

6501130 NATL SEMICOND, (DISCRETE)

28C 35511 D

T-29-01

Pro Electron Series

PRO ELECTRON SERIES (Bipolar—see page 5-37 for JFET)

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)	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Max	I <sub>C</sub> (mA) Max	C <sub>cb</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.
BC107	TO-18	50	45	6	15*	50	40	125	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC107A	TO-18	50	45	6	15*	50	40	125	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC107B	TO-18	50	45	6	15*	50	40	240	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC108	TO-18	30	20	5	15*	30	40	125	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC108A	TO-18	30	20	5	15*	30	40	125	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC108B	TO-18	30	20	5	15*	30	40	240	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC108C	TO-18	30	20	5	15*	30	40	450	0.6	0.55	0.6	0.55	100	4.5	150	10	10	10	1	04	
BC109	TO-18	30	20	5	15*	30	100	240	0.6	0.55	0.6	0.55	100	4.5	150	10	10	4	1	04	
BC109B	TO-18	30	20	5	15*	30	100	240	0.6	0.55	0.6	0.55	100	4.5	150	10	10	4	1	04	
BC109C	TO-18	30	20	5	15*	30	100	450	0.6	0.55	0.6	0.55	100	4.5	150	10	10	4	1	04	
BC140	TO-39	80*	40	7	100*	60	40	250	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC140-6	TO-39	80*	40	7	100*	60	40	100	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC140-10	TO-39	80*	40	7	100*	60	63	160	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC140-16	TO-39	80*	40	7	100*	60	100	250	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC141	TO-39	100*	60	7	100*	60	40	250	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC141-6	TO-39	100*	60	7	100*	60	40	100	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	
BC141-10	TO-39	100*	60	7	100*	60	63	160	1.0	0.55	1.0	0.55	100	25	50	50	50	850	2	14	

6501130 NATL SEMICOND, (DISCRETE)

28C 35512

D



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>BO</sub> (V) Min	V <sub>BO</sub> (V) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Max	V <sub>CB</sub> (V) Max	HFE		I <sub>C</sub> & V <sub>CE</sub>		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup>		I <sub>C</sub>		C <sub>ob</sub> (pF) Max	f <sub>T</sub>		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
								Min	Max	Min	Max	Min	Max	Min	Max		Min	Max					Min
BC143	TO-5	60	60	5	40	50	40	20	200	2	1.5	1.5	500	200	20	60	50					63	
BC146-1	TO-92 (94)	20	20	4	40	50	40	80	200	0.2	1.5	1.5	500	200	20	60	50					04	
BC146-2	TO-92 (94)	20	20	4	40	50	40	140	350	0.2	1.5	1.5	500	200	20	60	50					04	
BC146-3	TO-92 (94)	20	20	4	40	50	40	280	550	0.2	1.5	1.5	500	200	20	60	50					04	
BC160	TO-39	40*	5	40	40	100	40	40	250	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC160-6	TO-39	40*	5	40	40	100	40	40	100	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC160-10	TO-39	40*	5	40	40	100	40	63	160	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC160-16	TO-39	40*	5	40	40	100	40	100	250	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC161	TO-39	60*	5	60	60	100	60	40	250	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC161-6	TO-39	60*	5	60	60	100	60	40	100	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC161-10	TO-39	60*	5	60	60	100	60	63	160	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC161-16	TO-39	60*	5	60	60	100	60	100	250	100	1.0	1.7*	1A	30	50	50	50	650				2	67
BC167	TO-92 (94)	60*	45	6	50	15*	50	110	500*	2	0.2	0.6	10	100	4.5	150	10				10	1	04
BC167A	TO-92 (94)	60*	45	6	50	15*	50	110	260*	2	0.2	0.6	10	100	4.5	150	10				10	1	04
BC167B	TO-92 (94)	60*	45	6	50	15*	50	110	500*	2	0.2	0.6	10	100	4.5	150	10				10	1	04
BC168	TO-92 (94)	60*	20	5	30	15*	30	110	900*	2	0.2	0.6	10	100	4.5	150	10				10	1	04
BC168A	TO-92 (94)	60*	20	5	30	15*	30	110	260*	2	0.2	0.6	10	100	4.5	150	10				10	1	04
BC168B	TO-92 (94)	60*	20	5	30	15*	30	110	500*	2	0.2	0.6	10	100	4.5	150	10				10	1	04

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TEST CONDITIONS:  
 (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35513 D

Pro Electron Series

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CS</sub> * I <sub>CB0</sub> (mA) Max	H <sub>FE</sub> h <sub>FE</sub> 1 kHz* Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE(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)		I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
												Min	Max					
BC168C	TO-92 (94)		20	5	15*	110 450	2 900*	5 5	0.2 0.6	10 100	4.5	150	10	10		1	04	
BC169	TO-92 (94)		20	5	15*	110 240	2 900*	5 5	0.2 0.6	10 100	4.5	150	4	10		1	04	
BC169B	TO-92 (94)		20	5	15*	110 240	2 500*	5 5	0.2 0.6	10 100	4.5	150	4	10		1	04	
BC169C	TO-92 (94)		20	5	15*	110 450	2 900*	5 5	0.2 0.6	10 100	4.5	150	4	10		1	04	
BC177	TO-18	50	45	5	100	110 125	2 500*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC177A	TO-18	50	45	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC177B	TO-18	50	45	5	100	110 240	2 500*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC177VI	TO-18	50	45	5	100	110 75	2 150*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC178	TO-18	30	25	5	100	110 125	2 900*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC178A	TO-18	30	25	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC178B	TO-18	30	25	5	100	110 240	2 500*	5 5	0.18	10 75*	4.5	150	10	10		1	71	
BC179	TO-18	25	20	5	100	110 125	2 900*	5 5	0.18	10 75*	4.5	150	4	10		1	71	
BC179A	TO-18	25	20	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	4	10		1	71	

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6501130 NATL SEMICOND, (DISCRETE)

28C 35514

T-29-01

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	HFE h <sub>FE</sub> 1 kHz* Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE(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	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC179B	TO-18	25	20	5	100	110 240	2 5 500* 2 5	0.18	0.78 10 0.75* 2 1.0*	10	4.5	150		4	1	71
BC182	TO-92 (97)	60	50	5	15	40 80 125	0.01 5 100 5 500* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC182A	TO-92 (97)	60	50	5	15	40 80 125	0.01 5 100 5 260* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC182B	TO-92 (97)	60	50	5	15	40 80 240	0.01 5 100 5 500* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC182L	TO-92 (94)	60	50	5	15	40 80 125	0.01 5 100 5 500* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC182LA	TO-92 (94)	60	50	5	15	40 80 125	0.01 5 100 5 260* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC182LB	TO-92 (94)	60	50	5	15	40 80 240	0.01 5 100 5 500* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC183	TO-92 (97)	45	30	5	15	40 80 125	0.01 5 100 5 900* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC183A	TO-92 (97)	45	30	5	15	40 80 125	0.01 5 100 5 260* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC183B	TO-92 (97)*	45	30	5	15	40 80 240	0.01 5 100 5 500* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04
BC183C	TO-92 (97)	45	30	5	15	40 80 450	0.01 5 100 5 900* 2 5	0.6 0.25	1.2 100 0.55 0.70* 2	10	5	150		10	1	04

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = 10 kHz.

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35515 D

Pro Electron Series

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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) Max	V <sub>EB</sub> (V) Min	V <sub>EB</sub> (V) Max	ICES <sup>*</sup> I <sub>CB</sub> (mA) Max	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (V) Min	I <sub>C</sub> & V <sub>CE</sub> (mA) (V) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Max	V <sub>BE(ON)</sub> <sup>*</sup> (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	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC183L	TO-92 (94)	45	30	5	15	15	40	125	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		10	1	04
BC183LA	TO-92 (94)	45	30	5	15	15	40	80	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		10	1	04
BC183LB	TO-92 (94)	45	30	5	15	15	40	80	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		10	1	04
BC183LC	TO-92 (94)	45	30	5	15	15	40	240	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		10	1	04
BC184	TO-92 (97)	45	30	5	15	15	100	450	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC184B	TO-92 (97)	45	30	5	15	15	130	240	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC184C	TO-92 (97)	45	30	50	15	15	100	450	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC184L	TO-92 (94)	45	30	50	15	15	130	240	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC184LB	TO-92 (94)	45	30	50	15	15	100	240	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC184LC	TO-92 (94)	45	30	50	15	15	100	450	0.01	5	0.6	1.2	0.55	0.70*	100	5	150	10		4	1	04
BC204	TO-92 (92)	50	45	5	50	50	50	450	2	5	0.3				10					10	1	71
BC207	TO-92 (92)	50	45	5	15	15	110	450	2	5	0.25				100	6				10	1	04
BC212	TO-92 (97)	60	50	5	15	15	60	400*	2	5	0.6	1.1	0.6	0.72*	100	10	200	10		10	1	63

6501130 NATL SEMICOND, (DISCRETE)

28C 35516

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PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>CE</sub> (V) Min	V <sub>EB</sub> (V) Min	I <sub>CB</sub> (mA) Max	HFE h <sub>FE</sub> 1 kHz* Min	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE</sub> (SAT) (V) Max	V <sub>BE</sub> (SAT) & V <sub>BE</sub> (ON)* (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.
BC212A	TO-92 (97)	60	50	5	15	100	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC212B	TO-92 (97)	60	50	5	15	200	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC212L	TO-92 (94)	60	50	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC212LA	TO-92 (94)	60	50	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC212LB	TO-92 (94)	60	50	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213	TO-92 (97)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213A	TO-92 (97)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213B	TO-92 (97)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213C	TO-92 (97)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213L	TO-92 (94)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63
BC213LA	TO-92 (94)	45	30	5	15	40 60 80	0.01 5	0.6 0.25	1.1 0.72*	100 10	10	200	10		10	1	63

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35517 D

T-29-01



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	I <sub>CB0</sub> (mA) Max	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (V) Min	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.
BC213LB	TO-92 (94)	45	30	5	15	30	40	80	0.01	0.6	1.1	100	10	200	10		10	1	63
BC213LC	TO-92 (94)	45	30	5	15	30	200	400*	0.01	0.25	0.6	10	10	200	10		10	1	63
BC214	TO-92 (97)	45	30	5	15	30	80	350	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214A	TO-92 (97)	45	30	5	15	30	80	140	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214B	TO-92 (97)	45	30	5	15	30	40	80	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214C	TO-92 (97)	45	30	5	15	30	200	400*	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214L	TO-92 (94)	45	30	5	15	30	80	350	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214LB	TO-92 (94)	45	30	5	15	30	100	140	0.01	0.6	1.1	100	10	200	10		2	1	63
BC214LC	TO-92 (94)	45	30	5	15	30	120	200	0.01	0.6	1.1	100	10	200	10		2	1	63
BC237-92	TO-92 (97)	50	45	6	50	20	100	140	0.01	0.25	0.77*	10	4.5				10	1	04
BC237A-92	TO-92 (97)	50	45	6	50	20	125	500*	0.01	0.25	0.55	10	4.5				10	1	04

6501130 NATL SEMICOND, (DISCRETE)

28C 35518  
T-24-01

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	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) 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	f <sub>T</sub> (MHz) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC237B-92	TO-92 (97)	50	45	6	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238A-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238B-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238C-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC239-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC239B-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC239C-92	TO-92 (97)	30	20	5	50	100 140 120 240	0.01 2 100 500*	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC261A	TO-18		45		50	100 140 120 240	0.01 2 100 500*	0.25 0.6	0.9 0.70	10 100	4.5				6	3	71

TEST CONDITIONS:  
 (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35519 D

T-29-01



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>CE</sub> (V) Min	V <sub>EB</sub> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CB</sub> (mA) Max	HFE h <sub>FE</sub> 1 kHz Min	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) 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.
BC261B	TO-18		45		50	100	0.01 5	0.25	0.9	10					6	3	71
BC262A	TO-18		20	5	50	100	0.01 5	0.25	0.9	10					6	3	71
BC262B	TO-18		20	5	50	100	0.01 5	0.25	0.9	10					6	3	71
BC263A	TO-18		20	5	50	100	0.01 5	0.25	0.9	10					2.5	3	71
BC263B	TO-18		20	5	50	100	0.01 5	0.25	0.9	10					2.5	3	71
BC307-92	TO-92 (97)	50	45	5	100	100	0.01 5	0.18	0.78	10					10	1	71
BC307A-92	TO-92 (97)	50	45	5	100	100	0.01 5	0.18	0.78	10					10	1	71
BC307B-92	TO-92 (97)	50	45	5	100	100	0.01 5	0.18	0.78	10					10	1	71
BC308-92	TO-92 (97)	30	25	5	100	100	0.01 5	0.18	0.78	10					10	1	71
BC308A-92	TO-92 (97)	30	25	5	100	100	0.01 5	0.18	0.78	10					10	1	71

6501130 NATL SEMICOND, (DISCRETE)

28C 35520

T-29-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	VCES* VCBO (V) Min	VCEO (V) Min	VEBO (V) Min	ICES* ICBO @ VCB (nA) Max	HFE hfe @ 1 kHz*		VCE(SAT) (V) Max		VBE(SAT) & VBE(ON)* (V) Min Max		IC (mA) Max	Cob (pF) Max	fT (MHz) Min Max	IC (mA) Max	toff (ns) Max	NF (dB) Max	Test Conditions	Process No.
						Min	Max	Min	Max	Min	Max								
BC308B-92	TO-92 (97)	30	25	5	100	100	0.01	0.18	0.78	10	10	71							
BC308C-92	TO-92 (97)	30	25	5	100	100	0.01	0.18	0.78	10	10	71							
BC309-92	TO-92 (97)	25	20	5	100	100	0.01	0.18	0.78	10	10	71							
BC309B-92	TO-92 (97)	25	20	5	100	100	0.01	0.18	0.78	10	10	71							
BC309C-92	TO-92 (97)	25	20	5	100	100	0.01	0.18	0.78	10	10	71							
BC317	TO-92 (92)	50	45	6	30	110	0.01	0.2	0.77*	10	4	04							
BC317A	TO-92 (92)	50	45	6	30	110	0.01	0.2	0.77*	10	4	04							
BC317B	TO-92 (92)	50	45	6	30	200	0.01	0.2	0.77*	10	4	04							
BC318	TO-92 (92)	30	20	5	30	110	0.01	0.2	0.77*	10	4	04							
BC318A	TO-92 (92)	30	20	5	30	110	0.01	0.2	0.77*	10	4	04							

TEST CONDITIONS:  
 (1) IC = 200 μA, VCE = 5V, f = 1 kHz. (2) IC = 100 mA, VCC = 20V, IB<sup>1</sup> = IB<sup>2</sup> = 5 mA. (3) IC = 200 μA, VCE = 2V, f = 1 kHz. (4) IC = 100 mA, VCC = 10V, IB<sup>1</sup> = IB<sup>2</sup> = 10 mA. (5) IC = 10 mA, VCC = 3V, IB<sup>1</sup> = IB<sup>2</sup> = 1 mA. (6) IC = 100 μA, VCE = 5V, f = 1 kHz. (7) IC = 1 mA, VCE = 10V, f = 200 kHz. (8) IC = 1 mA, VCE = 5V, f = 1 kHz. (9) IC = 150 mA, VCC = 6V, IB<sup>1</sup> = IB<sup>2</sup> = 15 mA. (10) IC = 10 μA, VCE = 5V, f = WB.

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35521 D

T-29-01

Pro Electron Series

PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>BE0</sub> (V)	I <sub>CS0</sub> <sup>*</sup> (mA)		h <sub>FE</sub> @ 1 kHz		I <sub>C</sub> & V <sub>CE</sub>		V <sub>CE(SAT)</sub> (V)		V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		I <sub>C</sub> (mA)	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						
BC318B	TO-92 (92)	30	20	5	30	20	200	450	2	5	0.2	0.5	0.77*	10	100	4						6	1	04
BC318C	TO-92 (92)	30	20	5	30	20	100	450	0.01	5	0.2	0.5	0.77*	10	100	4						6	1	04
BC319	TO-92 (92)	30	20	5	30	20	40	200	0.01	5	0.2	0.5	0.77*	10	100	4						4	1	04
BC319B	TO-92 (92)	30	20	5	30	20	200	450	0.01	5	0.2	0.5	0.77*	10	100	4						4	1	04
BC319C	TO-92 (92)	30	20	5	30	20	100	420	0.01	5	0.2	0.5	0.77*	10	100	4						4	1	04
BC327	TO-92 (97)	50†	45	5	100†	45	40	100	300	1	0.7				500	4						4	1	67
BC327-10	TO-92 (97)	50†	45	5	100†	45	40	160	300	1	0.7				500	4						4	1	67
BC327-16	TO-92 (97)	50†	45	5	100†	45	40	250	300	1	0.7				500	4						4	1	67
BC327-25	TO-92 (97)	50†	45	5	100†	45	40	400	300	1	0.7				500	4						4	1	67
BC328	TO-92 (97)	30†	25	5	100†	25	40	600	300	1	0.7				500	4						4	1	67
BC328-10	TO-92 (97)	30†	25	5	100†	25	40	160	300	1	0.7				500	4						4	1	67
BC328-16	TO-92 (97)	30†	25	5	100†	25	40	250	300	1	0.7				500	4						4	1	67
BC328-25	TO-92 (97)	30†	25	5	100†	25	40	400	300	1	0.7				500	4						4	1	67
BC337	TO-92 (97)	50†	45	5	100†	45	40	600	300	1	0.7				500	4						4	1	14
BC337-10	TO-92 (97)	50†	45	5	100†	45	40	160	300	1	0.7				500	4						4	1	14
BC337-16	TO-92 (97)	50†	45	5	100†	45	40	250	300	1	0.7				500	4						4	1	14
BC337-25	TO-92 (97)	50†	45	5	100†	45	40	400	300	1	0.7				500	4						4	1	14

6501130 NATL SEMICOND, (DISCRETE)

28C 35522

T-29-01



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>BO</sub> <sup>*</sup> (V) Min	V <sub>BO</sub> <sup>*</sup> (V) Max	I <sub>CB0</sub> <sup>*</sup> (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> & V <sub>CE</sub> (mA) & (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	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC338	TO-92 (97)	25	30†	5	100†	25	25	40 300 1	300 1	0.7	1.2*	500 300	4				4	1	14
BC338-10	TO-92 (97)	25	30†	5	100†	25	25	40 300 1	300 1	0.7	1.2*	500 300	4				4	1	14
BC338-16	TO-92 (97)	25	30†	5	100†	25	25	63 160 100 1	300 1	0.7	1.2*	500 300	4				4	1	14
BC338-25	TO-92 (97)	25	30†	5	100†	25	25	100 250 100 1	300 1	0.7	1.2*	500 300	4				4	1	14
BC415	TO-92 (97)	45	45	5	15	30	30	40 400 0.01 5	300 1	0.25	1.2*	10					2	10	71
BC415A	TO-92 (97)	45	45	5	15	30	30	120 800 2 5	5	0.6	1.2*	100					2	10	71
BC415B	TO-92 (97)	45	45	5	15	30	30	40 220 2 5	5	0.6	1.2*	100					2	10	71
BC415C	TO-92 (97)	45	45	5	15	30	30	100 460 2 5	5	0.6	1.2*	100					2	10	71
BC485	TO-92 (97)	45	45	5	100	30	30	380 800 2 5	5	0.6	1.2*	100					4	1	14
BC485A	TO-92 (97)	45	45	5	100	30	30	15 1A 5	5	0.5	1.2*	500 300	4				4	1	14
BC485B	TO-92 (97)	45	45	5	100	30	30	40 10 2	2	0.5	1.2*	500 300	4				4	1	14
BC485L	TO-92 (97)	45	45	5	100	30	30	100 250 100 2	2	0.5	1.2*	500 300	4				4	1	14
BC547	TO-92 (97)	50	50	6	10	20	20	15 1A 5	5	0.25	0.77*	10	4.5				10	1	04
BC547A	TO-92 (97)	50	50	6	10	20	20	40 10 2	2	0.6	0.55 0.70*	100	4.5				10	1	04

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

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Pro Electron Series

Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35523 D

T-29-01



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	VCES* VCBO (V) Min	VCEO (V) Min	VEBO (V) Min	ICES* ICBO (mA) Max	HFE h <sub>FE</sub> @ 1 kHz* Min Max	VCE(SAT) (V) Max	VBE(SAT) & VBE(ON)* (V)		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							
BC547B	TO-92 (97)	50	45	6	10	240	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC547C	TO-92 (97)	50	45	6	10	450	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC548	TO-92 (97)	30	20	5	10	125	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC548A	TO-92 (97)	30	20	5	10	125	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC548B	TO-92 (97)	30	20	5	10	240	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC548C	TO-92 (97)	30	20	5	10	450	0.25 0.6	0.77* 0.55	10 100	4.5				10	1	04
BC549	TO-92 (97)	30	20	5	10	240	0.25 0.6	0.77* 0.55	10 100	4.5				4	1	04
BC549B	TO-92 (97)	30	20	5	10	450	0.25 0.6	0.77* 0.55	10 100	4.5				4	1	04
BC549C	TO-92 (97)	30	20	5	10	240	0.25 0.6	0.77* 0.55	10 100	4.5				4	1	04
BC550	TO-92 (97)	50	45	5	10	450	0.25 0.6	0.77* 0.55	10 100					3	1	04
BC550B	TO-92 (97)	50	45	5	10	240	0.25 0.6	0.77* 0.55	10 100					3	1	04
BC550C	TO-92 (97)	50	45	5	10	450	0.25 0.6	0.77* 0.55	10 100					3	1	04
BC557	TO-92 (97)	50	45	5	100	75	0.3 0.65	0.82* 0.6	10 100					10	1	71

6501130 NATL SEMICOND, (DISCRETE)

28C 35524

T-29-01

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) Min	V <sub>BO</sub> (V) Min	I <sub>CB</sub> <sup>*</sup> I <sub>BO</sub> (mA) Max	H <sub>FE</sub> h <sub>FE</sub> 1 kHz Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE</sub> (SAT) (V) 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	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC557A	TO-92 (97)	50	45	5	100	20	2	0.3	0.82*	10					10	1	71
BC557B	TO-92 (97)	50	45	5	100	20	2	0.3	0.82*	10					10	1	71
BC558	TO-92 (97)	30	25	5	100	20	2	0.3	0.82*	10					10	1	71
BC558A	TO-92 (97)	30	25	5	100	20	2	0.3	0.82*	10					10	1	71
BC558B	TO-92 (97)	30	25	5	100	20	2	0.3	0.82*	10					10	1	71
BC558C	TO-92 (97)	30	25	5	100	20	2	0.3	0.82*	10					10	1	71
BC559	TO-92 (97)	25	20	5	100	20	2	0.3	0.82*	10					4	1	71
BC559A	TO-92 (97)	25	20	5	100	20	2	0.3	0.82*	10					4	1	71
BC559B	TO-92 (97)	25	20	5	100	20	2	0.3	0.82*	10					4	1	71
BC559C	TO-92 (97)	25	20	5	100	20	2	0.3	0.82*	10					4	1	71
BC560	TO-92 (97)	50	45	5	100	45	2	0.3	0.82*	10					2	1	71

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35525

D

T-29-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> * V <sub>CB0</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CE</sub> * 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 <sub>CE</sub> (V) (V)	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> * (V) (V)		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.
									Max	Min								
BC560A	TO-92 (97)	50	45	5	100	125 260*	2	0.3 0.65	0.82* 0.75* 2	10 100						2	1	71
BC560B	TO-92 (97)	50	45	5	100	240 500*	2	0.3 0.65	0.82* 0.75* 2	10 100						2	1	71
BC560C	TO-92 (97)	50	45	5	100	450 900*	2	0.3 0.65	0.82* 0.75* 2	10 100						2	1	71
BCX58	TO-92 (97)		32	7	10	120 630 80 1000	2 1						125	10	800	6	3/4	04
BCX58-7	TO-92 (97)		32	7	10	120 220 80 100	2 1						125	10	800	6	3/4	04
BCX58-8	TO-92 (97)		32	7	10	20 40 180 310 120 400	0.01 2 1						125	10	800	6	3/4	04
BCX58-9	TO-92 (97)		32	7	10	40 40 250 460 160 630	0.01 2 1						125	10	800	6	3/4	04
BCX58-10	TO-92 (97)		32	7	10	60 60 380 630 240 1000	0.01 2 1						125	10	800	6	3/4	04
BCX59	TO-92 (97)		45	7		120 630 80 1000	2 1	0.5	1.0	100			125	10	800		5	04
BCX59-7	TO-92 (97)		45	7		120 220 80 100	2 1	0.5	1.0	100			125	10	800		5	04
BCX59-8	TO-92 (97)		45	7		20 20 180 310 120 400	0.01 2 1	0.5	1.0	100			125	10	800		5	04
BCX59-9	TO-92 (97)		45	7		40 40 250 460 160 630	0.01 2 1	0.5	1.0	100			125	10	800		5	04

6501130 NATL SEMICOND, (DISCRETE)

28C 35526

D

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB</sub> (V) Min	V <sub>CE</sub> (V) Min	V <sub>EB</sub> (V) Min	I <sub>CB</sub> <sup>*</sup> I <sub>BO</sub> (mA) Max	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (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) 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.
BCX59-10	TO-92 (97)		45	7		100 630 2 240 1000 10 60	0.01 2 10 100 1	0.5	1.0	100		125	800		5	04
BCX78	TO-92 (97)		32	5		120 630 2 80 1000 10 40	2 5 10 100 1	0.6	1.0	100						71
BCX78-7	TO-92 (97)		32	5		120 220 2 80 100 10 40	2 5 10 100 1	0.6	1.0	100						71
BCX78-8	TO-92 (97)		32	5		30 180 310 120 400 10 45	0.01 2 10 100 1	0.6	1.0	100						71
BCX78-9	TO-92 (97)		32	5		40 250 460 160 630 10 60	0.01 2 5 10 100 1	0.6	1.0	100						71
BCX78-10	TO-92 (97)		32	5		100 380 630 240 1000 10 60	0.01 2 5 10 100 1	0.6	1.0	100						71
BCX79	TO-92 (97)		45	5		80 1000 10 40 630 2 120	10 1 100 2 5	0.6	1.0	100						71
BCX79-7	TO-92 (97)		45	5		120 220 2 80 100 10 40	2 5 10 100 1	0.6	1.0	100						71
BCX79-8	TO-92 (97)		45	5		120 400 10 45 30 180 310 2 160 630 10 40	10 1 100 2 5	0.6	1.0	100						71
BCX79-9	TO-92 (97)		45	5		160 630 10 60 40 250 460 2 120	10 1 100 2 5	0.6	1.0	100						71

T-29-01

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (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. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (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. (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. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (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. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

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Pro Electron Series



Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35527 D

T-29-01

PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> VCBO (V) Min	V <sub>BE</sub> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CB</sub> (mA) 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) 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.
BCX79-10	TO-92 (97)	45	5		0.6	1.0	100						71
BCY56	TO-18	45	5	100	0.6	0.7*	2				5	1	04
BCY57	TO-18	25	5	100	0.6	0.7*	2				5	1	04
BCY58	TO-18	32	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY58-7	TO-18	32	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY58-8	TO-18	32	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY58-9	TO-18	32	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY58-10	TO-18	32	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY59	TO-18	45	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY59-7	TO-18	45	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY59-8	TO-18	45	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04
BCY59-9	TO-18	45	7	10 <sup>†</sup>	0.35 0.7	0.85 1.2	10 100	6	125	800	6	4/1	04

6501130 NATL SEMICOND, (DISCRETE)

28C 35528

7-33-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup>		V <sub>CEO</sub> (V) Min	V <sub>BE</sub> (V) Min		I <sub>CS</sub> <sup>*</sup> (nA) Max	h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub> (V)		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz)		τ <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max		Min	Max		Min	Max	Min	Max		Min	Max				
BCY59-10	TO-18		45	45	7	10 <sup>†</sup>	45	40 100 1 80 1000 10 350 700* 2	1 1 5	0.35 0.6 0.85 10 0.7 0.75 1.2 100 0.55 0.7* 2	6	125 10 800	4/1	04				
BCY70	TO-18		40	40	5	10	40	0.1 1 45 1 50 10 15 50 1	1 1 1	0.25 0.6 0.9 10 0.5 1.2 50	6	250 10 420	5/6	71				
BCY71	TO-18	45	45	45	5	500	45	0.01 1 80 0.1 90 1 100 600 10	1 1 1	0.25 0.6 0.9 10 0.5 1.2 50	6	200 10 300	6	71				
BCY71A	TO-18	45	45	45	5	500	45	0.01 1 80 0.1 90 1 100 600 10	1 1 1	0.25 0.6 0.9 10 0.5 1.2 50	6	200 10 300	6	71				
BCY72	TO-18	25	25	25	5	500	20	1 1 50 10 50 10	1 1	0.25 0.6 0.9 10 0.5 1.2 50	6	200 10 420	5/6	71				
BD135	TO-126	45	45	45	5	100	30	500 2 40 250 50 2	2	0.5 1.0* 500		50 50 420 6	5/6	37				
BD135-6	TO-126	45	45	45	5	100	30	150 2 40 100 150 2	2	0.5 500		50 50 500		37				
BD135-10	TO-126	45	45	45	5	100	30	150 2 63 160 150 2	2	0.5 500		50 50 500		37				
BD135-16	TO-126	45	45	45	5	100	30	150 2 100 250 150 2	2	0.5 500		50 50 500		37				
BD136	TO-126	45	45	45	5	100	30	150 2 40 250 150 2	2	0.5 500		50 50 500		77				
BD136-6	TO-126	45	45	45	5	100	30	150 2 40 100 150 2	2	0.5 500		50 50 500		77				
BD136-10	TO-126	45	45	45	5	100	30	150 2 63 160 150 2	2	0.5 500		50 50 500		77				
BD136-16	TO-126	45	45	45	5	100	30	150 2 100 250 150 2	2	0.5 500		50 50 500		77				
BD137	TO-126	60	60	60	5	100	30	150 2 40 160 150 2	2	0.5 500		50 50 500		38				

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35529 D

T-33-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CE0</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>BE0</sub> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CE0</sub> @ (nA) Max	H <sub>FE</sub> h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (V) 2	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) 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.
BD137-6	TO-126	60	60	5	100	40 100	150 2	0.5		500		50	50				38
BD137-10	TO-126	60	60	5	100	63 160	150 2	0.5		500		50	50				38
BD138	TO-126	60	60	5	100	40 160	150 2	0.5		500		50	50				78
BD138-6	TO-126	60	60	5	100	40 100	150 2	0.5		500		50	50				78
BD138-10	TO-126	60	60	5	100	63 160	150 2	0.5		500		50	50				78
BD139	TO-126	80	80	5	100	25 500	500 2	0.5	1.0*	500		50	50	420	6	5/6	39
BD139-6	TO-126	80	80	5	100	40 160	500 2	0.5	1.0*	500		50	50				39
BD139-10	TO-126	80	80	5	100	25 500	500 2	0.5	1.0*	500		50	50				39
BD140	TO-126	80	80	5	100	40 160	500 2	0.5	1.0*	500		50	50	420	6	5/6	79
BD157	TO-126		250		100 μA	30 240	50 10										36
BD158	TO-126		300		100 μA	30 240	50 10										36
BD159	TO-126		350		100 μA	30 240	50 10										36
BD185	TO-126		30		100 μA	40 500	2 2A	1.0	1.2*	2A							4F
BD186	TO-126		30		100 μA	40 500	2 2A	1.0	1.5*	2A							5F
BD187	TO-126		45		100 μA	40 500	2 2A	1.0	1.5*	2A							4F
BD188	TO-126		45		100 μA	40 500	2 2A	1.0	1.5*	2A							5F
BD189	TO-126		60		100 μA	40 500	2 2A	1.0	1.5*	2A							4F
BD190	TO-126		60		100 μA	40 500	2 2A	1.0	1.5*	2A							5F
BD201	TO-220	60	45	5	10 μA	30 3A	2 2A	1.0	1.5*	3A		3	300	420	6	5/6	4A
BD202	TO-220	60	45	5	10 μA	30 3A	2 2A	1.0	1.5*	3A		3	300	420	6	5/6	5A

6501130 NATL SEMICOND, (DISCRETE)

28C 35530

F-33-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> VCBO (V) Min	V <sub>BE</sub> (V) Min	I <sub>CS</sub> <sup>*</sup> I <sub>CB</sub> (nA) Max	f <sub>FE</sub> f <sub>re</sub> @ I <sub>C</sub> & V <sub>CE</sub> 1 kHz* Min Max	V <sub>CE(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	e I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD203	TO-220	60	5		30 30	1.0	3A		3	300				4A
BD204	TO-220	60	5	10 μA	30 30	1.0	1.5* 3A							5A
BD220	TO-220	70			30 120	1.0	1.1* 500							4F
BD221	TO-220	40			30 120	1.0	1.3* 1A							4F
BD222	TO-220	60			20 80	1.0	1.5* 1.5A							4F
BD223	TO-220	70			30 120	1.0	1.1* 500							5F
BD224	TO-220	40			30 120	1.0	1.3* 1A							5F
BD225	TO-220	60			20 80	1.0	1.5* 1.5A							5F
BD233	TO-126	45		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	4F
BD234	TO-126	45		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	5F
BD235	TO-126	60		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	4F
BD236	TO-126	60		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	5F
BD237	TO-126	80		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	4F
BD238	TO-126	80		100 μA	25 40	0.6	1.3* 1A		3	250	420	6	5/6	5F
BD239	TO-220	45		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	4F
BD239A	TO-220	60		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	4F
BD239B	TO-220	80		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	4F
BD239C	TO-220	100		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	4F
BD240	TO-220	45		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	5F
BD240A	TO-220	80		200 μA*	15 40	0.7	1.3* 1A		3	200	420	6	5/6	5F

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35531 D

7-33-01

Pro Electron Series

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup>		V <sub>EB</sub>	I <sub>CS</sub> <sup>*</sup>		HFE		I <sub>C</sub> & V <sub>CE</sub>	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup>		C <sub>ob</sub>	f <sub>T</sub>		I <sub>C</sub>	t <sub>off</sub>	NF	Test Conditions	Process No.
		V <sub>CE0</sub>	V <sub>CEB</sub>		I <sub>CS0</sub>	V <sub>CB</sub>	h <sub>FE</sub>	h <sub>FE</sub>		Min	Max		Min	Max					
BD240B	TO-220	80	80		200 μA*	80	15	40	1A 4	0.7	1.3*	1A	3	200	420	6	5/6	5F	
BD240C	TO-220	100	100		200 μA*	100	15	40	1A 4	0.7	1.3*	1A	3	200	420	6	5/6	5F	
BD241	TO-220	80	45		200 μA*	45	10	25	3A 4	1.3	1.8*	3A	3	500	420	6	5/6	4F	
BD241A	TO-220	80	60		200 μA*	60	10	25	3A 4	1.3	1.8*	3A	3	500	420	6	5/6	4F	
BD241B	TO-220	80	80		200 μA*	80	10	25	3A 4	1.3	1.8*	3A	3	500	420	6	5/6	4F	
BD241C	TO-220	80	100		200 μA*	100	10	25	3A 4	1.3	1.8*	3A	3	500	420	6	5/6	4F	
BD242	TO-220	80	45		200 μA*	45	10	25	3A 4	1.2	1.8*	3A	3	500	420	6	5/6	5E	
BD242A	TO-220	80	60		200 μA*	60	10	25	3A 4	1.2	1.8*	3A	3	500	420	6	5/6	5E	
BD242B	TO-220	80	80		200 μA*	80	10	25	3A 4	1.2	1.8*	3A	3	500	420	6	5/6	5E	
BD242C	TO-220	80	100		200 μA*	100	10	25	3A 4	1.2	1.8*	3A	3	500	420	6	5/6	5E	
BD243	TO-220		45		400 μA*	45	30	15	300 4				3	500				4A	
BD243A	TO-220		60		400 μA*	60	30	15	300 4				3	500				4A	
BD243B	TO-220		80		400 μA*	80	30	15	300 4				3	500				4A	
BD243C	TO-220		100		400 μA*	100	30	15	300 4				3	500				4A	
BD244	TO-220		45		400 μA*	45	30	15	300 4				3	500				4A	
BD244A	TO-220		60		400 μA*	60	30	15	300 4				3	500				5A	
BD244B	TO-220		80		400 μA*	80	30	15	300 4				3	500				5A	
BD244C	TO-220		100		400 μA*	100	30	15	300 4				3	500				5A	
BD344	TO-126	60	60	5	500	60	60	40	50 200 1	0.4		200	50	50				78	

6501130 NATL SEMICOND, (DISCRETE)

28C 35532

D

*T-33-01*

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>BE0</sub> (V)	I <sub>CB0</sub> <sup>*</sup> (mA)		H <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub> 1 kHz <sup>*</sup>	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		C <sub>ob</sub> (pF)		f <sub>T</sub> (MHz)		t <sub>off</sub> (ns)	NF (dB)	Test Conditions	Process No.
		Min	Max	Min	Max		Min	Max		Min	Max	Min	Max	Min	Max				
BD345	TO-126	60	60	5	500	60	10	500	60	40	0.4	200	20	50	50				38
BD346	TO-220	60	60		10 μA	60	10	140	2A	2.5		200	4	4	250				5A
BD347	TO-220	60	60		10 μA	60	10	140	2A	2.5		200	4	4	250				4A
BD348	TO-126	80	80	5	500	80	10	500	60	0.5	250	17	50	50					79
BD349	TO-126	80	80		500	80	10	500	60	0.5	1.5* 250	15	50	50					39
BD370A	TO-237 (91)	45	45		100	45	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370A-10	TO-237 (91)	45	45		100	45	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370A-16	TO-237 (91)	45	45		100	45	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370A-25	TO-237 (91)	45	45		100	45	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370B	TO-237 (91)	60	60		100	60	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370B-10	TO-237 (91)	60	60		100	60	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370B-16	TO-237 (91)	60	60		100	60	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370B-25	TO-237 (91)	60	60		100	60	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370C	TO-237 (91)	80	80		100	80	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370-6	TO-237 (91)	80	80		100	80	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370C-10	TO-237 (91)	80	80		100	80	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78
BD370C-16	TO-237 (91)	80	80		100	80	100	400	100	0.7	1.2* 1A	30	50	50	200	420	6	5/6	78

**TEST CONDITIONS:** (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35533 D

T-33-01

Pro Electron Series

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	I <sub>CE0</sub> <sup>*</sup> (mA) Max	V <sub>CB</sub> (V)	HFE		I <sub>C</sub> & V <sub>CE</sub>		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup>		C <sub>cb</sub> (pF) Max	f <sub>T</sub>		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
							Min	Max	Min	Max	Min	Max		Min	Max					Min
BD370D	TO-237 (91)	100	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	79
BD370D-6	TO-237 (91)	100	80	25	500	500	2	25	500	100	1	0.7	1.2*	30	50	200	420	6	5/6	79
BD370D-10	TO-237 (91)	100	80	25	500	500	2	25	500	100	1	0.7	1.2*	30	50	200	420	6	5/6	79
BD371A	TO-237 (91)	45	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-10	TO-237 (91)	45	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-16	TO-237 (91)	45	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-25	TO-237 (91)	45	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B	TO-237 (91)	60	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-10	TO-237 (91)	60	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-16	TO-237 (91)	60	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-25	TO-237 (91)	60	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C	TO-237 (91)	80	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-6	TO-237 (91)	80	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-10	TO-237 (91)	80	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-16	TO-237 (91)	80	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	38
BD371D	TO-237 (91)	100	100	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	39
BD371D-6	TO-327 (91)	100	100	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	39
BD371D-10	TO-237 (91)	100	100	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	39
BD372A	TO-237 (90)	45	80	25	400	500	2	25	400	100	1	0.7	1.2*	30	50	200	420	6	5/6	78

6501130 NATL SEMICOND, (DISCRETE)

28C 35534

T-33-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> * V <sub>CSO</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CS</sub> * I <sub>CSO</sub> (mA) Max	V <sub>CB</sub> (V) Max	HFE h <sub>FE</sub> @ 1 kHz*		I <sub>C</sub> & V <sub>CE</sub> (mA) (V) Max	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> * (V) (V) Max Min		I <sub>C</sub> (mA) 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.
							Min	Max		Min	Max			Min	Max				
BD372A-10	TO-237 (90)	80	45		100	45	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372A-16	TO-237 (90)	80	45		100	45	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372A-25	TO-237 (90)	80	45		100	45	25 160	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372B	TO-237 (90)	80	60		100	60	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372B-10	TO-237 (90)	80	60		100	60	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372B-16	TO-237 (90)	80	60		100	60	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372B-25	TO-237 (90)	80	60		100	60	25 160	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372C	TO-237 (90)	80	80		100	80	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372C-6	TO-237 (90)	80	80		100	80	25 40	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372C-10	TO-237 (90)	80	80		100	80	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372C-16	TO-237 (90)	80	100		100	100	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	78
BD372D	TO-237 (90)	80	100		100	100	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	79
BD372D-6	TO-237 (90)	80	100		100	100	25 40	500 100	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	79
BD372D-10	TO-237 (90)	80	100		100	100	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	79
BD373A	TO-237 (90)	80	45		100	45	25 40	500 400	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	38
BD373A-10	TO-237 (90)	80	45		100	45	25 63	500 160	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	38
BD373A-16	TO-237 (90)	80	45		100	45	25 100	500 250	2 1	0.7	1.2*	1A	30	50	200	420	6	5/6	38

TEST CONDITIONS:  
 (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (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. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (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. (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. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (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. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35535 D

Pro Electron Series

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>BO</sub> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CB</sub> (mA) Max	V <sub>CE</sub> @ V <sub>CB</sub> (V)	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (V)	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) (V) Max Min	I <sub>C</sub> @ (mA)	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.
BD373A-25	TO-237 (90)	80	45	100	45	25 160	500 2 400 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373B	TO-237 (90)	80	80	100	80	25 40	500 2 400 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373B-10	TO-237 (90)	80	80	100	80	25 63	500 2 160 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/8	38
BD373B-16	TO-237 (90)	80	60	100	60	25 100	500 2 250 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/8	38
BD373B-25	TO-237 (90)	80	60	100	60	25 160	500 2 400 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373C	TO-237 (90)	80	80	100	80	25 40	500 2 400 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373C-6	TO-237 (90)	80	80	100	80	25 40	500 2 100 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373C-10	TO-237 (90)	80	80	100	80	25 63	500 2 160 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373C-16	TO-237 (90)	80	80	100	80	25 100	500 2 250 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD373D	TO-237 (90)	80	100	100	100	25 40	500 2 400 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	39
BD373D-6	TO-237 (90)	80	100	100	100	25 40	500 2 100 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	39
BD373D-10	TO-237 (90)	80	100	100	100	25 63	500 2 160 1	0.7 1.2 <sup>*</sup>	1A	30	50	200	420	6	5/6	39
BD375	TO-126	50	45	2 μA	45	20 40	1A 2 375 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD375-6	TO-126	50	45	2 μA	45	20 40	1A 2 150 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD375-10	TO-126	50	45	2 μA	45	20 63	1A 2 160 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD375-16	TO-126	50	45	2 μA	45	20 100	1A 2 250 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD375-25	TO-126	50	45	2 μA	45	20 150	1A 2 375 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	38
BD376	TO-126	50	45	2 μA	45	20 40	1A 2 375 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	78
BD376-6	TO-126	50	45	2 μA	45	20 40	1A 2 100 2	1.0 1.5 <sup>*</sup>	1A	30	50	200	420	6	5/6	78

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6501130 NATL SEMICOND, (DISCRETE)

28C 35536

D

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>ES0</sub> (V) Min	I <sub>CS</sub> <sup>*</sup> (mA) Max	HFE		I <sub>C</sub> & V <sub>CE</sub> @ (mA) & (V)	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
						Min	Max		Min	Max		Min	Max				
BD376-10	TO-126	50	45		2 μA	20	160	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD376-16	TO-126	50	45		2 μA	63	200	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD376-25	TO-126	50	45		2 μA	20	375	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD377	TO-126	75	60		2 μA	40	375	1A 2	1.0	1.5*	30	50	420	6	5/6	38	
BD377-6	TO-126	75	60		2 μA	40	100	1A 2	1.0	1.5*	30	50	420	6	5/6	38	
BD377-10	TO-126	75	60		2 μA	63	160	1A 2	1.0	1.5*	30	50	420	6	5/6	38	
BD377-16	TO-126	75	60		2 μA	20	250	1A 2	1.0	1.5*	30	50	420	6	5/6	38	
BD377-25	TO-126	75	60		2 μA	20	375	1A 2	1.0	1.5*	30	50	420	6	5/6	38	
BD378	TO-126	75	60		2 μA	40	375	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD378-6	TO-126	75	60		2 μA	20	100	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD378-10	TO-126	75	60		2 μA	63	160	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD378-16	TO-126	75	60		2 μA	20	250	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD378-25	TO-126	75	60		2 μA	20	375	1A 2	1.0	1.5*	30	50	420	6	5/6	78	
BD379	TO-126	100	80		2 μA	20	375	1A 2	1.0	1.5*	30	50	420	6	5/6	39	
BD379-6	TO-126	100	80		2 μA	40	100	1A 2	1.0	1.5*	30	50	420	6	5/6	39	

T-33-01

TEST CONDITIONS: (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35537 D

Pro Electron Series

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>CE0</sub> <sup>*</sup> (V) Max	V <sub>CB0</sub> <sup>*</sup> (V) Min	V <sub>CB0</sub> <sup>*</sup> (V) Max	I <sub>CB0</sub> <sup>*</sup> (mA) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	h <sub>FE</sub> 1 kHz <sup>*</sup> Min	h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Min	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) & (V)		V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) & (V)		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.
												Max	Min	Max	Min								
BD379-10	TO-126	80	80	2	80	2	2	20	63	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	39		
BD379-16	TO-126	80	80	2	80	2	2	100	250	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	39		
BD379-25	TO-126	80	80	2	80	2	2	150	375	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	39		
BD380	TO-126	80	80	2	80	2	2	40	375	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	79		
BD380-6	TO-126	80	80	2	80	2	2	40	100	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	79		
BD380-10	TO-126	80	80	2	80	2	2	63	160	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	79		
BD380-16	TO-126	80	80	2	80	2	2	100	250	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	79		
BD380-25	TO-126	80	80	2	80	2	2	150	375	1A	150	2	1.0	1.5*	1A	30	50	200	420	5/6	79		
BD433	TO-126	22	22	5	22	5	5	50	475	2A	500	1	0.5	1.1*	2A		3	250	420	5/6	4E		
BD434	TO-126	22	22	5	22	5	5	85	475	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	5E		
BD435	TO-126	32	32	5	32	5	5	50	475	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	4E		
BD436	TO-126	32	32	5	32	5	5	85	475	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	4E		
BD437	TO-126	45	45	5	45	5	5	40	236	2A	500	1	0.6	1.2*	2A	30	3	250	420	5/6	4E		
BD438	TO-126	45	45	5	45	5	5	40	236	2A	500	1	0.6	1.2*	2A	30	3	250	420	5/6	5E		
BD439	TO-126	60	60	5	60	5	5	25	236	2A	500	1	0.8	1.5*	2A	30	3	250	420	5/6	4E		

T-33-01

6501130 NATL SEMICOND, (DISCRETE)

28C 35538

T-33-01

Type No.	Case Style	V <sub>CE0</sub> (V)		V <sub>CE0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>CB0</sub> (V) Min	I <sub>CB0</sub> (mA) Max	h <sub>FE</sub> (1 kHz)		I <sub>C</sub> (mA) @ V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> (V)		I <sub>C</sub> (mA) @ V <sub>CE(SAT)</sub> (V)	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	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								
BD440	TO-126	60†	60	5	100 μA	60	25 40 20	2A 500 10	1 5	2A 500 10	0.8	1.5*	2A	80	3	250	420	6	5/6	5E
BD441	TO-126	80†	80	5	100 μA	80	15 40 15	2A 500 10	1 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	4E
BD442	TO-126	80†	80	5	100 μA	80	15 40 15	2A 500 10	1 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	5E
BD533	TO-220	80†	45	5	100 μA	45	25 40 20	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	4E
BD534	TO-220	80†	45	5	100 μA	45	25 40 20	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	5E
BD535	TO-220	80†	60	5	100 μA	60	25 40 20	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	4E
BD536	TO-220	80†	60	5	100 μA	60	25 40 20	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	5E
BD537	TO-220	80†	80	5	100 μA	80	15 40 15	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	4E
BD538	TO-220	80†	80	5	100 μA	80	15 40 15	2A 500 10	2 2 5	2A 500 10	0.8	1.5*	2A	30	3	250	420	6	5/6	5E
BD633	TO-220	45	45	5	200 μA†	45	25 40	1A 25	2	1A 25	0.6	1.3*	1A	30	3	250	420	6	5/6	4F
BD634	TO-220	45	45	5	200 μA†	45	25 40	1A 25	2	1A 25	0.6	1.3*	1A	30	3	250	420	6	5/6	5F
BD635	TO-220	60	60	5	200 μA†	60	25 40	1A 25	2	1A 25	0.6	1.3*	1A	30	3	250	420	6	5/6	4F

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.



PRO ELECTRON SERIES (Continued)

Pro Electron Series

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6501130 NATL SEMICOND, (DISCRETE)

28C 35539 D

Pro Electron Series

T-33-01

PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V <sub>CE0</sub> (V)		V <sub>BE0</sub> (V)	I <sub>CS0</sub> (mA)	I <sub>CB</sub> (mA)	h <sub>FE</sub> @ 1 kHz		I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> (V)		I <sub>C</sub> (mA)	C <sub>ob</sub> (pF)	f <sub>T</sub> (MHz)	I <sub>C</sub> (mA)	t <sub>off</sub> (ns)	NF (dB)	Test Conditions	Process No.
		Min	Max				Min	Max			Min	Max								
BD636	TO-220	60	60	5	200 μA†	60	25	40	1A	2	0.6	1.3*	1A	30	3	250	420	6	5/6	5F
BD637	TO-220	100	80	5	200 μA†	100	25	40	1A	2	0.6	1.3*	1A	30	3	250	420	6	5/6	4F
BD638	TO-220	100	80	5	200 μA†	100	25	40	1A	2	0.6	1.3	1A	30	3	250	420	6	5/6	5F
BD675	TO-126		45		200 μA	45	750		1.5A	3	2.5	2.5*	1.5A		1	1.5A				4J
BD675A	TO-126		45		200 μA	45	750		2A	3	2.8	2.5*	2A		1	1.5A				4J
BD676	TO-126		45		200 μA	45	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				5J
BD676A	TO-126		45		200 μA	45	750		2A	3V	2.5	2.5*	2A		1	1.5A				5J
BD677	TO-126		60		200 μA	60	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				4J
BD677A	TO-126		60		200 μA	60	750		2A	3V	2.8	2.5*	2A		1	1.5A				4J
BD678	TO-126		60		200 μA	60	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				5J
BD678A	TO-126		60		200 μA	60	750		2A	3V	2.8	2.5*	2A		1	1.5A				5J
BD679	TO-126		80		200 μA	80	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				4J
BD679A	TO-126		80		200 μA	80	750		2A	3V	2.8	2.5*	2A		1	1.5A				4J
BD680	TO-126		80		200 μA	80	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				5J
BD680A	TO-126		80		200 μA	80	750		2A	3V	2.8	2.5*	2A		1	1.5A				5J
BD681	TO-126		100		200 μA	100	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				4J
BD682	TO-126		100		200 μA	100	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				5J
BD733	TO-220	25	25	5	200 μA†	25	50	40	2A	1	0.6	1.1*	2A	1	1	1.5A				4F
BD734	TO-220	25	25	5	200 μA†	25	50	40	2A	1	0.6	1.1*	2A	1	1	1.5A				5E
BD735	TO-220	35	35	5	200 μA†	35	40	40	2A	4	0.6	1.1*	2A	1	1	1.5A				4F
BD736	TO-220	35	35	5	200 μA†	35	40	40	2A	1	0.6	1.1*	2A	1	1	1.5A				5E
BD737	TO-220	45	45	5	200 μA†	45	40	40	2A	4	0.6	1.1*	2A	1	1	1.5A				4F
BD738	TO-220	45	45	5	200 μA†	45	40	40	2A	1	0.8	1.1*	2A	1	1	1.5A				5E
BD795	TO-220		45		100	45	40	40	1A	2	1.0	1.6*	3A	3	3	250				4E
BD796	TO-220		45		100	45	40	40	1A	2	1.0	1.6*	2A	3	3	250				5E
BD797	TO-220		60		100 μA	60	40	40	1A	2	1.0	1.6*	3A	3	3	250				4E

6501130 NATL SEMICOND, (DISCRETE)

28C 35540

T-33-01

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	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Min	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> (V) Min	V <sub>BE(ON)</sub> (V) Max	I <sub>C</sub> (mA) Max	I <sub>C</sub> (mA) Min	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.
BD798	TO-220	60	100	60	100	100	100	40	25	1A	2	1.0	1.6*	3A	250	250		3					5E
BD799	TO-220	80	100	80	100	100	100	30	15	1A	2	1.0	1.6*	3A	250	250		3					4E
BD800	TO-220	80	100	80	100	100	100	30	15	1A	2	1.0	1.6*	3A	250	250		3					5E
BD801	TO-220	100	100	100	100	100	100	30	15	1A	2	1.0	1.6*	3A	250	250		3					4E
BD802	TO-220	100	100	100	100	100	100	30	15	1A	2	1.0	1.6*	3A	250	250		3					5E
BD895	TO-220	45	200	45	200	45	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD895A	TO-220	45	200	45	200	45	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD896	TO-220	45	200	45	200	45	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD896A	TO-220	45	200	45	200	45	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD897	TO-220	60	200	60	200	60	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD897A	TO-220	60	200	60	200	60	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD898	TO-220	60	200	60	200	60	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD898A	TO-220	60	200	60	200	60	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD899	TO-220	80	200	80	200	80	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD899A	TO-220	80	200	80	200	80	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD900	TO-220	80	200	80	200	80	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD900A	TO-220	80	200	80	200	80	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					5K
BD901	TO-220	100	200	100	200	100	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BD902	TO-220	100	200	100	200	100	200	750	45	3A	3	2.5*	2.5*	3A	3A	3A		1					4K
BDX33	TO-220	45	1 mA	45	1 mA	45	1 mA	750	45	4A	3	2.5*	2.5*	4A	1A	1A		20					4K
BDX33A	TO-220	60	1 mA	60	1 mA	60	1 mA	750	45	4A	3	2.5*	2.5*	4A	1A	1A		20					4K
BDX33B	TO-220	80	1 mA	80	1 mA	80	1 mA	750	45	3A	3	2.5*	2.5*	3A	1A	1A		20					4K
BDX33C	TO-220	100	1 mA	100	1 mA	100	1 mA	750	45	3A	3	2.5*	2.5*	3A	1A	1A		20					4K
BDX33D	TO-220	120	1 mA	120	1 mA	120	1 mA	750	45	3A	3	2.5*	2.5*	3A	1A	1A		20					4K
BDX34	TO-220	45	1 mA	45	1 mA	45	1 mA	750	45	4A	3	2.5*	2.5*	4A	1A	1A		20					5K
BDX34A	TO-220	60	1 mA	60	1 mA	60	1 mA	750	45	4A	3	2.5*	2.5*	4A	1A	1A		20					5K
BDX34B	TO-220	80	1 mA	80	1 mA	80	1 mA	750	45	3A	3	2.5*	2.5*	3A	1A	1A		20					5K

TEST CONDITIONS:  
 (1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

5

6501130 NATL SEMICOND, (DISCRETE)

28C 35541 D

Pro Electron Series

7-31-01

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>BE0</sub> (V) Min	I <sub>CE0</sub> <sup>*</sup> (mA) Max	V <sub>CB</sub> (V) Max	h <sub>FE</sub> 1 kHz <sup>*</sup>		I <sub>C</sub> & V <sub>CE</sub> (mA) & (V)	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	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
						Min	Max												
BDX34C	TO-220	100	100	1 mA	100	750	3A	3	2.5*	3A	1A		20						5K
BDX34D	TO-220	120	120	1 mA	120	750	3A	3	2.5*	3A	1A		20						5K
BF167	TO-72 (28)	40	40	100†	30	25	4	10	0.84*	4									45
BF180	TO-72 (25)	30	30	100	20	13	2	10											41
BF181	TO-72 (25)	30	30	100	20	13	2	10											41
BF194	TO-92 (98)	Same as BF254, see page 5-33 for explanation																	
BF195	TO-92 (98)	Same as BF255, see page 5-33 for explanation																	
BF196	TO-92 (98)	Same as BF198, see below for explanation																	
BF197	TO-92 (98)	Same as BF199, see below for explanation																	
BF198	TO-92 (98)	40	30	4	100	40	26	4	10	0.85*	4								45
BF199	TO-92 (98)	40	25	4	100	40	36	7	10				1100 typ	7					47
BF200	TO-72 (25)	30	20	3	100	40	15	3	10										41
BF233-2	TO-92 (96)	30	30	4	100	10	40	70	1	0.65	0.74*	1	1.0	150	1				49
BF233-3	TO-92 (96)	30	30	4	100	10	60	100	1	0.65	0.74*	1	1.0	150	1				49
BF233-4	TO-92 (96)	30	30	4	100	10	90	150	1	0.65	0.74*	1	1.0	150	1				49
BF233-5	TO-92 (96)	30	30	4	100	10	140	220	1	0.65	0.74*	1	1.0	150	1				49
BF237	TO-92 (98)	45	30	4	100	20	6	12	7	0.25	10								47
BF238	TO-92 (98)	45	30	4	100	20	6	12	7	0.25	10								47
BF240	TO-92 (98)	40	40	4	100	20	67	222	1	0.65	0.74*	1	0.34		1			3.5	7
BF241	TO-92 (98)	40	40	4	100	20	36	125	1	0.65	0.74*	1	0.34		1			3.5	7

6501130 NATL SEMICOND, (DISCRETE)

28C 35542

D



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V) Min	V <sub>BE0</sub> <sup>*</sup> (V) Min	I <sub>CB0</sub> <sup>*</sup> (mA) Max	h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) (V)	V <sub>CE(SAT)</sub> & 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							
BF254	TO-92 (98)	20	5	100	67 6	20 10 12 7	0.65	0.74*	1	0.34			3.5	7	46
BF255	TO-92 (98)	20	5	100	36 6	125 10 12 7	0.65	0.74*	1	0.34			3.5	7	46
BF257	TO-39	100	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BF258	TO-39	250	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BF259	TO-39	300	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BF457	TO-126	100	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BF458	TO-126	250	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BF459	TO-126	300	5	50	25 6	30 10 12 7	1.0	0.74*	30	0.34			3.5	7	48
BFX13	TO-18	20	5	50	10 50 18	100 2 250 10 1 2	0.2 0.25 1.5	0.78 0.9 1.5	1 10 100	6	150		10	8	66
BFX29	TO-5	20	5	50	40 50 40 20	150 10 50 10 10 10 0.1 10	0.4	1.3 0.9	150 30	.12	100	150	3	1	62
BFX30	TO-5	65	5	50	10 20 50 40	150 0.4 50 0.4 200 0.4 1 0.4	0.4	0.9 1.3	30 150	12		290		4	63
BFX37	TO-18	60	6	20†	100 100 0.85 70	10 5 1 5 0.1 5 300 0.01 5	0.4	1.0 0.9	50 10	6	40		3	1	62
BFX65	TO-18	45	6	10*	100 100 40	10 5 1 5 0.1 5	0.25	0.9	10	6.5			3	1	62

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TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35543 D

T-31-01

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	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V)	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)	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	f <sub>T</sub> (MHz) Max	I <sub>C</sub> (mA)	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BFX84	TO-39	45	100	6	100	500	1A	15	20	1A 10 500 10 30 150 10 20 10 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360			9	14
BFX85	TO-39	45	80	6	80	50	1A	15	30	1A 10 500 10 70 150 10 50 10 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360			9	14
BFX86	TO-39	45	30	6	30	50	1A	15	30	1A 10 500 10 70 150 10 50 10 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360			9	14
BFX87	TO-5	45	40	6	40	50	500	25	40	500 10 150 10 40 10 10 40 1 10	0.4 0.9 0.9	1.3 1.5 3.0	1.3 1.5 3.0	150 30	12	100	50	150			9	63
BFX88	TO-5	45	30	6	30	50	500	25	40	500 10 150 10 40 10 10 40 1 10	0.4 0.9 0.9	1.3 1.5 3.0	1.3 1.5 3.0	150 30	12	100	50	150			9	63
BFY39	TO-18	45	25	5	30	50	35	35	110	10 10 10 10 10 10	1.0	1.0	1.0	10		150	10					23
BFY39-1	TO-18	45	25	5	30	50	35	100	200	10 10 10 10 10 10	1.0	1.0	1.0	10		150	10					23
BFY39-2	TO-18	45	25	5	30	50	35	180	400	10 10 10 10 10 10	1.0	1.0	1.0	10		150	10					23
BFY39-3	TO-18	45	25	5	30	50	35	20	20	10 10 150 10 20 500 10 15 1A 10	1.0	1.0	1.0	10		150	10					23
BFY50	TO-18	80	35	6	80	500	10	30	40	10 10 150 10 20 500 10 15 1A 10	0.1	1.2	1.2	10	12	60	50	360			9	14
BFY51	TO-39	60	30	6	60	500	10	30	40	10 10 150 10 25 500 10 15 1A 10	0.1	1.2	1.2	10	12	60	50	360			9	14
BFY52	TO-39	40	20	6	60	500	10	30	60	10 10 150 10 30 500 10 15 1A 10	0.1	1.2	1.2	10	12	60	50	360			9	14
BFY56	TO-39	80	45	5	50	50	1	15	20	1 10 500 10 30 150 1 30 150 1	0.3 1.2	1.5 2.5	1.5 2.5	150 1A	25	40	50					14

6501130 NATL SEMICOND, (DISCRETE)

28C 35544

D



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> (V)		V <sub>CE0</sub> (V)	V <sub>BE0</sub> (V)		I <sub>CE</sub> <sup>*</sup> (mA)		h <sub>FE</sub> @ 1 kHz		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		C <sub>ob</sub> (pF)	f <sub>T</sub> (MHz)		t <sub>off</sub> (ns)	NF (dB)	Test Conditions	Process No.
		Min	Max		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Min	Max				
BFY72	TO-39	50	28	5	20	40*	15	20	0.1	10	0.25	1.2	150	8	50	50					19
BFY76	TO-18	45	45	6	30	20	30	200	0.01	5	0.35	1.6	500	6							
BSX21	TO-18		80				20	4	3						60	4					07
BSX45-6	TO-39	80*	40	7	60	10*	40	100	100	1	1.0	2.0	1A	20	60	50					14
BSX45-10	TO-39	80*	40	7	60	10*	63	160	100	1	1.0	2.0	1A	20	60	50					14
BSX45-16	TO-39	80*	40	7	60	10*	100	250	100	1	1.0	2.0	1A	20	60	50					14
BSX46-6	TO-39	100*	60	7	60	10*	40	100	100	1	1.0	2.0	1A	25	60	50					12
BSX46-10	TO-39	100*	60	7	60	10*	63	160	100	1	1.0	2.0	1A	25	60	50					12
BSX46-16	TO-39	100*	60	7	60	10*	100	250	100	1	1.0	2.0	1A	25	60	50					12
BSX48	TO-18	50	25	5	50	120	17	100	1	1.5	1.5	500	6	250	30						19
BSX88	TO-18	40	15	5	20	25	15	0.5	1	0.5	0.72	0.8	10	6	300	10					21
BSY38	TO-18	20	12	5	100	20	30	60	0.35	0.25	0.7	0.85	10	5	200	10	45	16			21
BSY39	TO-18	20	12	5	100	20	15	45	100	1	0.6	1.5	100	5	200	10	45	16			21
BSY51	TO-18	60	35	5	100	30	40	120	150	10	1.0	1.3	150	9	130	50					19
BSY62	TO-18	60	25	5	100	30	100	300	150	10	1.0	1.3	150	9	130	50					19
BSY63	TO-18	75	30	7	10	60	20	0.1	10	0.6	1.3	150	9	150	50						19

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TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 10 mA, V<sub>CE</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35545 D

Pro Electron Series

T-31-01



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>BE0</sub> (V)		I <sub>CB0</sub> @ V <sub>CB</sub> (mA)		HFE		I <sub>C</sub> & V <sub>CE</sub> (V)		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		I <sub>C</sub> & C <sub>ob</sub> (pF)		f <sub>T</sub> (MHz)		t <sub>off</sub> (ns)	NF (dB)	Test Conditions	Process No.
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max				
BSY54	TO-18	75	30	7	60	10	10	35	75	10	10	0.6	1.3	150	9	150	50	150			19
BSY95A	TO-18	20	15	5	16	50	10	30	200	10	0.35	0.67	0.87	10	6	10	200				21

TEST CONDITIONS:

(1) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (2) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 20V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (3) I<sub>C</sub> = 200 μA, V<sub>CE</sub> = 2V, f = 1 kHz. (4) I<sub>C</sub> = 100 mA, V<sub>CE</sub> = 10V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 10 mA. (5) I<sub>C</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 100 μA, V<sub>CE</sub> = 5V, f = 1 kHz. (7) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 10V, f = 200 kHz. (8) I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 5V, f = 1 kHz. (9) I<sub>C</sub> = 150 mA, V<sub>CE</sub> = 6V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA. (10) I<sub>C</sub> = 10 μA, V<sub>CE</sub> = 5V, f = WB.

