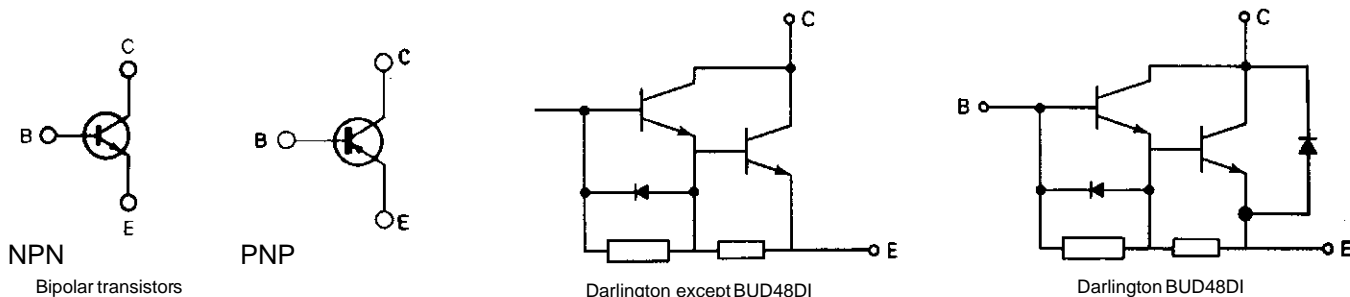


“FASTSWITCH” SERIES (Hollow Emitter, Easy - To - Drive)

Device	V _{CEO} (V)	V _{CBO} V _{CES} (V)	I _C (A)	P _{tot} (W)	Package NPN	V _{CE(sat)} @ I _C / I _B			t _s (μs)	t _f (μs)
						(V)	(A)	(A)		
SGSF465	600	1300	10	125	TO-218	1.5	5.00	1.00	3.5	0.40
SGSF445	600	1300	7	95	TO-218	1.5	3.00	0.60	3.5	0.30
SGSF464	600	1200	10	125	TO-218	1.5	6.00	1.20	3.5	0.40
SGSIF464	600	1200	10	56	ISOWATT218	1.5	6.00	1.20	3.5	0.40
SGSIF444	600	1200	7	50	ISOWATT218	1.5	3.50	0.70	3.5	0.30
SGSF444	600	1200	7	95	TO-218	1.5	3.50	0.70	3.5	0.30
SGSIF344	600	1200	7	35	ISOWATT220	1.5	3.50	0.70	3.5	0.30
SGSF344	600	1200	7	85	TO-220	1.5	3.50	0.70	3.5	0.30
SGSF324	600	1200	4	70	TO-220	1.5	1.75	0.35	4.5	0.35
BUF460AV	450	1000	80	300	ISOTOP	2.0	60.00	12.00	2.0	0.10
BUF420A	450	1000	30	200	TO-218	0.5	20.00	4.00	2.0	0.10
BUF410A	450	1000	15	125	TO-218	0.5	10.00	2.00	1.8	0.10
SGSF463	450	1000	12	125	TO-218	1.5	7.00	1.40	2.3	0.50
BUF405A	450	1000	7.5	80	TO-220	2.0	5.00	1.00	1.8	0.10
BUF405AXI	450	1000	7.5	35	ISOWATT221	2.0	5.00	1.00	1.8	0.10
SGSF313XI	450	1000	5	25	ISOWATT221	0.8	2.50	0.50	2.5	0.30
BUF420	450	850	30	200	TO-218	0.5	20.00	4.00	2.0	0.10
BUF410	450	850	15	125	TO-218	0.5	10.00	2.00	1.8	0.10
BUF410FI	450	850	15	60	ISOWATT218	0.5	10.00	2.00	1.8	0.10
BUF405	450	850	7.5	80	TO-220	2.0	5.00	1.00	1.8	0.10
SGSIF461	400	850	15	65	ISOWATT218	1.5	10.00	2.00	2.3	0.50
SGSF461	400	850	15	125	TO-218	1.5	10.00	2.00	2.3	0.50
SGSF341	400	850	10	85	TO-220	1.5	6.00	1.20	2.5	0.35
SGSF441	400	850	10	95	TO-218	1.5	6.00	1.20	2.5	0.35

SWITCHING TRANSISTORS AND DARLINGTONS

Internal schematic diagrams



Device	V _{CEO} (V)	V _{CBO} V _{CES} (V)	I _C (A)	P _{tot} (W)	Package	V _{CE(sat)} @ I _C / I _B			t _s (μs)	t _f (μs)
						(V)	(A)	(A)		
BUV298CV	700	1200	45	300	ISOTOP	1.2	24	6.00	6.0	0.60
BUX98C	700	1200	30	250	TO-3	1.5	12	3.00	6.0	0.60
BUV48CFI	700	1200	15	50	ISOWATT218	1.5	6	1.50	6.0	0.60
BUV48C	700	1200	15	120	TO-218	1.5	6	1.50	6.0	0.60
BUX48C	700	1200	15	175	TO-3	1.5	6	1.50	6.0	0.60
BUV48B	600	1200	15	150	TO-218	3.0	10	4.00	3.0	0.70
ESM6045AV	450	1000	72	250	ISOTOP	2.0	60	2.40	6.0	0.60
STF6045AV	450	1000	72	250	ISOTOP	2.0	60	2.40	6.0	0.40
BUV298AV	450	1000	50	250	ISOTOP	2.0	32	6.40	4.5	0.40
ESM4045AV	450	1000	36	150	ISOTOP	2.0	30	1.20	5.0	0.60
BUX98A	450	1000	30	250	TO-3	1.5	16	3.20	4.5	0.40
BUV98AV	450	1000	30	150	ISOTOP	2.5	16	3.20	5.0	0.40
BUX98AP	450	1000	24	200	TO-218	1.2	16	3.20	4.5	0.40
BUD48A	450	1000	16	150	TO-218	1.6	7.5	0.50	3.6	0.40
BUX48A	450	1000	15	175	TO-3	1.5	10	2.00	5.0	0.40
BUV48A	450	1000	15	125	TO-218	1.5	10	2.00	5.0	0.40
BUV48AFI	450	1000	15	50	ISOWATT218	1.5	8	1.60	5.0	0.40
BUX47A	450	1000	9	125	TO-3	1.5	5	1.00	4.0	0.40
BUV47A	450	1000	9	120	TO-218	1.5	5	1.00	4.0	0.40
BUV47AFI	450	1000	9	50	ISOWATT218	1.5	5	1.00	4.0	0.40
BUT12A	450	1000	8	125	TO-220	1.5	5	1.00	-	-
BUT12AFI	450	1000	8	50	ISOWATT220	1.5	5	1.00	-	-
BUW12A	450	1000	8	100	TO-218	1.5	5	1.00	4.0	0.80
BUT11AFI	450	1000	5	35	ISOWATT220	1.5	2.5	0.50	4.0	0.80
BUV46A	450	1000	5	70	TO-220	1.5	2	0.40	3.0	0.80
BUT11A	450	1000	5	83	TO-220	1.5	2.5	0.50	4.0	0.80
BUX87	450	1000	0.5	40	SOT-32	1.0	0.2	0.02	4.5	0.35
BUY69A	400	1000	10	100	TO-3	3.3	8	2.50	1.7	0.30
BUV298V	450	850	60	250	ISOTOP	2.0	40	8.00	4.5	0.40
BUX348	450	850	45	300	TO-3	0.9	30	6.00	4.5	0.40
BUX98P	450	850	30	200	TO-218	0.9	20	4.00	4.5	0.40
BUV98V	450	850	30	150	ISOTOP	2.5	20	4.00	5.0	0.40
BUX98PI	450	850	30	115	TOP-3I	0.9	20	4.00	4.5	0.40
BUX98	400	850	30	250	TO-3	1.5	20	4.00	3.0	0.80
BUX48	400	850	15	175	TO-3	1.5	10	2.00	5.0	0.40
2N6547	400	850	15	175	TO-3	1.5	10	2.00	0.0	0.00
BUV48FI	400	850	15	50	ISOWATT218	1.5	10	2.00	5.0	0.40
BUX47	400	850	9	125	TO-3	1.5	6	1.20	4.0	0.40
MJE13007A	400	850	8	80	TO-220	1.5	5	1.00	3.0	0.70
BUV46FI	400	850	5	30	ISOWATT220	1.5	2.5	0.50	3.0	0.80
BUV46	400	850	5	70	TO-220	1.5	2.5	0.50	3.0	0.80
BUT11	400	850	5	83	TO-220	1.5	3	0.60	4.0	0.80

* PNP Products

SWITCHING TRANSISTORS AND DARLINGTONS (cont'd)

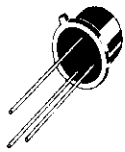
Device	V _{CEO} (V)	V _{CB0} V _{CEs} (V)	I _c (A)	P _{tot} (W)	Package	V _{CE(sat)} @ I _c / I _B			t _s (μs)	t _f (μs)
						(V)	(A)	(A)		
BUW45	400	800	15	175	TO-3	3.0	10	2.00	3.0	0.80
BUX80	400	800	10	100	TO-3	3.0	8	2.50	3.5	0.50
MJE13009	400	700	12	100	TO-220	1.5	8	1.60	3.0	0.70
MJE13007	400	700	8	80	TO-220	1.5	5	1.00	3.0	0.70
MJE13005	400	700	4	75	TO-220	1.0	4	1.00	3.5	0.90
MJE13003	400	700	1.5	50	SOT-32	1.0	1	0.25	1.8	0.40
SGS13003	400	700	1.5	50	SOT-82	3.0	1.5	0.50	2.5	0.50
SGSD00030	400	650	28	125	TO-218	3.5	18	1.80	1.5	0.60
2N6678	400	650	15	175	TO-3	5.0	15	3.00	4.0	1.00
2N6673	400	650	8	150	TO-3	1.0	5	1.00	4.0	0.80
STF8045DV	450	600	100	270	ISOTOP	2.0		4.90	5.5	0.50
ESM6045DV	450	600	84	250	ISOTOP	2.0	70	4.00	5.5	0.50
ESM5045DV	450	600	60	175	ISOTOP	2.0	50	2.80	5.0	0.50
ESM4045DV	450	600	42	150	ISOTOP	2.0	35	2.00	4.5	0.50
ESM3045DV	450	600	24	125	ISOTOP	2.0	20	1.20	4.0	0.40
BUT13P	400	600	28	150	TO-218	3.0	22	2.20	1.5	0.60
BUT13	400	600	28	175	TO-3	3.0	22	2.20	1.5	0.60
BU810	400	600	7	75	TO-220	2.5	4	0.20	-	-
BU801	400	600	3	40	SOT-32	3.0	2	0.20	1.0	0.50
MJE13006	300	600	8	80	TO-220	1.5	5	1.00	3.0	0.70
BUX25	500	500	15	350	TO-3	1.0	8	1.60	5.0	1.60
MJ10005	400	500	20	175	TO-3	1.9	10	0.40	1.5	0.50
BUW34	400	500	10	125	TO-3	1.5	5	1.00	3.0	0.80
TIP50	400	500	1	40	TO-220	1.0	1	0.20	-	-
BUW42A*	400	450	15	150	TO-3	1.5	10	3.00	1.5	0.60
BUW32AP*	400	450	10	105	TO-218	1.5	5	1.50	1.5	0.60
MJE5852*	400	450	8	80	TO-220	2.0	4	1.00	-	-
BUW22AP*	400	450	6	60	TO-220	1.5	2.5	1.00	1.5	0.70
MJ10004	350	450	20	175	TO-3	1.9	10	0.40	1.5	0.50
TIP49	350	450	1	40	TO-220	1.0	1	0.20	-	-
2N3439	350	450	1	10	TO-39	0.5	0.05	4 mA	-	-
BUV23	325	400	30	250	TO-3	1.0	8	1.60	2.5	1.20
BUX23	325	400	30	350	TO-3	1.0	16	3.20	2.5	1.20
BUT232V	300	400	140	300	ISOTOP	1.9	70	7.00	5.0	0.40
ESM3030DV	300	400	100	225	ISOTOP	2.2	85	2.40	3.5	0.60
BUT32V	300	400	80	250	ISOTOP	1.9	40	4.00	3.0	0.40
ESM2030DV	300	400	67	150	ISOTOP	2.2	56	1.60	3.0	0.60
BUT102	300	400	50	300	TO-3	0.9	40	4.00	3.0	0.40
BUT92A	300	400	50	250	TO-3	0.9	30	3.00	3.0	0.40
BUT72I	300	400	40	115	TOP-3I	0.9	30	3.00	3.0	0.40
BUV52A	300	400	20	150	TO-3	0.9	7	0.70	3.0	0.40
TIP48	300	400	1	40	TO-220	1.0	1	0.20	-	-
BUV28	200	400	12	85	TO-220	1.5	6	0.60	1.5	0.25
BUY18S	200	400	7	50	TO-3	-	-	-	-	-
2N5657	350	375	0.5	20	SOT-32	2.5	0.25	0.03	-	-
2N5416*	300	350	1	10	TO-39	2.5	0.05	0.01	-	-
BUR52	250	350	60	350	TO-3	1.8	25	2.00	2.0	0.60
BUW52I	250	350	20	75	TOP-3I	0.9	8	0.80	1.6	0.30
BUV42	250	350	12	120	TO-3	1.2	6	0.75	2.4	0.40
TIP47	250	350	1	40	TO-220	1.0	1	0.20	-	-
MJE3440	250	350	0.3	15	SOT-32	0.5	0.05	4 mA	-	-
MJE350*	300	300	0.5	20	SOT-32	-	-	-	-	-
MJE340	300	300	0.5	20	SOT-32	-	-	-	-	-
BUX22	250	300	40	350	TO-3	1.5	20	2.50	2.0	0.50
BUV22	250	300	40	250	TO-3	0.6	25	2.50	2.0	0.50
BUX12	250	300	20	150	TO-3	1.0	5	0.50	2.0	0.50
2N3440	250	300	1	10	TO-39	0.5	0.05	4 mA	-	-
BUR51	200	300	60	350	TO-3	1.0	30	2.00	2.0	0.60
BUT91	200	300	50	250	TO-3	1.2	40	4.00	1.5	0.65

* PNP Products

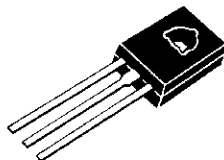
SWITCHING TRANSISTORS AND DARLINGTONS (cont'd)

Device	V _{CEO} (V)	V _{CBO} V _{CES} (V)	I _c (A)	P _{tot} (W)	Package	V _{CE(sat)} @ I _c / I _B			t _s (μs)	t _f (μs)
						(V)	(A)	(A)		
BUV61	200	300	50	250	TO-3	1.2	40	5.00	2.4	0.25
BUV51	200	300	20	150	TO-3	1.2	14	1.75	2.0	0.30
BUV41	200	300	15	120	TO-3	1.2	8	1.00	2.0	0.30
BUV21	200	250	40	250	TO-3	0.6	12	1.20	1.8	0.40
BUX21	200	250	40	250	TO-3	1.5	25	3.00	1.8	0.40
BUX11	200	250	20	150	TO-3	0.6	6	0.60	1.8	0.40
BUX41	200	250	15	120	TO-3	1.6	8	1.00	1.7	0.80
BUY49S	200	250	3	10	TO-39	0.2	0.5	0.05	-	-
BUV60	125	250	50	250	TO-3	1.2	60	7.50	1.5	0.25
BUW50	125	250	25	150	TO-218	0.9	20	2.00	1.7	0.30
BUV50	125	250	25	150	TO-3	1.2	24	3.00	1.7	0.30
BUV40	125	250	20	120	TO-3	1.2	15	1.90	1.7	0.30
BUW90	125	250	20	125	TO-218	0.9	11	1.10	1.7	0.30
BUV27	120	240	12	85	TO-220	0.7	4	0.40	2.0	0.15
BUX41N	160	220	18	120	TO-3	1.6	12	1.50	1.5	0.80
2N5415*	200	200	1	10	TO-39	2.5	0.05	0.01	-	-
BUY48	170	200	7	10	TO-39	1.0	5	0.50	-	-
BUT230V	125	200	200	300	ISOTOP	1.5	200	20.00	2.0	0.30
BUT30V	125	200	100	250	ISOTOP	1.5	100	10.00	2.0	0.20
BUR50S	125	200	70	350	TO-3	1.0	35	2.00	2.0	2.00
BUR50	125	200	70	350	TO-3	1.5	70	7.00	2.0	0.50
BUT90	125	200	50	250	TO-3	0.9	70	7.00	2.0	0.30
BUT100	125	200	50	300	TO-3	0.9	100	10.00	2.0	0.20
BUT70	125	200	40	200	TO-218	0.9	70	7.00	1.8	0.20
BUT70I	125	200	40	115	TOP-3I	0.9	70	7.00	1.8	0.20
BUV26	90	180	14	85	TO-220	1.5	12	1.20	2.0	0.15
BUX20	125	160	50	350	TO-3	1.2	50	5.00	1.2	0.30
BUV20	125	160	50	250	TO-3	0.6	25	2.50	1.2	0.30
BUX10	125	160	25	150	TO-3	0.6	10	1.00	1.2	0.30
BDY58	125	160	25	175	TO-3	1.4	10	1.00	-	-
BUX40	125	160	20	120	TO-3	1.6	15	1.88	1.0	0.40
BUX10P	125	160	10	106	TO-218	0.6	10	1.00	1.2	0.30
BUV39	90	160	25	120	TO-3	1.2	20	2.50	1.7	0.30
BUW89	90	160	25	125	TO-218	0.9	15	1.50	1.7	0.30
BUW49	80	160	30	150	TO-218	1.2	30	3.00	1.7	0.50
ESM2012DV	125	150	120	175	ISOTOP	2.0	100	1.00	2.0	0.30
2N5038	90	150	20	140	TO-3	2.5	20	5.00	1.5	0.50
2N5682	120	120	1	10	TO-39	1.0	0.5	0.05	-	-
2N5680*	120	120	1	10	TO-39	1.0	0.5	0.05	-	-
BDY90	100	120	10	60	TO-3	1.5	10	1.00	1.3	0.20
2N5671	90	120	30	140	TO-3	0.8	15	1.20	1.5	0.50
2N5039	75	120	20	140	TO-3	2.5	20	5.00	1.5	0.50
BUV18	60	120	80	250	TO-3	1.5	80	8.00	1.1	0.25
BUW48	60	120	30	150	TO-218	1.4	40	4.00	1.7	0.50
BUW38	60	120	30	150	TO-3	1.4	40	4.00	1.7	0.50
BFX34	60	120	5	5	TO-39	1.0	5	0.50	-	-
2N5339	100	100	5	6	TO-39	1.2	5	0.50	2.0	0.20
2N5681	100	100	1	10	TO-39	1.0	0.5	0.05	-	-
2N5154	80	100	5	10	TO-39	1.5	5	0.50	-	-
2N5153*	80	100	5	10	TO-39	1.5	5	0.50	-	-
BSS44*	60	65	5	5	TO-39	1.0	5	0.50	-	-

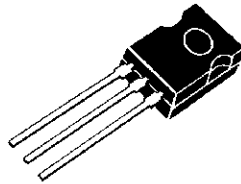
* PNP Products



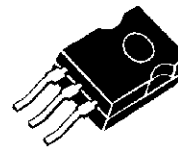
TO - 39



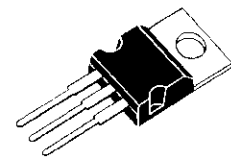
TO - 126/SOT - 32



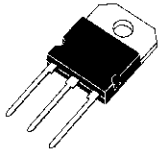
SOT - 82



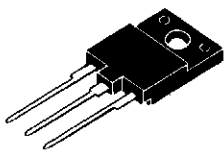
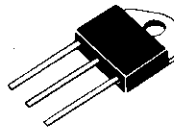
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TO - 220



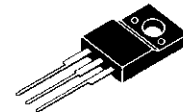
SOT - 93

ISOWATT218
(Fully Isolated)

TO - 31

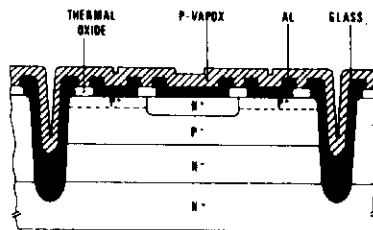


TO - 3

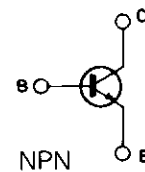
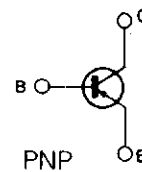
ISOWATT220
(Fully Isolated)

Epitaxial base - I_{CM} : 1 \rightarrow 3 A, V_{CEO} : 22 \rightarrow 100V

NPN and PNP types (perfect complementary pairs)
 Medium V_{CEO} range (22 to 100 V)
 Medium switching speed
 Medium f_T (2 to 20 MHz)
 High ruggedness



Internal schematic diagrams

**GENERAL PURPOSE TRANSISTORS**

Device	V_{CEO} (V)	V_{CBO} V_{CES} (V)	I_C (A)	P_{tot} (W)	Package	h_{FE}	I_C @ $V_{CE(sat)}$		V_{CE} @ I_C @ I_B		
							(A)	(V)	(V)	(V)	(A)
BUY49P	200	250	3	15	SOT-32	40	0.5	5	0.2	0.5	50
TIP33C	100	140	10	80	TO-218	20	3.0	4	1.0	3.0	300
TIP34C*	100	140	10	80	TO-218	20	3.0	4	1.0	3.0	300
BD242C*	100	115	3	40	TO-220	25	1.0	4	1.2	3.0	600
BD241C	100	115	3	40	TO-220	25	1.0	4	1.2	3.0	600
BD239C	100	115	2	30	TO-220	15	1.0	4	0.7	1.0	200
BD240C*	100	115	2	30	TO-220	15	1.0	4	0.7	1.0	200
TIP35C	100	100	25	125	TO-218	25	1.5	4	1.8	15.0	1500
TIP36C*	100	100	25	125	TO-218	25	1.5	4	1.8	15.0	1500
2N5629	100	100	16	200	TO-3	25	8.0	2	1.0	10.0	1000
BDW52C*	100	100	15	125	TO-3	20	5.0	4	1.0	5.0	500
BD912*	100	100	15	90	TO-220	15	5.0	4	1.0	5.0	500
BDW51C	100	100	15	125	TO-3	20	5.0	4	1.0	5.0	500
BD911	100	100	15	90	TO-220	15	5.0	4	1.0	5.0	500
BD711	100	100	12	75	TO-220	15	4.0	4	1.0	4.0	400
BD712*	100	100	12	75	TO-220	15	4.0	4	1.0	4.0	400
TIP42C*	100	100	6	65	TO-220	15	3.0	4	1.5	6.0	600
TIP41C	100	100	6	65	TO-220	15	3.0	4	1.5	6.0	600
BD243C	100	100	6	65	TO-220	15	3.0	4	1.5	6.0	1000
BD244C*	100	100	6	65	TO-220	15	3.0	4	1.5	6.0	1000
TIP31C	100	100	3	40	TO-220	25	1.0	4	1.2	3.0	375
TIP32C*	100	100	3	40	TO-220	25	1.0	4	1.2	3.0	375

* PNP Products

POWER BIPOLAR

GENERAL PURPOSE TRANSISTORS (cont'd)

Device	V _{CEO}	V _{CBO} V _{CES}	I _C	P _{tot}	Package	h _{FE}	I _C @ V _{CE(sat)}		V _{CE} @ I _C @ I _B		
	(V)	(V)	(A)	(W)			(A)	(V)	(V)	(V)	(A)
TIP29C	100	100	1	30	TO-220	15	1.0	4	0.7	1.0	125
TIP30C*	100	100	1	30	TO-220	15	1.0	4	0.7	1.0	125
MJ802	90	100	30	200	TO-3	25	7.5	2	0.8	7.5	750
MJ4502*	90	100	30	200	TO-3	25	7.5	2	0.8	7.5	750
2N3792*	80	100	10	150	TO-3	30	3.0	2	0.8	5.0	500
2N3716	80	100	10	150	TO-3	30	3.0	2	0.8	5.0	500
MJE182	80	100	3	12.5	SOT-32	12	1.5	1	0.9	1.5	150
MJE172*	80	100	3	12.5	SOT-32	12	1.5	1	0.9	1.5	150
BD380*	80	100	2	25	SOT-32	30	0.5	4	-	-	-
BD238*	80	100	2	25	SOT-32	25	1.0	2	0.6	1.0	100
BD237	80	100	2	25	SOT-32	25	1.0	2	0.6	1.0	100
MJ2955*	60	100	15	115	TO-3	20	4.0	4	1.1	4.0	400
2N3055	60	100	15	115	TO-3	20	4.0	4	1.1	4.0	400
TIP33A	60	100	10	80	TO-218	20	3.0	4	1.0	3.0	300
TIP34A*	60	100	10	80	TO-218	20	3.0	4	1.0	3.0	300
BDX18*	60	100	7	117	TO-3	20	4.0	4	-	-	-
2N6488	90	90	15	75	TO-220	20	5.0	4	1.3	5.0	500
BD241B	80	90	3	40	TO-220	25	1.0	4	1.2	3.0	600
BD242B*	80	90	3	40	TO-220	25	1.0	4	1.2	3.0	600
BD240B*	80	90	2	30	TO-220	15	1.0	4	0.7	1.0	200
MJ14003*	80	80	60	300	TO-3	5	60.0	3	3.0	60.0	12
MJ14002	80	80	60	300	TO-3	5	60.0	3	3.0	60.0	12
2N5884*	80	80	25	200	TO-3	35	3.0	4	1.0	15.0	1500
2N5886	80	80	25	200	TO-3	35	3.0	4	1.0	15.0	1500
TIP35B	80	80	25	125	TO-218	25	1.5	4	1.8	15.0	1500
TIP36B*	80	80	25	125	TO-218	25	1.5	4	1.8	15.0	1500
BD909	80	80	15	90	TO-220	15	5.0	4	1.0	5.0	500
BD910*	80	80	15	90	TO-220	15	5.0	4	1.0	5.0	500
BD710*	80	80	12	75	TO-220	15	4.0	4	1.0	4.0	400
BD709	80	80	12	75	TO-220	15	4.0	4	1.0	4.0	400
D44H11	80	80	10	50	TO-220	40	4.0	1	1.0	8.0	400
BD537	80	80	8	50	TO-220	15	2.0	2	0.8	2.0	200
BD538*	80	80	8	50	TO-220	15	2.0	2	0.8	2.0	200
BD243B	80	80	6	65	TO-220	15	3.0	4	1.5	6.0	1000
TIP41B	80	80	6	65	TO-220	15	3.0	4	1.5	6.0	600
TIP42B*	80	80	6	65	TO-220	15	3.0	4	1.5	6.0	600
BD244B*	80	80	6	65	TO-220	15	3.0	4	1.5	6.0	1000
BD441	80	80	4	36	SOT-32	15	2.0	1	0.8	2.0	200
BD442*	80	80	4	36	SOT-32	15	2.0	1	0.8	2.0	200
2N5192	80	80	4	40	SOT-32	20	1.5	2	0.6	1.5	150
2N5195*	80	80	4	40	SOT-32	20	1.5	2	0.6	1.5	150
BD179	80	80	3	30	SOT-32	40	0.2	2	0.8	1.0	100
BD179-16	80	80	3	30	SOT-32	100	0.2	2	0.8	1.0	100
TIP32B*	80	80	3	40	TO-220	25	1.0	4	1.2	3.0	375
BD139	80	80	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
BD140*	80	80	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
BD140-10*	80	80	1.5	12.5	SOT-32	63	0.2	2	0.5	0.5	50
BD139-10	80	80	1.5	12.5	SOT-32	63	0.2	2	0.5	0.5	50
TIP29B	80	80	1	30	TO-220	15	1.0	4	0.7	1.0	125
TIP30B*	80	80	1	30	TO-220	15	1.0	4	0.7	1.0	125
2N4920*	80	80	1	30	SOT-32	30	0.5	1	0.6	1.0	100
2N6292	70	80	7	40	TO-220	30	4.0	2	1.0	2.0	200
2N6107*	70	80	7	40	TO-220	30	4.0	2	1.0	2.0	200
2N6487	70	70	15	75	TO-220	20	5.0	4	1.3	5.0	500
2N6490*	70	70	15	75	TO-220	20	5.0	4	1.3	5.0	500
2N3772	60	100	10	150	TO-3	15	10.0	4	2.0	15.0	1500
TIP2955*	60	70	15	90	TO-218	20	4.0	4	1.1	4.0	400
TIP3055	60	70	15	90	TO-218	20	4.0	4	1.1	4.0	400

* PNP Products

GENERAL PURPOSE TRANSISTORS (cont'd)

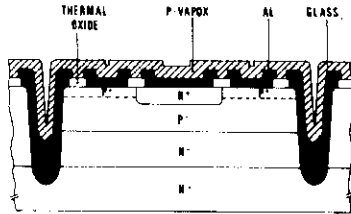
Device	V _{CEO}	V _{CBO} V _{CES}	I _C	P _{tot}	Package	h _{FE}	I _C @ V _{CE(sat)}		V _{CE} @ I _C @ I _B		
	(V)	(V)	(A)	(W)			(A)	(V)	(V)	(V)	(A)
MJE2955T*	60	70	10	75	TO-220	20	4.0	4	1.1	4.0	400
MJE3055T	60	70	10	75	TO-220	20	4.0	4	1.1	4.0	400
BD241A	60	70	3	40	TO-220	25	1.0	4	1.2	3.0	600
BD242A*	60	70	3	40	TO-220	25	1.0	4	1.2	3.0	600
2N4399*	60	60	30	200	TO-3	40	1.0	2	0.8	10.0	1000
2N5885	60	60	25	200	TO-3	35	3.0	4	1.0	15.0	1500
BD908*	60	60	15	100	TO-220	15	5.0	4	1.0	5.0	500
BD908FI*	60	60	15	35	ISOWATT220	15	5.0	4	1.0	5.0	500
BD707	60	60	12	75	TO-220	15	4.0	4	1.0	4.0	400
BD708*	60	60	12	75	TO-220	15	4.0	4	1.0	4.0	400
D44H8	60	60	10	50	TO-220	40	4.0	1	1.0	8.0	400
D45H8*	60	60	10	50	TO-220	40	4.0	1	1.0	8.0	400
BD535	60	60	8	50	TO-220	25	2.0	2	0.8	2.0	200
BD536*	60	60	8	50	TO-220	25	2.0	2	0.8	2.0	200
TIP42A*	60	60	6	65	TO-220	15	3.0	4	1.5	6.0	600
TIP41A	60	60	6	65	TO-220	15	3.0	4	1.5	6.0	600
2N5191	60	60	4	40	SOT-32	25	1.5	2	0.6	1.5	150
BD440*	60	60	4	36	SOT-32	25	2.0	1	0.8	2.0	200
BD439	60	60	4	36	SOT-32	25	2.0	1	0.8	2.0	200
TIP31A	60	60	3	40	TO-220	25	1.0	4	1.2	3.0	375
TIP32A*	60	60	3	40	TO-220	25	1.0	4	1.2	3.0	375
BD236*	60	60	2	25	SOT-32	25	1.0	2	0.6	1.0	100
BD235	60	60	2	25	SOT-32	25	1.0	2	0.6	1.0	100
BD138*	60	60	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
BD137	60	60	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
TIP30A*	60	60	1	30	TO-220	15	1.0	4	0.7	1.0	125
TIP29A	60	60	1	30	TO-220	15	1.0	4	0.7	1.0	125
2N6290	50	60	7	40	TO-220	30	4.0	2.5	1.0	2.5	250
2N6109*	50	60	7	40	TO-220	30	4.0	2.5	1.0	2.5	250
2N6489*	50	50	15	75	TO-220	20	5.0	4	1.3	5.0	500
2N3771	40	50	15	150	TO-3	15	15.0	4	1.4	10.0	1000
D45H5*	45	45	10	50	TO-220	40	4.0	1	1.0	8.0	400
BD533FI	45	45	8	22	ISOWATT220	25	2.0	2	0.8	2.0	200
BD534*	45	45	8	50	TO-220	25	2.0	2	0.8	2.0	200
BD534FI*	45	45	8	22	ISOWATT220	25	2.0	2	0.8	2.0	200
2N6124*	45	45	4	40	TO-220	25	1.0	2	0.6	1.5	150
BD437	45	45	4	36	SOT-32	40	2.0	1	0.6	2.0	200
BD438*	45	45	4	36	SOT-32	40	2.0	1	0.6	2.0	200
BD135	45	45	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
BD136*	45	45	1.5	12.5	SOT-32	40	0.2	2	0.5	0.5	50
MJE521	40	40	4	40	SOT-32	40	1.0	1	-	-	-
2N5193*	40	40	4	40	SOT-32	25	1.5	2	0.6	1.5	150
2N4918*	40	40	1	30	SOT-32	30	0.5	1	0.6	1.0	100
2N6111*	30	40	7	40	TO-220	30	4.0	3	1.0	3.0	300
MJE210*	25	40	5	15	SOT-32	70	0.5	1	0.3	0.5	50
BD435	32	32	4	36	SOT-32	50	2.0	1	0.5	2.0	200
BD436*	32	32	4	36	SOT-32	50	2.0	1	0.5	2.0	200
BD433	22	22	4	36	SOT-32	50	2.0	1	0.5	2.0	200
BD434*	22	22	4	36	SOT-32	50	2.0	1	0.5	2.0	200

* PNP Products

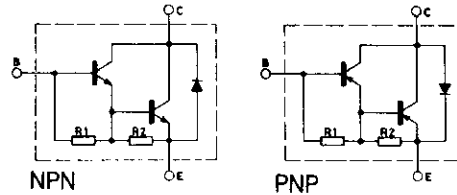
POWER BIPOLAR

Epitaxial base – $I_{CM} : 2 \rightarrow 3 \text{ A}$, $V_{CEO} : 45 \rightarrow 180 \text{ V}$

NPN and PNP types
 Medium V_{CEO} range (45 to 180 V)
 Medium switching speed
 Medium f_T (2 to 20 MHz)
 High ruggedness
 Monolithic Darlingtonts



Internal schematic diagrams



GENERAL PURPOSE DARLINGTONS

Device	V_{CEO}	V_{CBO} V_{CES}	I_C	P_{tot}	Package	h_{FE}	$I_C @ V_{CE(sat)}$		$V_{CE} @ I_C @ I_B$		
	(V)	(V)	(A)	(W)			(A)	(V)	(V)	(V)	(A)
BDW91	180	180	4	10	TO-39	1000	2	5	2.0	2	4
BDW92*	180	180	4	10	TO-39	1000	2	5	2.0	2	4
BDX53F	160	160	6	60	TO-220	500	2	5	2.0	2	10
BDX54F*	160	160	6	60	TO-220	500	2	5	2.0	2	10
BDT20*	130	130	8	62.5	TO-220	500	3	3	2.0	3	12
MJ11015*	120	120	30	200	TO-3	1000	20	5	4.0	30	300
MJ11016	120	120	30	200	TO-3	1000	20	5	4.0	30	300
2N6284	100	100	20	160	TO-3	750	10	3	3.0	20	200
2N6287*	100	100	20	160	TO-3	750	10	3	3.0	20	200
MJ4032*	100	100	16	150	TO-3	1000	10	3	4.0	16	80
MJ4035	100	100	16	150	TO-3	1000	10	3	4.0	16	80
BDW83C	100	100	15	130	TO-218	750	6	3	4.0	15	150
2N6052*	100	100	12	150	TO-3	750	6	3	3.0	12	120
2N6059	100	100	12	150	TO-3	750	6	3	3.0	12	120
BDW93C	100	100	12	80	TO-220	750	5	3	2.0	5	20
BDW93CFI	100	100	12	40	ISOWATT220	750	5	3	2.0	5	20
BDW94C*	100	100	12	80	TO-220	750	5	3	2.0	5	20
BDW94CFI*	100	100	12	40	ISOWATT220	750	5	3	2.0	5	20
BDX87C	100	100	12	120	TO-3	1000	5	3	2.0	6	24
BDX88C*	100	100	12	120	TO-3	1000	5	3	2.0	6	24
BDX33C	100	100	10	70	TO-220	750	3	3	2.5	3	6
BDX34C*	100	100	10	70	TO-220	750	3	3	2.5	3	6
TIP142	100	100	10	125	TO-218	1000	5	4	3.0	10	40
TIP142T	100	100	10	75	TO-220	500	10	4	3.0	10	40
TIP147*	100	100	10	125	TO-218	1000	5	4	3.0	10	40
BDX53C	100	100	8	60	TO-220	750	3	3	2.0	3	12
BDX54C*	100	100	8	60	TO-220	750	3	3	2.0	3	12
TIP102	100	100	8	80	TO-220	1000	3	4	2.0	3	6
TIP107*	100	100	8	80	TO-220	1000	3	4	2.0	3	6
TIP132	100	100	8	70	TO-220	1000	4	4	2.0	4	16
TIP137*	100	100	8	70	TO-220	1000	4	4	2.0	4	16
BD336*	100	100	6	60	SOT-82	750	3	3	2.0	3	12
SGS122	100	100	5	65	SOT-82	1000	3	3	2.0	3	12
TIP122	100	100	5	65	TO-220	1000	3	3	2.0	3	12
TIP127*	100	100	5	65	TO-220	1000	3	3	2.0	3	12
BD681	100	100	4	40	SOT-32	750	1.5	3	2.5	1.5	30
BD682*	100	100	4	40	SOT-32	750	1.5	3	2.5	1.5	30
SGS112	100	100	2	50	SOT-82	1000	1	4	2.5	2	8

* PNP Products

GENERAL PURPOSE DARLINGTONS (cont'd)

Device	V _{CEO}	V _{CBO} V _{CES}	I _C	P _{tot}	Package	h _{FE}	I _C @ V _{CE(sat)}		V _{CE} @ I _C @ I _B		
	(V)	(V)	(A)	(W)			(A)	(V)	(V)	(V)	(A)
TIP112	100	100	2	50	TO-220	1000	1	4	2.5	2	8
TIP117*	100	100	2	50	TO-220	1000	1	4	2.5	2	8
MJ11031	90	90	50	300	TO-3	400	50	5	3.5	50	500
MJ11013*	90	90	30	200	TO-3	1000	20	5	4.0	30	300
MJ11014	90	90	30	200	TO-3	1000	20	5	4.0	30	300
SGSD100	80	80	25	130	TO-218	300	20	3	1.8	10	40
SGSD200*	80	80	25	130	TO-218	300	20	3	1.8	10	40
2N6283	80	80	20	160	TO-3	750	10	3	3.0	20	200
2N6286*	80	80	20	160	TO-3	750	10	3	3.0	20	200
MJ4031*	80	80	16	150	TO-3	1000	10	3	4.0	16	80
BDW93B	80	80	12	80	TO-220	750	5	3	2.0	5	20
BDW94B*	80	80	12	80	TO-220	750	5	3	2.0	5	20
2N6388	80	80	10	65	TO-220	1000	5	3	2.0	5	10
BDX33B	80	80	10	70	TO-220	750	3	3	2.5	3	6
BDX34B*	80	80	10	70	TO-220	750	3	3	2.5	3	6
MJ2501*	80	80	10	150	TO-3	1000	5	3	2.0	5	20
MJ3001	80	80	10	150	TO-3	1000	5	3	2.0	5	20
TIP141	80	80	10	125	TO-218	1000	5	4	3.0	10	40
TIP141FI	80	80	10	50	ISOWATT218	500	10	4	3.0	10	40
TIP146*	80	80	10	125	TO-218	1000	5	4	3.0	10	40
TIP146FI*	80	80	10	50	ISOWATT218	500	10	4	3.0	10	40
BDX53B	80	80	8	60	TO-220	750	3	3	2.0	3	12
BDX54B*	80	80	8	60	TO-220	750	3	3	2.0	3	12
TIP106*	80	80	8	80	TO-220	1000	3	4	2.0	3	6
TIP131	80	80	8	70	TO-220	1000	4	4	2.0	4	16
TIP121	80	80	5	65	TO-220	1000	3	3	2.0	3	12
TIP126*	80	80	5	65	TO-220	1000	3	3	2.0	3	12
2N6036*	80	80	4	40	SOT-32	500	0.5	3	2.0	2	8
2N6039	80	80	4	40	SOT-32	500	0.5	3	2.0	2	8
BD679	80	80	4	40	SOT-32	750	1.5	3	2.5	1.5	30
BD679A	80	80	4	40	SOT-32	750	2	3	2.8	2	40
BD680*	80	80	4	40	SOT-32	750	1.5	3	2.5	1.5	30
BD680A*	80	80	4	40	SOT-32	750	2	3	2.8	2	40
MJE802	80	80	4	40	SOT-32	100	4	3	3.0	4	40
MJE803	80	80	4	40	SOT-32	100	4	3	3.0	4	40
2N6050*	60	60	12	150	TO-3	750	6	3	3.0	12	120
2N6057	60	60	12	150	TO-3	750	6	3	3.0	12	120
2N6387	60	60	10	65	TO-220	1000	5	3	2.0	5	10
MJ2500*	60	60	10	150	TO-3	1000	5	3	2.0	5	20
MJ3000	60	60	10	150	TO-3	1000	5	3	2.0	5	20
MJ1000	60	60	8	90	TO-3	1000	3	3	2.0	3	12
TIP100	60	60	8	80	TO-220	1000	3	4	2.0	3	6
TIP105*	60	60	8	80	TO-220	1000	3	4	2.0	3	6
TIP135*	60	60	8	70	TO-220	1000	4	4	2.0	4	16
SGS120	60	60	5	65	SOT-82	1000	3	3	2.0	3	12
SGS125*	60	60	5	65	SOT-82	1000	3	3	2.0	3	12
TIP120	60	60	5	65	TO-220	1000	3	3	2.0	3	12
TIP125*	60	60	5	65	TO-220	1000	3	3	2.0	3	12
BD677	60	60	4	40	SOT-32	750	1.5	3	2.5	1.5	30
BD677A	60	60	4	40	SOT-32	750	2	3	2.8	2	40
BD678*	60	60	4	40	SOT-32	750	1.5	3	2.5	1.5	30
BD678A*	60	60	4	40	SOT-32	750	2	3	2.8	2	40
SGS110	60	60	2	50	SOT-82	1000	1	4	2.5	2	8
SGS115*	60	60	2	50	SOT-82	1000	1	4	2.5	2	8
TIP110	60	60	2	50	TO-220	1000	1	4	2.5	2	8
TIP115*	60	60	2	50	TO-220	1000	1	4	2.5	2	8
2N6386	40	40	8	65	TO-220	1000	3	3	2.0	3	6

* PNP Products