Sat. VCE V	Max. Sat. at mA IC	Max. Sat. at mA IB	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N495/18‡§■	−25	15	....	.....	.....	.....	.....	.....	$11.15	$8.25
2N496/18§■	−10	....	....	15▲	....	.15	5	.8	11.15	8.25
2N1118‡§	−25	15	....	.....	.....	.....	.....	.....	11.15	8.25
USA2N1118‡§	−25	15	....	.....	.....	.....	.....	.....	11.45	8.50
JAN2N1118‡§	−25	15	....	.....	.....	.....	.....	.....	12.80	9.50
2N1118A‡§	−25	15	....	35	.....	.....	.....	.....	15.60	11.55
2N1119§	−10	....	....	15▲	....	.15	5	.8	11.15	8.25
USA2N1119§	−10	....	....	15▲	....	.15	5	.8	11.45	8.50
JAN2N1119§	−10	....	....	15▲	....	.15	5	.8	12.80	9.50
2N1429#•	−6	25	....	12	....	.10	5	.8	8.75	6.45
2N858	−40	15	75	10	60	.15	5	.5	8.70	6.45
2N859	−40	30	120	25	100	.15	5	.5	9.35	6.95
2N860	−25	15	45	10	40	.15	5	.8	8.40	6.20
2N861	−25	30	100	25	75	.15	5	.5	6.00	4.40
2N862	−15	20	60	12	48	.15	5	.8	6.65	4.95
2N863	−15	40	120	25	100	.15	5	.5	4.50	3.30
2N864•	−6	25	125	20	100	.10	5	.5	5.70	4.25
2N865	−10♦	100	350	45	125	.10	5	.5	8.25	6.05
2N2377‡§	−25	15	120	10	100	.....	.....	.....	11.15	8.25
2N2378§	−10	....	....	15▲	....	.15	5	.8	11.15	8.25
USA2N2377‡§	−25	15	120	10	100	.....	.....	.....	11.45	8.50
USA2N2378§	−10	....	....	15▲	....	.15	5	.8	11.45	8.50

*At −1 mA IE. †At −5 mA Ic. ‡Max. cut-off −1.0 µA ICBO at 25 VCB. §Max. Cob, 12 pF. #Max. Cob, 14 pF. •Max. cut-off −0.1 µA ICBO at 6 VCB. ▲At −15 mA Ic. ■Drop suffix /18 for smaller TO-18 case (electrically interchangeable). Net Each, Lots 1-99, **$11.60**; 100-999, **$8.50**. ♦VCB only; 6 VCE.

MAT††-PNP SWITCHES

Max. Ratings: Junction temp. 100° C (2N1411, 85° C). Pd, 25 mW at 45° C. Ic, 50 mA. Cut-off current, 5 µA ICBO at 6 VCB. Cob, 6 pF. In TO-24 case.

Sprague Type	Max. VCB Volts	Max. VCES Volts	Current Ampl. Min. hFE	Current Ampl. At Ic, mA	Current Ampl. At VCE, V	Max. Sat.* VCE Volts	Max. Sat.* VBE Volts	Net Each 1-99	Net Each 100-999
2N393	−6	−6	40†	.5	3.0	.07	.5	$4.35	$3.15
USA2N393	−6	−6	40	.5	3.0	.07	.5	4.70	3.45
JAN2N393	−6	−6	40	.5	3.0	.07	.5	4.70	3.45
2N1122	−12	−11	25†	10	.25	.10	.5	5.45	4.00
2N1122A	−15	−14	25†	10	.25	.10	.5	6.75	4.95
2N1411	5	5	20	50	1.0	....	.45	3.70	2.70
USA2N1411	5	5	20	50	1.0	....	.45	4.00	2.95
2N1427	−6	−6	25	10	.25	.10‡	.5‡	4.55	3.35
			20	50	.5	.20§	1.0§		
2N2451	−6	−6	25	10	.25	.10‡	.5‡	4.85	3.65

*At 8 mA Ic and 1 mA IB. †Also 20 hFE at 50 mA Ic and 0.5 VCE. ‡At 10 mA Ic and 1 mA IB. §At 50 mA Ic and 5 mA IB.

®Sprague trademarks, ††Philco trademarks.

SPRAGUE Germanium Transistors

ECDC®—PNP CORE DRIVERS

Max. Ratings: Junction temp. 100° C. Ic, 500 mA. Cut-off current, 12 μA ICBO at 12 VCB (15 VCB types 2N2097 and 2N2100). Typical ft, 400 Mc.

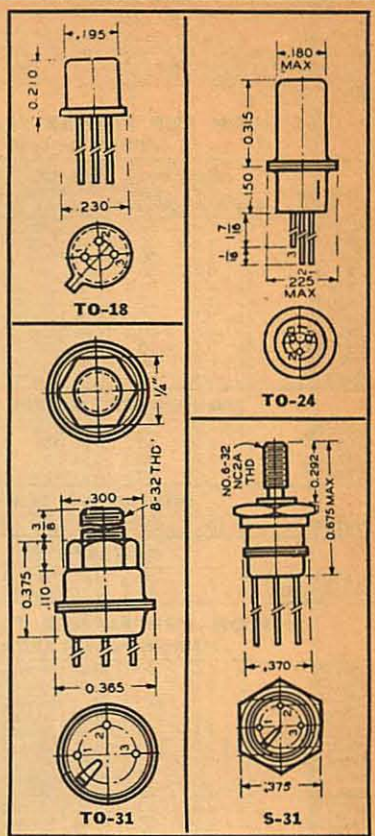
Sprague Type	Case	Max. Volts VCBO	Max. Volts VCES†	Max. Pd at 25° C mW	Min. hFE	Sat. Volts* VCE Max.	Sat. Volts* VBE Max.	Switch Speed nanosecs tr	Switch Speed nanosecs ts	Switch Speed nanosecs tf	Net Ea., Lots 1-99	Net Ea., Lots 100-999
2N2096	TO-31	−25	−20	750	15	−.6	−.9	35	70	60	$7.65	$5.60
2N2097	TO-31	−40	−35	750	30	−.5	−.8	20	50	40	9.90	7.25
2N2099	TO-9	−25	−20	250	15	−.6	−.9	35	70	60	5.70	4.15
2N2100	TO-9	−40	−35	250	30	−.5	−.8	20	50	40	8.55	6.25

*At 200 mA Ic and 10 mA IB. †Rating curve on request.

MADT®—PNP COMMUNICATIONS TYPES

Sprague Type	Case	Max. Rating VCB Volts	Max. Rating PT mW	Max. Rating IC mA	Max. ICBO μA	Min. hFE	Max. Cob pF	Max. rb'Cc Psec	Min. fmax Mc	PG at f Min. db	PG at f At Mc	Net Each 1-99	Net Each 100-999
2N499■	TO-1	30	30	50	5	.....	2.5	250	240	7.5	100	$3.95	$2.90
USA2N499	TO-1	30	30	50	5	.....	2.5	250	240	7.5	100	4.35	3.15
2N499A	TO-1	30	60	50	5	20–80*	2.5	250	240	7.5	100	4.85	3.55
USA2N499A	TO-1	30	60	50	5	20–80*	2.5	250	240	7.5	100	5.25	3.80
2N502■	TO-9	20	60	100	5	65†	2.0	120	500	8	200	2.90	2.15
2N502A	TO-9	30	75	100	5	65†	1.6	50	620	10‡	200	3.45	2.50
USA2N502A	TO-9	30	75	100	5	65†	1.6	50	620	10‡	200	3.75	2.75
2N502B	TO-9	30	75	100	5	20–80*	1.6	50	620	10‡	200	3.75	2.80
USA2N502B	TO-9	30	75	100	5	20–80*	1.6	50	620	10‡	200	4.20	3.05
2N503■	TO-9	20	25	50	10	4.2†	2.0	120	100	11	100	2.25	1.65
2N504■	TO-1	35	30	50	10	16†	2.5	.....	50	46	.455	3.45	2.55
2N588■	TO-1	15	30	50	15	.....	.....	.....	50	14♦	50	1.45	1.05
2N1726	TO-9	20	60	50	10	40	2.5	100	100	35§	1.6	1.15	.85
2N1727	TO-9	20	60	50	10	15	2.5	.....	100	35§#	1.6–.455	1.00	.75
2N1728	TO-9	20	60	50	10	25	2.5	.....	100	40§	.455	1.10	.80
2N1745	TO-9	20	60	50	10	33§	.....	.....	500	21	45	1.80	1.32
2N1746	TO-9	20	60	50	10	10	3	100	100	30§	4.5	1.00	.75
2N1747	TO-9	20	60	50	10	10	.....	.....	180	25–31•	10.7	1.00	.75
2N1748	TO-9	25	60	50	10	30–150*	2.5	.....	50	.....	.....	1.05	.80
2N1748A	TO-9	25	60	50	10	70†	2.5	.....	100▲	.....	.....	1.15	.85
2N1749	TO-9	40	75	10	10	30–150*	2.5	.....	50	.....	.....	1.45	1.05
2N1752	TO-9	12	60	50	10	50–300*	3.0	.....	50	.....	.....	.95	.70
2N1785■	TO-9	10	45	50	10	40	3	100	50	35§	1.6	1.00	.75
2N1786■	TO-9	10	45	50	10	15	3	100	50	35§#	1.6–.455	.95	.70
2N1787■	TO-9	15	45	50	10	20	3	100	50	40§	.455	1.00	.75
2N1788	TO-9	35	60	50	5	40	2.5	100	100	35§	1.6	1.35	.95
2N1789	TO-9	35	60	50	7	15	2.5	100	100	35§#	1.6–.455	1.15	.85
2N1790	TO-9	35	60	50	7	25	2.5	100	100	40§	.455	1.20	.90
2N1864	TO-9	20	60	50	10	20	3	100	50	30§	.455	1.10	.80
2N1865	TO-9	20	60	50	10	60§	.....	.....	180	25–31•	10.7	1.10	.80
2N1866	TO-9	35	60	50	10	40	.....	.....	180	25–31•	10.7	1.20	.90
2N1867	TO-9	35	60	50	10	50†	.....	.....	180	25–31•	10.7	1.15	.85
2N1868	TO-9	20	60	50	10	33§	.....	.....	400	21–28•	45	1.88	1.38

*Min.-max. hfe. †Typical hfe. ‡7 db max. NF. §Typical. #Conversion gain. •Min.-max. ▲Ft. ■Max. junction temp. 85° C; all others, 100° C. ♦15 db max. noise figure.



ECDC AND MADT—PNP HIGH SPEED SWITCHES

Max. Ic, −100 mA except 2N501 thru JAN2N501A and 2N1500, −50 mA. Max. junction temp. 100° C.

Sprague Type	Case	Max. Volts VCES	Max. Volts VCEO	Max. Pd at 25° C mW	Max. ICBO μA	Current Amplification Min. hFE	Current Amplification At Ic mA	Current Amplification At VCE, V	Max. Sat. Volts* VCE	Max. Sat. Volts* VBE	Switch Speed Max. nanosecs tr	Switch Speed Max. nanosecs tf	Switch Speed Max. nanosecs K'fe	Net Each, Lots 1-99	Net Each, Lots 100-999
2N501	TO-1	−15	.....	60	5	20	−10	−.5	−.2	−.50	18	10	.....	$6.35	$4.65
2N501A	TO-1	−15	.....	60	5	30	−10	−.5	−.2	−.45	18	10	.....	7.05	5.15
USA2N501A	TO-1	−15	.....	60	5	30	−10	−.5	−.2	−.45	18	10	.....	7.35	5.35
JAN2N501A	TO-1	−15	.....	60	5	30	−10	−.5	−.2	−.45	18	10	.....	7.35	5.35
2N768	TO-18	−10	.....	35	3	25	−2	−.2	−.13	−.28†	.....	.....	.....	5.85	4.25
2N769	TO-18	−12	.....	35	3	25	−20	−.5	−.24	−.45	.....	.....	30	6.75	4.95
2N779A	TO-18	−15	.....	60	3	50	−10	−.5	−.125‡	−.36‡	18	18	50	3.50	2.55
2N794	TO-18	−13	.....	150	3	30	−10	−.3	−.3§	−.40§	.....	.....	.....	1.25	.95
2N795	TO-18	−13	.....	150	3	30	−10	−.3	.....	.....	.....	.....	.....	1.75	1.30
2N796	TO-18	−13	.....	150	3	50	−10	−.3	.....	.....	.....	.....	.....	2.55	1.90
2N846A	TO-18	−15	.....	60	3	25	−10	−.5	−.14	−.40	18	18	50	5.40	3.95
2N976	TO-18	−15	−10	100	3	30	−20	−.5	−.17•	−.46•	10	....	18	4.35	3.20
2N979	TO-18	−20	−15	60	3	30	−10	−.3	−.2	−.40	60	....	120	1.40	1.05
2N980	TO-18	−20	−12	60	5	30	−10	−.3	−.2	.....	60	....	120	1.20	.90
2N982	TO-18	−20	−15	60	3	50	−10	−.5	−.125‡	−.36‡	18	18	50	3.65	2.70
2N983	TO-18	−15	−15	60	3	40	−10	−.5	−.15‡	−.36‡	18	18	50	2.35	1.75
2N984	TO-18	−15	−10	60	5	20	−10	−.5	−.18	−.45	20	20	60	1.00	.75
2N1300	TO-5	−13	.....	150	3	30	−10	−.3	.....	.....	.....	.....	.....	1.25	.95
2N1301	TO-5	−13	.....	150	3	30	−10	−.3	.....	.....	.....	.....	.....	1.50	1.10
2N1499A	TO-9	−20	.....	60	3	30	−10	−.3	−.2	−.40	60	....	120	1.40	1.05
USA2N1499A	TO-9	−20	.....	60	3	30	−10	−.3	−.2	−.40	60	....	120	1.70	1.30
2N1499B	TO-9	−30	−20	75	3	40	−10	−.3	−.15	−.40	30	....	120	1.55	1.15
2N1500	TO-9	−15	.....	60	5	20	−10	−.5	−.2	−.45	18	10	.....	6.95	5.10
USA2N1500	TO-9	−15	.....	60	5	20	−10	−.5	−.2	−.45	18	10	.....	7.35	5.35
2N1683	TO-5	−13	.....	150	3	50	−10	−.3	.....	.....	.....	.....	.....	1.85	1.35
2N1754	TO-9	−13	.....	50	5	20	−10	−.25	−.2	−.40	60	....	120	1.35	.95
2N2048	TO-9	−20	−15	150	5	50	−10	−.5	−.14‡	−.35‡	60	60	100	1.80	1.32
2N2048A	TO-9	−30	−20	150	3	40	−50	−.5	−.20‡	−.35‡	20	25	.....	2.05	1.50
2N2168	TO-9	−20	−15	60	3	50	−10	−.5	−.125‡	−.36‡	18	18	50	5.60	4.10
2N2169	TO-9	−15	−15	60	3	40	−10	−.5	−.15‡	−.36‡	18	18	50	4.15	3.05
2N2170	TO-9	−15	−10	60	5	20	−10	−.5	−.18	−.45	20	20	60	2.35	1.75
2N2400	TO-18	−12	−7	150	3	30	−10	−.5	−.22#	−.36#	.....	.....	.....	1.25	.95
2N2401	TO-18	−15	−10	150	1.5	50	−10	−.5	−.2#	−.36#	.....	.....	.....	1.45	1.05
2N2402	TO-18	−15	−12	150	1.5	60	−10	−.5	−.2#	−.36#	.....	.....	.....	2.25	1.65
2N2487	TO-18	−15	−10	60	3	20	−10	−.5	.....	.....	.....	.....	60	4.85	3.60
2N2488	TO-18	−15	−10	60	3	20	−50	−.5	.....	.....	.....	.....	60	2.95	2.15
2N2489	TO-18	−20	−15	60	2.5	20	−10	−.5	−.18	−.45	.....	.....	60	3.65	2.70
2N2795	TO-18	−25	−15	75	3	50	−10	−.3	−.125‡	−.35‡	12	25	.....	4.15	3.05
2N2796	TO-18	−20	−12	75	3	30	−10	−.3	−.15‡	−.40‡	15	25	.....	2.35	1.75
2N2797	TO-9	−40	−20	75	2	50	−10	−.3	−.15‡	−.35‡	20	25	.....	1.60	1.20
2N2798	TO-9	−60	−25	75	3	30	−10	−.3	−.2‡	−.40‡	25	30	.....	1.85	1.40
2N2799	TO-9	−30	−15	75	3	30	−10	−.3	−.2‡	−.40‡	25	30	.....	1.35	1.00
2N2942	TO-9	−50	−25	150	2	50	−10	−.3	−.15‡	−.35‡	20	25	.....	2.00	1.50
2N2943	TO-9	−30	−15	150	3	30	−10	−.3	−.20‡	−.40‡	25	30	.....	1.50	1.10
2N3320	TO-18	−15	−10	75	5	50	−20	−.5	−.15•	−.46•	10	15	20▲	3.50	2.60
2N3321	TO-18	−12	−7	75	5	100	−10	−.3	−.14•	−.46•	10	15	25▲	2.25	1.65
2N3322	TO-18	−12	−7	75	5	30	−10	−.3	−.25•	−.50•	10	15	30▲	1.50	1.10
ED-322						Hyrel® transistor electrically the same as Type 2N2795								9.20	6.85

*At 10 mA Ic and 1 mA IB. †Typical. ‡At 10 mA Ic and .5 mA IB. §At 10 mA Ic and .33 mA IB. #At 10 mA Ic and .4 mA IB. •At 20 mA Ic and 2 mA IB. ▲tf. ®ECDC and Hyrel are trademarks of Sprague Electric Co.; MADT trademark of Philco Corp.