



Bipolar Pro Electron Series

Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> * (nA) Max	V <sub>CB</sub> (V) Max	HFE h <sub>FE</sub> @ 1 kHz* Min Max	I <sub>C</sub> (mA) @ Min Max	V <sub>CE</sub> (V) Max	V <sub>BE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) @ Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC327	TO-92 (97)	50*	45	5	100*	45	40 100 600	300 100 1	0.7		1.2*	500 300						67
BC327A	TO-92 (97)	60*	60	5	100*	45	40 100 400	300 100 1	0.7		1.2*	300 500						67
BC327-10	TO-92 (97)	50*	45	5	100*	45	40 63 160	300 100 1	0.7		1.2*	500 300						67
BC327-16	TO-92 (97)	50*	45	5	100*	45	40 100 250	300 100 1	0.7		1.2*	500 300						67
BC327-25	TO-92 (97)	50*	45	5	100*	45	40 160 400	300 100 1	0.7		1.2*	500 300						67
BC328	TO-92 (97)	30*	25	5	100*	25	40 100 600	300 100 1	0.7		1.2	500 300						67
BC328-10	TO-92 (97)	30*	25	5	100*	25	40 63 160	300 100 1	0.7		1.2	500 300						67
BC328-16	TO-92 (97)	30*	25	5	100*	25	40 100 250	300 100 1	0.7		1.2	500 300						67
BC328-25	TO-92 (97)	30*	25	5	100*	25	40 160 400	300 100 1	0.7		1.2	500 300						67
BC337	TO-92 (97)	50*	45	5	100	20	40 100 600	100 500 1	0.7			500						12
BC337A	TO-92 (97)	60*	60	5	100	20	40 100 400	100 500 1	0.7			500						12
BC337-16	TO-92 (97)	50*	45	5	100	20	100 250	100 500 1	0.7			500						12
BC337-25	TO-92 (97)	50*	45	5	100	20	160 400	100 500 1	0.7			500						12

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Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> * (nA) Max	I <sub>CB0</sub> * (nA) Max	V <sub>CB</sub> (V)	h <sub>FE</sub> h <sub>FE</sub> 1 kHz*	I <sub>C</sub> (mA) @ Min Max	V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) Min	V <sub>BE(SAT)</sub> (V) Max	I <sub>C</sub> (mA) @ Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC338	TO-92 (97)	30*	20	5	100	20	20	100	600	1	0.7	500	500							12
BC338-16	TO-92 (97)	30*	20	5	100	20	20	100	250	1	0.7	500	500							12
BC338-25	TO-92 (97)	30*	20	5	100	20	20	100	250	1	0.7	500	500							12
BC368	TO-92 (94)	25*	20	5	10 μA	25	25	60	375	5 10	0.5	1A	1A							37
BC369	TO-92 (94)	25*	20	5	10 μA	25	25	50	375	5 10	0.5	1A	1A							77
BC546	TO-92 (97)	80	65	6	15	30	30	110	800	2 5	0.25	10	10					10	(Notes 1, 11)	11
BC546A	TO-92 (97)	80	65	6	15	30	30	110	0.01	5	0.25	10	10					10	(Notes 1, 11)	11
BC546B	TO-92 (97)	80	65	6	15	30	30	200	2	5	0.6	100	100					10	(Notes 1, 11)	11
BC547	TO-92 (97)	50	45	6	10	20	20	125	900*	2 5	0.25 0.6	10 100	10 100					10	(Notes 1, 11)	10
BC547A	TO-92 (97)	50	45	6	10	20	20	125	260*	2 5	0.25 0.6	10 100	10 100					10	(Notes 1, 11)	10
BC547B	TO-92 (97)	50	45	6	10	20	20	240	500*	2 5	0.25 0.6	10 100	10 100					10	(Notes 1, 11)	10
BC547C	TO-92 (97)	50	45	5	15	30	30	420	900	2 5	0.25 0.6	10 100	10 100					10	(Notes 1, 11)	10

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup>		V <sub>CE0</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CE</sub> <sup>*</sup>		h <sub>FE</sub> 1 kHz <sup>*</sup> Min	V <sub>CE</sub> (V) Max	V <sub>BE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V)		I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max			I <sub>CB0</sub> (mA) Max	V <sub>CB</sub> (V) Max			Min	Max								
BC548	TO-92 (97)	30	20	20	5	10	20	125 900*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					10	(Note 1)	10
BC548A	TO-92 (97)	30	20	20	5	10	20	125 260*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					10	(Note 1)	10
BC548B	TO-92 (97)	30	20	20	5	10	20	240 500*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					10	(Note 1)	10
BC548C	TO-92 (97)	30	20	20	5	10	20	450 900*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					10	(Note 1)	10
BC549	TO-92 (97)	30	20	20	5	10	20	240 900*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					4	(Note 1)	10
BC549B	TO-92 (97)	30	20	20	5	10	20	240 500*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					4	(Note 1)	10
BC549C	TO-92 (97)	30	20	20	5	10	20	450 900*	0.25 0.6	0.77* 0.55 0.70*	10 100	4.5					4	(Note 1)	10
BC550	TO-92 (97)	50	45	45	5	10	45	240 900*	0.25 0.6	0.77* 0.55 0.70*	10 100						3	(Note 1)	10
BC550B	TO-92 (97)	50	45	45	5	10	45	240 500*	0.25 0.6	0.77* 0.55 0.70*	10 100						3	(Note 1)	10
BC556	TO-92 (97)	80	65	65	5	15	30	75 475 2 5	0.3	0.77* 0.55 0.70*	10 100						10	(Note 1)	69

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Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CS</sub> <sup>*</sup> I <sub>CB</sub> @ (nA) Max	h <sub>FE</sub> h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) @ Min Max	V <sub>CE</sub> (V) Min Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC556A	TO-92 (97)	80	65	5	15 30	125 250	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	69
BC556B	TO-92 (97)	80	65	5	15 30	220 475	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	69
BC557	TO-92 (97)	50	45	5	100 20	75 900 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC557A	TO-92 (97)	50	45	5	100 20	125 260 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC557B	TO-92 (97)	50	45	5	100 20	240 500 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC558	TO-92 (97)	30	25	5	100 20	75 500 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC558A	TO-92 (97)	30	25	5	100 20	125 260 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC558B	TO-92 (97)	30	25	5	100 20	240 500 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC558C	TO-92 (97)	30	25	5	100 20	450 900 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				10	(Note 1)	68
BC559	TO-92 (97)	25	20	5	100 20	125 500 <sup>*</sup>	2 5	0.3 0.65	0.3 0.65	10 100				4	(Note 1)	68

Bipolar Pro Electron Series (Continued)

Bipolar Pro Electron Series

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CE0</sub> <sup>*</sup> I <sub>CB0</sub> (mA) Max	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz Min Max	I <sub>C</sub> (mA) V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Max Min	I <sub>C</sub> (mA) V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Max Min	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC559B	TO-92 (97)	25	20	5	100 20	240 500*	2 5	0.3 0.65 0.82* 0.75*	10 100 2				4	(Note 1)	68
BC559C	TO-92 (97)	25	20	5	100 20	450 900*	2 5	0.3 0.65 0.82* 0.75*	10 100 2				4	(Note 1)	68
BC560	TO-92 (97)	50	45	5	100 45	125 500*	2 5	0.3 0.65 0.82* 0.75*	10 100 2				3	(Note 1)	68
BC560B	TO-92 (97)	50	45	5	100 45	240 500*	2 5	0.3 0.65 0.82* 0.75*	10 100 2				3	(Note 1)	68
BC635	TO-92 (94)	45	45	5		25 40 250 25	5 2 150 2 500 2	0.5	500						38
BC636	TO-92 (94)	45	45	5	100 30	25 40 250 25	5 2 150 2 500 2	0.5	500						78
BC637	TO-92 (94)	60	60	5		25 40 250 25	5 2 150 2 500 2	0.5	500						38*
BC638	TO-92 (94)	60	60	5	100 30	25 40 250 25	5 2 150 2 500 2	0.5	500						78
BC639	TO-92 (94)	100	80	5		25 40 250 25	5 2 150 2 500 2	0.5	500						39
BC640	TO-92 (94)	100	80	5	100 30	25 40 250 25	5 2 150 2 500 2	0.5	500						79
BC807	TO-236 (49)	50*	45	5	100 20	100 600 40	100 1 500 1	0.7	500						67

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Bipolar Pro Electron Series (Continued)																
Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CE</sub> * I <sub>CB0</sub> (nA) Max	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz* Min Max	I <sub>C</sub> (mA) V <sub>CE</sub> (V) 1	V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)*</sub> (V) Min Max	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	f <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC807-16	TO-236 (49)	50*	45	5	100 20	100 250 40	100 1 500 1	0.7	500	500						67
BC807-25	TO-236 (49)	50*	45	5	100 20	160 400 40	100 1 500 1	0.7	500	500						67
BC807-40	TO-236 (49)	50*	45	5	100 20	250 600 40	100 1 500 1	0.7	500	500						67
BC808	TO-236 (49)	30*	25	5	100 20	100 600 40	100 1 500 1	0.7	500	500						67
BC808-16	TO-236 (49)	30*	25	5	100 20	100 250 40	100 1 500 1	0.7	500	500						67
BC808-25	TO-236 (49)	30*	25	5	100 20	160 400 40	100 1 500 1	0.7	500	500						67
BC808-40	TO-236 (49)	30*	25	5	100 20	250 600 40	100 1 500 1	0.7	500	500						67
BC817	TO-236 (49)	30*	25	5	100 20	100 600 40	100 1 500 1	0.7	500	500						12
BC817-16	TO-236 (49)	30*	25	5	100 20	100 250 40	100 1 500 1	0.7	500	500						12
BC817-25	TO-236 (49)	30*	25	5	100 20	160 400 40	100 1 500 1	0.7	500	500						12
BC817-40	TO-236 (49)	30*	25	5	100 20	250 600 40	100 1 500 1	0.7	500	500						12
BC818	TO-236 (49)	30*	25	5	100 20	100 600 40	100 1 500 1	0.7	500	500						12
BC818-16	TO-236 (49)	30*	25	5	100 20	100 250 40	100 1 500 1	0.7	500	500						12
BC818-25	TO-236 (49)	30*	25	5	100 20	160 400 40	100 1 500 1	0.7	500	500						12

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE5</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> <sup>*</sup> I <sub>CB0</sub> (nA) Max	I <sub>CB0</sub> <sup>*</sup> I <sub>CB0</sub> (nA) Max	V <sub>CB</sub> (V) Max	h <sub>FE</sub> h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Min Max	V <sub>CE(SAT)</sub> V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> V <sub>BE(ON)</sub> (V) Min Max	V <sub>BE(SAT)</sub> V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC818-40	TO-236 (49)	30*	25	5	100	20	20	250 40	100 500	1	0.7	500							12
BC846	TO-236 (49)	80	65	6	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	11
BC846-A	TO-236 (49)	80	65	6	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	11
BC846-B	TO-236 (49)	80	65	6	15	30	30	200	0.01	5	0.25	10					10	(Note 1)	11
BC847	TO-236 (49)	50	45	6	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	10
BC847-A	TO-236 (49)	50	45	6	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	10
BC847-B	TO-236 (49)	50	45	6	15	30	30	200	0.01	5	0.25	10					10	(Note 1)	10
BC848	TO-236 (49)	30	30	5	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	10
BC848-A	TO-236 (49)	30	30	5	15	30	30	110	0.01	5	0.25	10					10	(Note 1)	10
BC848-B	TO-236 (49)	30	30	5	15	30	30	200	0.01	5	0.25	10					10	(Note 1)	10
BC848-C	TO-236 (49)	30	30	5	15	30	30	420	0.01	5	0.25	10					10	(Note 1)	10

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Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V)		V <sub>CE0</sub> (V)	V <sub>EB0</sub> (V)	I <sub>CE</sub> * I <sub>CB0</sub> (mA)		HFE h <sub>FE</sub> @ 1 kHz	I <sub>C</sub> (mA)	V <sub>CE</sub> (V) Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> (V)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max			Min	Max				Min	Max							
BC849	TO-236 (49)	30	30	30	5	15	30	200	0.01	5	0.25	10					4	(Note 1)	10
BC849B	TO-236 (49)	30	30	30	5	15	30	200	0.01	5	6	100					4	(Note 1)	10
BC849C	TO-236 (49)	30	30	30	5	15	30	420	0.01	5	0.25	10					4	(Note 1)	10
BC850	TO-236 (49)	50	45	45	5	15	30	200	0.01	5	0.25	10					3	(Note 1)	10
BC850-B	TO-236 (49)	50	45	45	5	15	30	200	0.01	5	0.25	10						(Note 1)	10
BC856	TO-236 (49)	80	65	65	5	15	30	75	2	5	0.3	10					10	(Note 1)	69
BC856-A	TO-236 (49)	80	65	65	5	15	30	125	2	5	0.65	100					10	(Note 1)	69
BC856-B	TO-236 (49)	80	65	65	5	15	30	220	2	5	0.3	10					10	(Note 1)	69
BC857	TO-236 (49)	50	45	45	5	15	30	75	2	5	0.3	10					10	(Note 1)	68
BC857-A	TO-236 (49)	50	45	45	5	15	30	125	2	5	0.65	100					10	(Note 1)	68

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Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Max	V <sub>BE0</sub> (V) Min	V <sub>BE0</sub> (V) Max	I <sub>CB0</sub> <sup>*</sup> (nA) Max	I <sub>CB0</sub> <sup>*</sup> (nA) Min	H <sub>FE</sub> h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Min Max	V <sub>CE</sub> (V) Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC857-B	TO-236 (49)	50	45	5	30	15	30	220 475	2 5	5	0.3	10	10				10	(Note 1)	68
BC858	TO-236 (49)	30	30	5	30	15	30	75 800	2 5	5	0.3	100	100				10	(Note 1)	68
BC858-B	TO-236 (49)	30	30	5	30	15	30	220 475	2 5	5	0.3	10	100				10	(Note 1)	68
BC858-C	TO-236 (49)	30	30	5	30	15	30	420 800	2 5	5	0.3	10	100				10	(Note 1)	68
BC859	TO-236 (49)	30	30	5	30	15	30	220 800	2 5	5	0.65	100	100				4	(Note 1)	68
BC859-A	TO-236 (49)	30	30	5	30	15	30	125 250	2 5	5	0.65	100	100				4	(Note 1)	68
BC859-B	TO-236 (49)	30	30	5	30	15	30	220 475	2 5	5	0.65	100	100				4	(Note 1)	68
BC859-C	TO-236 (49)	30	30	5	30	15	30	420 800	2 5	5	0.65	100	100				4	(Note 1)	68
BC860	TO-236 (49)	50	45	5	30	15	30	220 800	2 5	5	0.3	10	100				3	(Note 1)	68
BC860-B	TO-236 (49)	50	45	5	30	15	30	220 475	2 5	5	0.3	10	100				3	(Note 1)	68
BCF29	TO-236 (49)	32	32	5	32	100	32	120 260	0.01 2	5 5	0.3	10	10				4	(Note 1)	68
BCF30	TO-236 (49)	32	32	5	32	100	32	200 450	0.01 2	5 5	0.25	10	10				4	(Note 1)	68
BCF32	TO-236 (49)	50	45	5	32	100	20	215 500	0.01 2	5 5	0.3	10	10				4	(Note 1)	10

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Bipolar Pro Electron Series (Continued)																		
Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CB0</sub> (mA) Max	V <sub>CB</sub> (V)	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz Min Max	I <sub>C</sub> (mA) @ 5 V <sub>CE</sub> Min Max	V <sub>CE</sub> (V) @ 5 mA Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) @ 5 V <sub>CE</sub> Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCF33	TO-236 (49)	50	45	5	100	20	200	0.01 5 450 2 5	5	0.3	10	10				4	(Note 1)	10
BCF70	TO-236 (49)	50	45	5	100	20	215	0.01 5 500 2 5	5	0.3	10	10				4	(Note 1)	10
BCV26	TO-236 (49)	40	30	10	100	30	4,000 10,000 20,000	1 5 10 5 100 5	5	1.0	1.5 100	100						61
BCV27	TO-236 (49)	40	30	10	100	30	4,000 10,000 20,000	1 5 10 5 100 5	5	1.0	1.5 100	100						05
BCV71	TO-236 (49)	80	60	5	100	20	110	220 2 5	5	0.25	10	10				10	(Note 1)	11
BCV72	TO-236 (49)	80	60	5	100	20	200	450 2 5	5	0.25	10	10				10	(Note 1)	11
BCW29	TO-236 (49)	32	32	5	100	32	120	0.01 5 260 2 5	5	0.3	10	10				10	(Note 1)	68
BCW30	TO-236 (49)	32	32	5	100	32	215	0.01 5 500 2 5	5	0.3	10	10				10	(Note 1)	68
BCW31	TO-236 (49)	32	32	5	100	32	150	0.01 5 270 2	5	0.25	10	10				10	(Note 1)	10
BCW32	TO-236 (49)	32	32	5	100	32	200	0.01 5 420 2	5	0.25	10	10				10	(Note 1)	10
BCW33	TO-236 (49)	32	32	5	100	32	450	0.01 5 800 2	5	0.25	10	10				10	(Note 1)	10
BCW60	TO-236 (49)	32*	32	5	20	32	50 120	50 1 630 2 5	1	0.35	0.6 0.85 50	50				6	(Note 1)	10
BCW61	TO-236 (49)	32*	32	5	20	32	50 120	50 1 630 2 5	1	0.25	0.6 0.85 50	50				6	(Note 1)	68
BCW65	TO-236 (49)	60	32	5	20*	32	35 75 100	0.1 10 220 10 1 250 100 1 500 500 1	10		2.0 500	12	100			10	(Note 1)	10

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Max	V <sub>BE0</sub> (V) Min	V <sub>BE0</sub> (V) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Min	V <sub>CB</sub> (V)	h <sub>FE</sub> 1 kHz <sup>*</sup> Min	h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> (mA) Min	I <sub>C</sub> (mA) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min	V <sub>BE(ON)</sub> <sup>*</sup> (V) Max	I <sub>C</sub> (mA) Min	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	f <sub>T</sub> (MHz) Max	I <sub>C</sub> (mA) Min	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
																											V <sub>CE(SAT)</sub> (V) & Max
BCW66	TO-236 (49)	45	5	45	20*	45	35	0.1	10	10	0.1	10	0.3	2.0	500	2.0	500	12	100	20	20	20		10	(Note 1)	10	
BCW68	TO-236 (49)	45	5	45	20*	45	35	0.1	10	10	0.1	10	0.3	2.0	500	2.0	500	12	100	20	20	20		10	(Note 1)	10	
BCW69	TO-236 (49)	50	5	45	100	20	120	260	2	5	2	5	0.3				10							10	(Note 1)	68	
BCW70	TO-236 (49)	50	5	45	100	20	215	500	2	5	2	5	0.3				10							10	(Note 1)	68	
BCW71	TO-236 (49)	50	5	45	100	20	110	220	2	5	2	5	0.25				10							10		68	
BCW72	TO-236 (49)	50	5	45	100	20	200	450	2	5	2	5	0.25				10							10	(Note 1)	68	
BCW81	TO-236 (49)	50	5	45	100	20	420	800	2	5	2	5	0.25				10							10	(Note 1)	10	
BCW89	TO-236 (49)	80	5	60	100	20	120	260	2	5	2	5	0.3				10							10	(Note 1)	68	
BCX17	TO-236 (49)	50*	5	45	100	20	100	600	100	1	100	1	0.62				500										67
BCX18	TO-236 (49)	30*	5	25	100	20	100	600	100	1	100	1	0.62				500										67
BCX19	TO-236 (49)	50*	5	45	100	20	100	600	100	1	100	1	0.62				500										12
BCX20	TO-236 (49)	30*	5	25	100	20	100	600	100	1	100	1	0.62				500										12

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Bipolar Pro Electron Series

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Bipolar Pro Electron Series

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CE0</sub> <sup>*</sup> (mA) Max	h <sub>FE</sub> h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Min Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX58	TO-92 (97)		32	7	10	120 80 40	2 10 100	5 1 1			125	10	800	6	(Notes 3 & 4)	10
BCX58-7	TO-92 (97)		32	7	10	120 80 40	2 10 100	5 1 1			125	10	800	6	(Notes 3 & 4)	10
BCX58-8	TO-92 (97)		32	7	10	20 180 120 45	0.01 2 10 100	5 5 1 1			125	10	800	6	(Notes 3 & 4)	10 10
BCX58-9	TO-92 (97)		32	7	10	40 250 160 60	0.01 2 10 100	5 5 1 1			125	10	800	6	(Notes 3 & 4)	10
BCX58-10	TO-92 (97)		32	7	10	100 380 240 60	0.01 2 10 100	5 5 1 1			125	10	800	6	(Notes 3 & 4)	10
BCX59	TO-92 (97)		45	7		120 80 40	2 10 100	5 1 1	0.5	1.0	125	10	800		(Note 5)	10
BCX59-7	TO-92 (97)		45	7		120 80 40	2 10 100	5 1 1	0.5	1.0	125	10	800		(Note 5)	10
BCX59-8	TO-92 (97)		45	7		20 180 120 45	0.01 2 10 100	5 5 1 1	0.5	1.0	125	10	800		(Note 5)	10

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CB0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CE0</sub> <sup>*</sup> (mA) Max	h <sub>FE</sub>		I <sub>C</sub> (mA) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min Max		I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
								Min	Max			Min	Max								
BCX59-9	TO-92 (97)	45		45	7			40 250 160 60	0.01 460 630 100	5 2 10 1	0.5	1.0	100		125	10	800			(Note 5)	10
BCX59-10	TO-92 (97)	45		45	7			100 380 240 60	0.01 630 1000 100	5 5 1 1	0.5	1.0	100		125	10	800			(Note 5)	10
BCX70G	TO-236 (49)	45	45	45	5	20	32	120 60	220 50	2 5 1	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	10
BCX70H	TO-236 (49)	45	45	45	5	20	32	180 70 20	310 50 0.01	2 5 1 5	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	10
BCX70J	TO-236 (49)	45	45	45	5	20	32	250 90 40	460 50 0.01	2 5 1 5	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	10
BCX71G	TO-236 (49)	45	45	45	5	20	32	120 60	220 50	2 5 1	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	68
BCX71H	TO-236 (49)	45	45	45	5	20	32	180 70 20	310 50 0.01	2 5 1 5	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	68
BCX71J	TO-236 (49)	45	45	45	5	20	32	250 90 40	460 50 0.01	2 5 1 5	0.55	0.7	50	4.5	125	10	800		6	(Notes 17, 19)	68
BCX78	TO-92 (97)	32		32	5			120 80 40	630 1000 100	2 10 1	0.6	1.0	100	4.5	200	10			6	(Note 1)	68
BCX78-7	TO-92 (97)	32		32	5			120 80 40	220 10 100	2 10 1	0.6	1.0	100	4.5	200	10			6	(Note 1)	68

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Bipolar Pro Electron Series

Bipolar Pro Electron Series

Bipolar Pro Electron Series (Continued)															
Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CE0</sub> <sup>*</sup> (mA) Max	H <sub>FE</sub> I <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) V <sub>CE</sub> (V) Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) V <sub>BE(SAT)</sub> (V) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX78-8	TO-92 (97)	32	5		30 0.01 5 180 310 2 5 120 400 10 1 45	0.01 5 2 5 10 1 100 1	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX78-9	TO-92 (97)	32	5		40 0.01 5 250 460 2 5 160 630 10 1 60	0.01 5 2 5 10 1 100 1	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX78-10	TO-92 (97)	32	5		100 0.01 5 380 630 2 5 240 1000 10 1 60	0.01 5 2 5 10 1 100 1	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX79	TO-92 (97)	45	5		80 1000 10 1 40 100 1 120 630 2 5	10 1 100 1 2 5	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX79-7	TO-92 (97)	45	5		120 220 2 5	2 5	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX79-8	TO-92 (97)	45	5		120 400 10 1 45 100 1 30 0.01 5 180 310 2 5	10 1 100 1 0.01 5 2 5	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX79-9	TO-92 (97)	45	5		160 630 10 1 60 100 1 40 0.01 5 250 460 2 5	10 1 100 1 0.01 5 2 5	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BCX79-10	TO-92 (97)	45	5		240 1000 10 1 60 100 1 100 0.01 5 380 630 2 5	10 1 100 1 0.01 5 2 5	0.6	1.0 100	4.5	200	10		6	(Note 1)	68
BD370A	TO-237 (91)	80	45	100 45	25 500 2 40 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	78

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>BE0</sub> (V) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Max	HFE h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Max	V <sub>CE</sub> (V) Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD370A-10	TO-237 (91)	80	45		100	45	25 63	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370A-16	TO-237 (91)	80	45		100	45	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370A-25	TO-237 (91)	80	45		100	45	25 160	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B	TO-237 (91)	80	60		100	60	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-10	TO-237 (91)	80	60		100	60	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-16	TO-237 (91)	80	60		100	60	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-25	TO-237 (91)	80	60		100	60	25 160	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C	TO-237 (91)	80	80		100	80	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C-6	TO-237 (91)	80	80		100	80	25 40	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C-10	TO-237 (91)	80	80		100	80	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C-16	TO-237 (91)	80	80		100	80	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370D	TO-237 (91)	80	100		100	80	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD370D-6	TO-237 (91)	80	100		100	80	25 40	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD370D-10	TO-237 (91)	80	100		100	80	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371A	TO-237 (91)	80	45		100	45	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38

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Bipolar Pro Electron Series

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Bipolar Pro Electron Series

Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> * I <sub>CB0</sub> (mA) Max	HFE h <sub>FE</sub> @ 1 kHz* Min Max	I <sub>C</sub> I <sub>C</sub> (mA) Min Max	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> * (V) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD371A-10	TO-237 (91)	80	45		100 45	25 500 63 160 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371A-16	TO-237 (91)	80	45		100 45	25 500 100 250 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371A-25	TO-237 (91)	80	45		100 45	25 500 180 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371B	TO-237 (91)	80	60		100 60	25 500 40 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371B-10	TO-237 (91)	80	60		100 60	25 500 63 160 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371B-16	TO-237 (91)	80	60		100 60	25 500 100 250 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371B-25	TO-237 (91)	80	60		100 60	25 500 160 400 100	500 2 100	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371C	TO-237 (91)	80	80		100 80	25 500 40 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371C-6	TO-237 (91)	80	80		100 80	25 500 40 100 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371C-10	TO-237 (91)	80	80		100 80	25 500 63 160 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371C-16	TO-237 (91)	80	80		100 80	25 500 100 250 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371D	TO-237 (91)	80	100		100 100	25 500 40 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	39
BD371D-6	TO-237 (91)	80	100		100 100	25 500 40 100 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	39
BD371D-10	TO-237 (91)	80	100		100 100	25 500 63 160 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	39
BD372A	TO-237 (90)	80	45		100 45	25 500 40 400 100 1	500 2 100 1	0.7	1.2* 1A	30	50	200	420	6	(Notes 5 & 6)	78

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**Bipolar Pro Electron Series** (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Max	V <sub>BE0</sub> <sup>*</sup> (V) Min	V <sub>BE0</sub> <sup>*</sup> (V) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Min	V <sub>CB</sub> <sup>*</sup> (V)	HFE I <sub>hfe</sub> 1 kHz <sup>*</sup> (mA)	I <sub>C</sub> (mA) Max	V <sub>CE</sub> (V) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Max	V <sub>BE(ON)</sub> (V) Min	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	f <sub>T</sub> (MHz) Max	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD372A-10	TO-237 (90)	80	45			100	45	25	63	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372A-16	TO-237 (90)	80	45			100	45	25	100	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372A-25	TO-237 (90)	80	45			100	45	25	160	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372B	TO-237 (90)	80	60			100	60	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372B-10	TO-237 (90)	80	60			100	60	25	63	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372B-16	TO-237 (90)	80	60			100	60	25	100	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372B-25	TO-237 (90)	80	60			100	60	25	160	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372C	TO-237 (90)	80	80			100	80	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372C-6	TO-237 (90)	80	80			100	80	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372C-10	TO-237 (90)	80	80			100	80	25	63	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372C-16	TO-237 (90)	80	100			100	100	25	100	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	78	
BD372D	TO-237 (90)	80	100			100	100	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	79	
BD372D-6	TO-237 (90)	80	100			100	100	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	79	
BD372D-10	TO-237 (90)	80	100			100	100	25	63	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	79	
BD373A	TO-237 (90)	80	45			100	45	25	40	500	2	0.7	1.2*	1A	30	30	50	200	420	6	(Notes 5 & 6)	38	

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Type No.	Case Style	V <sub>CE</sub> *		V <sub>CE0</sub> (V) Min	V <sub>BE0</sub> (V) Min	I <sub>CE0</sub> (nA) Max	I <sub>CB0</sub> (nA) Max	h <sub>FE</sub> @ 1 kHz	I <sub>C</sub> (mA)	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	f <sub>T</sub> (MHz) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max																
BD373A-10	TO-237 (90)	80	45	45	45	100	100	25 63	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373A-16	TO-237 (90)	80	45	45	45	100	100	25 100	500 250	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373A-25	TO-237 (90)	80	45	45	45	100	100	25 160	500 400	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373B	TO-237 (90)	80	80	80	80	100	100	25 40	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373B-10	TO-237 (90)	80	60	60	60	100	100	25 63	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373B-16	TO-237 (90)	80	60	60	60	100	100	25 100	500 250	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373B-25	TO-237 (90)	80	60	60	60	100	100	25 160	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373C	TO-237 (90)	80	80	80	80	100	100	25 40	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373C-6	TO-237 (90)	80	80	80	80	100	100	25 40	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373C-10	TO-237 (90)	80	80	80	80	100	100	25 63	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373C-16	TO-237 (90)	80	80	80	80	100	100	25 100	500 250	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373D	TO-237 (90)	80	100	100	100	100	100	25 40	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373D-6	TO-237 (90)	80	100	100	100	100	100	25 40	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BD373D-10	TO-237 (90)	80	100	100	100	100	100	25 63	500 100	0.7	1.2*	200	30	50	200	420	6	(Notes 5 & 6)	38
BF240	TO-92 (98)	40	40	40	4	100	100	65 6	225 12	0.65	0.74*	1	0.34	1	1		3.5	(Note 7)	47

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Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>CE</sub> (V)		V <sub>BE(ON)</sub> <sup>*</sup> (V)		V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V)		I <sub>C</sub> (mA)		h <sub>FE</sub> @ 1 kHz		I <sub>CB0</sub> (nA)		V <sub>CE0</sub> (V)		I <sub>C</sub> (mA)		f <sub>T</sub> (MHz)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.										
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max					Min	Max								
BF241	TO-92 (98)	40	40	4	4	100	20	35	125	1	10	6	12	7	100	20	35	125	1	10	1	1	3.5	(Note 7)	47										
BF494	TO-92 (98)	30	20	5	5			65	220	1	10														49										
BF495	TO-92 (98)	30	20	5	5			35	250	1	10														49										
BF536	TO-236 (49)	30	30	4	4	50	20	25	1	10															42										
BF840	TO-236 (49)	40	40	4	4	100	20	65	220	1	10														47										
BF841	TO-236 (49)	40	40	4	4	100	20	35	125	1	10														47										
BF936	TO-92 (97)	30	20	4	4	50	20	25	1	10													6	(Note 7)	75										
BFS18	TO-236 (49)	30	30	5	5	100	20	35	125	1	10														49										
BFS19	TO-236 (49)	30	30	5	5	100	25	65	225	1	10														49										
BSR13	TO-236 (49)	60	30	5	5	30	50	35	0.1	10	10	35	0.1	10	10	35	0.1	10	10	0.4	1.3	150	8	250	20	19									
								50	1	10	10	50	1	10	10	75	10	10	75	10	10	10	75	10	10		1.6	2.6	500	1.0	2.0	500			
								100	300	150	10	100	300	150	10	100	300	150	10	100	300	150	10	100	300		150	10	10	150	1	150	1	150	1
								50	150	1	30	500	10	30	500	10	30	500	10	30	500	10	30	500	10		0.3	0.6	1.2	8	300	20	8	300	20
BSR14	TO-236 (49)	75	40	6	6	10	60	35	1	10	10	35	1	10	10	35	1	10	10	0.3	0.6	1.2	8	300	20	19									

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Bipolar Pro Electron Series (Continued)																
Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CS0</sub> <sup>*</sup> I <sub>CS0</sub> @ (nA) Max	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	V <sub>BE(SAT)</sub> (V) V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BSR15	TO-236 (49)	60	40	5	20	35	0.1	0.4	1.3	150	8	200	100		(Note 9)	63
BSR16	TO-236 (49)	60	60	5	10	75	0.1	0.4	1.3	150	8	200	100		(Note 9)	63
BSR17	TO-236 (49)	60	40	6	5 μA	20	0.1	0.2	0.65	10		250	250		(Note 5)	23
BSR18	TO-236 (49)	60	40	6	5 μA	35	0.1	0.2	0.65	10		200	300		(Note 5)	66
BSR19	TO-236 (49)	160	140	6	100	60	1	0.15	1.0	10	6	100	300	10	(Note 16)	16
BSR20	TO-236 (49)	130	120	5	100	30	10	0.2	1.0	10	6	100	400	10	(Note 16)	16
BSS38	TO-236 (49)	120	100	5	200	40	4	0.7	1.2	4		60	1000		(Notes 17, 18)	16
BSS63	TO-236 (49)	110	100	6	100	30	10	0.25	0.9	25		50				74
BSS64	TO-236 (49)	120	80	5	100	20	10	0.15	1.2	4		60	1000		(Note 5)	16

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup>		V <sub>CE0</sub>		V <sub>EB0</sub>		I <sub>CE</sub> <sup>*</sup>		h <sub>FE</sub>		V <sub>CE(SAT)</sub>		V <sub>BE(SAT)</sub>		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> (mA) Max	I <sub>CE</sub> (mA) Max	V <sub>CE</sub> (V) Max	V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>CE</sub> (mA) Max	h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>CE</sub> (mA) Max	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) Min Max								
BSS79-B	TO-236 (49)	60	40	5	10	50	10	50	150	10	40	120	150	10	0.4	150	200	20			19
BSS79-C	TO-236 (49)	60	40	5	100	50	10	50	150	10	100	300	150	10	0.4	150	200	20			19
BSS80-B	TO-236 (49)	60	40	5	10	50	10	50	150	10	40	120	150	10	0.4	150	200	20			63
BSS80-C	TO-236 (49)	60	40	5	100	50	10	50	150	10	100	300	150	10	0.4	150	200	20			63
BSV52	TO-236 (49)	20	12	5	100	10	10	10	1	1	25	1	1	1	0.3	10	400	10	18	(Note 18)	21
BSX39	TO-236 (49)		14		100	12	12	12	1	1	25	1	1	1	0.25	10			18	(Note 1)	21

TEST CONDITIONS:

- Note 1: I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz.
- Note 2: I<sub>C</sub> = 100 mA, V<sub>CC</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA.
- Note 3: I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz.
- Note 4: I<sub>C</sub> = 100 mA, V<sub>CC</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA.
- Note 5: I<sub>C</sub> = 10 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA.
- Note 6: I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz.
- Note 7: I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 MHz.
- Note 8: I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz.
- Note 9: I<sub>C</sub> = 150 mA, V<sub>CC</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA.
- Note 10: I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.
- Note 11: I<sub>C</sub>/I<sub>B</sub> = 20.
- Note 12: I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 30 Hz to 15 kHz.
- Note 13: I<sub>C</sub>/I<sub>B</sub> = 40.
- Note 14: I<sub>C</sub>/I<sub>B</sub> = 1000.
- Note 15: I<sub>C</sub>/I<sub>B</sub> = 33.
- Note 16: I<sub>C</sub> = 250 μA, V<sub>CE</sub> = 5V, f = 10 Hz to 15.7 kHz.
- Note 17: I<sub>C</sub> = 15 mA, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA.
- Note 18: I<sub>C</sub>/I<sub>B</sub> = 3.3.
- Note 19: I<sub>CE</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 200 Hz.

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