



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>CE</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) @ V <sub>CE</sub> (V) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (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) @ I <sub>C</sub> (mA) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC327	TO-92 (97)	50 <sup>*</sup>	45	5	100 <sup>*</sup>	45	40 100	300 600	0.7	1.2 <sup>*</sup>	500 300						67
BC327A	TO-92 (97)	60 <sup>*</sup>	60	5	100 <sup>*</sup>	45	40 100	300 400	0.7	1.2 <sup>*</sup>	300 500						67
BC327-10	TO-92 (97)	50 <sup>*</sup>	45	5	100 <sup>*</sup>	45	40 63	300 160	0.7	1.2 <sup>*</sup>	500 300						67
BC327-16	TO-92 (97)	50 <sup>*</sup>	45	5	100 <sup>*</sup>	45	40 100	300 250	0.7	1.2 <sup>*</sup>	500 300						67
BC327-25	TO-92 (97)	50 <sup>*</sup>	45	5	100 <sup>*</sup>	45	40 160	300 400	0.7	1.2 <sup>*</sup>	500 300						67
BC328	TO-92 (97)	30 <sup>*</sup>	25	5	100 <sup>*</sup>	25	40 100	300 600	0.7	1.2	500 300						67
BC328-10	TO-92 (97)	30 <sup>*</sup>	25	5	100 <sup>*</sup>	25	40 63	300 160	0.7	1.2	500 300						67
BC328-16	TO-92 (97)	30 <sup>*</sup>	25	5	100 <sup>*</sup>	25	40 100	300 250	0.7	1.2	500 300						67
BC328-25	TO-92 (97)	30 <sup>*</sup>	25	5	100 <sup>*</sup>	25	40 160	300 400	0.7	1.2	500 300						67
BC337	TO-92 (97)	50 <sup>*</sup>	45	5	100	20	100 40	600 500	0.7		500						12
BC337A	TO-92 (97)	60 <sup>*</sup>	60	5	100	20	100 40	400 500	0.7		500						12
BC337-16	TO-92 (97)	50 <sup>*</sup>	45	5	100	20	100 40	250 500	0.7		500						12
BC337-25	TO-92 (97)	50 <sup>*</sup>	45	5	100	20	160 40	400 500	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> (nA) Max	I <sub>CB0</sub> <sup>*</sup> (nA) 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) @ Min Max	V <sub>CE</sub> (V) 1	V <sub>CE(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.
BC338	TO-92 (97)	30*	20	5	100	20	20	100 600 40	100 100 500 1	1	0.7		500						12
BC338-16	TO-92 (97)	30*	20	5	100	20	20	100 250 40	100 100 500 1	1	0.7		500						12
BC338-25	TO-92 (97)	30*	20	5	100	20	20	100 250 40	100 100 500 1	1	0.7		500						12
BC368	TO-92 (94)	25*	20	5	10 μA	25	25	60 85 375 500 60 1A	5 10 500 1 1A 1	10	0.5		1A						37
BC369	TO-92 (94)	25*	20	5	10 μA	25	25	50 85 375 500 60 1A	5 10 500 1 1A 1	10	0.5		1A						77
BC546	TO-92 (97)	80	65	6	15	30	30	110 800 2	2 5	5	0.25		10			10	(Notes 1, 11)	11	
BC546A	TO-92 (97)	80	65	6	15	30	30	110 220 0.01 5	5	5	0.25		10			10	(Notes 1, 11)	11	
BC546B	TO-92 (97)	80	65	6	15	30	30	200 450 2 5	5	5	0.25		10			10	(Notes 1, 11)	11	
BC547	TO-92 (97)	50	45	6	10	20	20	125 900* 2	2 5	5	0.25 0.6	0.77* 0.55 0.70*	10 100 2	4.5				10	
BC547A	TO-92 (97)	50	45	6	10	20	20	125 260* 2	2 5	5	0.25 0.6	0.77* 0.55 0.70*	10 100 2	4.5				10	
BC547B	TO-92 (97)	50	45	6	10	20	20	240 500* 2	2 5	5	0.25 0.6	0.77* 0.55 0.70*	10 100 2	4.5				10	
BC547C	TO-92 (97)	50	45	5	15	30	30	420 900 2	2 5	5	0.25 0.6	0.77* 0.55 0.70*	10 100 2	4.5				10	

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> <sup>*</sup> (V) Min	V <sub>CE</sub> <sup>*</sup> (V) Min	V <sub>EB</sub> <sup>*</sup> (V) Min	I <sub>CB</sub> <sup>*</sup> (mA) Max	h <sub>FE</sub> h <sub>FE</sub> 1 kHz Min	V <sub>CE</sub> (V) Max	I <sub>C</sub> (mA) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> V <sub>BE(ON)</sub> <sup>*</sup> (V) Min	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.
BC548	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				10	(Note 1)	10
BC548A	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				10	(Note 1)	10
BC548B	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				10	(Note 1)	10
BC548C	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				10	(Note 1)	10
BC549	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				4	(Note 1)	10
BC549B	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				4	(Note 1)	10
BC549C	TO-92 (97)	30	20	5	10	20	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2	4.5				4	(Note 1)	10
BC550	TO-92 (97)	50	45	5	10	45	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2					3	(Note 1)	10
BC550B	TO-92 (97)	50	45	5	10	45	0.25 0.6	10 100	0.77* 0.55	0.70* 0.70*	2					3	(Note 1)	10
BC556	TO-92 (97)	80	65	5	15	30	0.3	10	0.77* 0.55	0.70* 0.70*	100					10	(Note 1)	69

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Type No.	Case Style	V <sub>CE(S)</sub> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CS</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) 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>BE(SAT)</sub> (V) Max Min	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) 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	10 100				10	(Note 1)	69
BC556B	TO-92 (97)	80	65	5	15 30	220 475	2 5	0.3 0.65	10 100				10	(Note 1)	69
BC557	TO-92 (97)	50	45	5	100 20	75 900*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC557A	TO-92 (97)	50	45	5	100 20	125 260*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC557B	TO-92 (97)	50	45	5	100 20	240 500*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC558	TO-92 (97)	30	25	5	100 20	75 500*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC558A	TO-92 (97)	30	25	5	100 20	125 260*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC558B	TO-92 (97)	30	25	5	100 20	240 500*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC558C	TO-92 (97)	30	25	5	100 20	450 900*	2 5	0.3 0.65	10 100				10	(Note 1)	68
BC559	TO-92 (97)	25	20	5	100 20	125 500*	2 5	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>BE(SAT)</sub> (V) Max Min	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.
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>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(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	100 20	100 250 100 1	0.7	500	500						67
BC807-25	TO-236 (49)	50*	45	5	100	100 20	100 400 100 1	0.7	500	500						67
BC807-40	TO-236 (49)	50*	45	5	100	100 20	100 600 100 1	0.7	500	500						67
BC808	TO-236 (49)	30*	25	5	100	100 20	100 600 100 1	0.7	500	500						67
BC808-16	TO-236 (49)	30*	25	5	100	100 20	100 250 100 1	0.7	500	500						67
BC808-25	TO-236 (49)	30*	25	5	100	100 20	100 400 100 1	0.7	500	500						67
BC808-40	TO-236 (49)	30*	25	5	100	100 20	100 600 100 1	0.7	500	500						67
BC817	TO-236 (49)	30*	25	5	100	100 20	100 600 100 1	0.7	500	500						12
BC817-16	TO-236 (49)	30*	25	5	100	100 20	100 250 100 1	0.7	500	500						12
BC817-25	TO-236 (49)	30*	25	5	100	100 20	100 400 100 1	0.7	500	500						12
BC817-40	TO-236 (49)	30*	25	5	100	100 20	100 600 100 1	0.7	500	500						12
BC818	TO-236 (49)	30*	25	5	100	100 20	100 600 100 1	0.7	500	500						12
BC818-16	TO-236 (49)	30*	25	5	100	100 20	100 250 100 1	0.7	500	500						12
BC818-25	TO-236 (49)	30*	25	5	100	100 20	100 400 100 1	0.7	500	500						12

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Bipolar Pro Electron Series (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>EB</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	I <sub>CB</sub> <sup>*</sup> I <sub>CB</sub> (nA) 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) @ Min Max	V <sub>CE</sub> (SAT) V <sub>BE</sub> (ON) <sup>*</sup> (V) Max Min	V <sub>BE</sub> (SAT) V <sub>BE</sub> (ON) <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.
BC818-40	TO-236 (49)	30*	25	5	100	20	250 40	100 500	0.7		500						12
BC846	TO-236 (49)	80	65	6	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	11
BC846-A	TO-236 (49)	80	65	6	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	11
BC846-B	TO-236 (49)	80	65	6	15	30	200	0.01 450	0.25 0.6	10 100					10	(Note 1)	11
BC847	TO-236 (49)	50	45	6	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	10
BC847-A	TO-236 (49)	50	45	6	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	10
BC847-B	TO-236 (49)	50	45	6	15	30	200	0.01 450	0.25 0.6	10 100					10	(Note 1)	10
BC848	TO-236 (49)	30	30	5	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	10
BC848-A	TO-236 (49)	30	30	5	15	30	110	0.01 800	0.25 0.6	10 100					10	(Note 1)	10
BC848-B	TO-236 (49)	30	30	5	15	30	200	0.01 450	0.25 0.6	10 100					10	(Note 1)	10
BC848-C	TO-236 (49)	30	30	5	15	30	420	0.01 800	0.25 0.6	10 100					10	(Note 1)	10

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

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Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> <sup>*</sup> (nA) Max	H <sub>FE</sub> h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	V <sub>CE</sub> (V) Min	I <sub>C</sub> (mA) 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) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC857-B	TO-236 (49)	50	45	5	15	220 475	5	2	0.3	10	10				10	(Note 1)	68
BC858	TO-236 (49)	30	30	5	15	75 800	5	2	0.3	10	100				10	(Note 1)	68
BC858-B	TO-236 (49)	30	30	5	15	220 475	5	2	0.3	10	100				10	(Note 1)	68
BC858-C	TO-236 (49)	30	30	5	15	420 800	5	2	0.3	10	100				10	(Note 1)	68
BC859	TO-236 (49)	30	30	5	15	220 800	5	2	0.65	100	100				4	(Note 1)	68
BC859-A	TO-236 (49)	30	30	5	15	125 250	5	2	0.65	100	100				4	(Note 1)	68
BC859-B	TO-236 (49)	30	30	5	15	220 475	5	2	0.65	100	100				4	(Note 1)	68
BC859-C	TO-236 (49)	30	30	5	15	420 800	5	2	0.65	100	100				4	(Note 1)	68
BC860	TO-236 (49)	50	45	5	15	220 800	5	2	0.3	10	100				3	(Note 1)	68
BC860-B	TO-236 (49)	50	45	5	15	220 475	5	2	0.3	10	100				3	(Note 1)	68
BCF29	TO-236 (49)	32	32	5	100	120 260	5	0.01 2	0.3	10	10				4	(Note 1)	68
BCF30	TO-236 (49)	32	32	5	100	200 450	5	0.01 2	0.25	10	10				4	(Note 1)	68
BCF32	TO-236 (49)	50	45	5	100	215 500	5	0.01 2	0.3	10	10				4	(Note 1)	10

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Bipolar Pro Electron Series

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) Min Max	V <sub>CE</sub> (V) 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) 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> <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> (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) 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.	
																									V <sub>CE(SAT)</sub> (V) & I <sub>C</sub> (mA)
BCW66	TO-236 (49)	45	5	45	20*	45	35	0.1	10	10	0.1	10	0.3	2.0	500	12	100	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	12	100	20				10	(Note 1)	10	
BCW69	TO-236 (49)	45	5	45	100	20	120	260	2	5	2	5	0.3	10								10	(Note 1)	68	
BCW70	TO-236 (49)	45	5	45	100	20	215	500	2	5	2	5	0.3	10								10	(Note 1)	68	
BCW71	TO-236 (49)	45	5	45	100	20	110	220	2	5	2	5	0.25	10								10		68	
BCW72	TO-236 (49)	45	5	45	100	20	200	450	2	5	2	5	0.25	10								10	(Note 1)	68	
BCW81	TO-236 (49)	45	5	45	100	20	420	800	2	5	2	5	0.25	10								10	(Note 1)	10	
BCW89	TO-236 (49)	60	5	60	100	20	120	260	2	5	2	5	0.3	10								10	(Note 1)	68	
BCX17	TO-236 (49)	45	5	45	100	20	100	600	100	1	100	1	0.62	500											67
BCX18	TO-236 (49)	25	5	25	100	20	100	600	100	1	100	1	0.62	500											67
BCX19	TO-236 (49)	45	5	45	100	20	100	600	100	1	100	1	0.62	500											12
BCX20	TO-236 (49)	25	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	32	10	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	32	10	120 220 80 10 1 40	2 5 10 1 100 1				125	10	800	6	(Notes 3 & 4)	10
BCX58-8	TO-92 (97)	32	7	32	10	20 310 180 400 45	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	32	10	40 460 250 630 160 60	0.01 5 2 5 10 1 100 1				125	10	800	6	(Notes 3 & 4)	10
BCX58-10	TO-92 (97)	32	7	32	10	100 380 380 1000 240 60	0.01 5 2 5 10 1 100 1				125	10	800	6	(Notes 3 & 4)	10
BCX59	TO-92 (97)	45	7	45	7	120 630 80 1000 40	2 5 10 1 100 1	0.5	1.0		125	10	800		(Note 5)	10
BCX59-7	TO-92 (97)	45	7	45	7	120 220 80 10 1 40	2 5 10 1 100 1	0.5	1.0		125	10	800		(Note 5)	10
BCX59-8	TO-92 (97)	45	7	45	7	20 310 180 400 45	0.01 5 2 5 10 1 100 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>CE0</sub> <sup>*</sup> (V) Min	V <sub>CB0</sub> <sup>*</sup> (V) Min	V <sub>CB0</sub> <sup>*</sup> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CE0</sub> (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) Max	V <sub>BE(SAT)</sub> (V) Min	V <sub>BE(SAT)</sub> (V) 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					0.01	40	0.01	5	0.5	1.0	100			125	10	800		(Note 5)	10
BCX59-10	TO-92 (97)	45	45	7					0.01	100	0.01	5	0.5	1.0	100			125	10	800		(Note 5)	10
BCX70G	TO-236 (49)	45	45	5	32	20	20	20	2	120	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	10
BCX70H	TO-236 (49)	45	45	5	32	20	20	20	2	180	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	10
BCX70J	TO-236 (49)	45	45	5	32	20	20	20	2	250	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	10
BCX71G	TO-236 (49)	45	45	5	32	20	20	20	2	120	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	68
BCX71H	TO-236 (49)	45	45	5	32	20	20	20	2	180	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	68
BCX71J	TO-236 (49)	45	45	5	32	20	20	20	2	250	2	5	0.55	0.7	50	4.5		125	10	800	6	(Notes 17, 19)	68
BCX78	TO-92 (97)	32	32	5					0.01	120	0.01	5	0.6	1.0	100	4.5		200	10		6	(Note 1)	68
BCX78-7	TO-92 (97)	32	32	5					0.01	120	0.01	5	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	V <sub>CB</sub> (V)	H <sub>FE</sub> I <sub>re</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> (mA) 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	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX78-8	TO-92 (97)	32	5	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	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	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	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	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	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	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	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	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) 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	500 100	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	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	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	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	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	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	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	500 2 100 1	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	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	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	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	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	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	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	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	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 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 (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> (nA) 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>BE(SAT)</sub> 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	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	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373A-16	TO-237 (90)	80	45		100	25 100	500 250	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373A-25	TO-237 (90)	80	45		100	25 160	500 400	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373B	TO-237 (90)	80	80		100	25 40	500 400	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373B-10	TO-237 (90)	80	60		100	25 63	500 160	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373B-16	TO-237 (90)	80	60		100	25 100	500 250	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373B-25	TO-237 (90)	80	60		100	25 160	500 400	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373C	TO-237 (90)	80	80		100	25 40	500 400	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373C-6	TO-237 (90)	80	80		100	25 40	500 100	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373C-10	TO-237 (90)	80	80		100	25 63	500 160	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373C-16	TO-237 (90)	80	80		100	25 100	500 250	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373D	TO-237 (90)	80	100		100	25 40	500 400	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373D-6	TO-237 (90)	80	100		100	25 40	500 100	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BD373D-10	TO-237 (90)	80	100		100	25 63	500 160	2 1	1.2 <sup>*</sup>	1A	30	50	420	6	(Notes 5 & 6)	38
BF240	TO-92 (98)	40	40	4	100	65 6	225 12	1 7	0.65 0.74 <sup>*</sup>	1	0.34	1		3.5	(Note 7)	47

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Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CEB0</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	I <sub>CB0</sub> <sup>*</sup> (mA) Max	I <sub>CB0</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</sub> (V) Min Max	V <sub>CE(SAT)</sub> (V) & V <sub>BE(ON)</sub> <sup>*</sup> (V)		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.							
												Max	Min	Max	Min													
BF241	TO-92 (98)	40	40	40	4	100	20	20	35	125	1	10	0.65	0.74*	1	0.34	1			3.5	(Note 7)	47						
BF494	TO-92 (98)	30	30	20	5				65	220	1	10										49						
BF495	TO-92 (98)	30	30	20	5				35	250	1	10										49						
BF536	TO-236 (49)	30	30	30	4	50	20	20	25	1	10											42						
BF840	TO-236 (49)	40	40	40	4	100	20	20	65	220	1	10										47						
BF841	TO-236 (49)	40	40	40	4	100	20	20	35	125	1	10										47						
BF936	TO-92 (97)	30	30	20	4	50	20	20	25	1	10									6	(Note 7)	75						
BFS18	TO-236 (49)	30	30	30	5	100	20	20	35	125	1	10										49						
BFS19	TO-236 (49)	30	30	30	5	100	25	25	65	225	1	10										49						
BSR13	TO-236 (49)	60	60	30	5	30	50	50	35	0.1	10	10	0.4	1.3	150	8	250	20				19						
									50	1	10	10																
									75	10	10	10	1.6	2.6	500													
									100	300	150	10																
BSR14	TO-236 (49)	75	75	40	6	10	60	60	35	0.1	10	10	0.3	0.6	1.2	8	300	20				19						
									50	1	10	10																
									75	10	10	10	1.0	2.0	500													
									100	300	150	10																

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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) Max	V <sub>EB0</sub> (V) Min	I <sub>CS0</sub> <sup>*</sup> (nA) 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) 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	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BSR15	TO-236 (49)	60	40	5	20	50	35 50 75 100 30	0.1 1 10 150 500	0.4 1.6	1.3 2.6	150 500	8	200	100		(Note 9)	63
BSR16	TO-236 (49)	60	60	5	10	50	75 100 100 100 50	0.1 1 10 150 500	0.4 1.6	1.3 2.6	150 500	8	200	100		(Note 9)	63
BSR17	TO-236 (49)	60	40	6	5 μA	50	20 35 50 30 30 15	0.1 1 10 50 100	0.2	0.65	0.85	10	250	250		(Note 5)	23
BSR18	TO-236 (49)	60	40	6	5 μA	50	20 35 50 30 30 15	0.1 1 10 50 100	0.2	0.65	0.85	10	200	300		(Note 5)	66
BSR19	TO-236 (49)	160	140	6	100	100	60 60 20	1 10 50	0.15	1.0	10	6	100		10	(Note 16)	16
BSR20	TO-236 (49)	130	120	5	100	100	30 40 40	10 10 50	0.2	1.0	10	6	100		8	(Note 16)	16
BSS38	TO-236 (49)	120	100	5	200	90	20	4	0.7	1.2	4		60	1000		(Notes 17, 18)	16
BSS63	TO-236 (49)	110	100	6	100	90	30 30	10 25	0.25	0.9	25		50				74
BSS64	TO-236 (49)	120	80	5	100	90	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>BE</sub> <sup>*</sup>		I <sub>CE</sub> <sup>*</sup>		I <sub>CB</sub> @ 1 kHz <sup>*</sup>	h <sub>FE</sub>	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	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		V <sub>CE</sub> (V) Min	V <sub>CE</sub> (V) Max	V <sub>BE</sub> (V) Min	V <sub>BE</sub> (V) Max	I <sub>CB</sub> (mA) Min	I <sub>CB</sub> (mA) Max				I <sub>CE</sub> (mA) Min	I <sub>CE</sub> (mA) Max						
BSS79-B	TO-236 (49)	60	40	5	10	50	40	120	150	10	0.4	150	6	200	20			19
BSS79-C	TO-236 (49)	60	40	5	100	50	100	300	150	10	1.6	500	6	200	20			19
BSS80-B	TO-236 (49)	60	40	5	10	50	40	120	150	10	1.6	500	8	200	20			63
BSS80-C	TO-236 (49)	60	40	5	100	50	100	300	150	10	1.6	500	8	200	20			63
BSV52	TO-236 (49)	20	12	5	100	10	25	1	1	1	0.3	10		400	10	18	(Note 18)	21
BSX39	TO-236 (49)		14		100	12	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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