TYPE	MATERIAL	POLARITY	REPLACEMENT	REF.	USE	MAXIMUM RATINGS						ELECTRICAL CHARACTERISTICS							
						P_D @ 25°C	Ref Point	T_J °C	V_{CB} (volts)	V_{CE-} (volts)	Subscript	h_{FE} @ I_C (min)	(max)	Units	$V_{CE(SAT)}$ @ I_C (volts)	Units	h_{f-}	Subscript	f_- Units	Subscript
2N992	G	P			AH	67M	A	75	20	20	R	40		1.0M			40	E		
2N993	G	P			AH	67M	A	75	20	20	R	40		1.0M			40	E	44M	T
2N994	G	P			SH	200M	A	150	15	6.0	O	45	140	10M	0.18	10M				
2N995	S	P			AH	360M	A	200	20	15	O	35	140	20M	0.2	20M			100M	T
2N995A	S	P	2N3250	2N3250	AH	360M	A	200	20	15	O	35	140	20M	0.2	20M			100M	T
2N996	S	P	2N3248	2N3248	AH	360M	A	200	15	12	O	35		20M	0.3	60M			100M	T
2N997	S	N			A	500M	A	175	75	40	O	35		100*	1.6	100M				
2N998	S	N		2N998	AL	500M	A	200	100	60	O				1.2	50M	1000	E		
2N999	S	N		2N998	AL	500M	A	200	60	60	O				1.6	100M				
2N1000	G	N			S	150M	A	100	40	25	O	40		10M	0.25	100M			7.0M	E
2N1003	G	P			AH	120M	A	100	35	20	U						10	E		
2N1004	G	P			AH	120M	A	100	35	20	U						10	E		
2N1005	S	N			A	150M	A	175	15	15	O	10	25	10M	0.6	10M				
2N1006	S	N			A	150M	A	175	15	15	O	25	150	10M	0.6	10M				
2N1007	G	P			AP	35W	C	95	25	20	O	50	250	1.0A	1.0	2.0A	25	E	60K	T
2N1008	G	P		2N1008	A	0.3W	C	85	20	15	R				0.25	0.1A	40	E		
2N1008A	G	P		2N1008	A	0.3W	C	85	40	35	R				0.25	0.1A	40	E		
2N1008B	G	P		2N1008	A	0.3W	C	85	60	55	R				0.25	0.1A	40	E		
2N1009	G	P			A	0.4W	C	85	35	35	R				0.25	0.1A	40	E	7.5K	E
2N1010	G	N			A	20M	A	55	10	10	O									
2N1011	G	P		2N1011	AP	35W	C	95	80	80	S	30	75	3.0A	1.5	3.0A	20	E	5.0K	E
2N1012	G	N			S	150M	A	100	40	22	O	40		100M	0.2	100M			3.0M	E
2N1014	G	P	MP448		AP	50W	C	100	100	65	O	20	50	4.0A	0.8	4.0A			0.5M	B
2N1015	S	N	2N3713	2N3713	SP	150W	C	150	30	30	V	10		2.0A	1.5	2.0A				
2N1015A	S	N			SP	150W	C	150	60	60	V	10		2.0A	1.5	2.0A				
2N1015B	S	N			SP	150W	C	150	100	100	V	10		2.0A	1.5	2.0A				
2N1015C	S	N			SP	150W	C	150	150	150	V	10		2.0A	1.5	2.0A				
2N1015D	S	N			SP	150W	C	150	200	200	V	10		2.0A	1.5	2.0A				
2N1015E	S	N			SP	150W	C	150	250	250	V	10		2.0A	1.5	2.0A				
2N1015F	S	N			SP	150W	C	150	300	300	V	10		2.0A	1.5	2.0A				
2N1016	S	N	2N3713	2N3713	SP	150W	C	150	30	30	V	10		5.0A	2.5	5.0A				
2N1016A	S	N			SP	150W	C	150	60	60	V	10		5.0A	2.5	5.0A				
2N1016B	S	N			SP	150W	C	150	100	100	V	10		5.0A	2.5	5.0A				
2N1016C	S	N			SP	150W	C	150	150	150	V	10		5.0A	2.5	5.0A				
2N1016D	S	N			SP	150W	C	150	200	200	V	10		5.0A	2.5	5.0A				
2N1016E	S	N			SP	150W	C	150	250	250	V	10		5.0A	2.5	5.0A				
2N1016F	S	N			SP	150W	C	150	300	300	V	10		5.0A	2.5	5.0A				
2N1017	G	P			S	150M	A	85	30	10	O	70		20M	2.6	200M			15M	B
2N1018	G	P			S	200M	A	100	30	6.0	O	70		70M	2.6	200M			20M	B
2N1021	G	P		2N1021	AP	50W	C	95	100	100	X	23	70	1.0A	1.0	5.0A				
2N1021A	G	P	MP1974		AP	150W	C	100	100	50	O	30	90	5.0A	0.5	5.0A			200K	T
2N1022	G	P		2N1021	AP	50W	C	95	120	120	X	23	70	5.0A	1.0	5.0A				
2N1022A	G	P	MP1975		AP	150W	C	100	120	55	O	30	90	5.0A	0.5	5.0A			200K	T
2N1023	G	P	2N3323	2N3323	A	120M	A	100	40	40	O	20	175	1.5M						
2N1024	S	P			A	0.25W	A	175	18	15	U						9.0	E	1.0M	B
2N1025	S	P			A	0.25W	A	175	40	35	U						9.0	E	1.0M	B
2N1026	S	P			A	0.25W	A	175	40	35	U						18	E	2.0M	B
2N1027	S	P			A	0.25W	A	175	18	15	U						18	E	4.0M	B
2N1028	S	P			A	0.25W	A	175	12	10	U						9.0	E	7.2M	T
2N1029	G	P	2N1553	2N1539	AP	90W	C	100	50	20	O	20	60	10A	1.0	10A				
2N1029A	G	P	2N1554	2N1539	AP	90W	C	100	60	30	O	20	60	10A	1.0	10A				
2N1029B	G	P	2N1555	2N1539	AP	90W	C	100	90	60	O	20	60	10A	1.0	10A				
2N1029C	G	P	2N1556	2N1539	AP	90W	C	100	100	70	O	20	60	10A	1.0	10A				
2N1030	G	P	2N1557	2N1539	AP	90W	C	100	50	20	O	50	100	10A	1.0	10A				
2N1030A	G	P	2N1558	2N1539	AP	90W	C	100	60	30	O	50	100	10A	1.0	10A				
2N1030B	G	P	2N1559	2N1539	AP			100	90	60	O	50	100	10A	1.0	10A				
2N1030C	G	P	2N1560	2N1539	AP			100	100	70	O	50	100	10A	1.0	10A				
2N1031	G	P	2N1553	2N1539	AP	90W	C	100	50	30	S	20	60	10A	1.0	10A	10	E	2.0K	E
2N1031A	G	P	2N1554	2N1539	AP	90W	C	100	60	40	S	20	60	10A	1.0	10A	10	E	2.0K	E
2N1031B	G	P	2N1555	2N1539	AP	90W	C	100	90	70	S	20	60	10A	1.0	10A	10	E	2.0K	E
2N1031C	G	P	2N1556	2N1539	AP	90W	C	100	100	80	S	20	60	10A	1.0	10A	10	E	2.0K	E
2N1032	G	P	MP327		AP	90W	C	100	50	30	S	50	100	10A	1.0	10A	25	E	2.0K	E
2N1032A	G	P	MP328		AP	90W	C	100	60	40	S	50	100	10A	1.0	10A	25	E	2.0K	E
2N1032B	G	P	MP329		AP	90W	C	100	90	70	S	50	100	10A	1.0	10A	25	E	2.0K	E
2N1032C	G	P	MP330		AP	90W	C	100	100	80	S	50	100	10A	1.0	10A	25	E	2.0K	E
2N1034	S	P			A	250M	A	160	50	40	O				0.5	8.0M	9.0	E	150K	B
2N1035	S	P			A	250M	A	160	50	35	O				0.4	8.0M	18	E	200K	B
2N1036	S	P			A	250M	A	160	50	30	O				0.3	8.0M	34	E	300K	B
2N1037	S	P			A	250M	A	160	50	35	O				0.5	8.0M	9.0	E	150K	B
2N1038	G	P		2N1038	AP	20W	C	95	40	40	V	20	60	1.0A	0.25	1.0A	18	E	8.0K	E
2N1039	G	P		2N1038	AP	20W	C	95	60	60	V	20	60	1.0A	0.25	1.0A	18	E	8.0K	E
2N1040	G	P		2N1038	AP	20W	C	95	80	80	V	20	60	1.0A	0.25	1.0A	18	E	8.0K	E
2N1041	G	P		2N1038	AP	20W	C	95	100	100	V	20	60	1.0A	0.25	1.0A	18	E	8.0K	E
2N1042	G	P	2N2143	2N2137	AP	20W	C	100	40	40	V	20	60	3.0A	0.75	3.0A	2.0	E	250K	T
2N1043	G	P	2N2144	2N2137	AP	20W	C	100	60	60	V	20	60	3.0A	0.25	1.0A			250K	T
2N1044	G	P	2N2145	2N2137	AP	20W	C	100	80	80	V	20	60	3.0A	0.25	1.0A			250K	T
2N1045	G	P	2N2146	2N2137	AP	20W	C	100	100	100	V	20	60	3.0A	0.25	1.0A			250K	T
2N1046	G	P	MP1046		AHP	50W	C	100	100	50	O	40		5.0A	0.2	500M			15M	T
2N1046A	G	P	MP1046		AHP	50W	C	100	130	50	O	40		5.0A	0.4	5.0A			15M	T
2N1046B	G	P	MP1046		AHP	50W	C	100	130	50	O	20		10A	0.4	5.0A			15M	T
2N1047	S	N			AP	40W	C	200	80			12	36	500M	7.5	500M				
2N1047A	S	N			AP	40W	C	200	80	80	O	12	36	500M	7.5	500M			75K	E
2N1047B	S	N			AP	40W	C	200	80	80	O	12	36	500M	2.0	500M			125K	E
2N1047C	S	N			AP	40W	C	200	80	80	O	12	36	500M	1.0	500M			125K	E
2N1048	S	N			AP	40W	C	200	120			12	36	500M	7.5	500M				
2N1048A	S	N			AP	40W	C	200	120	120	O	12	36	500M	7.5	500M			75K	E
2N1048B	S	N			AP	40W	C	200	120	120	O	12	36	500M	2.0	500M			125K	E
2N1048C	S	N			AP	40W	C	200	120	120	O	12	36	500M	1.0	500M			125K	E

NUMERICAL INDEX

Numerical Listing of EIA-Registered 2N and 3N Type Numbers and Short-Form specifications for Bi-Polar Transistors.

This table serves two functions. It provides a complete listing of EIA-registered 2N and 3N type numbers, for device identification, and gives short-form specifications for bi-polar transistors. Type numbers for devices other than bi-polar transistors (i.e. thyristors, field-effect transistors, etc.), may be listed in blocks (2N — thru 2N —) with reference to subsequent tables where such devices are sequentially tabulated and short-form specifications are given.

KEY

Collector-Emitter Saturation Voltage at Specified Collector Current

I_C Units:
A = Amps
M = milliamps

TYPE	MATERIAL	POLARITY	REPLACEMENT	REF.	USE	MAXIMUM RATINGS				ELECTRICAL CHARACTERISTICS				
						P_D @ 25°C (Ref Point)	T_J °C	V_{CBO} (volts)	V_{CE-} (volts) (Subscript)	h_{FE} @ I_C (min) (max) Units	$V_{CE(SAT)}$ @ I_C (volts) Units	h_{f-} (Subscript)	f_- (Units) (Subscript)	

Numerical Listing of 2N and 3N Registered Type Numbers

S = Silicon
G = Germanium

P = PNP
N = NPN

Type number of recommended replacement or of nearest electrical equivalent fully characterized in this book

Reference device number indicates specific Data Sheet on which device is characterized

Common-Emitter DC Short-Circuit Forward-Current Transfer Ratio at Specified Collector Current

I_C Units: A = Amps
M = milliamps
* = microamps
N = nanoamps

Maximum Collector-Emitter Voltage (Subscript Identifies Condition)

Subscript:
O = V_{CEO} = Base Open
R = V_{CER} = Specified Resistance
S = V_{CES} = Base Shorted
V = V_{CEV} = Used when only voltage bias is used
X = V_{CEX} = Base-Emitter Back Biased
U = V_{CE} = Termination Undefined

Small-Signal Forward-Current Transfer Ratio (E, B or C defines the parameter)

E = h_{fe} = Common-Emitter Current Transfer Ratio
B = h_{fb} = Common-Base Current Transfer Ratio
C = h_{fc} = Common-Collector Current Transfer Ratio

APPLICATION CODE

A = Amplifier
AH = Amplifier, High frequency
AHP = Amplifier, High frequency power
AL = Amplifier, Light sensitive
AM = Amplifier, Multiple device
AP = Amplifier, Power
S = Switch
SC = Switch, Chopper
SH = Switch, High speed
SHP = Switch, High speed power
SP = Switch, Power

CUTOFF FREQUENCY

Units: K = KHz
M = MHz
G = GHz

(B, E, M or T Indicate the Parameter)

B = f_{hfb} = f_{ab} = Common-Base Cutoff Frequency
E = f_{hfe} = f_{ae} = Common-Emitter Cutoff Frequency
M = f_{max} = Maximum Frequency of Oscillations
T = f_T = Current Gain - Bandwidth Product

Power Dissipation at 25°C
Units: M = milliwatts
W = Watts
Ref. Point: A, C, J, Indicates Ambient, Case, or Junction

Maximum Collector - Base Voltage

Maximum Operating Junction Temperature