

PNP Transistors

General Purpose Amplifiers and Switches



Type No.	Case Style	V _{CB0} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	I _{CE0} * I _{CB0} (nA) Max	I _{CE0} * V _{CB} (V)	h _{FE} @ I _C & V _{CE} (V)		V _{CE(SAT)} (V) & V _{BE(SAT)} (V) @ I _C (mA) Min 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							
2N2904	TO-5	60	40	5	20	50	500	10	0.4	8	200	100		(Note 2)	63
							150	10	1.6						
							500	10							
2N2904A	TO-5	60	60	5	10	50	500	10	0.4	8	200	100		(Note 2)	63
							150	10	1.6						
							500	10							
2N2905 also Avail. JAN/TX/V Versions	TO-5	60	40	5	20	50	500	10	0.4	8	200	100		(Note 2)	63
							300	10	1.6						
							150	10							
2N2905A also Avail. JAN/TX/V Versions	TO-5	60	60	5	10	50	500	10	0.4	8	200	100		(Note 2)	63
							300	10	1.6						
							150	10							
2N2906	TO-18	60	40	5	20	50	500	10	0.4	8	200	100		(Note 2)	63
							120	10	1.6						
							150	10							

General Purpose Amplifiers and Switches (Continued)

Type No.	Case Style	V _{CE0} (V) Min	V _{BE0} (V) Min	V _{CE0} (V) Min	V _{BE0} (V) Min	I _{CB0} (mA) Max	I _{CB0} (mA) Max	I _{CE0} (mA) Min	I _{CE0} (mA) Max	I _{FE} @ I _C & V _{CE} (V) Min	I _{FE} @ I _C & V _{CE} (V) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min	I _C (mA) Min	I _C (mA) Max	COB (pF) Max	f _T (MHz) Min	f _T (MHz) Max	t _{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
2N2906A	TO-18	60	5	60	5	10	50	40	500	40	120	0.4	1.3	150	500	8	200	50	100		(Note 2)	63
2N2907	TO-18	60	5	60	5	20	50	35	500	100	300	0.4	1.3	150	500	8	200	50	100		(Note 2)	63
also Avail. JAN/TX/V Versions								75	10	10	10	1.6	2.6	500								
2N2907A	TO-18	60	5	60	5	10	50	35	500	100	300	0.4	1.3	150	500	8	200	50	100		(Note 2)	63
also Avail. JAN/TX/V Versions								50	1	10	10	1.6	2.6	500								
2N3638		Same as PN3638																				
2N3638A		Same as PN3638A																				
2N3644		Same as PN3644																				
2N3645		Same as PN3645																				
2N3702	TO-92 (94)	40	5	40	5	100	20	60	300	50	5	0.25	1.5	100	50	12	100	50				63
2N3703	TO-92 (94)	50	5	50	5	100	20	30	150	50	5	0.25	1.5	100	50	12	100	50				63
2N4142		Same as PN4142																				
2N4143		Same as PN4143																				
2N4290	TO-92 (94)	30	5	30	5	500	20	50	300	100	10	0.4	1.5	100	10	10	100	10				63
2N4291	TO-92 (94)	40	6	40	6	200	30	100	300	100	10	0.4	1.5	100	10	10	100	10				63

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Type No.	Case Style	V _{CB0} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	I _{CS} [*] I _{CB0} (mA) Max	I _C (mA) & V _{CE} (V)	h _{FE} Min	h _{FE} 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.	
2N4402	TO-92 (94)	40	40	5		500 2 150 2 10 1 1 1	20 50 50 30	150 10 1	0.4 0.75	0.7 1.3	150 500	10	150	20	255		(Note 4)	63	
2N4403	TO-92 (92)	40	40	5		500 2 150 2 10 1 1 1	20 100 100 60 30	150 2 150 2 10 1 1 1	0.4 0.75	0.75 1.3	150 500	10	200	20	255		(Note 4)	63	
2N4971		Same as PN2906																	
2N4972		Same as PN2907																	
2N5142		Same as PN5142																	
2N5143		Same as PN5143																	
2N5221	TO-92 (92)	15	15	3	100 10	50 10 10 10	30 30	600 50 10 10	0.5	1.1	150	15	100	20				63	
2N5226	TO-92 (92)	25	25	4	300 15	50 10 10 10	30 25	600 50 10 10	0.8	1.0	100	20	50	20				63	
2N5354	TO-92 (94)	25	25	4	100 25	50 1	40	120 50	0.25		50	8						63	
2N5355	TO-92 (94)	25	25	4	100 25	50 1	100	300 50	0.25		50	8						63	
2N5365	TO-92 (94)	40	40	4	100 40	300 5 50 1	20 40	300 50 10 1	0.25	1.1	50	8						63	
2N5366	TO-92 (94)	40	40	4	100 40	300 5 50 1	40	300 50 2 1	0.25	1.1	50	8						63	
2N5447	TO-92 (97)	40	25	5		50 8	60	300 50	0.25		50	12	100	50				63	
2N5817	TO-92 (97)	50	40	5	100 25	500 2 2 2	25 100	500 2 200 2	0.75	1.2	500	15	100	50				63	

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Type No.	Case Style	V _{CB0} (V)		V _{CEO} (V)		V _{EBO} (V)		I _{CB0} [*] (nA)		V _{CB} (V)		h _{FE} @ I _C & V _{CE}		V _{CE(SAT)} (V) & V _{BE(SAT)} (V)		I _C (mA)		COB (pF)		f _T (MHz)		I _C (mA)	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	Min	Max	Min	Max						
MPC2907	TO-116	60	40	5	50	50	50	75	100	50	10	10	10	10	0.4	1.3	150	300	10	10	8	200	20				63
MPS3638	TO-92 (92)	Same as PN3638																									
MPS3638A	TO-92 (92)	Same as PN3638A																									
MPS3644	TO-92 (92)	Same as PN3644																									
MPS3645	TO-92 (92)	Same as PN3645																									
MPS3702	TO-92 (92)	40	25	5	100	20	60	300	50	5	0.25	50	12	100	50												63
MPS3703	TO-92 (92)	50	30	5	100	20	30	150	50	5	0.25	50	12	100	50												63
MPS6533	TO-92 (92)	40	40	4	50	30	25	40	120	100	1	1	1	1	0.5	1.0	100	6	6								63
MPS6534	TO-92 (92)	40	40	4	50	30	90	270	100	1	1	1	1	0.3	1.0	100	6	6									63
MPS6535	TO-92 (92)	30	30	4	100	20	30	100	1	1	0.5	100	6	6	0.5	1.2	100	6	6								63
PN2906	TO-92 (92)	60	40	5	20	50	20	40	120	150	10	10	10	10	0.4	1.3	150	500	10	8	200	50	100			(Note 2)	63

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Type No.	Case Style	V _{CB0} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	ICES* I _{CB0} (mA) Max	V _{CB} (V) Min	I _{FE} @ I _C & V _{CE} (mA) Min Max	V _{CE(SAT)} (V) & V _{BE(SAT)} (V) @ I _C (mA) Max Min	COB (pF) Max	f _T (MHz) Min Max	I _C (mA) Max	t _{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
PN2906A	TO-92 (92)	60	60	5	10	50	40	0.4	8	200	50	100		(Note 2)	63
							40	1.6							
PN2907	TO-92 (92)	60	40	5	20	50	30	0.4	8	200	50	100		(Note 2)	63
							100	1.6							
PN2907A	TO-92 (92)	60	60	5	20	50	50	0.4	8	200	50	100		(Note 2)	63
							100	1.6							
PN3638	TO-92 (92)	25	25	4	35*	15	20	0.25	20	100	50	170		(Note 1)	63
							30	1.0							
PN3636A	TO-92 (92)	25	25	4	25*	15	20	0.25	10	150	50	170		(Note 1)	63
							80	1.0							
PN3644	TO-92 (92)	45	45	5	35*	30	20	0.25	8	200	20	100		(Note 4)	63
							100	0.4							
PN3645	TO-92 (92)	60	60	5	35*	50	20	0.25	8	200	20	100		(Note 4)	63
							80	1.0							

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General Purpose Amplifiers and Switches (Continued)

Type No.	Case Style	V _{CB0} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	I _{CS} [*] ICBO @ V _{CB} (nA) Max	I _{CE} @ V _{CE} & I _C (mA) Min Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) Min Max	I _C (mA) Max	C _{OB} (pF) Max	f _T (MHz) @ I _C (mA)		I _{OFF} (nA) Max	NF (dB) Max	Test Conditions	Process No.
											h _{FE} Min	h _{FE} Max				
PN4142	TO-92 (92)	60	40	5		500 10	0.4	1.3	150	8	200	50	100		(Note 12)	63
						150 1		2.6								
						40 120 150 10 10 35 10 10 25 1 10 20 0.1 10		1.6								
PN4143	TO-92 (92)	60	40	5		500 10	0.4	1.3	150	8	200	50	100		(Note 12)	63
						150 1		2.6								
						100 300 150 10 10 75 10 10 50 1 10 35 0.1 10		1.6								
PN5142	TO-92 (92)	20	20	4	50*	300 10	0.5	1.5	50	10	100	50	200		(Note 1)	63
						50 1		2.5								
PN5143	TO-92 (92)	20	20	4	50*	300 10	0.5	1.5	50	10	100	50	200		(Note 1)	63
						50 1		2.5								
TIS91	TO-92 (94)	40	40	4	100 20	50 2	0.25	0.6	1.0							63
TIS92	TO-92 (97)	40	40	5	100 20	50 2	0.25	0.6	1.0							63
TIS93	TO-92 (97)	40	40	5	100 20	50 2	0.25									63
TN2904A	TO-237 (91)	60	60	5	10 50	0.1 10	0.4	1.3	150	8	200	50	100		(Note 2)	63
						1.0 10		2.6								
TN2905	TO-237 (91)	60	40	5	20 50	500 10	0.4	1.3	150	8	200	50	100		(Note 2)	63
						150 10		2.6								

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Type No.	Case Style	V _{CB0} (V) Min	V _{CE0} (V) Min	V _{EB0} (V) Min	I _{CB0} (mA) Max	V _{CB} (V) Max	I _{CB0} (mA) Max	h _{FE} Min	I _C (mA) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (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.
TN2905A	TO-237 (91)	60	60	5	10	50	500	10	10	0.4	1.3	150	8	200	50	100		(Note 2)	63
2N3905	TO-92 (92)	40	40	5			15	100	1	0.25	0.65	10	4.5	200	10	260	5	(Notes 5, 8)	66
							30	50	1	0.4	0.95	50							
2N3906	TO-92 (92)	40	40	5			30	100	1	0.25	0.65	10	4.5	250	10	300	4	(Notes 5, 8)	66
							80	50	1	0.4	0.95	50							
2N4121		Same as PN4121																	
2N4122		Same as PN4122																	
2N4125	TO-92 (92)	30	30	4	50	20	25	50	1	0.4	0.95	50	4.5	200	10		5	(Note 8)	66
							50	150	2	1									
2N4126	TO-92 (92)	25	25	4	50	20	60	50	1	0.4	0.95	50	4.5	250	10		4	(Note 8)	66
							120	360	2	1									
2N4916		Same as PN4916																	
2N4917		Same as PN4917																	
2N5138		Same as PN5138																	
2N5139		Same as PN5139																	
MPQ3906	TO-116	60	40	6	50	30	40	0.1	1	0.25	0.85	10	4.5						66
							60	1	1										

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Type No.	Case Style	V _{CB0} (V) Min	V _{CEO} (V) Min	V _{EB0} (V) Min	ICES* IC _{BO} @ V _{CB} (mA) Max	h _{FE} Min h _{FE} Max @ I _C & V _{CE} (mA) (V)	V _{CE(SAT)} (V) Max V _{BE(SAT)} (V) Min	I _C (mA) Max	C _{OB} (pF) Max	f _T (MHz) Min f _T Max	I _C (mA) Max	t _{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
MPS6700	TO-116	40	40	5	50 30	30 50 70	0.25 0.9	10	4.5	200	10				66(2) 23(2)
MPS3905	TO-92 (92)	40	40	5		30 40 50 30 15	0.25 0.65 0.85	10	4.5	200	10		5	(Note 6)	66
MPS3906	TO-92 (92)	40	40	5		60 80 100 60 30	0.25 0.65 0.85	10	4.5	250	10		4	(Note 6)	66
MPS6516	TO-92 (92)	40	40	4	50 30	30 50 100	0.4 0.5	50	4						66
MPS6517	TO-92 (92)	40	40	4	50 30	60 90	0.5	50	4						66
MPS6518	TO-92 (92)	40	40	4	500	90 150 300	0.5	50	4						66
PN3251	TO-92 (92)	50	40	5		80 90 100 300	0.25 0.6 0.9	10	6	300	10		6	(Note 6)	66
PN4121	TO-92 (92)	40	40	5	25*	15 70 60 40	0.13 0.14 0.3	1 10 1 0.1	4.5	400	10	150	4	(Notes 11, 8)	66
PN4122	TO-92 (92)	40	40	5	25*	30 150 150 100	0.13 0.14 0.3	1 10 1 0.1	4.5	450	10	150	4	(Notes 11, 8)	66

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Type No.	Case Style	V _{CB0} (V)		V _{CE0} (V)		V _{EB0} (V)		I _{CS} [*]		I _{FE} @ I _C & V _{CE}		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					
PN4916	TO-92 (92)	30	30	5	30	5	30	25*	15	15	200	50	1	0.13	0.75	1	4.5	400	10	150	4	(Notes 13, 8)	66
PN4917	TO-92 (92)	30	30	5	30	5	30	25*	15	30	50	1	0.13	0.75	1	4.5	450	10	150	4	(Notes 13, 8)	66	
PN5138	TO-92 (92)	30	30	5	30	5	30	50	20	50	10	10	0.3	1.0	10	7	30	0.5				66	
PN5139	TO-92 (92)	20	20	5	20	5	20	50*	15	15	50	10	0.2	0.7	1.0	5	300	10	200		(Note 13)	66	
ST3906	TO-92 (92)	40	40	5	40	5	40			60	0.1	1	0.25	0.65	0.85	10	4.5	250	10			66	
2N6076	TO-92 (94)	25	25	5	25	5	25	100	25	100	300	10	0.25	0.8	10							68	
MPQ200	TO-116	60	45	6	45	6	45	50	50	80	0.1	1	0.2	0.85	10	6	250	20		4	(Note 8)	68	
PN200	TO-92 (92)	60	45	6	45	6	45	50	50	80	0.1	1	0.2	0.85	10	6	250	20		4	(Note 8)	68	

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Type No.	Case Style	V _{CEO} (V) Min	V _{CE0} (V) Min	V _{BE0} (V) Min	I _{CE0} (mA) Max	I _{CB0} (mA) Max	V _{CE(SAT)} (V) Max	V _{BE(SAT)} (V) @ I _C (mA)		COB (pF) Max	f _T (MHz) @ I _C (mA)		t _{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
								Min	Max		Min	Max				
PN200A	TO-92 (92)	60	45	6	50	50	0.2	0.85	10	6	250	20		4	(Note 8)	68
PN201	TO-92 (92)	80	65	6	50	60	0.2	0.85	10	4.5	100	10		4	(Note 8)	69
2N5400	TO-92 (92)	130	120	5	100	100	0.2	1.0	10	6	100	10		8	(Note 9)	74
2N5401	TO-92 (92)	160	150	5	50	120	0.2	1.0	10	6	100	10		8	(Note 9)	74
MP5L51	TO-92 (92)	100	100	4	1 μA	50	0.25	1.2	10	8	60	10				74
PN4888	TO-92 (92)	150	150	6	50	100	0.3	1.2	50	4	30	60				74
PN4889	TO-92 (92)	150	150	6	10	100	0.5	0.9	10	4	40	1		4	(Note 15)	74

TEST CONDITIONS:

Note 1: I_C = 300 mA, V_{CC} = 10V, I_B¹ = I_B² = 30 mA.
 Note 2: I_C = 150 mA, V_{CC} = 8V, I_B¹ = I_B² = 15 mA.
 Note 3: I_C = 300 mA, V_{CC} = 15V, I_B¹ = I_B² = 30 mA.
 Note 4: I_C = 300 mA, V_{CC} = 30V, I_B¹ = I_B² = 30 mA.
 Note 5: I_C = 10 mA, V_{CC} = 3V, I_B¹ = I_B² = 1 mA.
 Note 6: I_C = 100 μA, V_{CE} = 5V, f = 100 Hz.

Note 7: I_C = 30 μA, V_{CE} = 5V, f = 1 kHz.
 Note 8: I_C = 100 μA, V_{CE} = 5V, f = 1 kHz.
 Note 9: I_C = 250 μA, V_{CE} = 5V, f = 1 kHz.
 Note 10: I_C = 10 μA, V_{CE} = 5V, f = 1 kHz.
 Note 11: I_C = 50 mA, V_{CC} = 30V, I_B¹ = I_B² = 5 mA.
 Note 12: I_C = 150 mA, V_{CC} = 30V, I_B¹ = I_B² = 15 mA.

Note 13: I_C = 50 mA, V_{CC} = 10V, I_B¹ = I_B² = 5 mA.
 Note 14: I_C = 500 mA, V_{CC} = 30V, I_B¹ = I_B² = 50 mA.
 Note 15: I_C = 100 μA, V_{CC} = 10V, f = 1 kHz.
 Note 16: I_C = 200 μA, V_{CE} = 5V, f = 1 kHz.
 Note 17: I_C/I_B = 40.
 Note 18: I_C/I_B = 20.

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