

Transistors

- * Small Signal Transistors and Power Transistors (BJT)
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Small Signal Bipolar Transistors

25V~40V NPN

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CE0} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MMBTH10	SOT-23	NPN	0.225	25	0.05	60	10	4	0.5	4	0.4	650	Fig.1
MMS8050A-H	SOT-23	NPN	0.3	25	0.5	200-350	1	50	0.6	500	50	150	Fig.1
MMS8050A-L	SOT-23	NPN	0.3	25	0.5	120-200	1	50	0.6	500	50	150	Fig.1
MMS8050-H	SOT-23	NPN	0.3	25	0.5	200-350	1	50	0.6	500	50	150	Fig.1
MMS8050-L	SOT-23	NPN	0.3	25	0.5	120-200	1	50	0.6	500	50	150	Fig.1
MMS9013-H	SOT-23	NPN	0.3	25	0.5	200-350	1	50	0.6	500	50	150	Fig.1
MMS9013-L	SOT-23	NPN	0.3	25	0.5	120-200	1	50	0.6	500	50	150	Fig.1
MMSS8050-H	SOT-23	NPN	0.3	25	1.5	200-350	1	100	0.5	800	80	100	Fig.1
MMSS8050-L	SOT-23	NPN	0.3	25	1.5	120-200	1	100	0.5	800	80	100	Fig.1
MS8050-H	SOT-23	NPN	0.3	25	0.8	200-300	1	5	0.5	800	80	150	Fig.1
MS8050-L	SOT-23	NPN	0.3	25	0.8	80-200	1	5	0.5	800	80	150	Fig.1
MMSS8050W-H	SOT-323	NPN	0.2	25	1.5	200-350	1	100	0.5	800	80	100	Fig.1
MMSS8050W-J	SOT-323	NPN	0.2	25	1.5	300-400	1	100	0.5	800	80	100	Fig.1
MMSS8050W-L	SOT-323	NPN	0.2	25	1.5	120-200	1	100	0.5	800	80	100	Fig.1
BC848AL3	DFN1006-3	NPN	0.15	30	0.1	110-220	5	2	0.6	100	5	100	Fig.1
BC848BL3	DFN1006-3	NPN	0.15	30	0.1	200-450	5	2	0.6	100	5	100	Fig.1
BC848CL3	DFN1006-3	NPN	0.15	30	0.1	420-800	5	2	0.6	100	5	100	Fig.1
2SC2859-Y	SOT-23	NPN	0.15	30	0.5	120-240	1	100	0.25	100	10	300	Fig.1
BC848A	SOT-23	NPN	0.225	30	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC848B	SOT-23	NPN	0.225	30	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC848C	SOT-23	NPN	0.225	30	0.1	420-800	5	2	0.5	100	5	100	Fig.1
BC849B	SOT-23	NPN	0.225	30	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC849C	SOT-23	NPN	0.225	30	0.1	420-800	5	2	0.5	100	5	100	Fig.1
FMMT4230	SOT-23	NPN	0.3	30	2	350	2	100	0.7	100	1	100	Fig.1
MMBTA13	SOT-23	NPN	0.225	30	0.3	5000	5	10	1.5	100	0.1	125	Fig.1
MMBTA14	SOT-23	NPN	0.225	30	0.3	10000	5	10	1.5	100	0.1	125	Fig.1
BC848AW	SOT-323	NPN	0.2	30	0.1	110-220	5	2	0.25	10	0.5	100	Fig.1
BC848BW	SOT-323	NPN	0.2	30	0.1	200-450	5	2	0.25	10	0.5	100	Fig.1
BC848CW	SOT-323	NPN	0.2	30	0.1	420-800	5	2	0.25	10	0.5	100	Fig.1
BC848AM3	SOT-723	NPN	0.265	30	0.1	110-220	5	2	0.3	10	0.5	100	Fig.1
BC848BM3	SOT-723	NPN	0.265	30	0.1	200-450	5	2	0.3	10	0.5	100	Fig.1
BC848CM3	SOT-723	NPN	0.265	30	0.1	420-800	5	2	0.3	10	0.5	100	Fig.1
2SC2411-R	SOT-23	NPN	0.2	32	0.5	180-390	3	100	0.4	500	50	250	Fig.1
2SC4097-P	SOT-323	NPN	0.2	32	0.5	82-180	3	10	0.4	100	10	250	Fig.1
2SC4097-Q	SOT-323	NPN	0.2	32	0.5	120-270	3	10	0.4	100	10	250	Fig.1
2SC4097-R	SOT-323	NPN	0.2	32	0.5	180-390	3	10	0.4	100	10	250	Fig.1
MMBT3904L3	DFN1006-3	NPN	0.15	40	0.2	100-300	1	10	0.3	50	5	300	Fig.1
FMMT4240	SOT-23	NPN	0.3	40	2	350	2	100	0.7	100	1	100	Fig.1
MMBT2222A	SOT-23	NPN	0.35	40	0.6	75	10	10	0.3	150	15	300	Fig.1
MMBT3904	SOT-23	NPN	0.35	40	0.2	100-300	1	10	0.2	10	1	300	Fig.1
MMBT4401	SOT-23	NPN	0.35	40	0.6	80	1	10	0.4	150	15	250	Fig.1
MMST2222A	SOT-323	NPN	0.2	40	0.6	100-300	10	150	0.6	500	50	300	Fig.1
MMST3904	SOT-323	NPN	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.1
MMST4401	SOT-323	NPN	0.2	40	0.6	100-300	2	500	0.4	150	15	250	Fig.1

Small Signal Bipolar Transistors

40V~50V NPN

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MMBT2222AT	SOT-523	NPN	0.15	40	0.6	100-300	10	150	1	500	50	300	Fig.1
MMBT3904T	SOT-523	NPN	0.15	40	0.2	100-300	1	10	0.3	50	5	300	Fig.1
BC847AL3	DFN1006-3	NPN	0.15	45	0.1	110-220	5	2	0.6	100	5	100	Fig.1
BC847BL3	DFN1006-3	NPN	0.15	45	0.1	200-450	5	2	0.6	100	5	100	Fig.1
BC847CL3	DFN1006-3	NPN	0.15	45	0.1	420-800	5	2	0.6	100	5	100	Fig.1
BC817-16	SOT-23	NPN	0.3	45	0.5	100-250	1	100	0.7	500	50	100	Fig.1
BC817-25	SOT-23	NPN	0.3	45	0.5	160-400	1	100	0.7	500	50	100	Fig.1
BC817-40	SOT-23	NPN	0.3	45	0.5	250-600	1	100	0.7	500	50	100	Fig.1
BC817K-16	SOT-23	NPN	0.5	45	0.5	100-250	1	100	0.7	500	50	100	Fig.1
BC817K-25	SOT-23	NPN	0.5	45	0.5	160-400	1	100	0.7	500	50	100	Fig.1
BC817K-40	SOT-23	NPN	0.5	45	0.5	250-600	1	100	0.7	500	50	100	Fig.1
BC847A	SOT-23	NPN	0.225	45	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC847B	SOT-23	NPN	0.225	45	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC847C	SOT-23	NPN	0.225	45	0.1	420-800	5	2	0.5	100	5	100	Fig.1
BCW66F	SOT-23	NPN	0.2	45	0.8	100-250	1	100	0.3	100	10	100	Fig.1
BCW66G	SOT-23	NPN	0.2	45	0.8	110	1	10	0.3	100	10	100	Fig.1
BCW66H	SOT-23	NPN	0.33	45	0.8	180	1	10	0.3	100	10	100	Fig.1
BCX70J	SOT-23	NPN	0.25	45	0.2	250-460	5	2	0.35	10	0.25	100	Fig.1
MMS9014-H	SOT-23	NPN	0.4	45	0.1	450-1000	5	1	0.3	100	5	150	Fig.1
MMS9014-L	SOT-23	NPN	0.4	45	0.1	200-450	5	1	0.3	100	5	150	Fig.1
BC817-16W	SOT-323	NPN	0.2	45	0.5	100-250	1	100	0.7	500	50	100	Fig.1
BC817-25W	SOT-323	NPN	0.2	45	0.5	160-400	1	100	0.7	500	50	100	Fig.1
BC817-40W	SOT-323	NPN	0.2	45	0.5	250-600	1	100	0.7	500	50	100	Fig.1
BC847AW	SOT-323	NPN	0.2	45	0.1	110-220	5	2	0.25	10	0.5	100	Fig.1
BC847BW	SOT-323	NPN	0.2	45	0.1	200-450	5	2	0.25	10	0.5	100	Fig.1
BC847CW	SOT-323	NPN	0.2	45	0.1	420-800	5	2	0.25	10	0.5	100	Fig.1
BC847AT	SOT-523	NPN	0.15	45	0.1	110-220	5	2	0.6	100	5	100	Fig.1
BC847BT	SOT-523	NPN	0.15	45	0.1	200-450	5	2	0.6	100	5	100	Fig.1
BC847CT	SOT-523	NPN	0.15	45	0.1	420-800	5	2	0.6	100	5	100	Fig.1
BC847AM3	SOT-723	NPN	0.265	45	0.1	110-220	5	2	0.3	10	0.5	100	Fig.1
BC847BM3	SOT-723	NPN	0.265	45	0.1	200-450	5	2	0.3	10	0.5	100	Fig.1
BC847CM3	SOT-723	NPN	0.265	45	0.1	420-800	5	2	0.3	10	0.5	100	Fig.1
2SC1623-L5	SOT-23	NPN	0.2	50	0.1	135-270	6	1	0.3	100	10	250	Fig.1
2SC1623-L6	SOT-23	NPN	0.2	50	0.1	200-400	6	1	0.3	100	10	250	Fig.1
2SC1623-L7	SOT-23	NPN	0.2	50	0.1	300-600	6	1	0.3	100	10	250	Fig.1
2SC2412-R	SOT-23	NPN	0.2	50	0.15	180-390	6	1	0.4	50	5	150	Fig.1
2SC2412-S	SOT-23	NPN	0.2	50	0.15	270-560	6	1	0.4	50	5	150	Fig.1
2SC2712-Y	SOT-23	NPN	0.15	50	0.15	120-240	6	2	0.1	100	10	80	Fig.1
KTC3875-GR	SOT-23	NPN	0.15	50	0.15	200-400	6	2	0.25	100	10	80	Fig.1
KTC3875-Y	SOT-23	NPN	0.15	50	0.15	120-240	6	2	0.25	100	10	80	Fig.1
MMBT1815-H	SOT-23	NPN	0.2	50	0.15	200-400	6	2	0.25	100	10	80	Fig.1
MMBT945-H	SOT-23	NPN	0.2	50	0.15	200-400	6	1	0.3	100	10	150	Fig.1
2SC4081-A	SOT-323	NPN	0.2	50	0.15	120-270	6	1	0.4	50	5	180	Fig.1
2SC4081-B	SOT-323	NPN	0.2	50	0.15	180-390	6	1	0.4	50	5	180	Fig.1
2SC4617-R	SOT-523	NPN	0.15	50	0.15	180-390	6	1	0.4	50	5	180	Fig.1

Small Signal Bipolar Transistors

60V~300V NPN

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
BCV47	SOT-23	NPN	0.3	60	0.5	2000	1	0.1	1	100	0.1	170	Fig.1
FMMT491	SOT-23	NPN	0.5	60	1	80	5	1000	0.5	1000	100	150	Fig.1
MMBTA05	SOT-23	NPN	0.3	60	0.5	100	1	10	0.25	100	10	100	Fig.1
BC846AL3	DFN1006-3	NPN	0.15	65	0.1	110-220	5	2	0.6	100	5	100	Fig.1
BC846BL3	DFN1006-3	NPN	0.15	65	0.1	200-450	5	2	0.6	100	5	100	Fig.1
BC846A	SOT-23	NPN	0.225	65	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC846B	SOT-23	NPN	0.225	65	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC846C	SOT-23	NPN	0.225	65	0.1	428-800	5	2	0.5	100	5	100	Fig.1
BC846AW	SOT-323	NPN	0.2	65	0.1	110-220	5	2	0.25	10	0.5	100	Fig.1
BC846BW	SOT-323	NPN	0.2	65	0.1	200-450	5	2	0.25	10	0.5	100	Fig.1
BC846AM3	SOT-723	NPN	0.265	65	0.1	110-220	5	2	0.3	10	0.5	100	Fig.1
BC846BM3	SOT-723	NPN	0.265	65	0.1	200-450	5	2	0.3	10	0.5	100	Fig.1
MMBTA06	SOT-23	NPN	0.3	80	0.5	100	1	10	0.25	100	10	100	Fig.1
MMBTA28	SOT-23	NPN	0.2	80	0.5	10000	5	10	1.5	100	0.1	125	Fig.1
MMBTA28L	SOT-23-3L	NPN	0.2	80	0.5	10000	5	10	1.2	10	0.01	125	Fig.8
FMMT493	SOT-23	NPN	0.25	100	1	20	10	1000	0.3	500	50	150	Fig.1
MMBT5550	SOT-23	NPN	0.225	140	0.6	60	5	10	0.15	10	1		Fig.1
MMBT5551	SOT-23	NPN	0.3	160	0.6	100-300	5	10	0.2	50	5	100	Fig.1
MMST5551	SOT-323	NPN	0.2	160	0.2	30	5	50	0.2	50	5	300	Fig.1
MMBTA43	SOT-23	NPN	0.225	200	0.5	25	10	1	0.5	20	2	50	Fig.1
MMBTA42	SOT-23	NPN	0.35	300	0.5	40	10	10	0.5	20	2	50	Fig.1
MMSTA42	SOT-323	NPN	0.2	300	0.2	40	10	10	0.5	20	2	50	Fig.1

NPN+Zener

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
SMBT445V6	SOT23-6L	NPN+Zener	0.38	40	0.6	100-300	1	0.15	0.4	150	15	250	Fig.19
SMBT445V6A	SOT23-6L	NPN+Zener	0.38	45	0.5	250-600	1	100	0.7	500	50	100	Fig.19

Small Signal Bipolar Transistors

40V~160V NPN*2

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
DMMT3904	SOT-363	NPN*2	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.15
MMDT2222A	SOT-363	NPN*2	0.15	40	0.6	100-300	10	150	1	500	50	300	Fig.14
MMDT3904	SOT-363	NPN*2	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.14
MMDT3904-TPQ2	SOT-363	NPN*2	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.14
MMDT4401	SOT-363	NPN*2	0.2	40	0.6	40	2	500	0.75	500	50	250	Fig.14
MMDT3904V	SOT-563	NPN*2	0.2	40	0.2	30	1	100	0.3	50	5	300	Fig.14
BC847BS	SOT-363	NPN*2	0.3	45	0.1	200-450	5	2	0.6	100	5	200	Fig.14
BC847BS-TPQ2	SOT-363	NPN*2	0.3	45	0.1	200-450	5	2	0.6	100	5	100	Fig.14
BC847BV	SOT-563	NPN*2	0.15	45	0.1	200-450	5	2	0.3	100	5	100	Fig.14
UMX1N	SOT-363	NPN*2	0.15	50	0.15	120-560	6	1	0.4	50	5	180	Fig.14
BC846BS	SOT-363	NPN*2	0.2	65	0.1	200-450	5	2	0.1	10	0.5	100	Fig.14
BC846BS-TPQ2	SOT-363	NPN*2	0.2	65	0.1	200-450	5	2	0.1	10	0.5	100	Fig.14
BC846S	SOT-363	NPN*2	0.2	65	0.1	110	5	2	0.1	10	0.5	100	Fig.14
BC846S-TPQ2	SOT-363	NPN*2	0.2	65	0.1	110	5	110	0.1	10	0.5	100	Fig.14
SMBT5551	SOT23-6L	NPN*2	0.3	160	0.6	100-300	5	10	0.15	10	1	300	Fig.11
MMDT5551	SOT-363	NPN*2	0.2	160	0.2	100-300	5	10	0.15	10	1	300	Fig.14

30V~150V PNP*2

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
BC858CV	SOT-563	PNP*2	0.15	-30	-0.1	420-800	-5	-2	-0.3	-10	-0.5	100	Fig.5
DMMT3906	SOT-363	PNP*2	0.2	-40	-0.2	100-300	-1	-10	-0.4	-50	-5	250	Fig.16
MMDT3906	SOT-363	PNP*2	0.2	-40	-0.2	100-300	-1	-10	-0.4	-50	-5	250	Fig.5
MMDT4403	SOT-363	PNP*2	0.2	-40	-0.6	20	-2	-500	-0.75	-500	-50	200	Fig.5
MMDT3906V	SOT-563	PNP*2	0.15	-40	-0.2	100-300	-1	-10	-0.4	-50	-5	250	Fig.5
BC857BS	SOT-363	PNP*2	0.3	-45	-0.2	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.5
BC857S	SOT-363	PNP*2	0.3	-45	-0.2	125-630	-5	-2	-0.3	-10	-0.5	200	Fig.5
BC857BV	SOT-563	PNP*2	0.15	-45	-0.1	200-475	-5	-2	-0.4	-100	-5	100	Fig.5
SMBT2907A	SOT23-6L	PNP*2	0.7	-60	-0.6	100-300	-10	-150	-0.4	-150	-15	200	Fig.12
MMDT2907A	SOT-363	PNP*2	0.2	-60	-0.6	100	-10	-10	-0.4	-150	-15	200	Fig.5
MMDT2907A-TPQ2	SOT-363	PNP*2	0.2	-60	-0.6	100	-10	-10	-0.4	-150	-15	200	Fig.5
BC856BS	SOT-363	PNP*2	0.2	-65	-0.1	200-450	-5	-2	-0.3	-10	-0.5	100	Fig.5
BC856BS-TPQ2	SOT-363	PNP*2	0.2	-65	-0.1	200-450	-5	-2	-0.3	-10	-0.5	100	Fig.5
BC856S	SOT-363	PNP*2	0.2	-65	-0.1	110	-5	-2	-0.3	-10	-0.5	100	Fig.5
MMDT5401	SOT-363	PNP*2	0.2	-150	-0.2	100-300	-5	-10	-0.5	-50	-5	300	Fig.5

Small Signal Bipolar Transistors

25V~45V PNP

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MMS8550A-H	SOT-23	PNP	0.3	-25	-0.5	200-350	-1	-50	-0.6	-500	-50	150	Fig.2
MMS8550A-L	SOT-23	PNP	0.3	-25	-0.5	120-200	-1	-50	-0.6	-500	-50	150	Fig.2
MMS8550-H	SOT-23	PNP	0.3	-25	-0.5	200-350	-1	-50	-0.6	-500	-50	150	Fig.2
MMS8550-L	SOT-23	PNP	0.3	-25	-0.5	120-200	-1	-50	-0.6	-500	-50	150	Fig.2
MMS9012-H	SOT-23	PNP	0.3	-25	-0.5	200-350	-1	-50	-0.6	-500	-50	150	Fig.2
MMS9012-L	SOT-23	PNP	0.3	-25	-0.5	120-200	-1	-50	-0.6	-500	-50	150	Fig.2
MMSS8550-H	SOT-23	PNP	0.3	-25	-1.5	200-350	-1	-100	-0.5	-800	-80	100	Fig.2
MMSS8550-L	SOT-23	PNP	0.3	-25	-1.5	120-200	-1	-100	-0.5	-800	-80	100	Fig.2
MMSS8550W-H	SOT-323	PNP	0.2	-25	-1.5	200-350	-1	-100	-0.5	-800	-80	100	Fig.2
MMSS8550W-J	SOT-323	PNP	0.2	-25	-1.5	300-400	-1	-100	-0.5	-800	-80	100	Fig.2
MMSS8550W-L	SOT-323	PNP	0.2	-25	-1.5	120-200	-1	-100	-0.5	-800	-80	100	Fig.2
BC858AL3	DFN1006-3	PNP	0.15	-30	-0.1	110-220	-5	-2	-0.65	-100	-5	100	Fig.2
BC858BL3	DFN1006-3	PNP	0.15	-30	-0.1	200-450	-5	-2	-0.65	-100	-5	100	Fig.2
BC858CL3	DFN1006-3	PNP	0.15	-30	-0.1	420-800	-5	-2	-0.65	-100	-5	100	Fig.2
2SA1298-Y	SOT-23	PNP	0.2	-30	-0.8	160-320	-1	-100	-0.4	-500	-20	250	Fig.2
BC858A	SOT-23	PNP	0.31	-30	-0.1	125-250	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC858B	SOT-23	PNP	0.31	-30	-0.1	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC858C	SOT-23	PNP	0.31	-30	-0.1	420-800	-5	-2	-0.3	-10	-0.5	200	Fig.2
FMMT5130	SOT-23	PNP	0.3	-30	-1	300	-2	-100	-0.1	-100	-1	100	Fig.2
MMBTA63	SOT-23	PNP	0.3	-30	-0.5	5000	-5	-10	-1.5	-100	-0.1	125	Fig.9
MMBTA64	SOT-23	PNP	0.3	-30	-0.5	10000	-5	-10	-1.5	-100	-0.1	125	Fig.9
BC858AW	SOT-323	PNP	0.2	-30	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC858BW	SOT-323	PNP	0.2	-30	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
BC858CW	SOT-323	PNP	0.2	-30	-0.1	420-800	-5	-2	-0.65	-100	-5	100	Fig.2
BC858AM3	SOT-723	PNP	0.265	-30	-0.1	110-220	-5	-2	-0.3	-10	-0.5	100	Fig.2
BC858BM3	SOT-723	PNP	0.265	-30	-0.1	200-450	-5	-2	-0.3	-10	-0.5	100	Fig.2
BC858CM3	SOT-723	PNP	0.265	-30	-0.1	420-800	-5	-2	-0.3	-10	-0.5	100	Fig.2
2SA1577-R	SOT-323	PNP	0.2	-32	-0.5	180-390	-3	-10	-0.4	-100	-10	200	Fig.2
MMBT3906L3	DFN1006-3	PNP	0.15	-40	-0.2	100-300	-1	-10	-0.4	-50	-5	250	Fig.2
FMMT5240	SOT-23	PNP	0.3	-40	-2	300	-2	-100	-0.1	-100	-1	100	Fig.2
MMBT3906	SOT-23	PNP	0.3	-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	Fig.2
MMBT4403	SOT-23	PNP	0.35	-40	-0.6	100	-1	-10	-0.4	-150	-15	200	Fig.2
MMST3906	SOT-323	PNP	0.2	-40	-0.2	100-300	-1	-10	-0.3	-50	-5	300	Fig.2
MMST4403	SOT-323	PNP	0.2	-40	-0.6	100-300	-2	-150	-0.4	-150	-15	200	Fig.2
MMBT3906T	SOT-523	PNP	0.15	-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	Fig.2
BC857AL3	DFN1006-3	PNP	0.15	-45	-0.1	110-220	-5	-2	-0.65	-100	-5	100	Fig.2
BC857BL3	DFN1006-3	PNP	0.15	-45	-0.1	200-450	-5	-2	-0.65	-100	-5	100	Fig.2
BC857CL3	DFN1006-3	PNP	0.15	-45	-0.1	420-800	-5	-2	-0.65	-100	-5	100	Fig.2
BC807-16	SOT-23	PNP	0.3	-45	-0.5	100-250	-1	-100	-0.7	500	50	100	Fig.2
BC807-25	SOT-23	PNP	0.3	-45	-0.5	160-400	-1	-100	-0.7	500	50	100	Fig.2
BC807-40	SOT-23	PNP	0.3	-45	-0.5	250-600	-1	-100	-0.7	500	50	100	Fig.2
BC857A	SOT-23	PNP	0.31	-45	-0.1	125-250	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC857B	SOT-23	PNP	0.31	-45	-0.1	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC857C	SOT-23	PNP	0.31	-45	-0.1	420-800	-5	-2	-0.3	-10	-0.5	200	Fig.2

Small Signal Bipolar Transistors

45V~300V PNP

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
BCW68G	SOT-23	PNP	0.33	-45	-0.8	160-240	-1	-100	-0.3	-100	-10	200	Fig.2
BCW68H	SOT-23	PNP	0.33	-45	-0.8	250-630	-2	-100	-0.3	-100	-10	100	Fig.2
MMS9015-H	SOT-23	PNP	0.2	-45	-0.1	450-1000	-5	-1	-0.3	-100	-10	150	Fig.2
MMS9015-L	SOT-23	PNP	0.2	-45	-0.1	200-450	-5	-1	-0.3	-100	-10	150	Fig.2
BC807-16W	SOT-323	PNP	0.2	-45	-0.5	100-250	-1	-100	-0.7	-500	-50	80	Fig.2
BC807-25W	SOT-323	PNP	0.2	-45	-0.5	160-400	-1	-100	-0.7	-500	-50	80	Fig.2
BC807-40W	SOT-323	PNP	0.2	-45	-0.5	250-600	-1	-100	-0.7	-500	-50	80	Fig.2
BC857AW	SOT-323	PNP	0.2	-45	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC857BW	SOT-323	PNP	0.2	-45	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
BC857CW	SOT-323	PNP	0.2	-45	-0.1	420-800	-5	-2	-0.65	-100	-5	100	Fig.2
BC857AT	SOT-523	PNP	0.15	-45	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC857BT	SOT-523	PNP	0.15	-45	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
BC857CT	SOT-523	PNP	0.15	-45	-0.1	420-800	-5	-2	-0.65	-100	-5	100	Fig.2
BC857AM3	SOT-723	PNP	0.265	-45	-0.1	110-220	-5	-2	-0.3	-10	-0.5	100	Fig.2
BC857BM3	SOT-723	PNP	0.265	-45	-0.1	200-450	-5	-2	-0.3	-10	-0.5	100	Fig.2
BC857CM3	SOT-723	PNP	0.265	-45	-0.1	420-800	-5	-2	-0.3	-10	-0.5	100	Fig.2
2SA1037-R	SOT-23	PNP	0.2	-50	-0.15	180-390	-6	-1	-0.5	-5	-5	120	Fig.2
2SA812-M6	SOT-23	PNP	0.2	-50	-0.1	200-400	-6	-1	-0.3	-100	-10	180	Fig.2
2SA812-M7	SOT-23	PNP	0.2	-50	-0.1	300-600	-6	-1	-0.3	-100	-10	180	Fig.2
2SA1576A-Q	SOT-323	PNP	0.2	-50	-0.15	120-270	-6	-1	-0.5	-50	-5	100	Fig.2
2SA1576A-R	SOT-323	PNP	0.2	-50	-0.15	180-390	-6	-1	-0.5	-50	-5	100	Fig.2
2SA1774-R	SOT-523	PNP	0.15	-50	-0.15	180-390	-6	-1	-0.5	-50	-5	140	Fig.2
FMMT591	SOT-23	PNP	0.5	-60	-1	100-300	-5	-500	-0.6	-1000	-100	150	Fig.2
MMBT2907A	SOT-23	PNP	0.35	-60	-0.6	100	-10	-10	-0.4	-150	-15	200	Fig.2
MMBT A55	SOT-23	PNP	0.225	-60	-0.5	100	-1	-10	-0.25	-100	-10	50	Fig.2
MMST2907A	SOT-323	PNP	0.2	-60	-0.6	100	-10	-1	-1.6	-500	-50	200	Fig.2
MMBT2907AT	SOT-523	PNP	0.15	-60	-0.6	100-300	-10	-10	-0.4	-150	-15	140	Fig.2
BC856AL3	DFN1006-3	PNP	0.15	-65	-0.1	110-220	-5	-2	-0.65	-100	-5	100	Fig.2
BC856BL3	DFN1006-3	PNP	0.15	-65	-0.1	200-450	-5	-2	-0.65	-100	-5	100	Fig.2
BC856A	SOT-23	PNP	0.31	-65	-0.1	125-250	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC856B	SOT-23	PNP	0.31	-65	-0.1	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC856AW	SOT-323	PNP	0.2	-65	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC856BW	SOT-323	PNP	0.2	-65	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
BC856AM3	SOT-723	PNP	0.265	-65	-0.1	110-220	-5	-2	-0.3	-10	-0.5	100	Fig.2
BC856BM3	SOT-723	PNP	0.265	-65	-0.1	200-450	-5	-2	-0.3	-10	-0.5	100	Fig.2
MMBT A56	SOT-23	PNP	0.225	-80	-0.5	100	-1	-10	-0.25	-100	-10	50	Fig.2
MMBT5401	SOT-23	PNP	0.3	-150	-0.6	100-300	-5	-10	-0.5	-50	-5	100	Fig.2
MMST5401	SOT-323	PNP	0.2	-150	-0.2	60-300	-5	-10	-0.5	-50	-5	300	Fig.2
MMBT A92	SOT-23	PNP	0.3	-300	-0.3	100-200	-10	-10	-0.2	-20	-2	50	Fig.2
MMST A92	SOT-323	PNP	0.2	-300	-0.1	40	-10	-10	-0.4	-20	-2	50	Fig.2

Small Signal Bipolar Transistors

12V~160V NPN+PNP

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
EMZ7	SOT-563	NPN	0.2	12	0.5	200	2	10	0.22	200	10	420	Fig.14
		PNP		-12	-0.5	200	-2	-10	-0.22	-200	-10	280	
SMBT2227A	SOT23-6L	NPN	0.7	40	0.6	100-300	10	150	0.3	150	15	300	Fig.18
		PNP		-60	-0.6	100-300	-10	-150	-0.4	-150	-15	200	
MMDT2227	SOT-363	NPN	0.2	40	0.6	35	10	0.1	0.3	150	15	300	Fig.3
		PNP		-60	-0.6	75	-10	-0.1	-0.4	-150	-15	200	
MMDT3946	SOT-363	NPN	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.3
		PNP		-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	
MMDT3946-TPQ2	SOT-363	NPN	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.3
		PNP		-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	
MMDT4413	SOT-363	NPN	0.2	40	0.6	40	2	500	0.75	500	50	250	Fig.3
		PNP		-40	-0.6	20	-2	-500	-0.75	-500	-50	200	
BC817DPN	SOT23-6L	NPN	0.37	45	0.5	160-400	1	100	0.7	500	50	100	Fig.3
		PNP		-45	-0.5	160-400	-1	-100	-0.7	-500	-50	80	
BC847PN	SOT-363	NPN	0.2	45	0.1	200-450	5	2	0.25	10	0.5	100	Fig.3
		PNP		-45	-0.1	220~475	-5	-2	-0.3	-10	-0.5	100	
BC847PN-TPQ2	SOT-363	NPN	0.2	45	0.1	200-450	5	2	0.25	10	0.5	100	Fig.3
		PNP		-45	-0.1	220~475	-5	-2	-0.3	-10	-0.5	100	
BC847VPN	SOT-563	NPN	0.2	45	0.1	200-450	5	2	0.25	10	0.5	100	Fig.3
		PNP		-45	-0.1	220~475	-5	-2	-0.3	-10	-0.5	100	
UMZ2N	SOT-363	NPN	0.15	50	0.15	120-560	6	1	0.4	50	5	180	Fig.4
		PNP		-50	-0.15	120-560	-6	-1	-0.5	-50	-5	140	
EMZ1	SOT-563	NPN	0.15	50	0.15	120-560	6	1	0.4	50	5	180	Fig.14
		PNP		-50	-0.15	120-560	-6	-1	-0.5	-50	-5	140	
EMZ1-TPQ2	SOT-563	NPN	0.15	50	0.15	120-560	6	1	0.4	50	5	180	Fig.14
		PNP		-50	-0.15	120-560	-6	-1	-0.5	-50	-5	140	
BC846BPN	SOT-363	NPN	0.2	65	0.1	200-450	5	2	0.1	10	0.5	100	Fig.3
		PNP		-65	-0.1	200-450	-5	-2	-0.1	-10	-0.5	100	
MMDT5451	SOT-363	NPN	0.2	160	0.2	100-300	5	10	0.15	10	1	100	Fig.3
		PNP		-150	-0.2	100-300	-5	-10	-0.2	-10	-1	300	

Small Signal Bipolar Transistors

Automotive Grade Products

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MMS8050HE3-H	SOT-23	NPN	0.3	25	0.5	200-350	1	50	0.6	500	50	150	Fig.1
MMS8050HE3-L	SOT-23	NPN	0.3	25	0.5	120-200	1	50	0.6	500	50	150	Fig.1
MMS9013HE3-H	SOT-23	NPN	0.3	25	0.5	200-350	1	50	0.6	500	50	150	Fig.1
MMS9013HE3-L	SOT-23	NPN	0.3	25	0.5	120-200	1	50	0.6	500	50	150	Fig.1
MMSS8050HE3-H	SOT-23	NPN	0.3	25	1.5	200-350	1	100	0.5	800	80	100	Fig.1
MMSS8050HE3-L	SOT-23	NPN	0.3	25	1.5	120-200	1	100	0.5	800	80	100	Fig.1
BC848AHE3	SOT-23	NPN	0.225	30	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC848BHE3	SOT-23	NPN	0.225	30	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC848CHE3	SOT-23	NPN	0.225	30	0.1	420-800	5	2	0.5	100	5	100	Fig.1
BC848AWHE3	SOT-323	NPN	0.2	30	0.1	110-220	5	2	0.5	100	5	150	Fig.1
BC848BWEHE3	SOT-323	NPN	0.2	30	0.1	200-450	5	2	0.5	100	5	150	Fig.1
BC848CWEHE3	SOT-323	NPN	0.2	30	0.1	420-800	5	2	0.5	100	5	150	Fig.1
MMBT2222AHE3	SOT-23	NPN	0.35	40	0.6	75	10	10	0.3	150	15	300	Fig.1
MMBT3904HE3	SOT-23	NPN	0.35	40	0.2	100-300	1	10	0.2	10	1	300	Fig.1
MMBT4401HE3	SOT-23	NPN	0.35	40	0.6	80	1	10	0.4	150	15	250	Fig.1
MMST2222AHE3	SOT-323	NPN	0.2	40	0.6	100-300	10	150	0.5	500	50	300	Fig.1
MMST3904HE3	SOT-323	NPN	0.2	40	0.2	100-300	1	10	0.3	50	5	250	Fig.1
MMST4401HE3	SOT-323	NPN	0.2	40	0.6	100-300	1	150	0.4	150	15	150	Fig.1
BC817-16HE3	SOT-23	NPN	0.3	45	0.5	100-250	1	100	0.7	500	50	100	Fig.1
BC817-25HE3	SOT-23	NPN	0.3	45	0.5	160-400	1	100	0.7	500	50	100	Fig.1
BC817-40HE3	SOT-23	NPN	0.3	45	0.5	250-600	1	100	0.7	500	50	100	Fig.1
BC847AHE3	SOT-23	NPN	0.225	45	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC847BHE3	SOT-23	NPN	0.225	45	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC847CHE3	SOT-23	NPN	0.225	45	0.1	420-800	5	2	0.5	100	5	100	Fig.1
MMS9014HE3-H	SOT-23	NPN	0.4	45	0.1	450-1000	5	1	0.3	100	5	150	Fig.1
MMS9014HE3-L	SOT-23	NPN	0.4	45	0.1	200-450	5	1	0.3	100	5	150	Fig.1
BC817-16WHE3	SOT-323	NPN	0.2	45	0.5	100-250	1	100	0.7	500	50	100	Fig.1
BC817-25WHE3	SOT-323	NPN	0.2	45	0.5	160-400	1	100	0.7	500	50	100	Fig.1
BC817-40WHE3	SOT-323	NPN	0.2	45	0.5	250-600	1	100	0.7	500	50	100	Fig.1
BC847AWHE3	SOT-323	NPN	0.2	45	0.1	110-220	5	2	0.5	100	5	150	Fig.1
BC847BWEHE3	SOT-323	NPN	0.2	45	0.1	200-450	5	2	0.5	100	5	150	Fig.1
BC847CWEHE3	SOT-323	NPN	0.2	45	0.1	420-800	5	2	0.5	100	5	150	Fig.1
BC846AHE3	SOT-23	NPN	0.225	65	0.1	110-220	5	2	0.5	100	5	100	Fig.1
BC846BHE3	SOT-23	NPN	0.225	65	0.1	200-450	5	2	0.5	100	5	100	Fig.1
BC846AWHE3	SOT-323	NPN	0.2	65	0.1	110-220	5	2	0.5	100	5	150	Fig.1
BC846BWEHE3	SOT-323	NPN	0.2	65	0.1	200-450	5	2	0.5	100	5	150	Fig.1
2SD1782HE3-R	SOT-23	NPN	0.2	80	0.5	180-390	3	100	0.5	500	50	180	Fig.1
MMBT5551HE3	SOT-23	NPN	0.3	160	0.6	100-300	5	10	0.2	50	5	100	Fig.1
MMBTA42HE3	SOT-23	NPN	0.35	300	0.5	40	10	10	0.5	20	2	50	Fig.1
MMSTA42HE3	SOT-323	NPN	0.2	300	0.2	40	10	10	0.5	20	2	50	Fig.1
MMDT3904HE3	SOT-363	NPN*2	0.2	40	0.2	100-300	1	10	0.3	50	5	300	Fig.14
BC847BSHE3	SOT-363	NPN*2	0.2	45	0.1	200-450	5	2	0.65	100	5	150	Fig.14
BC846BSHE3	SOT-363	NPN*2	0.2	65	0.1	200-450	5	2	0.1	10	0.5	100	Fig.14
MMS8550HE3-H	SOT-23	PNP	0.3	-25	-0.5	200-350	-1	-50	-0.6	-500	-50	150	Fig.2

Small Signal Bipolar Transistors

Automotive Grade Products

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MMS8550HE3-L	SOT-23	PNP	0.3	-25	-0.5	120-200	-1	-50	-0.6	-500	-50	150	Fig.2
MMS9012HE3-H	SOT-23	PNP	0.3	-25	-0.5	200-350	-1	-50	-0.6	-500	-50	150	Fig.2
MMS9012HE3-L	SOT-23	PNP	0.3	-25	-0.5	120-200	-1	-50	-0.6	-500	-50	150	Fig.2
MMSS8550HE3-H	SOT-23	PNP	0.625	-25	-1.5	200-350	-1	-100	-0.5	-800	-80	100	Fig.2
MMSS8550HE3-L	SOT-23	PNP	0.625	-25	-1.5	120-200	-1	-100	-0.5	-800	-80	100	Fig.2
BC858AWHE3	SOT-323	PNP	0.15	-30	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC858BWEHE3	SOT-323	PNP	0.15	-30	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
MMBT3906HE3	SOT-23	PNP	0.3	-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	Fig.2
MMBT4403HE3	SOT-23	PNP	0.35	-40	-0.6	100	-1	-10	-0.4	-150	-15	200	Fig.2
MMST3906HE3	SOT-323	PNP	0.2	-40	-0.2	100-300	-10	-1	-0.3	-50	-5	300	Fig.2
MMST4403HE3	SOT-323	PNP	0.2	-40	-0.6	100-300	-2	-150	-0.4	-150	-15	200	Fig.2
BC807-16HE3	SOT-23	PNP	0.3	-45	-0.5	100-250	-1	-100	-0.7	500	50	100	Fig.2
BC807-25HE3	SOT-23	PNP	0.3	-45	-0.5	160-400	-1	-100	-0.7	500	50	100	Fig.2
BC807-40HE3	SOT-23	PNP	0.3	-45	-0.5	250-600	-1	-100	-0.7	500	50	100	Fig.2
BC857AHE3	SOT-23	PNP	0.31	-45	-0.1	125-250	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC857BHE3	SOT-23	PNP	0.31	-45	-0.1	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.2
MMS9015HE3-H	SOT-23	PNP	0.2	-45	-0.1	450-1000	-5	-1	-0.3	-100	-10	150	Fig.2
MMS9015HE3-L	SOT-23	PNP	0.2	-45	-0.1	200-450	-5	-1	-0.3	-100	-10	150	Fig.2
BC857AWHE3	SOT-323	PNP	0.15	-45	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC857BWEHE3	SOT-323	PNP	0.15	-45	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
MMBT2907AHE3	SOT-23	PNP	0.35	-60	-0.6	100	-10	-10	-0.4	-150	-15	200	Fig.2
MMST2907AHE3	SOT-323	PNP	0.2	-60	-0.6	100	-10	-1	-1.6	-500	-50	200	Fig.2
BC856AHE3	SOT-23	PNP	0.31	-65	-0.1	125-250	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC856BHE3	SOT-23	PNP	0.31	-65	-0.1	220-475	-5	-2	-0.3	-10	-0.5	200	Fig.2
BC856AWHE3	SOT-323	PNP	0.15	-65	-0.1	125-250	-5	-2	-0.65	-100	-5	100	Fig.2
BC856BWEHE3	SOT-323	PNP	0.15	-65	-0.1	220-475	-5	-2	-0.65	-100	-5	100	Fig.2
2SB1198HE3-R	SOT-23	PNP	0.2	-80	-0.5	180-390	3	100	-0.5	-500	-50	180	Fig.2
MMBT5401HE3	SOT-23	PNP	0.3	-150	-0.6	100-300	-5	-10	-0.5	-50	-5	100	Fig.2
MMBTA92HE3	SOT-23	PNP	0.3	-300	-0.3	100-200	-10	-10	-0.5	-20	-2	50	Fig.2
MMSTA92HE3	SOT-323	PNP	0.2	-300	-0.1	40	-10	-10	-0.4	-20	-2	50	Fig.2
MMDT3906HE3	SOT-363	PNP*2	0.2	-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	Fig.5
BC857BSHE3	SOT-363	PNP*2	0.2	-45	-0.2	200-475	-5	-2	-0.65	-100	-5	100	Fig.5
MMDT3946HE3	SOT-363	NPN+PNP	0.2	40	0.2	100-300	1	10	0.3	50	1	300	Fig.3
BC847PNHE3	SOT-363	NPN+PNP	0.2	45	0.1	200-450	5	2	0.25	10	0.5	100	Fig.3

Medium Power Bipolar Transistors

25V~300V NPN

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
MCP618	DFN2020-3A	NPN	1.5	25	2.5	300	2	200	0.15	1000	10	100	Fig.1
PXT8050-D	SOT-89	NPN	0.5	25	1.5	160-300	1	100	0.5	800	80	100	Fig.1
BD882-Y	SOT-89	NPN	0.5	30	3	160-320	2	1000	0.5	2000	200	50	Fig.1
2SD1664-R	SOT-89	NPN	0.5	32	1	180-390	3	100	0.4	500	50	150	Fig.1
PZT3904	SOT-223	NPN	1	40	0.2	100-300	1	10	0.2	10	1	300	Fig.1
PZT2222A	SOT-223	NPN	1	40	0.6	100-300	10	150	0.3	150	15	300	Fig.1
PXT3904	SOT-89	NPN	0.5	40	0.2	100-300	1	10	0.2	10	1	300	Fig.1
PXT2222A	SOT-89	NPN	0.5	40	0.6	100-300	10	150	0.3	150	15	300	Fig.1
BCP54-16	SOT-223	NPN	1.5	45	1	100-250	2	150	0.5	500	50	100	Fig.1
BCX54	SOT-89	NPN	0.5	45	1	63-250	2	150	0.5	500	50	130	Fig.1
BCX54-16	SOT-89	NPN	0.5	45	1	100-250	2	150	0.5	500	50	130	Fig.1
2SC2873-Y	SOT-89	NPN	0.5	50	2	120-240	2	500	0.5	1000	50	120	Fig.1
BCP55-16	SOT-223	NPN	1.5	60	1	100-250	2	150	0.5	500	50	100	Fig.1
BCX55	SOT-89	NPN	0.5	60	1	63-250	2	150	0.5	500	50	130	Fig.1
BCX55-16	SOT-89	NPN	0.5	60	1	100-250	2	150	0.5	500	50	130	Fig.1
BD882HY	SOT-89	NPN	0.5	70	3	160-320	2	1000	0.5	2000	200	50	Fig.1
BCP56-16	SOT-223	NPN	1.5	80	1	100-250	2	150	0.5	500	50	100	Fig.1
2SD1898-R	SOT-89	NPN	0.5	80	1	180-390	3	500	0.15	500	20	100	Fig.1
BCX56	SOT-89	NPN	0.5	80	1	63-250	2	150	0.5	500	50	130	Fig.1
BCX56-16	SOT-89	NPN	0.5	80	1	100-250	2	150	0.5	500	50	130	Fig.1
MJD31C	DPAK	NPN	1.25	100	3	10-75	4	3000	1.2	3000	375	3	Fig.1
MJD122	DPAK	NPN	1.5	100	8	1000-12000	4	4000	2	4000	16	-	Fig.8
TIP122L	TO-220	NPN	2	100	5	1000	3	500	2	3000	12	-	Fig.8
TIP31C	TO-220	NPN	2	100	3	25	4	1000	1.2	3000	375	3	Fig.1
TIP41C	TO-220	NPN	2	100	6	30	4	300	1.5	6000	600	3	Fig.1
2SC2881-Y	SOT-89	NPN	0.5	120	0.8	120-240	5	100	1	500	50	120	Fig.1
PZT5551	SOT-223	NPN	1	160	0.6	80	5	1	0.15	10	1	300	Fig.1
2SC2383P-O	SOT-89	NPN	0.5	160	1	100-200	5	200	1	500	50	20	Fig.1
2SC2383P-Y	SOT-89	NPN	0.5	160	1	160-320	5	200	1	500	50	20	Fig.1
CXT5551	SOT-89	NPN	0.5	160	0.6	80	5	1	0.15	10	1	100	Fig.1
PZTA42	SOT-223	NPN	1	300	0.2	25	10	1	0.5	20	2	50	Fig.1

Medium Power Bipolar Transistors

20V~150V PNP

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
2SB1386-R	SOT-89	PNP	0.5	-20	-5	180-390	-2	-500	-1	-4000	-100	120	Fig.2
BC869	SOT-89	PNP	0.5	-20	-1	100-375	-1	-500	-0.5	-1000	-100	40	Fig.2
BC869-25	SOT-89	PNP	0.5	-20	-1	160-375	-1	-500	-0.5	-1000	-100	40	Fig.2
2SB1412-R	DPAK	PNP	1	-30	-5	180-390	-2	-500	-1	-4000	-100	120	Fig.2
BD772-Y	SOT-89	PNP	0.5	-30	-3	160-320	-2	-1000	-0.5	-2000	-200	80	Fig.2
2SB1188-Q	SOT-89	PNP	0.5	-32	-2	120-270	-3	-500	-0.8	-2000	-200	80	Fig.2
PXT3906	SOT-89	PNP	0.5	-40	-0.2	100-300	-1	-10	-0.25	-10	-1	250	Fig.2
BCP51-16	SOT-223	PNP	1.5	-45	-1	100-250	-2	-150	-0.5	-500	-50	100	Fig.2
2SB1184-Q	DPAK	PNP	1	-50	-3	120-270	-3	-500	-1	-2000	-200	70	Fig.2
2SA1213-Y	SOT-89	PNP	0.5	-50	-2	120-240	-2	-500	-0.5	1000	50	120	Fig.2
BCP52-16	SOT-223	PNP	1.5	-60	-1	100-250	-2	-150	-0.5	-500	-50	100	Fig.2
PZT2907A	SOT-223	PNP	1	-60	-0.6	100-300	-10	-150	-0.4	-150	-15	200	Fig.2
BCX52	SOT-89	PNP	0.5	-60	-1	63-250	-2	-150	-0.5	-500	-50	50	Fig.2
BCX52-16	SOT-89	PNP	0.5	-60	-1	100-250	-2	-150	-0.5	-500	-50	50	Fig.2
TIP32A	TO-220	PNP	2	-60	-3	25	-4	-1000	-1.2	-3000	-375	3	Fig.2
TIP42A	TO-220	PNP	2	-60	-6	30	-4	-300	-1.5	-6000	-600	3	Fig.1
BCP53-16	SOT-223	PNP	1.5	-80	-1	100-250	-2	-150	-0.5	-500	-50	100	Fig.2
BCX53	SOT-89	PNP	0.5	-80	-1	63-250	-2	-150	-0.5	-500	-50	50	Fig.2
BCX53-16	SOT-89	PNP	0.5	-80	-1	100-250	-2	-150	-0.5	-500	-50	50	Fig.2
BSR33	SOT-89	PNP	0.5	-80	-1	100-300	-5	-100	-0.5	-500	-50	100	Fig.2
MJD127	DPAK	PNP	1.5	-100	-8	1000-12000	-4	-4000	-2	-4000	-16	-	Fig.9
MJD32C	DPAK	PNP	1.25	-100	-3	10-50	-4	-3000	-1.2	-3000	-375	3	Fig.2
TIP127L	TO-220	PNP	2	-100	-5	1000	-3	-500	-2	-3000	-12	-	Fig.9
TIP32C	TO-220	PNP	2	-100	-3	25	-4	-1000	-1.2	-3000	-375	3	Fig.2
TIP42C	TO-220	PNP	2	-100	-6	30	-4	-300	-1.5	-6000	-600	3	Fig.1
CXT5401	SOT-89	PNP	0.5	-150	-0.5	50	-5	-1	-0.2	-10	-1	100	Fig.2

Automotive Grade Products

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Base-Emitter Saturation Voltage			Transition Frequency	Internal Structure
			P _C (W)	V _{CEO} (V)	I _C (A)	H _{FE}	V _{CE} (V)	I _C (mA)	V _{CE(sat)} (V)	I _C (mA)	I _B (mA)	f _T (MHz)	
BCX56-16HE3	SOT-89	NPN	0.5	80	1	100-250	2	150	0.5	500	50	130	Fig.1
BCP56-16HE3	SOT-223	NPN	1.5	80	1	100-250	2	150	0.5	500	50	100	Fig.1
MJD31CHE3	DPAK	NPN	1.25	100	3	10-75	4	3000	1.2	3000	375	3	Fig.1

Pre-biased Transistors

Pre-biased Transistors

NPN

NPN/NPN*2/PNP

Part Number	Package	Polarity	Power Dissipation	Output current	Supply Voltage	DC Current Gain	Output Voltage	Input Resistance		Transition frequency	Internal Structure
			P _o (mW)	I _o (mA)	V _{cc} (V)	G _i	V _o (V)	R _i (KΩ)	R _z (KΩ)	f _t (MHZ)	
DDTC113ZCA	SOT-23	NPN	250	500	50	70	0.3	1	10	250	Fig.2
DDTC123YCA	SOT-23	NPN	200	500	50	56	0.3	2.2	10	200	Fig.2
DDTC142TC	SOT-23	NPN	200	500	50	56	5	0.47		200	Fig.1
DTC113ZCA	SOT-23	NPN	200	100	50	33	0.3	1	10	250	Fig.2
DTC114ECA	SOT-23	NPN	246	100	50	35	0.25	10	10	250	Fig.2
DTC114TCA	SOT-23	NPN	200	100	50	300	0.3	10		250	Fig.1
DTC114YCA	SOT-23	NPN	230	100	50	80	0.3	10	47	250	Fig.2
DTC123ECA	SOT-23	NPN	200	100	50	20	0.3	2.2	2.2	250	Fig.2
DTC123JCA	SOT-23	NPN	200	100	50	80	0.3	2.2	47	250	Fig.2
DTC123YCA	SOT-23	NPN	200	100	50	33	0.3	2.2	10	250	Fig.2
DTC124ECA	SOT-23	NPN	200	100	50	56	0.3	22	22	250	Fig.2
DTC143ECA	SOT-23	NPN	200	100	50	20	0.3	4.7	4.7	250	Fig.2
DTC143TCA	SOT-23	NPN	200	100	50	600	0.3	4.7		250	Fig.1
DTC143XCA	SOT-23	NPN	200	100	50	30	0.3	4.7	10	250	Fig.2
DTC143ZCA	SOT-23	NPN	246	100	50	80	0.3	4.7	47	250	Fig.2
DTC144ECA	SOT-23	NPN	200	100	50	68	0.3	47	47	250	Fig.2
DTC144TCA	SOT-23	NPN	200	100	50	300	0.3	47		250	Fig.1
DTC113ZUA	SOT-323	NPN	200	100	50	33	0.3	1	10	250	Fig.2
DTC114EUA	SOT-323	NPN	200	100	50	30	0.3	10	10	250	Fig.2
DTC114TUA	SOT-323	NPN	200	100	50	300	0.3	10		250	Fig.1
DTC114YUA	SOT-323	NPN	200	100	50	68	0.3	10	47	250	Fig.2
DTC123JUA	SOT-323	NPN	200	100	50	80	0.3	2.2	47	250	Fig.2
DTC123YUA	SOT-323	NPN	200	100	50	33	0.3	2.2	10	250	Fig.2
DTC124EUA	SOT-323	NPN	200	100	50	56	0.3	22	22	250	Fig.2
DTC143EUA	SOT-323	NPN	200	100	50	20	0.3	4.7	4.7	250	Fig.2
DTC143TUA	SOT-323	NPN	200	100	50	300	0.3	4.7		250	Fig.1
DTC143XUA	SOT-323	NPN	200	100	50	30	0.3	4.7	10	250	Fig.2
DTC143ZUA	SOT-323	NPN	200	100	50	80	0.3	4.7	47	250	Fig.2
DTC144EUA	SOT-323	NPN	200	100	50	68	0.3	47	47	250	Fig.2
DTC144TUA	SOT-323	NPN	200	100	50	300	0.3	47		250	Fig.1
DTC114EE	SOT-523	NPN	150	100	50	30	0.3	10	10	250	Fig.2
DTC114TE	SOT-523	NPN	150	100	50	300	0.3	10		250	Fig.1
DTC114YE	SOT-523	NPN	150	100	50	68	0.3	10	47	250	Fig.2
DTC123JE	SOT-523	NPN	150	100	50	80	0.3	2.2	47	250	Fig.2
DTC124EE	SOT-523	NPN	150	100	50	56	0.3	22	22	250	Fig.2
DTC143EE	SOT-523	NPN	150	100	50	20	0.3	4.7	4.7	250	Fig.2
DTC143TE	SOT-523	NPN	150	100	50	300	0.3	4.7		250	Fig.1
DTC143ZE	SOT-523	NPN	150	100	50	80	0.3	4.7	47	250	Fig.2
DTC144EE	SOT-523	NPN	150	100	50	68	0.3	47	47	250	Fig.2
DTC144TE	SOT-523	NPN	150	100	50	300	0.3	47		250	Fig.1
DTC114EM	SOT-723	NPN	150	100	50	30	0.3	10	10	250	Fig.2
DTC115EM	SOT-723	NPN	100	100	50	82	0.3	100	100	250	Fig.2
DTC123EM	SOT-723	NPN	100	100	50	20	0.3	2.2	2.2	250	Fig.2
DTC123JM	SOT-723	NPN	100	100	50	80	0.3	2.2	47	250	Fig.2

Part Number	Package	Polarity	Power Dissipation	Output current	Supply Voltage	DC Current Gain	Output Voltage	Input Resistance		Transition frequency	Internal Structure
			P _o (mW)	I _o (mA)	V _{cc} (V)	G _i	V _o (V)	R _i (KΩ)	R _z (KΩ)	f _t (MHZ)	
DTC143EM	SOT-723	NPN	150	100	50	20	0.3	4.7	4.7	250	Fig.2
DTC143TM	SOT-723	NPN	100	100	50	600	0.3	4.7		250	Fig.1
DTC143ZM	SOT-723	NPN	100	100	50	80	0.3	4.7	47	250	Fig.2
DTC144EM	SOT-723	NPN	100	100	50	68	0.3	47	47	250	Fig.2
UMH10N	SOT-363	NPN*2	150	100	50	80	0.3	2.2	47	250	Fig.5
UMH11N	SOT-363	NPN*2	150	100	50	30	0.3	10	10	250	Fig.5
UMH13N	SOT-363	NPN*2	150	100	50	80	0.3	4.7	47	250	Fig.5
UMH1N	SOT-363	NPN*2	150	100	50	56	0.3	22	22	250	Fig.5
UMH2N	SOT-363	NPN*2	150	100	50	68	0.3	47	47	250	Fig.5
UMH3N	SOT-363	NPN*2	150	100	50	600	0.3	4.7		250	Fig.11
UMH9N	SOT-363	NPN*2	150	100	50	68	0.3	10	47	250	Fig.5
EMH10	SOT-563	NPN*2	150	100	50	80	0.3	2.2	47	250	Fig.5
EMH11	SOT-563	NPN*2	150	100	50	30	0.3	10	10	250	Fig.5
EMH13	SOT-563	NPN*2	150	100	50	80	0.3	4.7	47	250	Fig.5
DDTA123YCA	SOT-23	PNP	200	-500	-50	56	-0.3	2.2	10	200	Fig.4
DTA113ZCA	SOT-23	PNP	200	-100	-50	33	-0.3	1	10	250	Fig.4
DTA114ECA	SOT-23	PNP	200	-100	-50	30	-0.3	10	10	250	Fig.4
DTA114TCA	SOT-23	PNP	200	-100	-50	250	-0.3	10		250	Fig.3
DTA114YCA	SOT-23	PNP	200	-100	-50	68	-0.3	10	47	250	Fig.4
DTA123ECA	SOT-23	PNP	200	-100	-50	30	-0.3	2.2	2.2	250	Fig.4
DTA123JCA	SOT-23	PNP	200	-100	-50	80	-0.3	2.2	47	250	Fig.4
DTA123YCA	SOT-23	PNP	200	-100	-50	33	-0.3	2.2	10	250	Fig.4
DTA124ECA	SOT-23	PNP	200	-100	-50	56	-0.3	22	22	250	Fig.4
DTA143ECA	SOT-23	PNP	200	-100	-50	30	-0.3	4.7	4.7	250	Fig.4
DTA143XCA	SOT-23	PNP	200	-100	-50	30	-0.3	4.7	10	250	Fig.4
DTA143ZCA	SOT-23	PNP	200	-100	-50	80	-0.25	4.7	47	250	Fig.4
DTA144ECA	SOT-23	PNP	200	-100	-50	68	-0.3	47	47	250	Fig.4
DTA114EUA	SOT-323	PNP	200	-100	-50	30	-0.3	10	10	250	Fig.4
DTA114TUA	SOT-323	PNP	200	-100	-50	250	-0.3	10		250	Fig.3
DTA114YUA	SOT-323	PNP	200	-100	-50	68	-0.3	10	47	250	Fig.4
DTA123JUA	SOT-323	PNP	200	-100	-50	80	-0.3	2.2	47	250	Fig.4
DTA123YUA	SOT-323	PNP	200	-100	-50	33	-0.3	2.2	10	250	Fig.4
DTA124EUA	SOT-323	PNP	200	-100	-50	56	-0.3	22	22	250	Fig.4
DTA143EUA	SOT-323	PNP	200	-100	-50	30	-0.3	4.7	4.7	250	Fig.4
DTA143XUA	SOT-323	PNP	200	-100	-50	30	-0.3	4.7	10	250	Fig.4
DTA143ZUA	SOT-323	PNP	200	-100	-50	80	-0.3	4.7	47	250	Fig.4
DTA144EUA	SOT-323	PNP	200	-100	-50	68	-0.3	47	47	250	Fig.4
DTA114EE	SOT-523	PNP	150	-100	-50	30	-0.3	10	10	250	Fig.4
DTA114TE	SOT-523	PNP	150	-100	-50	250	-0.3	10		250	Fig.3
DTA123JE	SOT-523	PNP	150	-100	-50	80	-0.3	2.2	47	250	Fig.4
DTA123YUE	SOT-523	PNP	200	-100	-50	33	-0.3	2.2	10	250	Fig.4
DTA124EUE	SOT-523	PNP	200	-100	-50	56	-0.3	22	22	250	Fig.4
DTA143EUE	SOT-523	PNP	200	-100	-50	30	-0.3	4.7	4.7	250	Fig.4
DTA143XUE	SOT-523	PNP	200	-100	-50	30	-0.3	4.7	10	250	Fig.4
DTA143ZUE	SOT-523	PNP	200	-100	-50	80	-0.3	4.7	47	250	Fig.4
DTA144EUE	SOT-523	PNP	200	-100	-50	68	-0.3	47	47	250	Fig.4

Pre-biased Transistors

RF Bipolar Transistors

PNP/PNP*2/NPN+PNP

NPN

Part Number	Package	Polarity	Power Dissipation	Output current	Supply Voltage	DC Current Gain	Output Voltage	Input Resistance		Transition frequency	Internal Structure
			P _o (mW)	I _o (mA)	V _{cc} (V)	G _i	V _o (V)	R _i (KΩ)	R _e (KΩ)	f _t (MHz)	
DTA114YM	SOT-723	PNP	100	-70	-50	68	-5	10	47	250	Fig.4
DTA123JM	SOT-723	PNP	100	-100	-50	80	-0.3	2.2	47	250	Fig.4
UMB4N	SOT-363	PNP*2	150	-100	-50	100	-0.3	10		250	Fig.13
UMD10N	SOT-363	NPN+PNP	150	100	50/-50	80	0.3/-0.3	2.2	47	250	Fig.6
UMD12N	SOT-363	NPN+PNP	150	100	50/-50	68	0.3/-0.3	47	47	250	Fig.6
UMD15N	SOT-363	NPN+PNP	150	100	50/-50	20	0.3/-0.3	4.7	4.7	250	Fig.6
UMD22N	SOT-363	NPN+PNP	150	100	50/-50	80	0.3/-0.3	4.7	47	250	Fig.6
UMD2N	SOT-363	NPN+PNP	150	100	50/-50	56	0.3/-0.3	22	22	250	Fig.6
UMD3N	SOT-363	NPN+PNP	150	100	50/-50	30	0.3/-0.3	10	10	250	Fig.6
UMD9N	SOT-363	NPN+PNP	150	100	50/-50	68	0.3/-0.3	10	47	250	Fig.6
UMF21N	SOT-363	NPN+PNP	150	100	50	30	0.3	10	10	250	Fig.10
EMD22	SOT-563	NPN+PNP	150	100	50/-50	80	0.3/-0.3	4.7	47	250	Fig.6
EMD3	SOT-563	NPN+PNP	200	100	50/-50	30	0.3/-0.3	10	10	250	Fig.12
EMD3-TPQ2	SOT-563	NPN+PNP	200	100	50/-50	30	0.3/-0.3	10	10	250	Fig.12
EMD9	SOT-563	NPN+PNP	150	100	50/-50	68	0.3/-0.3	10	47	250	Fig.12
EMD9-TPQ2	SOT-563	NPN+PNP	150	100	50/-50	68	0.3/-0.3	10	47	250	Fig.12

Part Number	Package	Polarity	Power Dissipation	Collector-Emitter Breakdown Voltage	Collector Current	DC Current Gain			Power Gain	Noise Figure	Transition Frequency	Internal Structure
			P _c (W)	V _{CEO} (V)	I _c (A)	H _{FE}	V _{CE} (V)	I _c (mA)	G _p (dB)	N _p (dB)	f _t (GHz)	
RF3356	SOT-23	NPN	0.15	12	0.1	130-300	10	20	12.5	2	7	Fig.1
RF3358	SOT-23	NPN	0.2	18	0.1	130-300	10	20	10	-	6	Fig.1