

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 _{CE} [*] V _{CB0} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	I _{CB0} [*] (mA) Max	V _{CB} (V) Min	HFE h _{FE} 1 kHz Min	HFE h _{FE} 1 kHz Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC107	TO-18	50	45	6	15*	50	40	500*	0.6	0.55	100	4.5	150	10		10	1	04
BC107A	TO-18	50	45	6	15*	50	40	260*	0.6	0.55	100	4.5	150	10		10	1	04
BC107B	TO-18	50	45	6	15*	50	40	500*	0.6	0.55	100	4.5	150	10		10	1	04
BC108	TO-18	30	20	5	15*	30	40	900*	0.6	0.55	100	4.5	150	10		10	1	04
BC108A	TO-18	30	20	5	15*	30	40	260*	0.6	0.55	100	4.5	150	10		10	1	04
BC108B	TO-18	30	20	5	15*	30	40	500*	0.6	0.55	100	4.5	150	10		10	1	04
BC108C	TO-18	30	20	5	15*	30	40	900*	0.6	0.55	100	4.5	150	10		10	1	04
BC109	TO-18	30	20	5	15*	30	100	500*	0.6	0.55	100	4.5	150	10		4	1	04
BC109B	TO-18	30	20	5	15*	30	100	900*	0.6	0.55	100	4.5	150	10		4	1	04
BC109C	TO-18	30	20	5	15*	30	100	900*	0.6	0.55	100	4.5	150	10		4	1	04
BC140	TO-39	80*	40	7	100*	60	40	250	1.0	1.8*	1A	25	50	50	850		2	14
BC140-6	TO-39	80*	40	7	100*	60	40	100	1.0	1.8*	1A	25	50	50	850		2	14
BC140-10	TO-39	80*	40	7	100*	60	63	160	1.0	1.8*	1A	25	50	50	850		2	14
BC140-16	TO-39	80*	40	7	100*	60	100	250	1.0	1.8*	1A	25	50	50	850		2	14
BC141	TO-39	100*	60	7	100*	60	40	250	1.0	1.8*	1A	25	50	50	850		2	14
BC141-6	TO-39	100*	60	7	100*	60	40	100	1.0	1.8*	1A	25	50	50	850		2	14
BC141-10	TO-39	100*	60	7	100*	60	63	160	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 _{CE} [*] (V) Min	V _{CE0} [*] (V) Min	V _{EB0} [*] (V) Min	I _{CS} [*] (mA) Max	V _{CB} (V) Max	HFE		I _C & V _{CE}		V _{CE(SAT)} & V _{BE(ON)} [*]		I _C		C _{ob} (pF) Max	f _T		t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
							Min	Max	Min	Max	Min	Max	Min	Max		Min	Max				
BC143	TO-5	60	60	5	50	40	20	200	2	1.5	1.5	500	200	20	60	50					63
BC146-1	TO-92 (94)	20	20	4	50	40	100	200	2	1.5	1.5	500	200	20	60	50					04
BC146-2	TO-92 (94)	20	20	4	50	40	140	350	2	1.5	1.5	500	200	20	60	50					04
BC146-3	TO-92 (94)	20	20	4	50	40	280	550	2	1.5	1.5	500	200	20	60	50					04
BC160	TO-39	40*	5	40	100	40	40	250	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC160-6	TO-39	40*	5	40	100	40	40	100	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC160-10	TO-39	40*	5	40	100	40	63	160	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC160-16	TO-39	40*	5	40	100	40	100	250	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC161	TO-39	60*	5	60	100	60	40	250	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC161-6	TO-39	60*	5	60	100	60	40	100	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC161-10	TO-39	60*	5	60	100	60	63	160	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC161-16	TO-39	60*	5	60	100	60	100	250	100	1.0	1.0	1.7*	1A	30	50	50	650			2	67
BC167	TO-92 (94)	60*	45	6	15*	50	110	500*	2	0.2	0.6	10	100	4.5	150	10			10		04
BC167A	TO-92 (94)	60*	45	6	15*	50	110	260*	2	0.2	0.6	10	100	4.5	150	10			10		04
BC167B	TO-92 (94)	60*	45	6	15*	50	110	500*	2	0.2	0.6	10	100	4.5	150	10			10		04
BC168	TO-92 (94)	60*	20	5	15*	30	110	900*	2	0.2	0.6	10	100	4.5	150	10			10		04
BC168A	TO-92 (94)	60*	20	5	15*	30	110	260*	2	0.2	0.6	10	100	4.5	150	10			10		04
BC168B	TO-92 (94)	60*	20	5	15*	30	110	500*	2	0.2	0.6	10	100	4.5	150	10			10		04

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TEST CONDITIONS:
 (1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 μA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35513 D

T-29-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} * V _{CB0} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	I _{CS} * I _{CB0} (mA) Max	H _{FE} h _{FE} 1 kHz* Min Max	I _C & V _{CE} (mA) & (V) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)*} (V) Min Max	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz)		I _C (mA) Max	t _{off} (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	

6501130 NATL SEMICOND, (DISCRETE)

28C 35514

T-29-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} [*] V _{CE0} (V) Min	V _{BE0} (V) Min	I _{CE} [*] I _{CB0} (mA) Max	HFE h _{FE} 1 kHz Min	HFE h _{FE} 1 kHz Max	I _C & V _{CE} (mA) & (V) Min	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC179B	TO-18	25	5	100	110	240	2 5	0.18	0.75 2	10	4.5	150	10		4	1	71
BC182	TO-92 (97)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC182A	TO-92 (97)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC182B	TO-92 (97)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC182L	TO-92 (94)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC182LA	TO-92 (94)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC182LB	TO-92 (94)	60	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC183	TO-92 (97)	45	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC183A	TO-92 (97)	45	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC183B	TO-92 (97)	45	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04
BC183C	TO-92 (97)	45	5	15	40	80	0.01 5	0.6	1.2 100	10	5	150	10		10	1	04

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 5V, f = WB.

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35515 D

Pro Electron Series

T-29-01

PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V _{CE} [*] V _{CB} (V) Min	V _{CE} [*] V _{CB} (V) Max	V _{EB} (V) Min	V _{EB} (V) Max	I _{CE} [*] I _{CB} (mA) Max	HFE h _{FE} @ 1 kHz Min	HFE h _{FE} @ 1 kHz Max	I _C & V _{CE} (mA) (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	V _{BE(ON)} [*] (V) Max	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC183L	TO-92 (94)	45	30	5	15	30	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	30	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	30	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	30	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	30	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	30	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	30	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	30	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	30	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	30	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	45	50	450	2	0.3		10						1	71	
BC207	TO-92 (92)	50	45	5	15	40	110	450	2	0.25 0.6		100	6					1	04	
BC212	TO-92 (97)	60	50	5	15	30	60	400*	2	0.6 0.25	1.1 0.6	100 0.72*	10	200	10			1	63	

6501130 NATL SEMICOND, (DISCRETE)

28C 35516

T-29-01



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} [*] V _{CB} (V) Min	V _{CE} (V) Min	V _{EB} (V) Min	I _{CB} (mA) Max	HFE h _{FE} 1 kHz* Min	I _C & V _{CE} (mA) & (V) Max	V _{CE} (SAT) (V) Max	V _{BE} (SAT) & V _{BE} (ON)* (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (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* 2	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* 2	100 10	10	200	10		10	1	63
BC212L	TO-92 (94)	60	50	5	15	40 60 300 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC212LA	TO-92 (94)	60	50	5	15	40 60 300* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC212LB	TO-92 (94)	60	50	5	15	40 60 400* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213	TO-92 (97)	45	30	5	15	40 60 80 600* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213A	TO-92 (97)	45	30	5	15	40 60 300* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213B	TO-92 (97)	45	30	5	15	40 60 400* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213C	TO-92 (97)	45	30	5	15	40 60 350 600* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213L	TO-92 (94)	45	30	5	15	40 80 80* 400 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63
BC213LA	TO-92 (94)	45	30	5	15	40 80 300* 2 5	0.01 5	0.6 0.25	1.1 0.72* 2	100 10	10	200	10		10	1	63

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*] V _{CB0} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	I _{CB0} [*] (mA) Max	I _{CB0} (mA) Max	HFE h _{FE} 1 kHz [*] Min	HFE h _{FE} 1 kHz [*] Max	I _C & V _{CE} (mA) (V) Min Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min Max		I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	I _C (mA) Max	t _{off} (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	80	200	0.01 5	0.25	0.6	100	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	80	200	0.01 5	0.6	1.1	100	10	200	10	2	63	1	63	
BC214C	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	
BC214L	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	
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	100	120	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	04	1	04	
BC237A-92	TO-92 (97)	50	45	6	50	20	100	125	0.01 5	0.25	0.55 0.70*	10	4.5			10	04	1	04	

6501130 NATL SEMICOND, (DISCRETE)

28C 35518
T-24-01

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} [*] V _{CB0} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	I _{CE} [*] I _{CB0} (mA) Max	HFE h _{FE} 1 kHz Min	I _C & V _{CE} (mA) & (V) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC237B-92	TO-92 (97)	50	45	6	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				10	1	04
BC238-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				10	1	04
BC238A-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				10	1	04
BC238B-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				10	1	04
BC238C-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				10	1	04
BC239-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				4	1	04
BC239B-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				4	1	04
BC239C-92	TO-92 (97)	30	20	5	50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				4	1	04
BC261A	TO-18		45		50	100	0.01 5 2 5 100 5 500* 2 5	0.25	0.77* 10 0.6 100	10	4.5				6	3	71

TEST CONDITIONS:
 (1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 μA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*] V _{CB} (V) Min	V _{CE} (V) Min	V _{EB} (V) Min	I _{CE} [*] I _{CB} (mA) Max	HFE h _{FE} 1 kHz Min	I _C & V _{CE} (mA) & (V) Max	V _{CE} (SAT) (V) Max	V _{BE} (SAT) & V _{BE} (ON) [*] (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	I _C (mA) Max	t _{off} (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		VCE(SAT) & VBE(ON)* (V)		VBE(SAT) & VBE(ON)* (V)		Cob (pF) Max	fT (MHz)		toff (ns) Max	NF (dB) Max	Test Conditions	Process No.
						hfe 1 kHz*	hfe 1 kHz*	Max	Min	Max	Min		Max	Min				
BC308B-92	TO-92 (97)	30	25	5	100	20	100	0.18	0.78	10	10						71	
BC308C-92	TO-92 (97)	30	25	5	100	20	100	0.18	0.78	10	10						71	
BC309-92	TO-92 (97)	25	20	5	100	20	100	0.18	0.78	10	4						71	
BC309B-92	TO-92 (97)	25	20	5	100	20	100	0.18	0.78	10	4						71	
BC309C-92	TO-92 (97)	25	20	5	100	20	100	0.8	0.78	10	4						71	
BC317	TO-92 (92)	50	45	6	30	20	110	0.2	0.77*	10	6	4					04	
BC317A	TO-92 (92)	50	45	6	30	20	125	0.5	0.57	10	6	4					04	
BC317B	TO-92 (92)	50	45	6	30	20	200	0.2	0.77*	10	6	4					04	
BC318	TO-92 (92)	30	20	5	30	20	110	0.2	0.77*	10	6	4					04	
BC318A	TO-92 (92)	30	20	5	30	20	125	0.5	0.57	10	6	4					04	

TEST CONDITIONS:
 (1) IC = 200 μA, VCE = 5V, f = 1 kHz. (2) IC = 100 mA, VCC = 20V, IB¹ = IB² = 5 mA. (3) IC = 200 μA, VCE = 2V, f = 1 kHz. (4) IC = 100 mA, VCC = 10V, IB¹ = IB² = 10 mA. (5) IC = 10 mA, VCC = 3V, IB¹ = IB² = 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, IB¹ = IB² = 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 _{CE0} [*] (V)		V _{BE0} (V)	I _{CS0} [*] (mA)		h _{FE} @ 1 kHz		I _C & V _{CE}		V _{CE(SAT)} (V)		V _{BE(SAT)} & V _{BE(ON)} [*] (V)		I _C (mA)	C _{ob} (pF)	f _T (MHz)		I _C (mA)	t _{off} (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	100	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	100	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 _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	V _{BO} [*] (V) Min	V _{BO} [*] (V) Max	I _{CB0} [*] (mA) Max	V _{CB} (V)	HFE h _{FE} 1 kHz [*] Min Max	I _C & V _{CE} (mA) (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	I _C (mA) Max	t _{off} (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_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CC} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CC} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CC} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CC} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{FE} @ 1 kHz* Min Max	VCE(SAT) (V) Max	VBE(SAT) & VBE(ON)* (V)		C _{ob} (pF) Max	f _T (MHz) Min Max	I _C @ (mA) Max	t _{off} (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 _{CE} [*] V _{CB} (V) Min	V _{CE} [*] (V) Min	V _{BO} (V) Min	I _{CB} [*] I _{BO} (mA) Max	h _{FE} h _{FE} 1 kHz Min Max	I _C & V _{CE} (mA) & (V) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} (V) Min Max	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min Max	I _C (mA) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC557A	TO-92 (97)	50	45	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC557B	TO-92 (97)	50	45	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC558	TO-92 (97)	30	25	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC558A	TO-92 (97)	30	25	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC558B	TO-92 (97)	30	25	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC558C	TO-92 (97)	30	25	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					10	1	71
BC559	TO-92 (97)	25	20	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					4	1	71
BC559A	TO-92 (97)	25	20	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					4	1	71
BC559B	TO-92 (97)	25	20	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					4	1	71
BC559C	TO-92 (97)	25	20	5	100	20	2	0.3 0.65	0.82* 0.75* 2	10 100					4	1	71
BC560	TO-92 (97)	50	45	5	100	45	2	0.3 0.65	0.82* 0.75* 2	10 100					2	1	71

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CC} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CC} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CC} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CC} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*] V _{CB} (V) Min	V _{CE} (V) Min	V _{EB} (V) Min	I _{CE} [*] I _{CB} (mA) Max	HFE h _{fe} 1 kHz Min Max	I _C & V _{CE} (mA) & (V)	V _{CE(SAT)} & V _{BE(SAT)} (V) & (V) Min Max	I _C & V _{BE(ON)} (mA) & (V) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	I _C (mA) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BC560A	TO-92 (97)	50	45	5	100	125 260*	2 5	0.3 0.65	0.82* 10					2	1	71
BC560B	TO-92 (97)	50	45	5	100	240 500*	2 5	0.3 0.65	0.82* 10					2	1	71
BC560C	TO-92 (97)	50	45	5	100	450 900*	2 5	0.3 0.65	0.82* 10					2	1	71
BCX58	TO-92 (97)		32	7	10	120 630	2 5				125	10	800	6	3/4	04
BCX58-7	TO-92 (97)		32	7	10	80 1000	1 1				125	10	800	6	3/4	04
BCX58-8	TO-92 (97)		32	7	10	120 220	2 5				125	10	800	6	3/4	04
BCX58-9	TO-92 (97)		32	7	10	40 100	1 1				125	10	800	6	3/4	04
BCX58-10	TO-92 (97)		32	7	10	20 310	2 5				125	10	800	6	3/4	04
						180 400	1 1				125	10	800	6	3/4	04
						120 400	1 1				125	10	800	6	3/4	04
						45 100	1 1				125	10	800	6	3/4	04
						250 460	2 5				125	10	800	6	3/4	04
						160 630	1 1				125	10	800	6	3/4	04
						60 100	1 1				125	10	800	6	3/4	04
						380 630	2 5				125	10	800	6	3/4	04
						240 1000	1 1				125	10	800	6	3/4	04
						60 100	1 1				125	10	800	6	3/4	04
BCX59	TO-92 (97)		45	7	10	120 630	2 5	0.5	1.0 100		125	10	800	6	5	04
BCX59-7	TO-92 (97)		45	7	10	80 1000	1 1				125	10	800	6	5	04
BCX59-8	TO-92 (97)		45	7	10	40 100	1 1				125	10	800	6	5	04
BCX59-9	TO-92 (97)		45	7	10	120 220	2 5	0.5	1.0 100		125	10	800	6	5	04
						80 1000	1 1				125	10	800	6	5	04
						40 100	1 1				125	10	800	6	5	04
						20 310	2 5	0.5	1.0 100		125	10	800	6	5	04
						180 400	1 1				125	10	800	6	5	04
						120 400	1 1				125	10	800	6	5	04
						45 100	1 1				125	10	800	6	5	04
						40 100	1 1				125	10	800	6	5	04
						250 460	2 5	0.5	1.0 100		125	10	800	6	5	04
						160 630	1 1				125	10	800	6	5	04
						60 100	1 1				125	10	800	6	5	04

6501130 NATL SEMICOND, (DISCRETE)

28C 35526

D

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} [*] V _{CB} (V) Min	V _{CE} (V) Min	V _{EB} (V) Min	I _{CB} [*] I _{BO} (mA) Max	HFE h _{fe} @ 1 kHz [*] Min Max	I _C & V _{CE} (V) @ (mA) (V) Min Max	V _{CE(SAT)} (V) Max & V _{BE(ON)} [*] (V) Min Max	I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	t _{off} (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		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						71
BCX78-7	TO-92 (97)		32	5		120 220 80 100 40	2 5 10 100 1	0.6	1.0 100						71
BCX78-8	TO-92 (97)		32	5		30 180 120 400 45	0.01 2 10 100 1	0.6	1.0 100						71
BCX78-9	TO-92 (97)		32	5		40 250 160 630 60	0.01 2 10 100 1	0.6	1.0 100						71
BCX78-10	TO-92 (97)		32	5		100 380 240 1000 60	0.01 2 10 100 1	0.6	1.0 100						71
BCX79	TO-92 (97)		45	5		80 1000 40 120 630	10 1 2 5	0.6	1.0 100						71
BCX79-7	TO-92 (97)		45	5		120 220	2 5	0.6	1.0 100						71
BCX79-8	TO-92 (97)		45	5		120 400 45 30 180 630	10 1 2 5	0.6	1.0 100						71
BCX79-9	TO-92 (97)		45	5		160 630 60 40 250 460	10 1 2 5	0.6	1.0 100						71

T-29-01

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CC} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CC} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CC} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CC} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*] VCBO (V) Min	V _{CE0} [*] (V) Min	V _{EB0} (V) Min	I _{CE} [*] I _{CB0} (mA) Max	HFE h _{FE} 1 kHz [*] Min Max	I _C & V _{CE} (mA) & (V) Min Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min Max	I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	I _C (mA) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BCX79-10	TO-92 (97)		45	5		240 60 100 380	1000 100 0.01 5	0.6	1.0 100								71
BCY56	TO-18		45	5	100	40 100 125 40	10 5 2 5 0.01 5	0.6	0.7 [*] 2						5	1	04
BCY57	TO-18	25	20	5	100	200 200 240 100	10 5 2 5 0.01 5		0.6 0.7 [*] 2						5	1	04
BCY58	TO-18		32	7	10 [†]	40 80 125	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY58-7	TO-18		32	7	10 [†]	40 80 125	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY58-8	TO-18		32	7	10 [†]	40 80 175	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY58-9	TO-18		32	7	10 [†]	40 80 250	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY58-10	TO-18		32	7	10 [†]	40 80 350	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY59	TO-18		45	7	10 [†]	40 80 125	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY59-7	TO-18		45	7	10 [†]	40 80 125	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY59-8	TO-18		45	7	10 [†]	40 80 175	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04
BCY59-9	TO-18		45	7	10 [†]	40 80 250	100 10 2 5	0.35 0.7	0.6 0.85 1.2 100 0.55 0.7 [*] 2	10 100 2	6	125	10	800	6	4/1	04

6501130 NATL SEMICOND, (DISCRETE)

28C 35528

7-33-01



PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} [*]		V _{CEO} (V) Min	V _{BE} (V) Min		I _{CS} [*] (nA) Max	h _{FE} @ I _C & V _{CE} (V)		V _{CE(SAT)} & V _{BE(ON)} [*] (V)		C _{ob} (pF) Max	f _T (MHz)		τ _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max		Min	Max		Min	Max	Min	Max		Min	Max				
BCY59-10	TO-18	45	10 ¹	45	7	45	100	1	40	0.35	0.6	6	125	10	800	6	4/1	04
BCY70	TO-18	40	10	40	5	40	0.1	1	45	0.75	0.9	6	250	10	420	6	5/6	71
BCY71	TO-18	45	500	45	5	45	0.01	1	80	0.55	1.2	6	200	10	420	2	6	71
BCY71A	TO-18	45	500	45	5	45	0.01	1	90	0.5	1.2	6	300	10	420	2	6	71
BCY72	TO-18	25	500	25	5	25	1	1	100	0.25	0.9	6	200	10	420	6	5/6	71
BD135	TO-126	45	100	45	5	45	500	2	25	0.5	1.0 [*]	6	50	50	420	6	5/6	37
BD135-6	TO-126	45	100	45	5	45	150	2	40	0.5	1.2	6	50	50	420	6	5/6	37
BD135-10	TO-126	45	100	45	5	45	150	2	25	0.5	1.2	6	50	50	420	6	5/6	37
BD135-16	TO-126	45	100	45	5	45	150	2	25	0.5	1.2	6	50	50	420	6	5/6	37
BD136	TO-126	45	100	45	5	45	150	2	40	0.5	1.2	6	50	50	420	6	5/6	37
BD136-6	TO-126	45	100	45	5	45	150	2	25	0.5	1.2	6	50	50	420	6	5/6	37
BD136-10	TO-126	45	100	45	5	45	150	2	25	0.5	1.2	6	50	50	420	6	5/6	37
BD136-16	TO-126	45	100	45	5	45	150	2	25	0.5	1.2	6	50	50	420	6	5/6	37
BD137	TO-126	60	100	60	5	60	150	2	25	0.5	1.2	6	50	50	420	6	5/6	38

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 5V, f = WB.

D

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 _{CE(S)} V _{CE(S)} (V) Min	V _{CEO} (V) Min	V _{BE(O)} (V) Min	I _{CS} [*] I _{CS(O)} @ (nA) Max	H _{FE} h _{FE} 1 kHz [*] Min Max	I _C & V _{CE} (mA) (V) 2	V _{CE(SAT)} (V) Max	V _{BE(ON)} [*] (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min Max	t _{off} (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 _{CE0} [*] (V)		V _{BE0} (V)	I _{CS} [*] (nA)		h _{FE} @ 1 kHz ⁺		I _C & V _{CE} (V)		V _{CE(SAT)} & V _{BE(ON)} [*] (V)		I _C (mA)	C _{ob} (pF)	f _T (MHz)		t _{off} (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		3A							5A	
BD220	TO-220						30	120	500	4	1.0		1.1*							4F	
BD221	TO-220						30	120	1A	4	1.0		1.3*							4F	
BD222	TO-220						20	80	1.5A	4	1.0		1.5*							4F	
BD223	TO-220						30	120	300	4	1.0		1.1*							5F	
BD224	TO-220						30	120	1A	4	1.0		1.3*							5F	
BD225	TO-220						20	80	1.5A	4	1.0		1.5*							5F	
BD233	TO-126	45	45		100	45	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	4F
BD234	TO-126	45	45		100	45	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	5F
BD235	TO-126	60	60		100	60	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	4F
BD236	TO-126	60	60		100	60	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	5F
BD237	TO-126	80	80		100	80	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	4F
BD238	TO-126	80	80		100	80	25	40	1A	2	0.6		1.3*		3		250	420	6	5/6	5F
BD239	TO-220	45	45		200	45	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	4F
BD239A	TO-220	60	60		200	60	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	4F
BD239B	TO-220	80	80		200	80	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	4F
BD239C	TO-220	100	100		200	100	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	4F
BD240	TO-220	45	45		200	45	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	5F
BD240A	TO-220	80	80		200	80	15	40	1A	4	0.7		1.3*		3		200	420	6	5/6	5F

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_C² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (9) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*]		V _{EB}	I _{CS} [*]		HFE		I _C & V _{CE}	V _{BE(SAT)} & V _{BE(ON)} [*]		C _{ob}	f _T		I _C	t _{off}	NF	Test Conditions	Process No.
		V _{CE0}	V _{CEB}		I _{CS0}	V _{CB}	h _{FE}	h _{FE}		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	0.4		200	50	50				78	

6501130 NATL SEMICOND, (DISCRETE)

28C 35532

D

T-33-01

PRO ELECTRON SERIES (Continued)

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

TEST CONDITIONS: (1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	V _{BE0} (V) Min	I _{CE0} [*] (mA) Max	V _{CB} (V)	HFE		I _C & V _{CE}		V _{CE(SAT)} & V _{BE(ON)} [*]		C _{cb} (pF) Max	f _T		t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
							Min	Max	Min	Max	Min	Max		Min	Max				
BD370D	TO-237 (91)	100	80	80	100	80	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	79
BD370D-6	TO-237 (91)	100	80	80	100	80	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	79
BD370D-10	TO-237 (91)	100	80	80	100	80	25	63	500	2	0.7	1.2*	30	50	200	420	6	5/6	79
BD371A	TO-237 (91)	45	80	45	100	45	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-10	TO-237 (91)	45	80	45	100	45	25	63	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-16	TO-237 (91)	45	80	45	100	45	25	100	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371A-25	TO-237 (91)	45	80	45	100	45	25	180	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B	TO-237 (91)	60	80	60	100	60	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-10	TO-237 (91)	60	80	60	100	60	25	63	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-16	TO-237 (91)	60	80	60	100	60	25	100	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371B-25	TO-237 (91)	60	80	60	100	60	25	160	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C	TO-237 (91)	80	80	80	100	80	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-6	TO-237 (91)	80	80	80	100	80	25	63	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-10	TO-237 (91)	80	80	80	100	80	25	100	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371C-16	TO-237 (91)	80	80	80	100	80	25	160	500	2	0.7	1.2*	30	50	200	420	6	5/6	38
BD371D	TO-237 (91)	100	80	100	100	100	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	39
BD371D-6	TO-327 (91)	100	80	100	100	100	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	39
BD371D-10	TO-237 (91)	100	80	100	100	100	25	63	500	2	0.7	1.2*	30	50	200	420	6	5/6	39
BD372A	TO-237 (90)	45	80	45	100	45	25	40	500	2	0.7	1.2*	30	50	200	420	6	5/6	78

6501130 NATL SEMICOND, (DISCRETE)

28C 35534

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PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE} * V _{CSO} (V) Min	V _{CEO} (V) Min	V _{EBO} (V) Min	I _{CS} * I _{CSO} (mA) Max	V _{CB} (V) Max	HFE h _{FE} @ 1 kHz*		I _C & V _{CE} (mA) (V) Max	V _{CE(SAT)} & V _{BE(ON)} * (V) (V) Max Min		I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) @ I _C (mA) Min Max		t _{off} (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_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CC} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CC} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CC} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CC} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE} [*] V _{CB} [*] (V) Min	V _{CE} [*] V _{CB} [*] (V) Min	V _{EB} [*] (V) Min	I _{CE} [*] I _{CB} [*] (mA) Max	HFE h _{FE} @ 1 kHz Min Max	I _C & V _{CE} (mA) & (V) Min Max	V _{CE(SAT)} & V _{BE(ON)} [*] (V) & (V) Min Max	I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD373A-25	TO-237 (90)	80	45		100	25 160	500 2 400 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373B	TO-237 (90)	80	80		100	25 40	500 2 400 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373B-10	TO-237 (90)	80	80		100	25 63	500 2 160 1	0.7 1.2*	1A 200	30	50	420	6	5/8	38
BD373B-16	TO-237 (90)	80	60		100	25 100	500 2 250 1	0.7 1.2*	1A 200	30	50	420	6	5/8	38
BD373B-25	TO-237 (90)	80	60		100	25 160	500 2 400 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373C	TO-237 (90)	80	80		100	25 40	500 2 400 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373C-6	TO-237 (90)	80	80		100	25 40	500 2 100 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373C-10	TO-237 (90)	80	80		100	25 63	500 2 160 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373C-16	TO-237 (90)	80	80		100	25 100	500 2 250 1	0.7 1.2*	1A 200	30	50	420	6	5/6	38
BD373D	TO-237 (90)	80	100		100	25 40	500 2 400 1	0.7 1.2*	1A 200	30	50	420	6	5/6	39
BD373D-6	TO-237 (90)	80	100		100	25 40	500 2 100 1	0.7 1.2*	1A 200	30	50	420	6	5/6	39
BD373D-10	TO-237 (90)	80	100		100	25 63	500 2 160 1	0.7 1.2*	1A 200	30	50	420	6	5/6	39
BD375	TO-126	50	45		2 μA	20 40	1A 2 375 2	1.0 1.5*	1A 200	30	50	420	6	5/6	38
BD375-6	TO-126	50	45		2 μA	20 40	1A 2 100 2	1.0 1.5*	1A 200	30	50	420	6	5/6	38
BD375-10	TO-126	50	45		2 μA	20 63	1A 2 160 2	1.0 1.5*	1A 200	30	50	420	6	5/6	38
BD375-16	TO-126	50	45		2 μA	20 100	1A 2 250 2	1.0 1.5*	1A 200	30	50	420	6	5/6	38
BD375-25	TO-126	50	45		2 μA	20 150	1A 2 375 2	1.0 1.5*	1A 200	30	50	420	6	5/6	38
BD376	TO-126	50	45		2 μA	20 40	1A 2 375 2	1.0 1.5*	1A 200	30	50	420	6	5/6	78
BD376-6	TO-126	50	45		2 μA	20 40	1A 2 100 2	1.0 1.5*	1A 200	30	50	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 _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	V _{ES0} (V) Min	I _{CS} [*] (mA) Max	h _{FE} @ 1 kHz [*] Min	h _{FE} @ 1 kHz [*] Max	I _C & V _{CE} (mA) & (V)	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min	I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz)		I _C (mA) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
													Min	Max					
BD376-10	TO-126	50	45		2 μA	20	160	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD376-16	TO-126	50	45		2 μA	63	200	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD376-25	TO-126	50	45		2 μA	20	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD377	TO-126	75	60		2 μA	40	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	38
BD377-6	TO-126	75	60		2 μA	40	100	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	38
BD377-10	TO-126	75	60		2 μA	63	160	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	38
BD377-16	TO-126	75	60		2 μA	20	250	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	38
BD377-25	TO-126	75	60		2 μA	20	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	38
BD378	TO-126	75	60		2 μA	40	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD378-6	TO-126	75	60		2 μA	20	100	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD378-10	TO-126	75	60		2 μA	63	160	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD378-16	TO-126	75	60		2 μA	20	250	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD378-25	TO-126	75	60		2 μA	20	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	78
BD379	TO-126	100	80		2 μA	20	375	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	39
BD379-6	TO-126	100	80		2 μA	40	100	1A 2	1.0	1.5*	1A	30		50	200	420	6	5/6	39

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TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	V _{CB0} [*] (V) Min	V _{CB0} [*] (V) Max	I _{CB0} [*] (mA) Min	I _{CB0} [*] (mA) Max	h _{FE} 1 kHz [*] Min	h _{FE} 1 kHz [*] Max	I _C & V _{CE} (mA) & (V) Min	I _C & V _{CE} (mA) & (V) Max	V _{CE(SAT)} & V _{BE(ON)} [*] (V) & (V)		I _C @ (mA)		C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	I _C (mA) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
												Min	Max	Min	Max								
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		

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6501130 NATL SEMICOND, (DISCRETE)

28C 35538

T-33-01

Type No.	Case Style	V _{CE0} (V)		V _{CE0} (V) Min	V _{CE0} (V) Min	V _{CB} (V) Min	I _{CB0} (mA) Max	h _{FE} @ 1 kHz*		I _C & V _{CE} (mA) (V)	V _{CE(SAT)} & V _{BE(ON)} * (V)		I _C (mA) Max	C _{ob} (pF) Max	f _T (MHz) Min	I _C (mA) Max	t _{off} (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	2A 500	1 5	0.8	1.5*	2A	80	3	250	420	6	5/6	5E	
BD441	TO-126	80†	80	5	100 μA	80	15 40	2A 500	1 5	0.8	1.5*	2A	30	3	250	420	6	5/6	4E	
BD442	TO-126	80†	80	5	100 μA	80	15 40	2A 500	1 5	0.8	1.5*	2A	30	3	250	420	6	5/6	5E	
BD533	TO-220	80†	45	5	100 μA	45	25 40	2A 500	2 5	0.8	1.5*	2A	30	3	250	420	6	5/6	4E	
BD534	TO-220	80†	45	5	100 μA	45	25 40	2A 500	2 5	0.8	1.5*	2A	30	3	250	420	6	5/6	5E	
BD535	TO-220	80†	60	5	100 μA	60	25 40	2A 500	2 5	0.8	1.5*	2A	30	3	250	420	6	5/6	4E	
BD536	TO-220	80†	60	5	100 μA	60	25 40	2A 500	2 5	0.8	1.5*	2A	30	3	250	420	6	5/6	5E	
BD537	TO-220	80†	80	5	100 μA	80	15 40	2A 500	2 5	0.8	1.5*	2A	30	3	250	420	6	5/6	4E	
BD538	TO-220	80†	80	5	100 μA	80	15 40	2A 500	2 5	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	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	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	0.6	1.3*	1A	30	3	250	420	6	5/6	4F	

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE0} (V)		V _{BE0} (V)	I _{CS0} (mA)	I _{CB} (mA)	h _{FE} @ 1 kHz		I _C (mA)	V _{CE} (V)	V _{BE(SAT)} & V _{BE(ON)} (V)		I _C (mA)	C _{ob} (pF)	f _T (MHz)	I _C (mA)	t _{off} (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				4J
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				5J
BD682	TO-126		100		200 μA	100	750		1.5A	3V	2.5	2.5*	1.5A		1	1.5A				4J
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	4	0.6	1.1*	2A	1	1	1.5A				5E
BD737	TO-220	45	45	5	200 μA†	45	40	40	2A	4	0.8	1.1*	2A	1	1	1.5A				4F
BD738	TO-220	45	45	5	200 μA†	45	40	40	2A	4	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

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PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	V _{BE0} (V) Min	V _{BE0} (V) Max	I _{CB0} [*] (mA) Max	I _{CB0} [*] (mA) Min	V _{CE0} [*] (V) Min	V _{CE0} [*] (V) Max	HFE I _B [*] 1 kHz [*] Min	HFE I _B [*] 1 kHz [*] Max	I _C (mA) Max	I _C (mA) Min	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	V _{BE(SAT)} (V) Max	I _C (mA) Max	I _C (mA) Min	C _{ob} (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
BD798	TO-220	60	100	60	100	100	100	1.0	1.0	40	25	1A	3A	1.0	1.6*	1.6*	1A	3A		3	250			5E	
BD799	TO-220	80	100	80	100	100	100	1.0	1.0	30	15	1A	3A	1.0	1.6*	1.6*	1A	3A		3	250			4E	
BD800	TO-220	80	100	80	100	100	100	1.0	1.0	30	15	1A	3A	1.0	1.6*	1.6*	1A	3A		3	250			5E	
BD801	TO-220	100	100	100	100	100	100	1.0	1.0	30	15	1A	3A	1.0	1.6*	1.6*	1A	3A		3	250			4E	
BD802	TO-220	100	100	100	100	100	100	1.0	1.0	30	15	1A	3A	1.0	1.6*	1.6*	1A	3A		3	250			5E	
BD895	TO-220	45	200	45	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			4K	
BD895A	TO-220	45	200	45	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			4K	
BD896	TO-220	45	200	45	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			5K	
BD896A	TO-220	45	200	45	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			5K	
BD897	TO-220	60	200	60	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			4K	
BD897A	TO-220	60	200	60	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			4K	
BD898	TO-220	60	200	60	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			5K	
BD898A	TO-220	60	200	60	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			5K	
BD899	TO-220	80	200	80	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			4K	
BD899A	TO-220	80	200	80	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			4K	
BD900	TO-220	80	200	80	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			5K	
BD900A	TO-220	80	200	80	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			5K	
BD901	TO-220	100	200	100	200	200	200	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		1	3A			4K	
BD901A	TO-220	100	200	100	200	200	200	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		1	3A			4K	
BDX33	TO-220	45	1 mA	45	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		20	1A			4K	
BDX33A	TO-220	60	1 mA	60	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		20	1A			4K	
BDX33B	TO-220	80	1 mA	80	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		20	1A			4K	
BDX33C	TO-220	100	1 mA	100	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		20	1A			4K	
BDX33D	TO-220	120	1 mA	120	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		20	1A			4K	
BDX34	TO-220	45	1 mA	45	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		20	1A			5K	
BDX34A	TO-220	60	1 mA	60	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	4A	4A	2.5*	2.5*	2.5*	4A	4A		20	1A			5K	
BDX34B	TO-220	80	1 mA	80	1 mA	1 mA	1 mA	2.5*	2.5*	750	750	3A	3A	2.5*	2.5*	2.5*	3A	3A		20	1A			5K	

TEST CONDITIONS:
 (1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE0} [*] (V)		V _{BE0} (V)		I _{CB0} [*] (mA)		h _{FE} @ 1 kHz		I _C & V _{CE} (V)		V _{CE(SAT)} (V)		V _{BE(SAT)} (V)		I _C (mA)		C _{ob} (pF) Max	f _T (MHz)		t _{off} (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†	30	100†	4	10			0.84*	4											45	
BF180	TO-72 (25)	30	20	3	100	20	100	2	10															41	
BF181	TO-72 (25)	30	20	3	100	20	100	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	100	4	10	26	4	10	0.85*	4							1100 typ				45
BF199	TO-92 (98)	40	25	4	100	40	100	7	10	36	7	10													47
BF200	TO-72 (25)	30	20	3	100	40	100	3	10	15	3	10													41
BF233-2	TO-92 (96)	30	30	4	100	10	100	1	10	40	1	10	0.65	0.74*	1						150				49
BF233-3	TO-92 (96)	30	30	4	100	10	100	1	10	60	1	10	0.65	0.74*	1						150				49
BF233-4	TO-92 (96)	30	30	4	100	10	100	1	10	90	1	10	0.65	0.74*	1						150				49
BF233-5	TO-92 (96)	30	30	4	100	10	100	1	10	140	1	10	0.65	0.74*	1						150				49
BF237	TO-92 (98)	45	30	4	100	20	100	10	7	6	12	7	0.25	10											47
BF238	TO-92 (98)	45	30	4	100	20	100	10	7	6	12	7	0.25	10											47
BF240	TO-92 (98)	40	40	4	100	20	100	1	10	67	222	1	0.65	0.74*	1						0.34			3.5	47
BF241	TO-92 (98)	40	40	4	100	20	100	1	10	36	125	1	0.65	0.74*	1						0.34			3.5	47

6501130 NATL SEMICOND, (DISCRETE)

28C 35542

D

PRO ELECTRON SERIES (Continued)

Type No.	Case Style	V _{CE0} [*] (V) Min	V _{BE0} [*] (V) Min	I _{CB0} [*] (mA) Max	h _{FE} 1 kHz [*] Min Max	I _C & V _{CE} (mA) (V) Min Max	V _{CE(SAT)} & V _{BE(ON)} [*] (V) (V) Max Min		I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
							V _{CE(SAT)} (V) Max	V _{BE(ON)} [*] (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 50 40 20	150 50 10 1 0.1	10 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 1	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 0.1 300	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	5 5 5	0.25	0.9	10	6.5		3	1	62

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TEST CONDITIONS:
 (1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 5V, f = WB.

Pro Electron Series

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Pro Electron Series

6501130 NATL SEMICOND, (DISCRETE)

28C 35543 D

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PRO ELECTRON SERIES (Continued)



Type No.	Case Style	V _{CE} [*] V _{CB} (V) Min	V _{CE} [*] (V) Min	V _{EB} (V) Min	I _{CB} [*] (mA) Max	HFE h _{FE} 1 kHz [*] Min Max	I _C & V _{CE} (mA) & (V) Min Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} & V _{BE(ON)} [*] (V) Min Max	I _C (mA) Min Max	C _{ob} (pF) Max	f _T (MHz) Min Max	I _C (mA) Min Max	t _{off} (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 0.9 0.9	1.3 1.5 2.0	150 30 1A	12	100	50	150		9	63
BFX88	TO-5	45	40	6	50	25 40 40 40	500 150 10 1	0.4 0.9 0.9	1.3 1.5 2.0	150 30 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 _{CE} [*] V _{CB} (V)		V _{CE} (V) Min	V _{BE} (V) Min	I _{CB} (mA) Max	HFE		V _{CE(SAT)} & V _{BE(ON)} [*] (V)		V _{BE(SAT)} & V _{BE(ON)} [*] (V)		C _{ob} (pF) Max	f _T (MHz)		t _{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
		Min	Max				Min	Max	Min	Max	Min	Max		Min	Max				
BFY72	TO-39	50	28	5	20	40*	15	20	0.25	1.2	150	8	50	50				19	
BFY76	TO-18	45	45	6	30	20	30	200	0.7	1.6	500	6							
BSX21	TO-18		80			500	20	4	0.9	4			60	4				07	
BSX45-6	TO-39	80*	40	7	60	10*	40	100	1.0	2.0	1A	20	60	50				14	
BSX45-10	TO-39	80*	40	7	60	10*	63	160	1.0	2.0	1A	20	60	50				14	
BSX45-16	TO-39	80*	40	7	60	10*	100	250	1.0	2.0	1A	20	60	50				14	
BSX46-6	TO-39	100*	60	7	60	10*	40	100	1.0	2.0	1A	25	60	50				12	
BSX46-10	TO-39	100*	60	7	60	10*	63	160	1.0	2.0	1A	25	60	50				12	
BSX46-16	TO-39	100*	60	7	60	10*	100	250	1.0	2.0	1A	25	60	50				12	
BSX48	TO-18	50	25	5	50	120	17	100	1.5	1.5	500	6	250	30				19	
BSX88	TO-18	40	15	5	20	25	15	0.5	0.5	0.72	0.8	6	300	10				21	
BSY38	TO-18	20	12	5	100	20	30	60	0.25	0.7	0.85	5	200	10	45		16	21	
BSY39	TO-18	20	12	5	100	20	15	45	0.6	1.5	100	5	200	10	45		16	21	
BSY51	TO-18	60	35	5	100	30	40	120	1.0	1.3	150	9	130	50				19	
BSY62	TO-18	60	25	5	100	30	100	300	1.0	1.3	150	9	130	50				19	
BSY63	TO-18	75	30	7	10	60	20	0.1	0.6	1.3	150	9	150	50				19	

T-31-01

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 10 mA, V_{CE} = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 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 _{CE0} [*] (V)		V _{BE0} (V)		I _{CB0} @ V _{CB} (mA)		HFE		I _C & V _{CE} (V)		V _{CE(SAT)} & V _{BE(ON)} [*] (V)		C _{ob} (pF)		f _T (MHz)		t _{off} (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
BSY55A	TO-18	20	15	5	16	50	10	30	200	10	0.35	0.67	6	10	6	200	10					21

TEST CONDITIONS:

(1) I_C = 200 μA, V_{CE} = 5V, f = 1 kHz. (2) I_C = 100 mA, V_{CE} = 20V, I_B¹ = I_B² = 5 mA. (3) I_C = 200 μA, V_{CE} = 2V, f = 1 kHz. (4) I_C = 100 mA, V_{CE} = 10V, I_B¹ = I_B² = 10 mA. (5) I_C = 3V, I_B¹ = I_B² = 1 mA. (6) I_C = 100 μA, V_{CE} = 5V, f = 1 kHz. (7) I_C = 1 mA, V_{CE} = 10V, f = 200 kHz. (8) I_C = 1 mA, V_{CE} = 5V, f = 1 kHz. (9) I_C = 150 mA, V_{CE} = 6V, I_B¹ = I_B² = 15 mA. (10) I_C = 10 μA, V_{CE} = 5V, f = WB.

6501130 NATL SEMICOND, (DISCRETE)

28C 35546

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Pro Electron Series

PRO ELECTRON SERIES (JFET)



Type No.	Case Style	BV _{GSS} BV _{GDO} (V) @ I _G (μA)	I _{GSS} I _{DGD} (mA) @ V _{GD} Max (V)	V _P (V) @ V _{DS} Min Max (V)	I _D (nA)	V _{GS} (V) @ V _{GS} Min Max (V)	I _D (μA)	I _{DSS} (mA) @ V _{DS} Min Max (V)	R _g (YFS) (mmho) @ f Min Max (MHz)	C _{iss} (pF) @ V _{DS} Typ (V)	V _{GS} (V)	C _{iss} (pF) @ V _{GS} Typ (V)	V _{GS} (V)	V _{GS} (V)	NF (dB) @ R _G = 1k f (Hz) * Max Typ (MHz)	Process No.	Pkg. No.						
BF244A	TO-92	30	1	.5	8	15	10	2	6.5	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	74
BF244B	TO-92	30	1	.5	8	15	10	6	15	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	74
BF244C	TO-92	30	1	.5	8	15	10	12	25	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	74
BF245A	TO-92	30	1	.5	8	15	10	2	6.5	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	77
BF245B	TO-92	30	1	.5	8	15	10	6	15	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	77
BF245C	TO-92	30	1	.5	8	15	10	12	25	15	3	6.5	.001	4	20	-1	1.1	20	-1	1.5	100	50	77
BF246A	TO-92	25	1	.6	14.5	15	10	30	80	15	8	.001	11	15	0	3.5	15	0				51	74
BF246B	TO-92	25	1	.6	14.5	15	10	60	140	15	8	.001	11	15	0	3.5	15	0				51	74
BF246C	TO-92	25	1	.6	14.5	15	10	110	250	15	8	.001	11	15	0	3.5	15	0				51	74
BF247A	TO-92	25	1	.6	14.5	15	10	30	80	15	8	.001	11	15	0	3.5	15	0				51	77
BF247B	TO-92	25	1	.6	14.5	15	10	60	140	15	8	.001	11	15	0	3.5	15	0				51	77
BF247C	TO-92	25	1	.6	14.5	15	10	110	250	15	8	.001	11	15	0	3.5	15	0				51	77
BF256A	TO-92	30	1	.5	20	15	10	3	7	15	4.5	.001	.7	20	-1	7.5	800					50	77
BF256B	TO-92	30	1	.5	20	15	10	6	13	15	4.5	.001	.7	20	-1	7.5	800					50	77
BF256C	TO-92	30	1	.5	20	15	10	11	18	15	4.5	.001	.7	20	-1	7.5	800					50	77
8C264A	TO-92	30	1	.5	15	10	10	2	4.5	15	2.5	.001	4.0	15	-1	40*	10*					50	77
BC264B	TO-92	30	1	.5	15	10	4	1.4	15	1500	3.5	3.0	.001	4.0	15	-1	40*	10*				50	77
BC264C	TO-92	30	1	.5	15	10	5	1.5	15	2500	5.0	8.0	.001	4.0	15	-1	40*	10*				50	77
BC264D	TO-92	30	1	.5	15	10	6	1.6	15	3500	7.0	12.0	.001	4.0	15	-1	40*	10*				50	77

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