

Silicon NPN Transistors

Type	Con- struction	P _c Max. (mW)	Typical f _T or *f _{T1} † fab (MHz)	Absolute Max. Ratings				Typical h _{FE} at (mA) (or *h _{FE})	Max I _{CBO} at V _{CB}		Application	Base Ref.
				V _{CB0} (V)	V _{CEO} (V)	V _{EB0} (V)	I _C (mA)		μA	V		

I.T.T. (Continued)

Current Types (Continued)

BFY50	PE	800	100	80	35	6	1A	30 at 150	0.05	60	High level amplifiers	2
BFY51	PE	800	110	60	30	6	1A	40 at 150	0.05	40		2
BFY52	PE	800	120	40	20	6	1A	60 at 150	0.05	30		2
2N2218	PE	800	250	60	30	5	800	40 at 150	0.01	50	High speed switching	2
2N2218A	PE	800	250	75	40	6	800	40 at 150	0.01	60		2
2N2219	PE	800	250	60	30	5	800	200 at 150	0.01	50		2
2N2219A	PE	800	250	75	40	6	800	200 at 150	0.01	60	Fast switching	2
2N3724	PE	800	250	50	30	6	1A	95 at 150	1.7	40		2
2N3725	PE	800	250	80	50	6	1A	95 at 150	1.7	60		2
2N4046	PE	800	250	50	30	6	500	95 at 150	1.7	40	Video output stages	2
2N4047	PE	800	250	80	50	6	500	95 at 150	1.7	60		2
BSY81	PE	900	100	40	18	5	1A	80 at 150	0.1	30		2
BSY83	PE	900	100	80	35	7	1A	80 at 150	0.01	60	High level switching	2
2N2297												2
BSY85	PE	900	110	120	64	7	1A	80 at 150	0.01	90		2
2N2193A	PE	900	120	40	18	5	1A	200 at 150	0.1	30	2	
BSY82												2
BSY84												2
BSY86	PE	900	130	120	64	7	1A	200 at 150	0.01	90	2	
BF257	PE	5W	90	160	160	5	100	25 at 30	0.05	100	2	
BF258	PE	5W	90	250	250	5	100	25 at 30	0.05	200		
BF259	PE	5W	90	300	300	5	100	25 at 30	0.05	250		
BF457	PE	10W	90	160	160	5	100	25 at 30	0.05	100	65	
BF458	PE	10W	90	250	250	5	100	25 at 30	0.05	200	65	
BF459	PE	10W	90	300	300	5	100	25 at 30	0.05	250	65	

JOSEPH LUCAS (ELECTRICAL) Ltd.

Replacement Types

DT1602	DJ	100	—	75	75	1	25	5‡ at 3	100	75	Drivers for cold cathode counters	2
DT1603	DJ	100	—	150	150	1	25	5‡ at 3	100	150		2
DT1612	DJ	100	—	75	75	1	25	20‡ at 3	100	75		2
DT1613	DJ	100	—	150	150	1	25	20‡ at 3	100	150	General purpose	2
DT1510	DJ	800	1†	30	20	8	1A	25 at 300	4	30		2
DT1511	DJ	800	1†	60	40	8	1A	25 at 300	4	60		2
DT1512	DJ	800	1†	100	70	8	1A	25 at 300	4	100	2	
DT1520	DJ	800	2†	30	20	8	1A	120 at 300	4	30	2	
DT1521	DJ	800	2†	60	40	8	1A	120 at 300	4	60		
DT1522	DJ	800	2†	100	70	8	1A	120 at 300	4	100		
DT1110	DJ	1W	1.5†	30	30	10	1A	45 at 300	2	30	2	
DT1111	DJ	1W	1.5†	60	60	10	1A	45 at 300	2	60		
DT1112	DJ	1W	1.5†	100	100	10	1A	45 at 300	2	100		
DT1120	DJ	1W	2.5†	30	30	10	1A	60 at 300	2	30	2	
DT1121	DJ	1W	2.5†	60	60	10	1A	60 at 300	2	60		
DT1122	DJ	1W	2.5†	100	100	10	1A	60 at 300	2	100		
DT1621	DJ	2W	2.5	60	40	8	1A	125 at 250	10	60	2	
DT3200	DJ	15W	0.5	45	30	8	5A	30 at 3A	25	45	3	
DT3201	DJ	15W	0.5	80	60	8	5A	30 at 3A	25	80	3	

Current Types

DT1003	DJ	4W	1	200	200	5	300	24 at 200	—	—	General purpose	2
DT1013	DJ	4W	1	200	200	5	300	60 at 200	—	—		2
DT1311	DJ	5W	1.5	60	40	12	1.5A	40 at 200	—	—		2
DT1312	DJ	5W	1.5	100	60	12	1.5A	40 at 200	—	—	2	
2N1479	DJ	5W	1.5	60	40	12	1.5A	40 at 200	—	—		
2N1480	DJ	5W	1.5	100	55	12	1.5A	40 at 200	—	—		
2N1481	DJ	5W	1.5	60	40	12	1.5A	67 at 200	—	—	2	
2N1482	DJ	5W	1.5	100	55	12	1.5A	67 at 200	—	—	2	
DT1321	DJ	5W	2.5	60	40	12	1.5A	80 at 200	—	—	2	

Continued

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				V _{CB0} (V)	V _{CE0} (V)	V _{EB0} (V)	I _C (mA)		μA	V			
2N2220	—	500	—	60	30	5	800	40 at 150	0.01	50	R.F. switching	2	
2N2220A	—	500	—	75	40	6	800	40 at 150	0.01	60	R.F. amplifiers	2	
2N2221	—	500	—	60	30	5	800	80 at 150	0.01	50		2	
2N2221A	—	500	—	75	40	6	800	80 at 150	0.01	60		2	
2N2222	—	500	—	60	30	5	800	200 at 150	0.01	50		2	
2N2222A	—	500	—	75	40	6	800	200 at 150	0.01	60	A.F. drivers	2	
NKT10339	—	500	100	45	30	5	500	100 at 100	0.01	10		2	
NKT10439	—	500	100	45	30	5	500	100 at 100	0.01	10	R.F. amplifiers	2	
NKT12329	—	500	200	30	20	4	500	80 at 10	0.01	10		2	
NKT12429	—	500	200	30	20	4	500	195 at 10	0.01	10		2	
2N1613	—	800	—	75	—	7	—	65 at 1	0.01	60	A.F. switching	2	
2N1711	—	800	—	75	—	7	—	125 at 1	0.01	60		2	
2N1893	—	800	—	120	80	7	1A	80 at 150	0.01	90	R.F. amplifiers	2	
2N2217	—	800	—	60	30	5	800	40 at 150	0.01	50		2	
2N2217A	—	800	—	75	40	6	800	40 at 150	0.01	60		2	
2N2218	—	800	—	60	30	5	800	80 at 150	0.01	50		2	
2N2218A	—	800	—	75	40	6	800	80 at 150	0.01	60		2	
2N2219	—	800	—	60	30	5	800	200 at 150	0.01	50		2	
2N2219A	—	800	—	75	40	6	800	200 at 150	0.01	60		2	
BFX84	—	800	50	100	60	6	1A	30‡ at 150	0.05	80		A.F. driver	2
BFX85	—	800	50	100	60	6	1A	70‡ at 150	0.05	80			2
BFX86	—	800	50	40	35	6	1A	70‡ at 150	0.05	30		A.F. switching	2
BFY51	—	800	50	60	30	6	1A	40‡ at 150	0.05	40	2		
BFY52	—	800	50	40	20	6	1A	60‡ at 150	0.05	40	2		
BFY53	—	800	50	30	20	6	1A	30‡ at 150	—	—	2		
BFY50	—	800	60	80	35	6	1A	30‡ at 150	0.05	60	A.F. drivers	2	
2N2297	—	800	60	80	35	7	—	80 at 150	0.01	60		2	
BSX60	—	800	250	70	30	—	1A	60 at 500	—	—	R.F. switching	2	
BSX61	—	800	250	70	45	—	1A	30‡ at 500	—	—		2	
2N3053	—	1W	—	60	40	5	700	150‡ at 150	0.25	30	A.F. amplifiers	2	
2N3055	—	115W	—	100	60	5	15A	45 at 4A	—	—	Power switching	1	
BDY20	—	115W	1	100	60	5	15A	60 at 4A	—	—	Power amplifiers	1	

‡ Minimum value

R.C.A.

Current Types

BDY71	H	—	0.8	—	55	—	3A	137	—	—	General purpose	1
2N718A	P	1.8W	100	—	32	—	900	80 at 150	0.01	60	Audio amplifiers	2
2N720A	P	1.8W	100	—	80	—	900	80 at 150	0.01	90		2
2N2895	—	1.8W	100	—	65	—	900	80 at 150	0.002	60		2
2N2896	—	1.8W	100	—	90	—	900	130 at 150	0.01	90		2
2N2897	—	1.8W	100	—	45	—	900	125 at 150	0.02	60	Audio amplifiers	2
40084	—	1.8W	100	—	40	—	900	150 at 150	0.25	30		2
40310	H	2W	0.8	—	35	—	3A	70 at 1A	10	15	Audio amplifiers	1
40312	H	5W	0.8	—	60	—	3A	70 at 1A	10	15		1
2N697	PE	5W	120	—	40	—	900	80 at 150	1	30	General purpose	2
2N699	PE	5W	120	—	80	—	900	80 at 150	2	60		2
2N1613	PE	5W	120	—	50	—	900	80 at 150	0.01	60		2
2N1711	PE	5W	120	—	50	—	900	200 at 150	0.01	60		2
2N1893	PE	5W	120	—	80	—	900	80 at 150	0.01	90		2
2N2102	PE	5W	120	—	65	—	900	80 at 150	0.002	60		2
2N2270	PE	5W	120	—	45	—	900	125 at 150	0.1	60		2
2N2405	PE	5W	120	—	90	—	900	130 at 150	0.01	90		2
2N3053	PE	5W	120	—	40	—	900	150 at 150	0.25	30		2
40309	PE	5W	120	—	18	—	900	210 at 50	0.25	15		Driver
40311	PE	5W	120	—	30	—	900	210 at 50	0.25	15	2	
40314	PE	5W	120	—	40	—	900	210 at 50	0.25	15	2	
40315	PE	5W	120	—	35	—	900	210 at 50	0.25	15	2	
40317	PE	5W	120	—	40	—	900	120 at 10	0.25	15	2	
40320	PE	5W	120	—	40	—	900	120 at 10	0.25	15	2	

Continued

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				V _{CBO} (V)	V _{CEO} (V)	V _{EBO} (V)	I _C (mA)		μA	V		
TEXAS (Continued)												
<i>Current Types (Continued)</i>												
2N2222A	PE	500	300	75	40	6	800	200 at 150	0.01	60	General purpose	2
2N3303	PE	600	—	25	12	4	1A	75 at 300	—	—	Fast switching	2
2N699	DDP	600	30	120	80	5	—	80 at 150	2	60	Amps./osc.	2
2N1420	DDP	600	30	60	30	5	1A	200 at 150	1	30		2
2N696	P	600	40	60	40	5	500	20‡ at 150	—	—	Medium power	2
2N697	P	600	50	60	40	5	500	40 at 150	—	—		2
TIS90	PE	625	—	40	40	5	400	160 at 50	0.1	20	General purpose	24
TIS90M	PE	625	—	40	40	5	400	160 at 50	0.1	20		24
TIS92	PE	625	—	40	40	5	400	160 at 50	0.1	20		24
TIS92M	PE	625	—	40	40	5	400	160 at 50	0.1	20		24
BSS34	—	625	90	100	80	—	200	50‡ at 10	—	—	Indicator tube driver	24
BSS35	—	625	90	120	100	—	200	40‡ at 10	—	—		24
BFY50	PE	800	—	80	80	6	1A	—	0.05	60	General purpose	2
BFY51	PE	800	—	60	60	6	1A	—	0.05	40		2
BFY52	PE	800	—	40	40	6	1A	—	0.05	30		2
2N3036	PE	800	—	120	80	7	1.2A	100 at 150	0.01	60	General purpose	2
2N3418	PE	800	—	85	60	8	3A	40 at 1A	—	—		2
2N3419	PE	800	—	125	80	8	3A	40 at 1A	—	—		2
2N3420	PE	800	—	85	60	8	3A	80 at 1A	—	—		2
2N3421	PE	800	—	125	80	8	3A	80 at 1A	—	—	2	
2N3724	PE	800	—	50	30	6	500	35‡ at 500	1.7	40	High speed switching	2
2N3725	PE	800	—	80	50	6	500	35‡ at 500	1.7	40		2
2N1714	tDM	800	16	—	60	6	750	40 at 200	—	—	H.F.	2
2N1715	tDM	800	16	—	100	6	750	40 at 200	—	—		2
2N1716	tDM	800	16	—	60	6	750	80 at 200	—	—		2
2N1717	tDM	800	16	—	100	6	750	80 at 200	—	—		2
2N1718	tDM	800	16	—	60	6	750	40 at 200	—	—		16
2N1719	tDM	800	16	—	100	6	750	40 at 200	—	—		16
2N1720	tDM	800	16	—	60	6	750	80 at 200	—	—		16
2N1721	tDM	800	16	—	100	6	750	80 at 200	—	—		16
2N698	P	800	40	120	80	7	500	20‡ at 150	—	—	Medium power	2
2N1507	DDP	800	50	60	30	5	1A	100‡ at 150	—	—		2
2N1889	DDP	800	50	100	60	7	500	40‡ at 150	—	—	Medium power	2
2N1893	DDP	800	50	120	80	7	500	40‡ at 150	—	—		2
2N2192	PE	800	50	60	40	5	1A	100‡ at 150	—	—		2
2N2192A	PE	800	50	60	40	5	1A	100‡ at 150	—	—		2
2N2193	PE	800	50	80	50	8	1A	40‡ at 150	—	—		2
2N2193A	PE	800	50	80	50	8	1A	40‡ at 150	—	—		2
2N2194	PE	800	50	60	40	5	1A	20‡ at 150	—	—		2
2N2194A	PE	800	50	60	40	5	1A	20‡ at 150	—	—		2
2N2243	PE	800	50	120	80	7	1A	20‡ at 150	—	—		2
2N2243A	PE	800	50	120	80	7	1A	40‡ at 150	—	—		2
2N3036	PE	800	50	120	80	7	1.2A	50‡ at 150	—	—	Medium power	2
2N1613	DDP	800	60	75	50	7	500	40‡ at 150	—	—		2
2N1890	DDP	800	60	100	60	7	500	100‡ at 150	—	—	Medium power	2
2N1711	DDP	800	60	75	50	7	1A	100‡ at 150	—	—		2
BFR39	—	800	100	90	80	—	1A	30‡ at 150	—	—		General purpose
BFR40	—	800	100	70	60	—	1A	40‡ at 150	—	—	24	
BFR41	—	800	100	60	50	—	1A	60‡ at 150	—	—	24	
BF257	PE	800	110	160	160	5	100	25‡ at 30	0.05	100	Video amplifiers	2
BF258	PE	800	110	250	250	5	100	25‡ at 30	0.05	200		2
BF259	PE	800	110	300	300	5	100	25‡ at 30	0.05	250		2
BFR86	—	800	130	120	120	—	400	20‡ at 30	—	—	Video output	24
BFR87	—	800	130	160	160	—	400	20‡ at 30	—	—		24
BFR88	—	800	130	250	250	—	400	20‡ at 30	—	—		24
BFR89	—	800	130	300	300	—	400	20‡ at 30	—	—		24
2N2217	PE	800	250	60	30	5	800	20‡ at 150	—	—		H.F.
2N2218	PE	800	250	60	30	5	800	40‡ at 150	—	—	2	
2N2218A	PE	800	250	75	40	6	800	80 at 150	0.01	60	2	
2N2219	PE	800	250	60	30	5	800	100‡ at 150	—	—	2	
2N2219A	PE	800	250	75	40	6	800	200 at 150	0.01	60	2	

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