

Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35511 D

T-29-01

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>CS</sub> <sup>*</sup> I <sub>CB0</sub> (mA) Max	V <sub>CB</sub> (V)	HFE h <sub>FE</sub> 1 kHz Min	HFE h <sub>FE</sub> 1 kHz 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> (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.
BC107	TO-18	50	45	6	15*	50	40	125	0.01	0.6	0.55	100	4.5	150	10			1	04
BC107A	TO-18	50	45	6	15*	50	40	240	0.01	0.6	0.55	100	4.5	150	10			1	04
BC107B	TO-18	50	45	6	15*	50	40	240	0.01	0.6	0.55	100	4.5	150	10			1	04
BC108	TO-18	30	20	5	15*	30	40	125	0.01	0.6	0.55	100	4.5	150	10			1	04
BC108A	TO-18	30	20	5	15*	30	40	125	0.01	0.6	0.55	100	4.5	150	10			1	04
BC108B	TO-18	30	20	5	15*	30	40	240	0.01	0.6	0.55	100	4.5	150	10			1	04
BC108C	TO-18	30	20	5	15*	30	40	450	0.01	0.6	0.55	100	4.5	150	10			1	04
BC109	TO-18	30	20	5	15*	30	100	240	0.01	0.6	0.55	100	4.5	150	10			1	04
BC109B	TO-18	30	20	5	15*	30	100	240	0.01	0.6	0.55	100	4.5	150	10			1	04
BC109C	TO-18	30	20	5	15*	30	100	450	0.01	0.6	0.55	100	4.5	150	10			1	04
BC140	TO-39	80*	40	7	100*	60	40	40	250	1.0	1.8*	1A	25	50	50	850		2	14
BC140-6	TO-39	80*	40	7	100*	60	40	40	100	1.0	1.8*	1A	25	50	50	850		2	14
BC140-10	TO-39	80*	40	7	100*	60	63	160	100	1.0	1.8*	1A	25	50	50	850		2	14
BC140-16	TO-39	80*	40	7	100*	60	100	250	100	1.0	1.8*	1A	25	50	50	850		2	14
BC141	TO-39	100*	60	7	100*	60	40	250	100	1.0	1.8*	1A	25	50	50	850		2	14
BC141-6	TO-39	100*	60	7	100*	60	40	100	100	1.0	1.8*	1A	25	50	50	850		2	14
BC141-10	TO-39	100*	60	7	100*	60	63	160	100	1.0	1.8*	1A	25	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>BE0</sub> (V) Min	V <sub>BE0</sub> (V) Max	I <sub>CB0</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>		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	2	1.5	1.5	500	200	20	60	50					04	
BC146-2	TO-92 (94)	20	20	4	40	50	40	140	350	2	1.5	1.5	500	200	20	60	50					04	
BC146-3	TO-92 (94)	20	20	4	40	50	40	280	550	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)		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		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		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		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		1	04	
BC177	TO-18	50	45	5	100	110 125	2 500*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC177A	TO-18	50	45	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC177B	TO-18	50	45	5	100	110 240	2 500*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC177VI	TO-18	50	45	5	100	110 75	2 150*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC178	TO-18	30	25	5	100	110 125	2 900*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC178A	TO-18	30	25	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC178B	TO-18	30	25	5	100	110 240	2 500*	5 5	0.18	10 75*	4.5	150	10		1	71	
BC179	TO-18	25	20	5	100	110 125	2 900*	5 5	0.18	10 75*	4.5	150	4		1	71	
BC179A	TO-18	25	20	5	100	110 125	2 260*	5 5	0.18	10 75*	4.5	150	4		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	HFE h <sub>FE</sub> 1 kHz* 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> (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.
BC179B	TO-18	25	20	5	100	110	500*	2 5	0.18	0.78 10 0.75* 2	10	4.5	150	10		4	1	71
BC182	TO-92 (97)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC182A	TO-92 (97)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC182B	TO-92 (97)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC182L	TO-92 (94)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC182LA	TO-92 (94)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC182LB	TO-92 (94)	60	50	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC183	TO-92 (97)	45	30	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC183A	TO-92 (97)	45	30	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC183B	TO-92 (97)	45	30	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		10	1	04
BC183C	TO-92 (97)	45	30	5	15	40	500*	0.01 5	0.6	1.2 100 0.55 0.70* 2	10	5	150	10		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

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> (V) Min	I <sub>CE</sub> <sup>*</sup> I <sub>CB</sub> <sup>*</sup> (mA) Max	HFE h <sub>FE</sub> 1 kHz Min	HFE h <sub>FE</sub> 1 kHz 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) 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.
BC183L	TO-92 (94)	45	30	5	15	40	125	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC183LA	TO-92 (94)	45	30	5	15	40	80	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC183LB	TO-92 (94)	45	30	5	15	40	125	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC183LC	TO-92 (94)	45	30	5	15	40	240	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184	TO-92 (97)	45	30	5	15	100	450	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184B	TO-92 (97)	45	30	5	15	130	240	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184C	TO-92 (97)	45	30	50	15	100	450	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184L	TO-92 (94)	45	30	50	15	130	240	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184LB	TO-92 (94)	45	30	50	15	100	240	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC184LC	TO-92 (94)	45	30	50	15	100	450	0.01 100	0.6 0.25	1.2 0.70*	100 2	5	150	10			1	04
BC204	TO-92 (92)	50	45	5	50	50	50	450	0.3		10						1	71
BC207	TO-92 (92)	50	45	5	15	110	450	2	0.25 0.6		100	6					1	04
BC212	TO-92 (97)	60	50	5	15	60	400*	2	0.6 0.25	1.1 0.6	100 2	10	200	10			1	63

T-29-01

6501130 NATL SEMICOND, (DISCRETE)

28C 35516

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>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 60 300 2	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 60 300* 2	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 60 400* 2	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 80 600* 2	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 60 300* 2	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 60 400* 2	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 60 350 600* 2	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 80 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 80 300* 2	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)	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	I <sub>C</sub> (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
											Min	Max								
BC213LB	TO-92 (94)	45	30	5	15	30	40	80	0.01 5	0.6	1.1	100	10	200	10	10	63	1	63	
BC213LC	TO-92 (94)	45	30	5	15	30	200	400*	0.01 5	0.25	0.6	0.72*	10	200	10	10	63	1	63	
BC214	TO-92 (97)	45	30	5	15	30	80	350	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214A	TO-92 (97)	45	30	5	15	30	80	140	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214B	TO-92 (97)	45	30	5	15	30	40	80	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214C	TO-92 (97)	45	30	5	15	30	200	400*	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214L	TO-92 (94)	45	30	5	15	30	80	350	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214LB	TO-92 (94)	45	30	5	15	30	100	140	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214LC	TO-92 (94)	45	30	5	15	30	120	200	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC237-92	TO-92 (97)	50	45	6	50	20	100	140	0.01 5	0.25	0.77*	10	4.5	10	10	10	04	1	04	
BC237A-92	TO-92 (97)	50	45	6	50	20	125	500*	0.01 5	0.25	0.55	0.70*	2	10	10	10	04	1	04	

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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 Min	HFE h <sub>FE</sub> 1 kHz 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	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	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238A-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238B-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC238C-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				10	1	04
BC239-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC239B-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC239C-92	TO-92 (97)	30	20	5	50	100	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 0.6	10 100	4.5				4	1	04
BC261A	TO-18		45		50	100	100	0.01 5 2 5 100 5 500* 2 5	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 (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

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PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE</sub> <sup>*</sup> V <sub>CB0</sub> (V) Min	V <sub>CEO</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> @ V <sub>CE</sub> 1 kHz Min Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) 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.
BC308B-92	TO-92 (97)	30	25	5	100	100 140 120 240	0.18	0.78 1.0 0.75*	10 100					10	1	71
BC308C-92	TO-92 (97)	30	25	5	100	100 140 120 450	0.18	0.78 1.0 0.75*	10 100					10	1	71
BC309-92	TO-92 (97)	25	20	5	100	100 140 120 240	0.18	0.78 1.0 0.75*	10 100					4	1	71
BC309B-92	TO-92 (97)	25	20	5	100	100 140 120 240	0.18	0.78 1.0 0.75*	10 100					4	1	71
BC309C-92	TO-92 (97)	25	20	5	100	100 140 120 450	0.8	0.78 1.0 0.75*	10 100					4	1	71
BC317	TO-92 (92)	50	45	6	30	110 125	0.2 0.5	0.77* 0.72*	10 100	4				6	1	04
BC317A	TO-92 (92)	50	45	6	30	110 125	0.2 0.5	0.77* 0.72*	10 100	4				6	1	04
BC317B	TO-92 (92)	50	45	6	30	200 240	0.2 0.5	0.77* 0.72*	10 100	4				6	1	04
BC318	TO-92 (92)	30	20	5	30	110 125	0.2 0.5	0.77* 0.72*	10 100	4				6	1	04
BC318A	TO-92 (92)	30	20	5	30	110 125	0.2 0.5	0.77* 0.72*	10 100	4				6	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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6501130 NATL SEMICOND, (DISCRETE)

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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)		V <sub>CE(SAT)</sub> (V)		V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V)		C <sub>ob</sub> (pF)	f <sub>T</sub> (MHz)		I <sub>C</sub> (mA)	t <sub>off</sub> (ns)	NF (dB) Max	Test Conditions	Process No.
		Min	Max		Min	Max		Min	Max	Min	Max	Min	Max		Mfin	Max					
BC318B	TO-92 (92)	30	20	5	30	20	200 450 240	2 5	5	0.2 0.5	0.77* 0.72* 2	10 100	4					6	1	04	
BC318C	TO-92 (92)	30	20	5	30	20	100 450 240	0.01 5	5	0.2 0.5	0.77* 0.72* 2	10 100	4					6	1	04	
BC319	TO-92 (92)	30	20	5	30	20	40 200 240	0.01 5	5	0.2 0.5	0.77* 0.72* 2	10 100	4					4	1	04	
BC319B	TO-92 (92)	30	20	5	30	20	200 240	2 5	5	0.2 0.5	0.77* 0.72* 2	10 100	4					4	1	04	
BC319C	TO-92 (92)	30	20	5	30	20	100 420 450	0.01 2	5	0.2 0.5	0.77* 0.57* 2	10 100	4					4	1	04	
BC327	TO-92 (97)	50†	45	5	100†	45	40 100	300 100	1	0.7	12*	500 300	4					4	1	67	
BC327-10	TO-92 (97)	50†	45	5	100†	45	40 63	300 160	1	0.7	1.2*	500 300	4					4	1	67	
BC327-16	TO-92 (97)	50†	45	5	100†	45	40	300	1	0.7	1.2*	500	4					4	1	67	
BC327-25	TO-92 (97)	50†	45	5	100†	45	40	300	1	0.7	1.2*	500	4					4	1	67	
BC328	TO-92 (97)	30†	25	5	100†	25	160	400	100	1	1.2*	300	4					4	1	67	
BC328-10	TO-92 (97)	30†	25	5	100†	25	100	600	100	1	1.2	500	4					4	1	67	
BC328-16	TO-92 (97)	30†	25	5	100†	25	63	160	100	1	1.2	300	4					4	1	67	
BC328-25	TO-92 (97)	30†	25	5	100†	25	40	250	100	1	1.2	300	4					4	1	67	
BC337	TO-92 (97)	50†	45	5	100†	45	40	300	1	0.7	1.2	500	4					4	1	14	
BC337-10	TO-92 (97)	50†	45	5	100†	45	40	300	1	0.7	1.2	500	4					4	1	14	
BC337-16	TO-92 (97)	50†	45	5	100†	45	63	160	100	1	1.2	300	4					4	1	14	
BC337-25	TO-92 (97)	50†	45	5	100†	45	40	250	100	1	1.2	300	4					4	1	14	

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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>	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)	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.
BC338	TO-92 (97)	25	30†	5	100†	25	25	40 100 600	300 100 1	0.7	1.2*	500 300	4					4	1	14
BC338-10	TO-92 (97)	25	30†	5	100†	25	25	40 63 160	300 100 1	0.7	1.2*	500 300	4					4	1	14
BC338-16	TO-92 (97)	25	30†	5	100†	25	25	100 250	300 100 1	0.7	1.2*	500 300	4					4	1	14
BC338-25	TO-92 (97)	25	30†	5	100†	25	25	40 160 400	300 100 1	0.7	1.2*	500 300	4					4	1	14
BC415	TO-92 (97)	45	45	5	15	30	30	40 120 800	0.01 2 5	0.25 0.6		10						2	10	71
BC415A	TO-92 (97)	45	45	5	15	30	30	40 120 220	0.01 2 5	0.25 0.6		10						2	10	71
BC415B	TO-92 (97)	45	45	5	15	30	30	100 180 460	0.01 2 5	0.25 0.6		10						2	10	71
BC415C	TO-92 (97)	45	45	5	15	30	30	100 380 800	0.01 2 5	0.25 0.6		10						2	10	71
BC485	TO-92 (97)	45	45	5	100	30	30	15 40 60	1A 10 100	0.5	1.2*	500 300	4					4	1	14
BC485A	TO-92 (97)	45	45	5	100	30	30	15 40 100	1A 10 2	0.5	1.2*	500 300	4					4	1	14
BC485B	TO-92 (97)	45	45	5	100	30	30	15 40 160	1A 10 100	0.5	1.2*	500 300	4					4	1	14
BC485L	TO-92 (97)	45	45	5	100	30	30	15 40 60	1A 10 100	0.5	1.2*	500 300	4					4	1	14
BC547	TO-92 (97)	50	50	6	10	20	20	125	500* 2	0.25 0.6	0.77* 10	4.5						10	1	04
BC547A	TO-92 (97)	50	50	6	10	20	20	125	260* 2	0.25 0.6	0.77* 10	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 (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

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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) Min	V <sub>BO</sub> (V) Min	I <sub>CB</sub> <sup>*</sup> I <sub>BO</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	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	20	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC557B	TO-92 (97)	50	45	5	100	20	20	0.3 0.65	0.82* 0.6 0.75* 2	10 100					10	1	71
BC558	TO-92 (97)	30	25	5	100	20	20	0.3 0.65	0.82* 0.6 0.75 2	10 100					10	1	71
BC558A	TO-92 (97)	30	25	5	100	20	20	0.3 0.65	0.82* 0.6 0.75 2	10 100					10	1	71
BC558B	TO-92 (97)	30	25	5	100	20	20	0.3 0.65	0.82* 0.6 0.75 2	10 100					10	1	71
BC558C	TO-92 (97)	30	25	5	100	20	20	0.3 0.65	0.82* 0.6 0.75 2	10 100					10	1	71
BC559	TO-92 (97)	25	20	5	100	20	20	0.3 0.65	0.82* 0.6 0.75* 2	10 100					4	1	71
BC559A	TO-92 (97)	25	20	5	100	20	20	0.3 0.65	0.82* 0.6 0.75* 2	10 100					4	1	71
BC559B	TO-92 (97)	25	20	5	100	20	20	0.3 0.65	0.82* 0.6 0.75* 2	10 100					4	1	71
BC559C	TO-92 (97)	25	20	5	100	20	20	0.3 0.65	0.82* 0.6 0.75* 2	10 100					4	1	71
BC560	TO-92 (97)	50	45	5	100	45	45	0.3 0.65	0.82* 0.6 0.75* 2	10 100					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>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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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35525

D

T-29-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE(S)</sub> V <sub>CB(S)</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CS</sub> <sup>*</sup> I <sub>CB</sub> (mA) Max	HFE h <sub>fe</sub> 1 kHz Min Max	I <sub>C</sub> @ (mA) Max	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 Max	I <sub>C</sub> @ (mA) Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC560A	TO-92 (97)	50	45	5	100	125 260*	2	0.3 0.65	0.82*	10					2	1	71
BC560B	TO-92 (97)	50	45	5	100	240 500*	2	0.3 0.65	0.82*	10					2	1	71
BC560C	TO-92 (97)	50	45	5	100	450 900*	2	0.3 0.65	0.82*	10					2	1	71
BCX58	TO-92 (97)		32	7	10	120 630 80 1000	2					125	10	800	6	3/4	04
BCX58-7	TO-92 (97)		32	7	10	120 220 80 100	2					125	10	800	6	3/4	04
BCX58-8	TO-92 (97)		32	7	10	20 180 120 400	0.01					125	10	800	6	3/4	04
BCX58-9	TO-92 (97)		32	7	10	40 250 160 630	0.01					125	10	800	6	3/4	04
BCX58-10	TO-92 (97)		32	7	10	60 380 240 1000	0.01					125	10	800	6	3/4	04
BCX59	TO-92 (97)		45	7		120 630 80 1000	2	0.5	1.0	100		125	10	800		5	04
BCX59-7	TO-92 (97)		45	7		120 220 80 100	2	0.5	1.0	100		125	10	800		5	04
BCX59-8	TO-92 (97)		45	7		20 180 120 400	0.01	0.5	1.0	100		125	10	800		5	04
BCX59-9	TO-92 (97)		45	7		40 250 160 630	0.01	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) Min Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX59-10	TO-92 (97)		45	7		100 630 240 1000 60	0.01 2 10 100 1	0.5	1.0	100 100		125	800		5	04
BCX78	TO-92 (97)		32	5		120 630 80 1000 40	2 5 10 100 1	0.6	1.0	100 100						71
BCX78-7	TO-92 (97)		32	5		120 220 80 100 40	2 5 10 100 1	0.6	1.0	100 100						71
BCX78-8	TO-92 (97)		32	5		30 180 120 400 45	0.01 2 10 100 1	0.6	1.0	100 100						71
BCX78-9	TO-92 (97)		32	5		40 250 160 630 60	0.01 2 10 100 1	0.6	1.0	100 100						71
BCX78-10	TO-92 (97)		32	5		100 380 240 1000 60	0.01 2 10 100 1	0.6	1.0	100 100						71
BCX79	TO-92 (97)		45	5		80 1000 40 630 120	10 1 2 5	0.6	1.0	100 100						71
BCX79-7	TO-92 (97)		45	5		120 220 80 100 40	2 5	0.6	1.0	100 100						71
BCX79-8	TO-92 (97)		45	5		120 400 45 30 180 160	10 1 0.01 2 5	0.6	1.0	100 100						71
BCX79-9	TO-92 (97)		45	5		160 630 60 40 250	10 1 0.01 2 5	0.6	1.0	100 100						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	HFE h <sub>FE</sub> @ 1 kHz Min Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) 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		240 1000 10 1 60 100 1 100 0.01 5 380 630 2 5	0.6	1.0 100							71
BCY56	TO-18	45	5	100	40 10 5 100 450 2 5 125 500* 2 5 40 0.01 5	0.6	0.7* 2					5	1	04
BCY57	TO-18	25	5	100	200 10 5 200 800 2 5 240 900* 2 5 100 0.01 5	0.6	0.7* 2					5	1	04
BCY58	TO-18	32	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 125 700* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY58-7	TO-18	32	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 125 250* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY58-8	TO-18	32	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 175 350* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY58-9	TO-18	32	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 250 500* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY58-10	TO-18	32	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 350 700* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY59	TO-18	45	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 125 700* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY59-7	TO-18	45	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 125 250* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY59-8	TO-18	45	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 175 350* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		6	125	800	6	4/1	04
BCY59-9	TO-18	45	7	10 <sup>†</sup>	40 100 1 80 1000 10 1 250 500* 2 5	0.35 0.7	0.85 10 1.2 100 0.7* 2		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				
BCY59-10	TO-18	45	10 <sup>†</sup>	45	7	10 <sup>†</sup>	40	100	1	0.35	6	125	10	800	6	4/1	04
BCY70	TO-18	40	10	40	5	10	40	0.1	1	0.25	6	250	10	420	6	5/6	71
BCY71	TO-18	45	500	45	5	500	40	0.01	1	0.25	6	200	10		2	6	71
BCY71A	TO-18	45	500	45	5	500	40	0.01	1	0.25	6	300	10	420	2	6	71
BCY72	TO-18	25	500	25	5	500	40	1	1	0.25	6	200	10	420	6	5/6	71
BD135	TO-126	45	100	45	5	100	25	500	2	0.5	6	50	50	420	6	5/6	37
BD135-6	TO-126	45	100	45	5	100	40	150	2	0.5	6	50	50				37
BD135-10	TO-126	45	100	45	5	100	63	150	2	0.5	6	50	50				37
BD135-16	TO-126	45	100	45	5	100	100	150	2	0.5	6	50	50				37
BD136	TO-126	45	100	45	5	100	40	250	2	0.5	6	50	50				77
BD136-6	TO-126	45	100	45	5	100	40	150	2	0.5	6	50	50				77
BD136-10	TO-126	45	100	45	5	100	63	150	2	0.5	6	50	50				77
BD136-16	TO-126	45	100	45	5	100	100	150	2	0.5	6	50	50				77
BD137	TO-126	60	100	60	5	100	40	150	2	0.5	6	50	50				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(S)</sub> V <sub>CE(S)</sub> (V) Min	V <sub>CEO</sub> (V) Min	V <sub>BE(O)</sub> (V) Min	I <sub>CS</sub> <sup>*</sup> I <sub>CS(O)</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) Min Max	V <sub>CE(SAT)</sub> (V) Max	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.
BD137-6	TO-126	60	60	5	100	40 100	150 2	0.5		500		50				38
BD137-10	TO-126	60	60	5	100	63 160	150 2	0.5		500		50				38
BD138	TO-126	60	60	5	100	40 160	150 2	0.5		500		50				78
BD138-6	TO-126	60	60	5	100	40 100	150 2	0.5		500		50				78
BD138-10	TO-126	60	60	5	100	63 160	150 2	0.5		500		50				78
BD139	TO-126	80	80	5	100	25 500	500 2	0.5	1.0*	500		50	420	6	5/6	39
BD139-6	TO-126	80	80	5	100	40 160	500 2	0.5	1.0*	500		50				39
BD139-10	TO-126	80	80	5	100	25 500	500 2	0.5	1.0*	500		50				39
BD140	TO-126	80	80	5	100	40 160	500 2	0.5	1.0*	500		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	6	5/6	4A
BD202	TO-220	60	45	5	10 μA	30 3A	2 2A	1.0	1.5*	3A		3	300	6	5/6	5A

6501130 NATL SEMICOND, (DISCRETE)

28C 35530

F-33-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>BE0</sub> (V)	I <sub>CS</sub> <sup>*</sup> (nA)		h <sub>FE</sub> @ 1 kHz <sup>+</sup>		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> (mA)	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					
BD203	TO-220	60	60	5			30	30	2	2	1.0		3A		3					4A	
BD204	TO-220	60	60	5	10	40	30	30	2A	2	1.0	1.5*	3A							5A	
BD220	TO-220						30	120	500	4	1.0	1.1*	500							4F	
BD221	TO-220						30	120	1A	4	1.0	1.3*	1A							4F	
BD222	TO-220						20	80	1.5A	4	1.0	1.5*	1.5A							4F	
BD223	TO-220						30	120	300	4	1.0	1.1*	500							5F	
BD224	TO-220						30	120	1A	4	1.0	1.3*	1A							5F	
BD225	TO-220						20	80	1.5A	4	1.0	1.5*	1.5A							5F	
BD233	TO-126	45	45		100	45	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	4F
BD234	TO-126	45	45		100	45	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	5F
BD235	TO-126	60	60		100	60	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	4F
BD236	TO-126	60	60		100	60	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	5F
BD237	TO-126	80	80		100	80	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	4F
BD238	TO-126	80	80		100	80	25	1A	2	2	0.6	1.3*	1A		3		250	420	6	5/6	5F
BD239	TO-220	45	45		200	45	15	1A	4	4	0.7	1.3*	1A		3		200	420	6	5/6	4F
BD239A	TO-220	60	60		200	60	15	1A	4	4	0.7	1.3*	1A		3		200	420	6	5/6	4F
BD239B	TO-220	80	80		200	80	15	1A	4	4	0.7	1.3*	1A		3		200	420	6	5/6	4F
BD239C	TO-220	100	100		200	100	15	1A	4	4	0.7	1.3*	1A		3		200	420	6	5/6	4F
BD240	TO-220	45	45		200	45	15	1A	4	4	0.7	1.3*	1A		3		200	420	6	5/6	5F
BD240A	TO-220	80	80		200	80	15	1A	4	4	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									4A	
BD244A	TO-220		60		400 μA*	60	30	15	300 4									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	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>FE</sub> @ 1 kHz <sup>*</sup>	I <sub>C</sub> & V <sub>CE</sub>		V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup>		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
BD345	TO-126	60	60	5	500	60	10 μA	60	40	250	200	1	0.4	20	50	50					38
BD346	TO-220	60	60		10 μA	60	10 μA	60	40	140	2A	2.5		200	4	250					5A
BD347	TO-220	60	60		10 μA	60	10 μA	60	40	140	2A	2.5		200	4	250					4A
BD348	TO-126	80	80	5	500	80	100	80	60	250	250	1	0.5	17	50	50					79
BD349	TO-126	80	80		500	80	500	80	60	250	250	1	0.5	15	50	50					39
BD370A	TO-237 (91)	45	45		100	45	100	45	25	400	500	2	0.7	30	50	200		420	6	5/6	78
BD370A-10	TO-237 (91)	80	80		100	45	500	45	25	160	500	2	0.7	30	50	200		420	6	5/6	78
BD370A-16	TO-237 (91)	80	80		100	45	500	45	25	160	500	2	0.7	30	50	200		420	6	5/6	78
BD370A-25	TO-237 (91)	80	80		100	45	500	45	25	160	500	2	0.7	30	50	200		420	6	5/6	78
BD370B	TO-237 (91)	80	80		100	60	500	60	25	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370B-10	TO-237 (91)	80	80		100	60	500	60	25	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370B-16	TO-237 (91)	80	80		100	60	500	60	25	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370B-25	TO-237 (91)	80	80		100	60	500	60	25	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370C	TO-237 (91)	80	80		100	80	500	80	40	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370C-6	TO-237 (91)	80	80		100	80	500	80	40	400	100	1	0.7	30	50	200		420	6	5/6	78
BD370C-10	TO-237 (91)	80	80		100	80	500	80	25	160	500	2	0.7	30	50	200		420	6	5/6	78
BD370C-16	TO-237 (91)	80	80		100	80	500	80	25	160	500	2	0.7	30	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	V <sub>BE0</sub> (V) Max	I <sub>CE0</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) 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	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD370D	TO-237 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	79	
BD370D-6	TO-237 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	79	
BD370D-10	TO-237 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	79	
BD371A	TO-237 (91)	45	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371A-10	TO-237 (91)	45	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371A-16	TO-237 (91)	45	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371A-25	TO-237 (91)	45	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371B	TO-237 (91)	60	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371B-10	TO-237 (91)	60	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371B-16	TO-237 (91)	60	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371B-25	TO-237 (91)	60	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371C	TO-237 (91)	80	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371C-6	TO-237 (91)	80	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371C-10	TO-237 (91)	80	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371C-16	TO-237 (91)	80	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	38	
BD371D	TO-237 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	39	
BD371D-6	TO-327 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	39	
BD371D-10	TO-237 (91)	100	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	420	6	5/6	39	
BD372A	TO-237 (90)	45	80	40	80	100	25	400	500 2	400 1	0.7	1.2*	1A	200	30	50	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





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

T-33-01

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	h <sub>FE</sub> @ 1 kHz	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				
BD376-10	TO-126	50	45	45	2 μA	20 63	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD376-16	TO-126	50	45	45	2 μA	100	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD376-25	TO-126	50	45	45	2 μA	20 150	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD377	TO-126	75	60	60	2 μA	40 375	1A 150	1.0	1.5*	30	50	200	420	6	5/6	38
BD377-6	TO-126	75	60	60	2 μA	40 100	1A 150	1.0	1.5*	30	50	200	420	6	5/6	38
BD377-10	TO-126	75	60	60	2 μA	20 63	1A 150	1.0	1.5*	30	50	200	420	6	5/6	38
BD377-16	TO-126	75	60	60	2 μA	20 100	1A 150	1.0	1.5*	30	50	200	420	6	5/6	38
BD377-25	TO-126	75	60	60	2 μA	20 150	1A 150	1.0	1.5*	30	50	200	420	6	5/6	38
BD378	TO-126	75	60	60	2 μA	40 375	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD378-6	TO-126	75	60	60	2 μA	20 40	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD378-10	TO-126	75	60	60	2 μA	20 63	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD378-16	TO-126	75	60	60	2 μA	20 100	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD378-25	TO-126	75	60	60	2 μA	20 150	1A 150	1.0	1.5*	30	50	200	420	6	5/6	78
BD379	TO-126	100	80	80	2 μA	20 40	1A 150	1.0	1.5*	30	50	200	420	6	5/6	39
BD379-6	TO-126	100	80	80	2 μA	20 100	1A 150	1.0	1.5*	30	50	200	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)		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) 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	100	50	85	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	4E		
BD434	TO-126	22	22	5	22	5	100	50	85	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	5E		
BD435	TO-126	32	32	5	32	5	100	50	85	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	4E		
BD436	TO-126	32	32	5	32	5	100	50	85	2A	500	1	0.5	1.1*	2A	30	3	250	420	5/6	5E		
BD437	TO-126	45	45	5	45	5	100	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	100	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	100	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



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V <sub>CE0</sub> (V)		V <sub>CE0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>CB</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) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> (V)		I <sub>C</sub> (mA) @ V <sub>BE</sub> (V) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	I <sub>C</sub> (mA) @ V <sub>BE</sub> (V) Max	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 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 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 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 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 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 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 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



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

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6501130 NATL SEMICOND, (DISCRETE)

28C 35541 D

Pro Electron Series

7-31-01

Type No.	Case Style	V <sub>CE0</sub> <sup>*</sup> (V)		V <sub>BE0</sub> (V)		I <sub>CB0</sub> <sup>*</sup> (mA)		h <sub>FE</sub> @ 1 kHz		I <sub>C</sub> & V <sub>CE</sub> (V)		V <sub>CE(SAT)</sub> (V)		V <sub>BE(SAT)</sub> (V)		I <sub>C</sub> (mA)		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	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max		Min	Max					
BDX34C	TO-220	100	100	100	100	1 mA	100	3A	3	3A	3	2.5*	3A	1A					20	20	1A			5K	
BDX34D	TO-220	120	120	1 mA	120	1 mA	120	3A	3	3A	3	2.5*	3A	1A					20	20	1A			5K	
BF167	TO-72 (28)	40	30	4	100	100	30	4	10			0.84*	4											45	
BF180	TO-72 (25)	30	20	3	100	100	20	2	10															41	
BF181	TO-72 (25)	30	20	3	100	100	20	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	100	40	4	10	26	4	10	0.85*	4											45
BF199	TO-92 (98)	40	25	4	100	100	40	7	10	36	7	10								1100 typ	7				47
BF200	TO-72 (25)	30	20	3	100	100	40	3	10	15	3	10													41
BF233-2	TO-92 (96)	30	30	4	100	100	10	1	10	40	70	1	0.65	0.74*	1					150	1				49
BF233-3	TO-92 (96)	30	30	4	100	100	10	1	10	60	100	1	0.65	0.74*	1					150	1				49
BF233-4	TO-92 (96)	30	30	4	100	100	10	1	10	90	150	1	0.65	0.74*	1					150	1				49
BF233-5	TO-92 (96)	30	30	4	100	100	10	1	10	140	220	1	0.65	0.74*	1					150	1				49
BF237	TO-92 (98)	45	30	4	100	100	20			6	12	7	0.25	10											47
BF238	TO-92 (98)	45	30	4	100	100	20						0.25	10											47
BF240	TO-92 (98)	40	40	4	100	100	20	1	10	67	222	1	0.65	0.74*	1				0.34				3.5	7	47
BF241	TO-92 (98)	40	40	4	100	100	20	1	10	36	125	1	0.65	0.74*	1				0.34				3.5	7	47

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) Min Max	V <sub>CE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) (V) Max Min		I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
							V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(ON)</sub> <sup>*</sup> (V) Min							
BF254	TO-92 (98)	20	5	100	67 6	220 12	10 7	0.65	0.74*	1	0.34		3.5	7	46
BF255	TO-92 (98)	20	5	100	36 6	125 12	10 7	0.65	0.74*	1	0.34		3.5	7	46
BF257	TO-39	100	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BF258	TO-39	250	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BF259	TO-39	300	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BF457	TO-126	100	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BF458	TO-126	250	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BF459	TO-126	300	5	50	25 6	30 12	10 7	1.0	0.74*	30	0.34		3.5	7	48
BFX13	TO-18	20	5	50	10 50 18	100 250 1	2 0.35 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 50 10 0.1	10 10 10 10	0.4	1.3 0.9	150 30	.12		100	9	63
BFX30	TO-5	65	5	50	10 20 50 40	150 50 10 0.4	0.4 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 0.1 0.01	5 5 5	0.4 0.25	1.0 0.9	50 10	6		40	1	62
BFX65	TO-18	45	6	10*	100 100 40	10 5 0.1 0.01	5 5 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>CE</sub> <sup>*</sup> V <sub>CB</sub> (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	HFE h <sub>FE</sub> 1 kHz <sup>*</sup> Min Max	I <sub>C</sub> & V <sub>CE</sub> (mA) & (V) Min Max	V <sub>CE(SAT)</sub> (V) Max	V <sub>BE(SAT)</sub> & V <sub>BE(ON)</sub> <sup>*</sup> (V) Min Max	I <sub>C</sub> (mA) Min Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min Max	I <sub>C</sub> (mA) Min Max	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
BFX84	TO-39	45	45	6	500	15 20 30 20	1A 500 150 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360		9	14
BFX85	TO-39	45	45	6	50	15 30 70 50	1A 500 150 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360		9	14
BFX86	TO-39	45	45	6	50	15 30 70 50	1A 500 150 10	0.15 0.35 1.0 1.6	1.2 1.3 1.5 2.0	10 150 500 1A	12	50	50	360		9	14
BFX87	TO-5	45	50	6	50	25 40 40 40	500 150 10 1	0.4 0.35 1.0 1.6	1.3 1.3 1.5 2.0	150 30 500 1A	12	100	50	150		9	63
BFX88	TO-5	45	40	6	50	25 40 40 40	500 150 10 1	0.4 0.35 1.0 1.6	1.3 1.3 1.5 2.0	150 30 500 1A	12	100	50	150		9	63
BFY39	TO-18	45	25	5	50	35	400	1.0	1.0	10		150	10				23
BFY39-1	TO-18	45	25	5	50	35	110	1.0	1.0	10		150	10				23
BFY39-2	TO-18	45	25	5	50	100	200	1.0	1.0	10		150	10				23
BFY39-3	TO-18	45	25	5	50	180	400	1.0	1.0	10		150	10				23
BFY50	TO-18	80	35	6	500	20	10	0.1	1.2	10	12	60	50	360		9	14
BFY51	TO-39	60	30	6	500	30 40 25 15	10 150 10 1A	0.1	1.2	10	12	60	50	360		9	14
BFY52	TO-39	40	20	6	500	30 60 30 15	10 150 10 1A	0.1	1.2	10	12	60	50	360		9	14
BFY56	TO-39	80	45	5	50	15 20 30	1 500 150	0.3 1.2	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	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			500	20	4	3		0.9	4			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	10	0.35	0.25	0.7	0.85	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	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

Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35545 D

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)		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	9	150	50	150	50				19
BSY95A	TO-18	20	15	5	16	50	10	30	200	10	0.35	0.67	6	10	200	10						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.

