



semitron hot line

discrete devices

TOLL FREE NUMBER 800-777-3960

T-27-27
T-37-21

multiple devices
dual transistors

Type	Polarity	Breakdown Voltages (volts)			hFE @ IC VCE = 5.0V		Ic (μA)	hFE-1/hFE-2 VCE = 5.0V		VBE-1 - VBE-2		Δ(VBE-1 - VBE-2)		IcBO Max. (nA)	Case Style
		Vcb	Vce	VEB	Min.	Max.		Min.	Ic (μA)	Max. (mV)	Ic (μA)	Max. (μV/°C)	Ic (μA)		
2N2060	NPN	100	60	7	30	90	—	0.9	—	5.0	—	10	—	—	TO-77
2N2060A	NPN	100	60	7	30	90	—	0.9	—	3.0	—	10	—	—	TO-77
2N2060B	NPN	100	60	7	30	90	—	—	—	1.5	—	5	—	—	TO-77
2N2223	NPN	100	—	—	25	150	—	—	—	15.0	—	25	—	—	TO-77
2N2223A	NPN	100	—	—	25	150	—	—	—	5.0	—	25	—	—	TO-77
2N2453	NPN	60	30	7	150	600	1000	0.9	1000	3.0	10	10	10	5	TO-78
2N2453A	NPN	80	50	7	150	600	1000	0.9	1000	3.0	10	5	10	5	TO-78
2N2490	NPN	75	40	5	20	—	—	0.8	—	10.0	—	—	—	—	TO-77
2N2490A	NPN	80	40	5	35	—	—	0.8	—	5.0	—	—	—	—	TO-77
2N2639	NPN	45	45	5	50	300	10	0.9	10	5.0	10	10	10	10	TO-78
2N2640	NPN	45	45	5	50	300	10	0.8	10	10.0	10	20	10	10	TO-78
2N2641	NPN	45	45	5	50	300	10	—	—	—	—	—	—	—	TO-78
2N2642	NPN	45	45	5	100	300	10	0.9	10	5.0	10	10	10	10	TO-78
2N2643	NPN	45	45	5	100	300	10	0.8	10	10.0	10	20	10	10	TO-78
2N2644	NPN	45	45	5	100	300	10	—	—	—	—	—	—	—	TO-78
2N2607	PNP	25	20	5	40	120	—100	—	—	—	—	—	—	—10	TO-78
2N2903	NPN	60	30	7	125	625	1000	0.8	1000	10.0	10	20	10	10	TO-78
2N2903A	NPN	60	30	7	125	625	1000	0.9	1000	5	10	10	10	10	TO-78
2N2910	NPN	45	25	—	70	—	—	—	—	—	—	—	—	—	TO-79
2N2913	NPN	45	45	6	60	240	10	—	—	—	—	—	—	—	TO-78
2N2914	NPN	45	45	6	150	600	10	—	—	—	—	—	—	—	TO-78
2N2915	NPN	45	45	6	60	240	10	0.9	100	3	100	10	100	10	TO-78
2N2915A	NPN	45	45	6	100	—	—	—	—	1.5	—	5	—	—	TO-77
2N2916	NPN	45	45	6	150	600	10	0.9	100	3	100	10	100	10	TO-78
2N2916A	NPN	45	45	6	225	—	—	—	—	1.5	—	5	—	—	TO-77
2N2917	NPN	45	45	6	60	240	10	0.8	100	5.0	100	20	100	10	TO-78
2N2918	NPN	45	45	6	150	600	10	0.8	100	5.0	100	20	100	10	TO-78
2N2919	NPN	60	60	6	60	240	10	0.9	100	3.0	100	3.0	100	2	TO-78
2N2919A	NPN	60	60	6	100	—	—	—	—	1.5	—	5	—	—	TO-77
2N2920	NPN	60	60	6	150	600	10	0.9	100	3.0	100	10	100	2	TO-78
2N2920A	NPN	60	60	6	100	—	—	—	—	1.5	—	5	—	—	TO-77
2N2972	NPN	45	45	6	60	240	10	—	—	—	—	—	—	—	TO-71
2N2973	NPN	45	45	6	150	600	10	—	—	—	—	—	—	—	TO-71
2N2974	NPN	45	45	6	60	240	10	0.9	100	3.0	100	10	100	10	TO-71
2N2975	NPN	45	45	6	150	600	10	0.9	100	3.0	100	10	100	10	TO-71
2N2976	NPN	45	45	6	60	240	10	0.8	100	5.0	100	20	100	10	TO-71
2N2977	NPN	45	45	6	150	600	10	0.8	100	5.0	100	20	100	10	TO-71
2N2978	NPN	60	60	6	60	240	10	0.9	100	3.0	100	10	100	2	TO-71
2N2979	NPN	60	60	6	150	600	10	0.9	100	3.0	100	10	100	2	TO-71
2N3423	NPN	30	15	3	20	200	—	0.8	—	10.0	—	40	—	—	TO-79
2N3424	NPN	30	15	3	20	200	—	0.9	—	5.0	—	20	—	—	TO-79
2N3680	NPN	60	50	6	300	—	—	0.9	—	3.0	—	5	—	—	TO-79
2N3907	NPN	60	45	6	60	300	—	0.9	—	1.0	—	5	—	—	TO-79
2N3908	NPN	60	60	6	100	500	—	0.9	—	1.0	—	5	—	—	TO-79

unijunction transistors

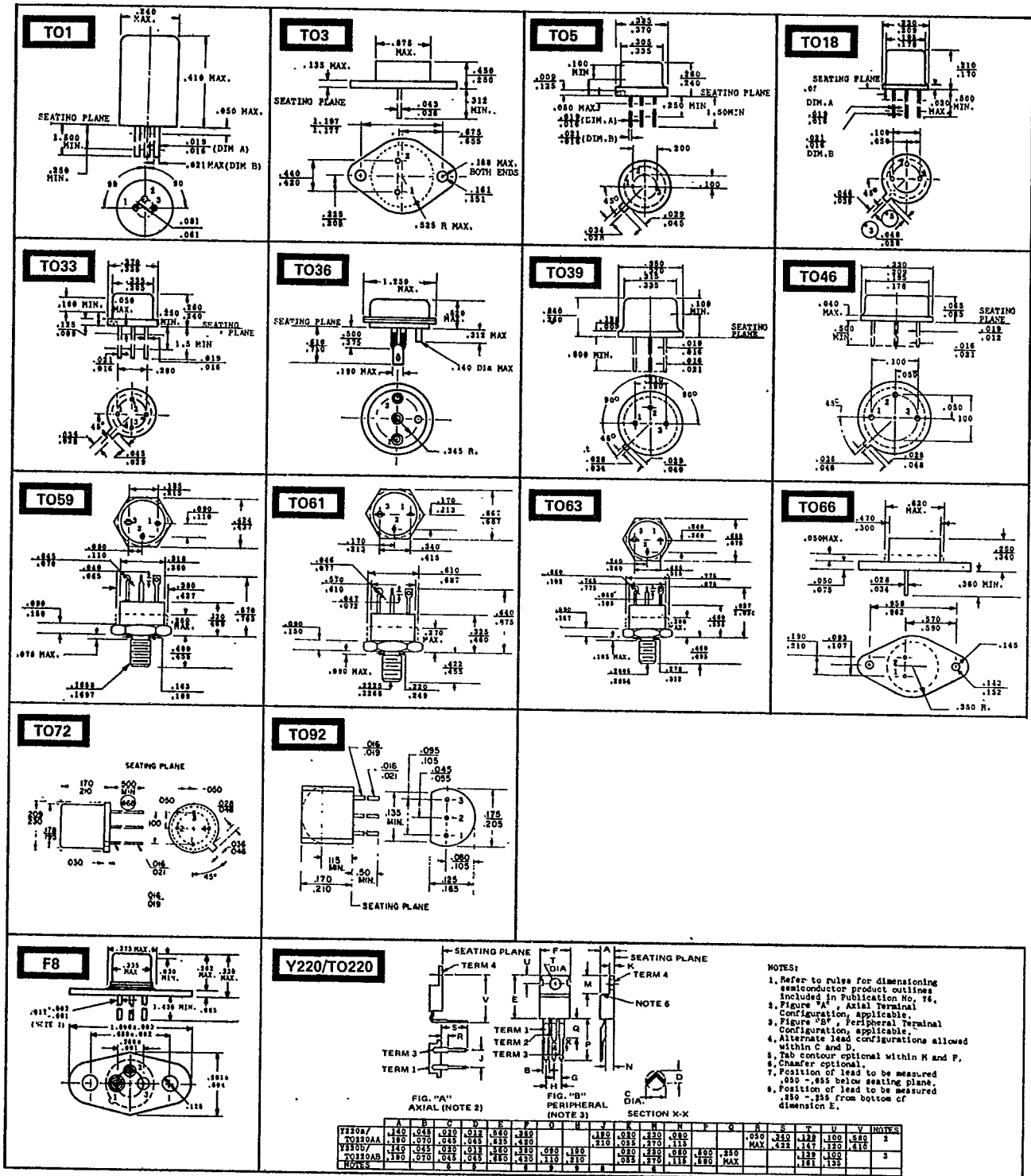
2N489	450	6.8	0.62	8.0	20	12 @ 60	5.0
2N489A	450	6.8	0.62	8.0	15	12 @ 60	4.0
2N489B	450	6.8	0.62	8.0	6.0	0.2 @ 60	4.0
2N490	450	9.1	0.62	8.0	20	12 @ 60	5.0
2N490A	450	9.1	0.62	8.0	15	12 @ 60	4.0
2N490B	450	9.1	0.62	8.0	6.0	0.2 @ 60	4.0
2N490C	450	9.1	0.51	—	—	—	—
2N491	450	6.8	0.68	8.0	20	12 @ 60	5.0
2N491B	450	6.8	0.68	8.0	6.0	0.2 @ 60	4.3
2N492	450	9.1	0.68	8.0	20	12 @ 60	5.0
2N492A	450	9.1	0.68	8.0	15	12 @ 60	4.3
2N492B	450	9.1	0.68	8.0	6.0	0.2 @ 60	4.3
2N492C	450	9.1	0.58	—	—	—	—
2N493	450	6.8	0.75	8.0	20	12 @ 60	5.0
2N493A	450	6.8	0.75	8.0	15	—	—
2N493B	450	6.8	0.75	8.0	6.0	0.2 @ 60	5.0
2N494	450	9.1	0.75	8.0	20	12 @ 60	5.0
2N494A	450	9.1	0.75	8.0	15	12 @ 60	4.6
2N494B	450	9.1	0.75	8.0	6.0	0.2 @ 60	4.6
2N494C	450	9.1	0.62	8.0	2.0	0.02 @ 60	4.6
2N1671	450	9.1	0.62	8.0	25	12 @ 30	5.0
2N1671A	450	9.1	0.62	8.0	25	12 @ 30	5.0
2N1671B	450	9.1	0.62	8.0	6.0	0.2 @ 30	5.0
2N1671C	450	4.1-9.1	—	—	—	—	—
2N2160	450	4.0-12	0.47-0.80	8.0	25	12 @ 30	—
2N2346	300	4.7-9.1	0.56-0.75	4.0	5	12 @ 30	2.0
2N2847	300	4.7-9.1	0.68-0.82	8.0	2.0	0.2 @ 30	3.5
2N4851	300	4.7-9.1	0.56-0.75	2.0	2.0	0.1 @ 30	*2.5
2N4852	300	4.7-9.1	0.70-0.85	4.0	2.0	0.1 @ 30	*2.5
2N4853	300	4.7-9.1	0.70-0.85	6.0	0.4	0.05 @ 30	*2.5

PROGRAMMABLE

*See full specifications



case outline drawings





case outline drawings cont'd

D01-3

D013

D027

D04

D035

D041

D05

A249

	A	B	C	D	E	F
A649	.510 MAX	.250 MIN	.025 MAX	.055 MAX	1.000 MIN	1.000 MIN
A649a	.187 MAX	.117 MAX	.007 MAX	.024 MAX	.024 MIN	.024 MIN
A649c	.179 MAX	.130 MAX	.011 MAX	.134 MAX	-	-
A649c	.180 MAX	.187 MAX	.022 MAX	1.34 MIN	2.14 MIN	-

D07

MILLIMETER DIMENSIONS ARE DERIVED FROM ORIGINAL INCH DIMENSIONS

SYMBOL	INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.	NOTES
SR	.018	.022	0.458	0.558	1
SD	.005	.107	2.36	2.71	1
G	.230	.308	5.85	7.62	1
L	1.000	-	25.40	-	-
L ₁	-	.050	-	1.27	2

C212

Dimensions in inches and millimeters

C223

Dimensions in inches and millimeters

D08

D09

D010

F22

	A	B	C	D	E	F	G	H
F22	.275 MIN	.260 MAX	.250 MIN	.100 MAX	.055 MAX	.225 MIN	.225 MIN	.225 MIN
F22a	1.44 MAX	.845 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22b	1.93 MAX	1.43 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22c	2.40 MAX	1.90 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22d	2.87 MAX	2.37 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22e	3.34 MAX	2.84 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22f	3.81 MAX	3.31 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX
F22g	4.28 MAX	3.78 MAX	.400 MAX	.130 MAX	.043 MAX	.280 MAX	.280 MAX	.280 MAX