National Semiconductor™

Discrete POWER & Signal Technologies

PNP General Purpose Amplifiers and Switches

Device No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) Max @ V_{CB} (V)	h_{FE} Min	h_{FE} Max	@ I_C (mA)	& V_{CE} (V)	$V_{CE(SAT)}$ (V) Max	& $V_{BE(SAT)}$ (V) Min	$V_{BE(SAT)}$ (V) Max	@ I_C (mA)	C_{ob} (pF) Max	f_T (MHz) Min	f_T (MHz) Max	@ I_C (mA)	$t_{(off)}$ (ns) Max	Test Conditions	Process No.
2N4402	TO-92 (92)	40	40	5		20		500	2	04	0.7	0.95	150	10	150		20	255	(Note 4)	63
						50	150	150	2											
						50		10	1	.75										
						30		1	1											
2N4403	TO-92 (92)	40	40	5		20		500	2					10	200		20	255	(Note 4)	63
						100	300	150	2	0.4	0.75	0.95	150							
						100		10	1											
						60		1	1	0.75		1.3	500							
						30		0.1	1											
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
MPS6534	TO-92 (92)	40	40	4	50 @ 30	50		500	10	0.3		1	100	6						63
						90	270	100	1											
						60		10	1											
PN2907	TO-92 (92)	60	40	5	20 @ 50	30		500	10	0.4		1.3	150	8	200		50	100	(Note 2)	63
						100	300	150	10											
						75		10	10	1.6		2.6	500							
						60		1	10											
						35		0.1	10											
PN2907A	**TO-92 (92)**	**60**	**60**	**5**	**20 @ 50**	**50**		**500**	**10**	**0.4**		**1.3**	**150**	**8**	**200**		**50**	**100**	**(Note 2)**	**63 (5-32)**
						100	**300**	**150**	**10**											
						100		**10**	**10**	**1.6**		**2.6**	**500**							
						100		**1**	**10**											
						75		**0.1**	**10**											

NOTE: National preferred device for each process in **bold**. Number shown in parentheses indicates location **(section-page)** of device datasheet.

PNP General Purpose Amplifiers and Switches (continued)

Device No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CES}* / I_{CBO} (nA) Max @ V_{CB} (V)	h_{FE} Min	h_{FE} Max	@ I_C (mA)	& V_{CE} (V)	$V_{CE(SAT)}$ (V) Max	& $V_{BE(SAT)}$ (V) Min	$V_{BE(SAT)}$ (V) Max	@ I_C (mA)	C_{ob} (pF) Max	f_T (MHz) Min	f_T (MHz) Max	@ I_C (mA)	$t_{(off)}$ (ns) Max	Test Conditions	Process No.
PN3638	TO-92 (92)	25	25	4	35* 15	20		300	2	0.25		1.1	50	20	100		50	170	(Note 1)	63
						20		50	1											
						30		10	10	1	0.8	2	300							
PN3638A	TO-92 (92)	25	25	4	35* 15	20		300	2	0.25		1.1	50	10	150		50	170	(Note 1)	63
						100		50	1											
						100		10	10	1	0.8	2	300							
						80		1	10											
PN3644	TO-92 (92)	45	45	5	35* 30	20		300	2	0.25		1	50	8	200		20	100	(Note 4)	63
						100	300	150	10											
						80	240	50	1	0.4		1.3	150							
						100		10	10											
						80		1	10	1	0.8	2	300							
						40		0.1	10											
PN3645	TO-92 (92)	60	60	5	35* 50	20		300	2	0.25		1	50	8	200		20	100	(Note 4)	63
						100	300	150	10											
						80	240	50	1	0.4		1.3	150							
						100		10	10											
						80		1	10	1	0.8	2	300							
						40		0.1	10											
PN4143	TO-92 (92)	60	40	5		30		500	10	0.4		1.3	150	8	200		50	100	(Note 6)	63
						50		150	1											
						100	300	150	10	1.6		2.6	500							
						75		10	10											
						50		1	10											
						35		0.1	10											
TIS93	TO-92 (97)	40	40	5	100 20	100	300	50	2	0.25			50							63
TN2905A	TO-226 (99)	60	60	5	10 50	50		500	10	0.4		1.3	150	8	200		50	100	(Note 2)	63
						100	300	150	10											
						100		10	10	1.6		2.6	500							
						100		1	10											
						75		0.1	10											

PNP General Purpose Amplifiers and Switches (continued)

Device No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CES}* I_{CBO} @ (nA) Max	V_{CB} (V)	h_{FE} @ Min	Max	I_C (mA)	& V_{CE} (V)	$V_{CE(SAT)}$ (V) Max	& $V_{BE(SAT)}$ (V) Min	Max	@ I_C (mA)	C_{ob} (pF) Max	f_T (MHz) @ Min	I_C (mA)	$t_{(off)}$ (ns) Max	NF (dB) Max	Test Conditions	Process No.
2N3905	TO-92 (92)	40	40	5			15		100	1	0.25	0.65	0.85	10	4.5	200	10	260		(Note 5)	66
							30		50	1											
							50	150	10	1	0.4		0.95	50					5	(Note 8)	
							40		1	1											
							30		0.1	1											
2N3906	**TO-92 (92)**	**40**	**40**	**5**			**30**		**100**	**1**	**0.25**	**0.65**	**0.85**	**10**	**4.5**	**250**	**10**	**300**		**(Note 5)**	**66 (5-72)**
							60		**50**	**1**											
							100	**300**	**10**	**1**	**0.4**		**0.95**	**50**					**4**	**(Note 8)**	
							80		**1**	**1**											
							60		**0.1**	**1**											
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
							60	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											
MPS6518	TO-92 (92)		40	4	500	30	90		100	10	0.5			50	4						66
							150	300	2	10											
PN4121	TO-92 (92)	40	40	5	25*	30	15		50	1	0.13		0.75	1	4.5	400	10	150		(Note 7)	66
							70	200	10	1	0.14	0.7	0.9	10							
							60		1	1	0.3		1.1	50					4	(Note 8)	
							40		0.1	1											
PN4122	TO-92 (92)	40	40	5	25*	30	30		50	1	0.13		0.75	1	4.5	450	10	150		(Note 7)	66
							150	300	10	1											
							150		1	1	0.14	0.7	0.9	10					4	(Note 8)	
							100		0.1	1	0.3		1.1	50							
PN4917	TO-92 (92)	30	30	5	25*	15	30		50	1	0.13		0.75	1	4.5	450	10	150		(Note 3)	66
							150	300	10	1	0.14	0.75	0.9	10							
							150		1	1	0.3		1.1	50					4	(Note 8)	
							100		0.1	1											

NOTE: National preferred device for each process in **bold.** Number shown in parentheses indicates location **(section-page)** of device datasheet.

PNP General Purpose Amplifiers and Switches (continued)

Device No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CES}* I_{CBO} (nA) Max @	V_{CB} (V)	h_{FE} Min	h_{FE} Max	@ I_C (mA)	& V_{CE} (V)	$V_{CE(SAT)}$ (V) Max	$V_{BE(SAT)}$ (V) Max @	I_C (mA)	C_{ob} (pF) Max	f_T (MHz) Min	f_T (MHz) Max	@ I_C (mA)	$t_{(off)}$ (ns) Max	NF (dB) Max	Test Conditions	Process No.
2N3702	TO-92 (94)	40	25	5	100	20	60	300	50	5	0.25		50	12	100		50				68
2N3703	TO-92 (94)	50	30	5	100	20	30	150	50	5	0.25		50	12	100		50				68
PN200	**TO-92 (92)**	**60**	**45**	**6**	**50**	**50**	**80** **100** **100** **100**	**450** **350**	**0.1** **10** **100** **150**	**1** **1** **1** **5**	**0.2** **0.4**	**0.85** **1**	**10** **200**	**6**	**250**		**20**		**5**	**(Note 8)**	**68 (5-5)**
PN200A	**TO-92 (92)**	**60**	**45**	**6**	**50**	**50**	**300** **100** **200**	**600**	**10** **100** **0.1**	**1** **1** **1**	**0.2** **0.4**	**0.85** **1**	**10** **200**	**6**	**250**		**20**		**4**	**(Note 8)**	**68 (5-5)**
PN5138	TO-92 (92)	30	30	5	50	20	50 50 50	 800	10 1 0.1	10 10 10	0.3	1	10	7	30		0.5				68
2N5400	TO-92 (92)	130	120	5	100	100	40 40 30	 180 	50 10 1	5 5 5	0.2 0.5	1 1	10 50	6	100	400	10		8	(Note 9)	74
2N5401	**TO-92 (92)**	**160**	**150**	**5**	**50**	**120**	**50** **60** **50**	**240**	**50** **10** **1**	**5** **5** **5**	**0.2** **0.5**	**1** **1**	**10** **50**	**6**	**100**	**300**	**10**		**8**	**(Note 9)**	**74 (5-114)**
MPSL51	TO-92 (92)	100	100	4	1 μA	50	40	250	50	5	0.25 0.3	1.2 1.2	10 50	8	60		10				74

TEST CONDITIONS

Note 1: I_C = 300 mA, V_{CC} = 10V, $I_B{}^1$ = $I_B{}^2$ = 30 mA.
Note 2: I_C = 150 mA, V_{CC} = 6V, $I_B{}^1$ = $I_B{}^2$ = 15 mA.
Note 3: I_C = 50 mA, V_{CE} = 10V, $I_B{}^1$ = $I_B{}^2$ = 5 mA.
Note 4: I_C = 300 mA, V_{CC} = 30V, $I_B{}^1$ = $I_B{}^2$ = 30 mA.
Note 5: I_C = 10 mA, V_{CC} = 3V, $I_B{}^1$ = $I_B{}^2$ = 1 mA.
Note 6: I_C = 150 mA, V_{CC} = 30V, $I_B{}^1$ = $I_B{}^2$ = 15 mA.
Note 7: I_C = 50 mA, V_{CC} = 30V, $I_B{}^1$ = $I_B{}^2$ = 5 mA.
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: National preferred device for each process in **bold**. Number shown in parentheses indicates location **(section-page)** of device datasheet.