



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>BE0</sub> <sup>*</sup> (V) Min	I <sub>CB0</sub> <sup>*</sup> (nA) Max	I <sub>CB0</sub> <sup>*</sup> (nA) Max	V <sub>CB</sub> (V)	h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Min Max	V <sub>CE</sub> (V) 1	V <sub>GE(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.
												V <sub>BE(SAT)</sub> (V) Min	V <sub>BE(ON)</sub> <sup>*</sup> (V) Max							
BC327	TO-92 (97)	50*	45	5	100*	45	45	40 100	300 600	1 1	0.7	1.2*	500 300							67
BC327A	TO-92 (97)	60*	60	5	100*	45	45	40 100	300 400	1 1	0.7	1.2*	300 500							67
BC327-10	TO-92 (97)	50*	45	5	100*	45	45	40 63	300 160	1 1	0.7	1.2*	500 300							67
BC327-16	TO-92 (97)	50*	45	5	100*	45	45	40 100	300 250	1 1	0.7	1.2*	500 300							67
BC327-25	TO-92 (97)	50*	45	5	100*	45	45	40 160	300 400	1 1	0.7	1.2*	500 300							67
BC328	TO-92 (97)	30*	25	5	100*	25	25	40 100	300 600	1 1	0.7	1.2	500 300							67
BC328-10	TO-92 (97)	30*	25	5	100*	25	25	40 63	300 160	1 1	0.7	1.2	500 300							67
BC328-16	TO-92 (97)	30*	25	5	100*	25	25	40 100	300 250	1 1	0.7	1.2	500 300							67
BC328-25	TO-92 (97)	30*	25	5	100*	25	25	40 160	300 400	1 1	0.7	1.2	500 300							67
BC337	TO-92 (97)	50*	45	5	100	20	20	100 40	600 500	1 1	0.7		500							12
BC337A	TO-92 (97)	60*	60	5	100	20	20	100 40	400 500	1 1	0.7		500							12
BC337-16	TO-92 (97)	50*	45	5	100	20	20	100 40	250 500	1 1	0.7		500							12
BC337-25	TO-92 (97)	50*	45	5	100	20	20	160 40	400 500	1 1	0.7		500							12

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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>CB0</sub> * (nA) Max	I <sub>CB0</sub> * (nA) Max	h <sub>FE</sub> h <sub>FE</sub> @ 1 kHz* Min Max	I <sub>C</sub> (mA) @ Min Max	V <sub>CE</sub> (V) Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)*</sub> (V) Min Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) @ Min Max	Process No.
BC338	TO-92 (97)	30*	20	5	100	20	100 600 40	100 100 500 1	0.7	0.7		500	12
BC338-16	TO-92 (97)	30*	20	5	100	20	100 250 40	100 100 500 1	0.7	0.7		500	12
BC338-25	TO-92 (97)	30*	20	5	100	20	100 250 40	100 100 500 1	0.7	0.7		500	12
BC368	TO-92 (94)	25*	20	5	10 μA	25	60 375 60	5 10 500 1 1A 1	0.5	0.5		1A	37
BC369	TO-92 (94)	25*	20	5	10 μA	25	50 375 60	5 10 500 1 1A 1	0.5	0.5		1A	77
BC546	TO-92 (97)	80	65	6	15	30	110 800 220	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	11
BC546A	TO-92 (97)	80	65	6	15	30	110 800 220	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	11
BC546B	TO-92 (97)	80	65	6	15	30	200 450 450	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	11
BC547	TO-92 (97)	50	45	6	10	20	125 900* 125	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	10
BC547A	TO-92 (97)	50	45	6	10	20	125 900* 125	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	10
BC547B	TO-92 (97)	50	45	6	10	20	240 500* 240	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	10
BC547C	TO-92 (97)	50	45	5	15	30	420 900 420	2 5 0.01 5 2 5	0.25 0.6	0.25 0.6		10 100	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	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Max Min	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> <sup>*</sup> (V) Max Min	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.
BC54B	TO-92 (97)	30	20	5	10 20	125 900*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				10	(Note 1)	10
BC54BA	TO-92 (97)	30	20	5	10 20	125 260*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				10	(Note 1)	10
BC54BB	TO-92 (97)	30	20	5	10 20	240 500*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				10	(Note 1)	10
BC54BC	TO-92 (97)	30	20	5	10 20	450 900*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				10	(Note 1)	10
BC549	TO-92 (97)	30	20	5	10 20	240 900*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				4	(Note 1)	10
BC549B	TO-92 (97)	30	20	5	10 20	240 500*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				4	(Note 1)	10
BC549C	TO-92 (97)	30	20	5	10 20	450 900*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2	4.5				4	(Note 1)	10
BC550	TO-92 (97)	50	45	5	10 45	240 900*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2					3	(Note 1)	10
BC550B	TO-92 (97)	50	45	5	10 45	240 500*	0.25 0.6 0.55 0.70*	0.77* 0.70*	10 100 2					3	(Note 1)	10
BC556	TO-92 (97)	80	65	5	15 30	75 475 2 5 5	0.3 0.65	0.77* 0.70*	10 100 2					10	(Note 1)	69

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Type No.	Case Style	V <sub>CE(SAT)</sub> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>BE0</sub> (V) Min	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) Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</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.
BC556A	TO-92 (97)	80	65	5	15	30	250	0.3	10				10	(Note 1)	69
BC556B	TO-92 (97)	80	65	5	15	30	475	0.3	10				10	(Note 1)	69
BC557	TO-92 (97)	50	45	5	100	20	900*	0.3	10				10	(Note 1)	68
BC557A	TO-92 (97)	50	45	5	100	20	260*	0.3	10				10	(Note 1)	68
BC557B	TO-92 (97)	50	45	5	100	20	500*	0.3	10				10	(Note 1)	68
BC558	TO-92 (97)	30	25	5	100	20	500*	0.3	10				10	(Note 1)	68
BC558A	TO-92 (97)	30	25	5	100	20	260*	0.3	10				10	(Note 1)	68
BC558B	TO-92 (97)	30	25	5	100	20	500*	0.3	10				10	(Note 1)	68
BC558C	TO-92 (97)	30	25	5	100	20	900*	0.3	10				10	(Note 1)	68
BC559	TO-92 (97)	25	20	5	100	20	500*	0.3	10				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>CB0</sub> @ V <sub>CB</sub> ( $\mu$ A) Max	HFE h <sub>FE</sub> @ 1 kHz Min Max	I <sub>C</sub> (mA) V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA)	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* 100	10				4	(Note 1)	68
BC559C	TO-92 (97)	25	20	5	100 20	450 900*	2 5	0.3 0.65	0.82* 100	10				4	(Note 1)	68
BC560	TO-92 (97)	50	45	5	100 45	125 500*	2 5	0.3 0.65	0.82* 100	10				3	(Note 1)	68
BC560B	TO-92 (97)	50	45	5	100 45	240 500*	2 5	0.3 0.65	0.82* 100	10				3	(Note 1)	68
BC635	TO-92 (94)	45	45	5		25 40 250	5 2 150 2 500 2	0.5		500						38
BC636	TO-92 (94)	45	45	5	100 30	25 40 250	5 2 150 2 500 2	0.5		500						78
BC637	TO-92 (94)	60	60	5		25 40 250	5 2 150 2 500 2	0.5		500						38*
BC638	TO-92 (94)	60	60	5	100 30	25 40 250	5 2 150 2 500 2	0.5		500						78
BC639	TO-92 (94)	100	80	5		25 40 250	5 2 150 2 500 2	0.5		500						39
BC640	TO-92 (94)	100	80	5	100 30	25 40 250	5 2 150 2 500 2	0.5		500						79
BC807	TO-236 (49)	50*	45	5	100 20	100 600	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>CS</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(ON)*</sub> (V) Max Min	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.
BC807-16	TO-236 (49)	50*	45	5	100	100 250 40	100 1 500 1	0.7	500						67
BC807-25	TO-236 (49)	50*	45	5	100	160 400 40	100 1 500 1	0.7	500						67
BC807-40	TO-236 (49)	50*	45	5	100	250 600 40	100 1 500 1	0.7	500						67
BC808	TO-236 (49)	30*	25	5	100	100 600 40	100 1 500 1	0.7	500						67
BC808-16	TO-236 (49)	30*	25	5	100	100 250 40	100 1 500 1	0.7	500						67
BC808-25	TO-236 (49)	30*	25	5	100	160 400 40	100 1 500 1	0.7	500						67
BC808-40	TO-236 (49)	30*	25	5	100	250 600 40	100 1 500 1	0.7	500						67
BC817	TO-236 (49)	30*	25	5	100	100 600 40	100 1 500 1	0.7	500						12
BC817-16	TO-236 (49)	30*	25	5	100	100 250 40	100 1 500 1	0.7	500						12
BC817-25	TO-236 (49)	30*	25	5	100	160 400 40	100 1 500 1	0.7	500						12
BC817-40	TO-236 (49)	30*	25	5	100	250 600 40	100 1 500 1	0.7	500						12
BC818	TO-236 (49)	30*	25	5	100	100 600 40	100 1 500 1	0.7	500						12
BC818-16	TO-236 (49)	30*	25	5	100	100 250 40	100 1 500 1	0.7	500						12
BC818-25	TO-236 (49)	30*	25	5	100	160 400 40	100 1 500 1	0.7	500						12

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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>CB0</sub> <sup>*</sup> I <sub>CB0</sub> @ (nA) Max	I <sub>CB0</sub> <sup>*</sup> I <sub>CB0</sub> @ (nA) Max	H <sub>FE</sub> h <sub>FE</sub> @ 1 kHz Min Max	I <sub>C</sub> (mA) VCE (V)	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Max Min	V <sub>BE(SAT)</sub> (V) V <sub>BE(ON)</sub> <sup>*</sup> (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.
BC818-40	TO-236 (49)	30*	25	5	100	20	250	100	0.7		500							12
BC846	TO-236 (49)	80	65	6	15	30	110	0.01	0.25	10	10					10	(Note 1)	11
BC846-A	TO-236 (49)	80	65	6	15	30	110	0.01	0.25	10	10					10	(Note 1)	11
BC846-B	TO-236 (49)	80	65	6	15	30	200	0.01	0.25	10	10					10	(Note 1)	11
BC847	TO-236 (49)	50	45	6	15	30	110	0.01	0.25	10	100					10	(Note 1)	10
BC847-A	TO-236 (49)	50	45	6	15	30	110	0.01	0.25	10	100					10	(Note 1)	10
BC847-B	TO-236 (49)	50	45	6	15	30	200	0.01	0.25	10	100					10	(Note 1)	10
BC848	TO-236 (49)	30	30	5	15	30	110	0.01	0.25	10	100					10	(Note 1)	10
BC848-A	TO-236 (49)	30	30	5	15	30	110	0.01	0.25	10	100					10	(Note 1)	10
BC848-B	TO-236 (49)	30	30	5	15	30	200	0.01	0.25	10	100					10	(Note 1)	10
BC848-C	TO-236 (49)	30	30	5	15	30	420	0.01	0.25	10	100					10	(Note 1)	10

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

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE0</sub> (V) Min	V <sub>CE0</sub> (V) Max	V <sub>BE0</sub> (V) Min	V <sub>BE0</sub> (V) Max	I <sub>CB0</sub> @ (nA) Max	I <sub>CB0</sub> @ (nA) Max	H <sub>FE</sub> h <sub>FE</sub> 1 kHz	I <sub>C</sub> (mA) Min	V <sub>CE</sub> (V) Min	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	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	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	0.3	10	10	10					10	(Note 1)	68
BC858	TO-236 (49)	30	30	5	30	15	30	75	800	2	5	0.3	100	10	100					10	(Note 1)	68
BC858-B	TO-236 (49)	30	30	5	30	15	30	220	475	2	5	0.3	10	10	100					10	(Note 1)	68
BC858-C	TO-236 (49)	30	30	5	30	15	30	420	800	2	5	0.3	100	10	100					10	(Note 1)	68
BC859	TO-236 (49)	30	30	5	30	15	30	220	800	2	5	0.65	100	100	100					4	(Note 1)	68
BC859-A	TO-236 (49)	30	30	5	30	15	30	125	250	2	5	0.65	100	100	100					4	(Note 1)	68
BC859-B	TO-236 (49)	30	30	5	30	15	30	220	475	2	5	0.65	100	100	100					4	(Note 1)	68
BC859-C	TO-236 (49)	30	30	5	30	15	30	420	800	2	5	0.65	100	100	100					4	(Note 1)	68
BC860	TO-236 (49)	50	45	5	30	15	30	220	800	2	5	0.3	10	10	100					3	(Note 1)	68
BC860-B	TO-236 (49)	50	45	5	30	15	30	220	475	2	5	0.3	10	10	100					3	(Note 1)	68
BCF29	TO-236 (49)	32	32	5	32	100	32	120	260	0.01	5	0.3	10	10	100					4	(Note 1)	68
BCF30	TO-236 (49)	32	32	5	32	100	32	200	450	0.01	5	0.25	10	10	100					4	(Note 1)	68
BCF32	TO-236 (49)	50	45	5	30	100	20	215	500	0.01	5	0.3	10	10	100					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 <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	I <sub>C</sub> (mA) @ V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA) 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	0.01 450	5	10				4	(Note 1)	10
BCF70	TO-236 (49)	50	45	5	100	20	215	0.01 500	5	10				4	(Note 1)	10
BCV26	TO-236 (49)	40	30	10	100	30	4,000 10,000 20,000	1 10 100	5	1.5 100						61
BCV27	TO-236 (49)	40	30	10	100	30	4,000 10,000 20,000	1 10 100	5	1.5 100						05
BCV71	TO-236 (49)	80	60	5	100	20	110	220	5	10				10	(Note 1)	11
BCV72	TO-236 (49)	80	60	5	100	20	200	450	5	10				10	(Note 1)	11
BCW29	TO-236 (49)	32	32	5	100	32	120	260	5	10				10	(Note 1)	68
BCW30	TO-236 (49)	32	32	5	100	32	215	500	5	10				10	(Note 1)	68
BCW31	TO-236 (49)	32	32	5	100	32	150	270	5	10				10	(Note 1)	10
BCW32	TO-236 (49)	32	32	5	100	32	200	420	5	10				10	(Note 1)	10
BCW33	TO-236 (49)	32	32	5	100	32	450	800	5	10				10	(Note 1)	10
BCW60	TO-236 (49)	32*	32	5	20	32	50 120	50 630	1 5	50 50		125		6	(Note 1)	10
BCW61	TO-236 (49)	32*	32	5	20	32	50 120	50 630	1 5	50 50				6	(Note 1)	68
BCW65	TO-236 (49)	60	32	5	20*	32	35 75 100	0.1 220 250	10 1 1	2.0 500 500	12	100		10	(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>CB0</sub> <sup>*</sup> (mA) Max	V <sub>CB</sub> (V)	I <sub>CE</sub> <sup>*</sup> (mA) Max	I <sub>CE</sub> (mA) @ 1 kHz <sup>*</sup> Min Max	V <sub>CE(SAT)</sub> (V) & 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	I <sub>C</sub> (mA) @ Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCW66	TO-236 (49)	75	45	5	20*	45	20*	35 75 100 250 35	0.1 10 100 100 500	10 1	2.0 500	12	100	20		10	(Note 1)	10
BCW68	TO-236 (49)	75	45	5	20*	45	20*	35 75 100 250 35	0.1 10 100 100 500	10 1	2.0 500	12	100	20		10	(Note 1)	10
BCW69	TO-236 (49)	50	45	5	100	20	2	120 260	2 5	0.3	10					10	(Note 1)	68
BCW70	TO-236 (49)	50	45	5	100	20	2	215 500	2 5	0.3	10					10	(Note 1)	68
BCW71	TO-236 (49)	50	45	5	100	20	2	110 220	2 5	0.25	10					10		68
BCW72	TO-236 (49)	50	45	5	100	20	2	200 450	2 5	0.25	10					10	(Note 1)	68
BCW81	TO-236 (49)	50	45	5	100	20	2	420 800	2 5	0.25	10					10	(Note 1)	10
BCW89	TO-236 (49)	80	60	5	100	20	2	120 260	2 5	0.3	10					10	(Note 1)	68
BCX17	TO-236 (49)	50*	45	5	100	20	100 600 70 300 40 500	100 600 300 1 40 500	1 1 1 1	0.62	500							67
BCX18	TO-236 (49)	30*	25	5	100	20	100 600 70 300 40 500	100 600 300 1 40 500	1 1 1 1	0.62	500							67
BCX19	TO-236 (49)	50*	45	5	100	20	100 600 70 300 40 500	100 600 300 1 40 500	1 1 1 1	0.62	1.2 500							12
BCX20	TO-236 (49)	30*	25	5	100	20	100 600 70 300 40 500	100 600 300 1 40 500	1 1 1 1	0.62	1.2 500							12

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Bipolar Pro Electron Series

Bipolar Pro Electron Series (Continued)

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>CB0</sub> <sup>*</sup> (mA) Max	V <sub>CB</sub> (V) Max	HFE 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) Max	V <sub>BE(SAT)</sub> (V) Min Max	I <sub>C</sub> (mA) @ V <sub>BE(ON)</sub> (V)	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) @ V <sub>CE</sub> (V)	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX58	TO-92 (97)		32	7	10	32	120 630 80 1000 40	2 5 10 1 100 1					125	10	800	6	(Notes 3 & 4)	10
BCX58-7	TO-92 (97)		32	7	10	32	120 220 80 10 1 40 100 1	2 5 10 1 100 1					125	10	800	6	(Notes 3 & 4)	10
BCX58-8	TO-92 (97)		32	7	10	32	20 0.01 5 180 310 2 5 120 400 10 1 45 100 1	0.01 5 2 5 10 1 100 1					125	10	800	6	(Notes 3 & 4)	10 10
BCX58-9	TO-92 (97)		32	7	10	32	40 0.01 5 250 460 2 5 160 630 10 1 60 100 1	0.01 5 2 5 10 1 100 1					125	10	800	6	(Notes 3 & 4)	10
BCX58-10	TO-92 (97)		32	7	10	32	100 0.01 5 380 630 2 5 240 1000 10 1 60 100 1	0.01 5 2 5 10 1 100 1					125	10	800	6	(Notes 3 & 4)	10
BCX59	TO-92 (97)		45	7			120 630 2 5 80 1000 10 1 40	2 5 10 1 100 1	0.5	1.0	100		125	10	800		(Note 5)	10
BCX59-7	TO-92 (97)		45	7			120 220 2 5 80 10 1 40 100 1	2 5 10 1 100 1	0.5	1.0	100		125	10	800		(Note 5)	10
BCX59-8	TO-92 (97)		45	7			20 0.01 5 180 310 2 5 120 400 10 1 45	0.01 5 2 5 10 1 100 1	0.5	1.0	100		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>CE0</sub> <sup>*</sup> (V) Min	V <sub>BE0</sub> <sup>*</sup> (V) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	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) Max	V <sub>CE</sub> (V) Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (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.
BCX59-9	TO-92 (97)	45	45	7			40 250 160 60	0.01 2 10 100	5 5 1 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 2 10 100	5 5 1 1	0.5	1.0 100		125	10	800		(Note 5)	10
BCX70G	TO-236 (49)	45	45	5	20	32	120 60	2 50	5 1	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	10
BCX70H	TO-236 (49)	45	45	5	20	32	180 70 20	2 50 0.01	5 1 5	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	10
BCX70J	TO-236 (49)	45	45	5	20	32	250 90 40	2 50 0.01	5 1 5	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	10
BCX71G	TO-236 (49)	45	45	5	20	32	120 60	2 50	5 1	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	68
BCX71H	TO-236 (49)	45	45	5	20	32	180 70 20	2 50 0.01	5 1 5	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	68
BCX71J	TO-236 (49)	45	45	5	20	32	250 90 40	2 50 0.01	5 1 5	0.55	1.05 50	4.5	125	10	800	6	(Notes 17, 19)	68
BCX78	TO-92 (97)	32	32	5			120 80 40	2 10 100	5 1 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	2 10 100	5 1 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>CE0</sub> <sup>*</sup> (V) Max	V <sub>EB0</sub> (V) Min	V <sub>EB0</sub> (V) Max	I <sub>CE0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</sub> (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(SAT)</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	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				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> I <sub>CB0</sub> (mA) Max	HFE h <sub>FE</sub> @ 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) Min Max	V <sub>CE</sub> (V) 1 2	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> (V) Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</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) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD370A-10	TO-237 (91)	45	80	45	100 45	25 63 160 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370A-16	TO-237 (91)	45	80	45	100 45	25 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370A-25	TO-237 (91)	45	80	45	100 45	25 160 400 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B	TO-237 (91)	60	80	60	100 60	25 40 400 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-10	TO-237 (91)	60	80	60	100 60	25 63 160 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-16	TO-237 (91)	60	80	60	100 60	25 100 250 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370B-25	TO-237 (91)	60	80	60	100 60	25 160 400 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C	TO-237 (91)	80	80	80	100 80	25 40 400 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C-6	TO-237 (91)	80	80	80	100 80	25 40 100 100	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	80	100 80	25 63 160 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370C-16	TO-237 (91)	80	80	80	100 80	25 100 250 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	78
BD370D	TO-237 (91)	100	80	100	100 80	25 40 400 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD370D-6	TO-237 (91)	100	80	100	100 80	25 40 100 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD370D-10	TO-237 (91)	100	80	100	100 80	25 63 160 100	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	(Notes 5 & 6)	38
BD371A	TO-237 (91)	45	80	45	100 45	25 40 400 100	500 100	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	H <sub>FE</sub> 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 <sub>CE(SAT)</sub> (V) & 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> (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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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 Min Max	I <sub>C</sub> (mA) 2 1	V <sub>CE</sub> (V) 2 1	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> (V) Max Min	I <sub>C</sub> (mA) Max Min	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.
BD372A-10	TO-237 (90)	80	45			100	45		25 63	500 100	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372A-16	TO-237 (90)	80	45			100	45		25 100	500 250	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372A-25	TO-237 (90)	80	45			100	45		25 160	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372B	TO-237 (90)	80	60			100	60		25 40	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372B-10	TO-237 (90)	80	60			100	60		25 63	500 100	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372B-16	TO-237 (90)	80	60			100	60		25 100	500 250	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372B-25	TO-237 (90)	80	60			100	60		25 160	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372C	TO-237 (90)	80	80			100	80		25 40	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372C-6	TO-237 (90)	80	80			100	80		25 40	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372C-10	TO-237 (90)	80	80			100	80		25 63	500 100	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372C-16	TO-237 (90)	80	100			100	100		25 100	500 250	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	78
BD372D	TO-237 (90)	80	100			100	100		25 40	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	79
BD372D-6	TO-237 (90)	80	100			100	100		25 40	500 100	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	79
BD372D-10	TO-237 (90)	80	100			100	100		25 63	500 100	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	79
BD373A	TO-237 (90)	80	45			100	45		25 40	500 400	2 1	0.7	1.2*	30	50	200	420	6	(Notes 5 & 6)	38

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Bipolar Pro Electron Series

Bipolar Pro Electron Series

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CE0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>BE0</sub> (V) Min	I <sub>CE0</sub> <sup>*</sup> I <sub>CE0</sub> (nA) Max	h <sub>FE</sub> h <sub>FE</sub> @ 1 kHz (V) Min Max	I <sub>C</sub> I <sub>C</sub> (mA) 2 1	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> I <sub>C</sub> (mA) 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.
BD373A-10	TO-237 (90)	80	45		100	25 63	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373A-16	TO-237 (90)	80	45		100	25 100	500 250	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373A-25	TO-237 (90)	80	45		100	25 160	500 400	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373B	TO-237 (90)	80	80		100	25 40	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373B-10	TO-237 (90)	80	60		100	25 63	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373B-16	TO-237 (90)	80	60		100	25 100	500 250	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373B-25	TO-237 (90)	80	60		100	25 160	500 400	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373C	TO-237 (90)	80	80		100	25 40	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373C-6	TO-237 (90)	80	80		100	25 40	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373C-10	TO-237 (90)	80	80		100	25 63	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373C-16	TO-237 (90)	80	80		100	25 100	500 250	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373D	TO-237 (90)	80	100		100	25 40	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373D-6	TO-237 (90)	80	100		100	25 40	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BD373D-10	TO-237 (90)	80	100		100	25 63	500 100	0.7	1.2*	200	30	50	420	6	(Notes 5 & 6)	38
BF240	TO-92 (98)	40	40	4	100	65 6	225 12	0.65	0.74*	1	0.34	1		3.5	(Note 7)	47

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Type No.	Case Style	V <sub>CE0</sub> (V)		V <sub>CE</sub> (V)		I <sub>C</sub> (mA)		h <sub>FE</sub> @ 1 kHz		I <sub>CB0</sub> (mA)		V <sub>CE0</sub> (V)		V <sub>BE(SAT)</sub> (V) & V <sub>BE(ON)*</sub> (V)		C <sub>ob</sub> (pF)		f <sub>T</sub> (MHz)		I <sub>C</sub> (mA)	t <sub>off</sub> (ns)	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							
BF241	TO-92 (98)	40	40	4	20	35	125	1	10	100	20	0.65	0.74*	1	0.34	1						3.5	(Note 7)	47		
BF494	TO-92 (98)	30	20	5		65	220	1	10															49		
BF495	TO-92 (98)	30	20	5		35	250	1	10															49		
BF536	TO-236 (49)	30	30	4	20	25	1	10		50	20													42		
BF840	TO-236 (49)	40	40	4	20	65	220	1	10	100	20													47		
BF841	TO-236 (49)	40	40	4	20	35	125	1	10	100	20													47		
BF936	TO-92 (97)	30	20	4	20	25	1	10		50	20											6	(Note 7)	75		
BFS18	TO-236 (49)	30	30	5	20	35	125	1	10	100	20													49		
BFS19	TO-236 (49)	30	30	5	25	65	225	1	10	100	25													49		
BSR13	TO-236 (49)	60	30	5	50	35	0.1	10	10	30	50	0.4	1.3	150	8	250	20							19		
						50	1	10	10																	
						75	10	10	10	10			1.6	2.6	500											
						50	150	1	10	10																
BSR14	TO-236 (49)	75	40	6	60	35	0.1	10	10	10	60	0.3	0.6	1.2	150	8	300	20							19	
						50	1	10	10	10																
						75	10	10	10	10			1.0	2.0	500											
						50	300	150	10	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>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	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	20	4	0.7	1.0	50		60	4	1000	(Notes 17, 18)	16
BSS63	TO-236 (49)	110	100	6	100	30	10	0.25	0.9	25		50	25			74
BSS64	TO-236 (49)	120	80	5	100	20	10	0.15	1.2	4		60	4	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>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	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	V <sub>CE</sub> (SAT) (V) & I <sub>C</sub> (mA) Max	V <sub>BE</sub> (SAT) V <sub>BE</sub> (ON) <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) 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.
BSS79-B	TO-236 (49)	60	40	5	10	40	0.4	150	6	200	20				19
BSS79-C	TO-236 (49)	60	40	5	100	100	0.4	150	6	200	20				19
BSS80-B	TO-236 (49)	60	40	5	10	40	0.4	150	8	200	20				63
BSS80-C	TO-236 (49)	60	40	5	100	100	0.4	150	8	200	20				63
BSV52	TO-236 (49)	20	12	5	100	25	0.3	10		400	10	18		(Note 18)	21
BSX39	TO-236 (49)		14		100	25	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>CC</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>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 200 Hz.

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