LOW LEVEL AMPS

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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) @ I_C (mA) Min	f_T (MHz) @ I_C (mA) Max	@ I_C (mA)	NF (dB) Max	Test Conditions	Process No.
2N760	TO-18	45	45	8	200 @ 30	76	300 (1 kHz)	1	5	1.0	0.6	1.1	10	8	50		1.0			07
2N760A	TO-18	60	60	8	100 @ 30	76 40	333 (1 kHz)	1 10 μA	5 5	1.0		1.1	10	8	50		1.0			07
2N929	TO-18	45	45	5	10 @ 45		350 60 40	10 500 μA 10 μA	5 5 5	1.0	0.6	1.0	10	8	30		0.5	4	1	07
2N929A	TO-18	60	45	6	2 @ 45		350 60 40 25	10 500 μA 10 μA 1 μA	5 5 5 5	0.5	0.7	0.9	10	6	45		0.5	4		07
2N930	TO-18	45	45	5	10 @ 45		600 150 100	10 500 μA 10 μA	5 5 5	1.0	0.6	1.0	10	8	30		0.5	3	1	07
2N2484	TO-18	60	60	6	10 @ 45	250 200 175 100 30	500	1 500 μA 100 μA 10 μA 1 μA	5 5 5 5 5	0.35			1	10	15		0.05	3	1	07
2N2509	TO-18	125	80	7	5 @ 100	40 25		10 10 μA	5 5	1.0		0.9	5	6	45		5	7	1	07
2N2510	TO-18	100	65	7	5 @ 80	150 75	500	10 10 μA	5 5	1.0		0.9	5	6	45		5	4	2	07
2N2511	TO-18	80	50	7	5 @ 60	240 120 80	750	10 10 μA 1 μA	5 5 5	1.0		0.9	5	6	45		5	4	2	07
2N2586	TO-18	60	45	6	2 @ 45	150 120 80	600 360	10 500 μA 10 μA 1	5 5 5 5	0.5	0.7	0.9	10	7	45		0.5	3.5	2	07
2N3117	TO-18	60	60	6	10 @ 45	400 300 250 100	500	1 100 μA 10 μA 1 μA	5 5 5 5	0.35			1	4.5	60		0.5	1	2	07
2N3246	TO-18	60	40	10	1 @ 40	400 350 300 200 150	800 600	10 1 500 μA 100 μA 10 μA 1 μA	5 5 5 5 5 5	0.5	0.7	0.9	5	5	60	180	1	2	1	07

LOW LEVEL AMPS (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} Max	(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	Max	@ I_C (mA)	NF (dB) Max	Test Conditions	Process No.
2N3565	TO-92 (92)	Same as PN3565, see page 1-13 for explanation																			07
2N3707	TO-92 (94)	30	30	6	100	20	100	400	100 µA	5	1.0			10					5	1	07
2N3708	TO-92 (94)	30	30	6	100	20	45	660	1	5	1.0			10							07
2N3709	TO-92 (94)		30		100	20	45	165	1	5	1.0			10							07
2N3710	TO-92 (94)	30	30	6	100	20	90	330	1	5	1.0			10							07
2N3711	TO-92 (94)	30	30	6	100	20	180	660	1	5	1.0			10							07
2N3858A	TO-92 (94)	60	60	6	500	18	60 45	120	10 1	1 1					4	90	250	2			07
2N3859A	TO-92 (94)	60	60	6	500	18	100 75	200	10 1	1 1					4	90	250	2			07
2N3877	TO-92 (94)	70	70	4	500	70	20	250	2	4.5		0.5	0.9	10							07
2N3877A	TO-92 (94)	85	85	4	500	70	20	250	2	4.5		0.5	0.9	10							07
2N3900A	TO-92 (94)	18	18	5	100	18	250	500	2	4.5					12				5	4	07
2N3901	TO-92 (94)	18	18	5	100	15	350	700	2	4.5									5	4	07
2N4286	TO-92 (94)	30	25	6	50	25	150 100	600	1 100 µA	5 5	0.35		0.8	1	6	40		1			07
2N4287	TO-92 (94)	45	45	7	10	30	150 100	600	1 100 µA	5 5	0.35		0.8	1	6	40		1	5	1	07
2N4384	TO-18	40	30	5	10	30	150 120 100 60	500	10 1 10 µA 1 µA	5 5 5 5	0.2	0.65	0.8	10	8	30	120	0.5	2	1	07
2N4386	TO-18	40	30	5	10	30	120 100 40	500	10 1 10 µA	5 5 5	0.2	0.65	0.8	10	8	30	120	0.5	3	1	07
2N4409	TO-92 (92)	80	50	5	10	60	60 60	400	10 1	1 1	0.2		0.8	1	12	60	300	10			07

TEST CONDITIONS:
(1) I_C = 10 µA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (2) I_C = 10 µA, V_{CE} = 5V, f = 1 kHz. (3) I_C = 5 µA, V_{CE} = 5V, f = 1 kHz. (4) I_C = 100 µA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (5) I_C = 10 µA, V_{CE} = 5V, f = 10 kHz. (6) I_C = 100 µA, V_{CE} = 5V, f = 5 kHz.

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LOW LEVEL AMPS (Continued)

Type 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)	NF (dB) Max	Test Conditions	Process No.
2N4410	TO-92 (92)	120	80	5	10 @ 100	60 60	400	10 1	1 1	0.2	0.8	1	12	60	300	10			07
2N4966	TO-92 (92)	50	40	6	25 @ 25	40 50	200	0.01 10	5 5	0.4		10	6	40		1			07
2N4967	TO-92 (92)	50	40	6	25 @ 25	100 120	600	0.01 10	5 5	0.4		10	6	40		1			07
2N4968	TO-92 (92)	30	25	6	50 @ 25	40 50	200	0.01 10	5 5	0.4		10	6						07
2N5088	TO-92 (92)	35	30		50 @ 20	300 350 300	900	10 1 100 µA	5 5 5	0.5		10	4				3	3	07
2N5089	TO-92 (92)	30	25		50 @ 15	400 450 400	1200	10 1 100 µA	5 5 5	0.5		10	4				2	3	07
2N5133	TO-92 (92)	20	18	3	50 @ 15	60	1000	1 mA	5	0.4		1	5						07
2N5209	TO-92 (92)	50	50		50 @ 35	150 150 100	300	10 1 100 µA	5 5 5	0.7		10	4	30		0.5	4	5	07
2N5210	TO-92 (92)	50	50		50 @ 35	250 250 200	600	10 1 100 µA	5 5 5	0.7		10	4	30		0.5	3	4	07
2N5232	TO-92 (94)		50		30 @ 50	250	500	2	5	0.125		10	4						07
2N5232A	TO-92 (94)		50		30 @ 50	250	500	2	5	0.125		10	4				5	2	07
MPS3707	TO-92 (92)		30		100 @ 20	100	400	100 µA	5	1.0		10					5	4	07
MPS3708	TO-92 (92)		30		100 @ 20	45	660	1	5	1.0		10							07
MPS3709	TO-92 (92)		30		100 @ 20	45	165	1	5	1.0		10							07
MPS3710	TO-92 (92)		30		100 @ 20	90	330	1	5	1.0		10							07
MPS3711	TO-92 (92)		30		100 @ 20	180	660	1	5	1.0		10							07
MPS6571	TO-92 (92)	25	20	3	50 @ 20	250	1000	100 µA	5	0.5		10	4.5	50		0.5			07
MPSA09	TO-92 (92)	50	50		100 @ 25	100	600	100 µA	5	0.9		10	5	600		0.5			07

LOW LEVEL AMPS (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	h_{FE} Min	h_{FE} 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	Max	@ I_C (mA)	NF (dB) Max	Test Conditions	Process No.
PE4010	TO-92 (92)	30	25	6	200 @ 5	200	1000	1	10	0.35			1	4	20		0.05			07
															60		1			
PN930	TO-92 (92)	45	45	5	10 @ 45		600	10	5	1.0	0.6	1.0	10	8	30		0.5	3	1	07
						150		500 μA	5											
						100	300	10 μA	5											
PN2484	TO-92 (92)	60	60	6	10 @ 45		800	10	5	0.35			10	6						07
						250		1	5											
						200		500 μA	5											
						175		100 μA	5											
						100	500	10 μA	5											
						30		1 μA	5											
PN3565	TO-92 (92)	30	25	6	50 @ 25	150	600	1	10	0.35			1	4	40	240	1			07
PN5133	TO-92 (92)	20	18	3	50 @ 15	60	1000	1	5	0.4			1	5	40	240	1			07

TEST CONDITIONS:
(1) I_C = 10 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (2) I_C = 10 μA, V_{CE} = 5V, f = 1 kHz. (3) I_C = 5 μA, V_{CE} = 5V, f = 1 kHz. (4) I_C = 100 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (5) I_C = 10 μA, V_{CE} = 5V, f = 10 kHz. (6) I_C = 100 μA, V_{CE} = 5V, f = 5 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	h_{FE} Min	h_{FE} 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	Max	@ I_C (mA)	t_{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
MPS3903	TO-92 (92)	60	40	6		20		0.1	1	0.2	0.65	0.85	10	4	200		10		5	8	02
						35		1	1												
						50	150	10	1												
						30		50	1												
						15		100	1	0.3		1.0	50								

TEST CONDITIONS:
(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, I_{B1} = I_{B2} = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, I_{B1} = I_{B2} = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, I_{B1} = I_{B2} = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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	NF (dB) Max	Test Conditions	Process No.
MPS3904	TO-92 (92)	60	40	6		40		0.1	1	0.2	0.65	0.85	10	4	200		10		5	8	02
						70		1	1												
						100	300	10	1												
						60		50	1												
						30		100	1	0.3		1.0	50								
MPS6573	TO-92 (92)		35		100	100		100 μA	5	0.5			10	12	100	300	10				02
						200	500	10	5												
MPS6574	TO-92 (92)		35		100	100	300	1	5	0.5			10	12	100	300	10				02
						(4 Groups)															
MPS6575	TO-92 (92)		45		100	100		100 μA	5	0.5			10	12	100	300	10				02
						200	500	10	5												
MPS6576	TO-92 (92)		45		100	100	300	1	5	0.5			10	12	100	300	10				02
						(4 Groups)															
MPSA20	TO-92 (92)		40	4	100	30	40	400	5	10				4	125		5				02
2N2923	TO-92 (94)	25	25	5	100	25	90	180	2	10				10							04
							(1 kHz)														
2N2924	TO-92 (94)	25	25	5	100	25	150	300	2	10				10							04
							(1 kHz)														
2N2925	TO-92 (94)	25	25	5	100	25	235	470	2	10				10							04
							(1 kHz)														
2N2926	TO-92 (94)	18	18	5	500	18	35	470	2	10				10							04
							(1 kHz)														
2N3390	TO-92 (94)	25	25	5	100	18	400	800	2	4.5				10							04
2N3391	TO-92 (94)	25	25	5	100	18	250	500	2	4.5				10					5	5	04
2N3391A	TO-92 (94)	25	25	5	100	18	250	500	2	4.5				10					5	5	04
2N3392	TO-92 (94)	25	25	5	100	18	150	300	2	4.5				10							04
2N3393	TO-92 (94)	25	25	5	100	18	90	180	2	4.5				10							04
2N3395	TO-92 (94)	25	25	5	100	18	150	500	2	4.5				10							04
2N3396	TO-92 (94)	25	25	5	100	18	90	500	2	4.5				10							04
2N3397	TO-92 (94)	25	25	5	100	18	55	500	2	4.5				10							04

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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	NF (dB) Max	Test Conditions	Process No.
2N3398	TO-92 (94)	25	25	5	100 @ 18	55	800	2	4.5					10							04
2N3415	TO-92 (94)	25	25	5	100 @ 25	180	540	2	4.5	0.3	0.6	1.3	50								04
2N3416	TO-92 (94)	50	50	5	100 @ 25	75	225	2	4.5	0.3	0.6	1.3	50								04
2N3417	TO-92 (94)	50	50	5	100 @ 25	180	540	2	4.5	0.3	0.6	1.3	50								04
2N3900	TO-92 (94)	18	18	5	100 @ 18	250	500	2	4.5						12						04
2N4424	TO-92 (94)	40	40	5	100 @ 25	180	540	2	4.5	0.3	0.6	1.3	50								04
2N5172	TO-92 (94)	25	25	5	100 @ 25	100	500	10	10	0.25			10	10							04
MPS3392	TO-92 (92)	25	25	5	100 @ 18	150	300	2	4.5					10							04
MPS3393	TO-92 (92)		25		100 @ 18	90	180	2	4.5					3.5							04
MPS3394	TO-92 (92)		25		100 @ 18	55	110	2	4.5					3.5							04
MPS3395	TO-92 (92)		25		100 @ 18	150	500	2	4.5					3.5							04
MPS3396	TO-92 (92)		25		100 @ 18	90	500	2	4.5					3.5							04
MPS3397	TO-92 (92)		25		100 @ 18	55	500	2	4.5					3.5							04
MPS3398	TO-92 (92)		25		100 @ 18	55	800	2	4.5					3.5							04
MPS5172	TO-92 (92)	25	25	5	100 @ 25	100	500	10	10	0.25			10	10							04
MPS6520	TO-92 (92)		25	4	50 @ 30	200 100	400	2 100 µA	10 10	0.5			50	3.5					3	10	04
MPS6521	TO-92 (92)		25	4	50 @ 30	200 150	600	2 100 µA	10 10	0.5			50	3.5					3	10	04
TIS97	TO-92 (97)		40		10 @ 40	250	700	0.1	5										3	7	04

TEST CONDITIONS:

(1) I_C = 300 µA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, $I_B{}^1 = I_B{}^2$ = 15 mA. (3) I_C = 100 µA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, $I_B{}^1 = I_B{}^2$ = 30 mA. (5) I_C = 100 µA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, $I_B{}^1 = I_B{}^2$ = 1 mA. (7) I_C = 100 µA, V_{CE} = 5V, f = 15.7 kHz, (8) I_C = 250 µA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 µA, V_{CE} = 5V, f = 15.7 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max		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	NF (dB) Max	Test Conditions	Process No.
2N3704	TO-92 (94)	50	30	5	100	20	100	300	50	2	0.6			100	12	100		50				13
2N3705	TO-92 (94)	50	30	5	100	20	50	150	50	2	0.8			100	12	100		50				13
2N3706	TO-92 (94)	40	20	5	100	20	30	600	50	2	1.0			100	12	100		50				13
2N3794	TO-92 (94)	40	20	5	500	15	100 100 35	600	100 10 1	10 10 10	0.4			10	10	100	600	10				13
2N4400	TO-92 (92)	60	40	6			20 50 40 20	150	500 150 10 1	2 1 1 1	0.4 0.75	0.75	0.95 1.2	150 500	6.5	200		20	255		2	13
2N4401	TO-92 (92)	60	40	6			40 100 80 40 20	300	500 150 10 1 100 μA	2 1 1 1 1	0.4 0.75	0.75	0.95 1.2	150 500	6.5	250		20	255		2	13
2N4944	TO-92 (92)	80	40	5	50	40	40 40	120	150 30	1	0.25			150		60	900	50				13
2N4946	TO-92 (92)	80	40	5	50	40	100 100	300	150 30	1	0.25			150		60	900	50				13
2N4951	TO-92 (94)	60	30	5	50	40	60 40 20	200	150 10 1	10 10 10	0.3		1.3	150	8	250		20	400		2	13
2N4952	TO-92 (94)	60	30	5	50	40	100 75 50	300	150 10 1	10 10 10	0.3		1.3	150	8	250		20	400		2	13
2N4953	TO-92 (94)	60	30	5	50	40	200 150 75	600	150 10 1	10 10 10	0.3		1.3	150	8	250		20	400		2	13
2N4954	TO-92 (94)	40	30	5	50	30	60 40 20	600	150 10 1	10 10 10	0.3		1.3	150	8	250		20	400		2	13
2N5220	TO-92 (92)	15	15	3	100	10	30 25	600	50 10	10 10	0.5		1.1	150	10	100		20				13
2N5225	TO-92 (92)	25	25	4	300	15	30 25	600	50 50	10 10	0.8		1.0	100	20	50		20				13
MPS3704	TO-92 (92)	50	30	5	100	20	100	300	50	2	0.6			100	12	100		50				13

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	h_{FE} @ I_C (mA) & V_{CE} (V) Min	Max	I_C	V_{CE}	$V_{CE(SAT)}$ (V) & $V_{BE(SAT)}$ (V) @ I_C (mA) Max	Min	Max	I_C	C_{ob} (pF) Max	f_T (MHz) @ I_C (mA) Min	Max	I_C	t_{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
MPS3705	TO-92 (92)	50	30	5	100	20	50	150	50	2	0.8			100	12	100		50				13
MPS3706	TO-92 (92)	40	20	5	100	20	30	600	50	2	1.0			100	12	100		50				13
MPS6522	TO-92 (92)		25	4	50	20	100 200	400	0.1 2	10 10	0.5			50	4							13
MPS6530	TO-92 (92)	60	40	5	50	40	25 40 30	120	500 100 10	10 1 1	0.5		1.0	100	5							13
MPS6531	TO-92 (92)	60	40	5	50	40	50 90 60	270	500 100 10	10 1 1	0.3		1.0	100	5							13
MPS6532	TO-92 (92)	50	30	5	100	30	30		100	1	0.5		1.2	100	5							13
NCBT13	TO-92 (92)	80	40	4	100	30	40		20	1	0.15			100	6	150		20				13
PN3566	TO-92 (92)	40	30	5	50	20	80 150	600	2 10	10 10	1			100	25	40	700	30				13
PN3567	TO-92 (92)	80	40	5	50	40	40 40	120	30 150	1 1	0.25 1			150	20	60	900	50				13
PN3569	TO-92 (92)	80	40	5	50	40	100 100	300	150 30	1 1	0.25			150		60	900	50				13
PN5449	TO-92 (92)	50	30	5	100	20	100	300	50	2	0.6			100		100		50				13
PN5816	TO-92 (92)	50	40	5	100	25	100	200	2	2	0.75		1.2	500		100		50				13
2N5550	TO-92 (92)	160	140	6	100	100	20 60 60	250	50 10 1	5 5 5	0.15 0.25		1.0 1.2	10 50	6	100	300	10		10	8	16
2N5551	TO-92 (92)	180	160	6	50	120	30 80 80	250	50 10 1	5 5 5	0.15 0.2		1.0 1.0	10 50	6	100	300	10		8	8	16
2N5830	TO-92 (92)	120	100	5	50	100	60 80 80	500	1 10 50	5 5 5	0.15 0.2 0.25		0.8 1 1	1 10 50		100	500	10				16

TEST CONDITIONS:

(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, I_{B1} = I_{B2} = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, I_{B1} = I_{B2} = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, I_{B1} = I_{B2} = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type 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	NF (dB) Max	Test Conditions	Process No.
MPSL01	TO-92 (92)	140	120	6	1 μA	40	50	300	10	5	0.2 0.2		1.2 1.4	10 50	8	60		10				16
MPS8098	TO-92 (92)	60	0	6	100	60	100 100 75	300	1 10 100	5 5 5	0.3			100	6	150		10				18
MPS8099	TO-92 (92)	80	80	6	100	60	100 100 75	300	1 10 100	5 5 5	0.3			100	6	150		10				18
TIS98	TO-92 (97)		60		10	40	100	300	1	5	0.5			100		2		10				18
TIS99	TO-92 (97)		65		10	40	55	300	100	5	0.5			100		2		10				18
2N696	TO-5	60		5	1 μA	30	20	60	150	10	1.5		1.3	150	20	40		50				19
2N697	TO-5	60	45	5	1 μA	30	40	120	150	10	1.5		1.3	150	35	50		50				19
2N718	TO-18	60	30	5	1 μA	30	40	120	150	10	1.5		1.3	150	35	50		15				19
2N718A	TO-18	75		7	10	60	20 40 35 20	120	500 150 10 100 μA	10 10 10 10	1.5		1.3	150	25	60		50		12	1	19
2N956	TO-18	75	35	7	10	60	40 100 75 35 20	300	500 150 10 100 μA 10 μA	10 10 10 10 10	1.5		1.3	150	25	70		50		8	1	19
2N1420	TO-5	60	30	5	1 μA	30	100	300	150	10	1.5		1.3	150	35	50		50				19
2N1566	TO-5	80	60	5	1 μA	40	80 (1 kHz)	200	5	5	1.0			10	10	60		5				19
2N2218	TO-5	60	30	5	10	50	20 20 40 35 25 20	120	500 150 150 10 1 100 μA	10 1 10 10 10 10	0.4 1.6		1.3 2.6	150 500	8	250		20				19
2N2218A	TO-5	75	40	6	10	60	25 20 40 35 25 20	120	500 150 150 10 1 100 μA	10 1 10 10 10 10	0.3	0.6	1.2	150	8	250		20	285		2	19

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type 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	NF (dB) Max	Test Conditions	Process No.
2N2219	TO-5	60	30	5	10	50	30		500	10	0.4		1.3	150	8	250		20				19
							50		150	1												
							100	300	150	10	1.6		2.6	500								
							75		10	10												
							50		1	10												
							35		100 μA	10												
2N2219A	TO-5	75	40	6	10	60	40		500	10		0.6	1.2	150	8	300		20	285		2	19
							50		150	1			2	500								
							100	300	150	10												
							75		10	10												
							50		1	10												
							35		100 μA	10												
2N2221	TO-18	60	30	5	10	50	20		500	10	0.4		1.3	150	8	250		20				19
							20		150	1												
							40	120	150	10	1.6		2.6	500								
							35		10	10												
							25		1	10												
							20		100 μA	10												
2N2221A	TO-18	75	40	6	10	60	25		500	10	0.3	0.6	1.2	150	8	250		20	285		2	19
							40	120	150	10												
							35		10	10	1.0		2.0	500								
							25		1	10												
							20		100 μA	10												
2N2222	TO-18	60	30	5	10	50	30		500	10	0.4		1.3	150	8	250		20				19
							50		150	1												
							100	300	150	10	1.6		2.6	500								
							75		10	10												
							50		1	10												
							35		100 μA	10												
2N2222A	TO-18	75	40	6	10	60	40		500	10	0.3	0.6	1.2	150	8	250		20	285	4	2/3	19
							50		150	1												
							100	300	150	10	1		2	500								
							75		10	10												
							50		1	10												
							35		100 μA	10												
2N2897	TO-18	60		7	50	60	35		1	10	1		1.3	150	15							19
							50	200	150	10												

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TEST CONDITIONS:

(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, I_{B1} = I_{B2} = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, I_{B1} = I_{B2} = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, I_{B1} = I_{B2} = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max		h_{FE} Min	h_{FE} 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	Max	@ I_C (mA)	t_{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
2N3115	TO-18	60	20	5	25	50	40	120	150	10	0.5		1.3	150	8	250		20	500		2	19
2N3116	TO-18	60	20	5	25	50	100	300	150	10	0.5		1.3	150	8	250		20	500		2	19
2N3299	TO-5	60	30	5	10*	50	20		500	10	0.22		1.1	150	8	250		50	150		4	19
							20		150	1												
							40	120	150	10												
							35		10	10	0.6		1.5	500								
							25		1	10												
							20		100 μA	10												
2N3300	TO-5	60	30	5	10*	50	50		500	10	0.22		1.1	150	8	250		50	150		4	19
							50		150	1												
							100	300	150	10												
							75		10	10	0.6		1.5	500								
							50		1	10												
							35		100 μA	10												
2N3301	TO-18	60	30	5	10*	50	20		500	10	0.22		1.1	150	8	250		50	150		4	19
							20		150	1												
							40	120	150	10	0.6		1.5	500								
							35		10	10												
							25		1	10												
							20		100 μA	10												
2N3302	TO-18	60	30	5	10*	50	50		500	10	0.22		1.1	150	8	250		50	150		4	19
							50		150	1												
							100	300	150	10	0.6		1.5	500								
							75		10	10												
							50		1	10												
							35		100 μA	10												
2N3414	TO-92 (94)	25	25	5	100	25	75	225	2	4.5	0.3	0.6	1.3	50								19
2N3641	TO-92 (92)	Same as PN3641, see page 1-22 for explanation																				19
2N3642	TO-92 (92)	Same as PN3642, see page 1-22 for explanation																				19
2N3643	TO-92 (92)	Same as PN3643, see page 1-22 for explanation																				19
2N3678	TO-5	75	55	6	10	60	25		500	10	0.4	0.6	1.2	150					250		2	19
							20		150	1												
							40	120	150	10	1.0		2.0	500								
							35		10	10												
							25		1	10												
							20		100 μA	10												
2N4140	TO-92 (92)	Same as PN4140, see page 1-22 for explanation																				19

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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	NF (dB) Max	Test Conditions	Process No.
2N4141	TO-92 (92)	Same as PN4141, see page 1-22 for explanation																			19
2N4969	TO-92 (92)	Same as PN2221, see below for explanation																			19
2N4970	TO-92 (92)	50	30	5		100	350	150	10	0.4	0.6	1.2	150	8	200		20				19
						70		10	10												
						50		150	1												
2N5128	TO-92 (92)	Same as PN5128, see page 1-22 for explanation																			19
2N5129	TO-92 (92)	Same as PN5129, see page 1-22 for explanation																			19
2N5135	TO-92 (92)	Same as PN5135, see page 1-22 for explanation																			19
2N5136	TO-92 (92)	Same as PN5136, see page 1-22 for explanation																			19
2N5137	TO-92 (92)	Same as PN5137, see page 1-22 for explanation																			19
PN2221	TO-92 (92)	60	30	5	10	50	20		500	10	0.4		1.3	150	8	250		20				19
							20		150	1												
							40	120	150	10	1.6		2.6	500								
							35		10	10												
							25		1	10												
							20		100 μA	10												
PN2221A	TO-92 (92)	75	40	6	10	60	25		500	10	0.3	0.6	1.2	150	8	250		20	285		2	19
							20		150	1												
							40	120	150	10	1.0		2.0	500								
							35		10	10												
							25		1	10												
							20		100 μA	10												
PN2222	TO-92 (92)	60	30	5	10	50	30		500	10	0.4		1.3	150	8	250		20				19
							50		150	1												
							100	300	150	10	1.6		2.6	500								
							75		10	1												
							50		1	1												
							35		100 μA	1												

TEST CONDITIONS:
(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, $I_{B1} = I_{B2}$ = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, $I_{B1} = I_{B2}$ = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, $I_{B1} = I_{B2}$ = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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	NF (dB) Max	Test Conditions	Process No.
PN2222A	TO-92 (92)	75	40	6	10 @ 60	40		500 10	0.3	0.6	1.2	150	8	300		20	285		2	19
						50		150 1												
						100	300	150 10	1.0		2.0	500								
						75		10 1												
						50		1 1												
						35		100 μA 1												
PN3641	TO-92 (92)	60*	30	5	50* 50	15		500 10	0.22			150	8	250		50				19
						40	120	150 10												
PN3642	TO-92 (92)	60	45	5	50* 50	15		500 10	0.22			150	8	250		50				19
						40	120	150 10												
PN3643	TO-92 (92)	60	30	5	50* 50	20		500 10	0.22			150	8	250		50				19
						100	300	150 10												
PN4140	TO-92 (92)	60	30	5		20		500 10	0.4		1.3	150	8	250		20	310		2	19
						20		150 1												
						40	120	150 10	1.6		2.6	500								
						35		10 10												
						25		1 10												
						20		100 μA 10												
PN4141	TO-92 (92)	60	30	5		30		500 10	0.4		1.3	150	8	250		20	310		2	19
						50		150 1												
						100	300	150 10	1.6		2.6	500								
						75		10 10												
						50		1 10												
						35		100 μA 10												
PN5128	TO-92 (92)	15	12	3	50 10	35	350	50 10	0.25		1.1	150	10	200	800	50				19
						20		10 10												
PN5129	TO-92 (92)	15	12	3	50 10	35	350	50 10	0.25		1.1	150	10	200	800	50				19
						20		10 10												
PN5135	TO-92 (92)	30	25	4	300 15	50	60*	10 10	1.0		1.0	100	25	40	500	30				19
						15		2 10												
PN5136	TO-92 (92)	30	20	3	100 20	20	400	150 1	0.25		1.1	150	35	40	400	50				19
						20		30 1												
PN5137	TO-92 (92)	30	20	3	100 20	20	400	150 1	0.25		1.1	150	35	40	400	50				19
						20		30 1												
TN2218A	TO-237 (91)	75	40	6	10 60	25		500 10	0.3	0.6	1.2	150	8	250		20	285		2	19
						20		150 1												
						40	120	150 10												
						35		10 10												
						25		1 10												
						20		100 μA 10												

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max		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	NF (dB) Max	Test Conditions	Process No.
TN2219	TO-237 (91)	60	30	5	10	50	30		500	10	0.4		1.3	150	8	50		20				19
							50		150	1												
							100	300	150	10	1.6		2.6	500								
							75		10	10												
							50		1	10												
							35		0.1	10												
TN2219A	TO-237 (91)	75	40	6	10	60	40		500	10	0.3	0.6	1.2	150	8	60		20		4	3	19
							50		150	1												
							100	300	150	10	1.0		2.0	500								
							75		10	10												
							50		1	10												
							35		0.1	10												
TIS90	TO-92 (94)	40	40	5	100	20	100	300	50	2	0.25	0.6	1	50								19
TIS92	TO-92 (97)	40	40	5	100	20	100	300	50	2	0.25	0.6	1	50								19
2N915	TO-18	70	50	5	10	60	50	200	10	5	1.0		0.9	10	3.5	250		10				23
2N916	TO-18	45	25	5	10	30	50	200	10	1	0.5		0.9	10	6	300		10				23
2N3691	TO-92 (92)	Same as PN3691, see page 1-25 for explanation																				23
2N3692	TO-92 (92)	Same as PN3692, see page 1-25 for explanation																				23
2N3903	TO-92 (92)	60	40	6			15		100	1	0.2	0.6	0.85	10	4	250		10	225	6	6/7	23
							30		50	1												
							50	150	10	1	0.3		0.95	50								
							35		1	1												
							20		100 μA	1												
2N3904	TO-92 (92)	60	40	6		30	30		100	1	0.2	0.65	0.85	10	4	300		10	250	5	6/7	23
							60		50	1												
							100	300	10	1	0.3		0.95	50								
							70		1	1												
							40		100 μA	1												
2N3946	TO-18	60	40	6			20		50	1	0.2	0.6	0.9	10	4	250		10	375	5	6/7	23
							50	150	10	1												
							45		1	1	0.3		1.0	50								
							30		100 μA	1												

TEST CONDITIONS:
(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, $I_B{}^1 = I_B{}^2$ = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, $I_B{}^1 = I_B{}^2$ = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, $I_B{}^1 = I_B{}^2$ = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	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	NF (dB) Max	Test Conditions	Process No.
2N3947	TO-18	60	40	6		40		50	1	0.2	0.6	0.9	10	4	300		10	450	5	6/7	23
						100	300	10	1												
						90		1	1	0.3		1.0	50								
						60		100 μA	1												
2N4123	TO-92 (92)	40	30	5	50	25		50	1	0.3		0.95	50	4	250		10		6	7	23
						50	150	2	1												
2N4124	TO-92 (92)	30	25	5	50	20		50	1	0.3		0.95	50	4	300		10		5	7	23
						120	360	2	1												
MPS2711	TO-92 (92)	18	18	5	500	18	30	90	2	4.5				4							23
MPS2712	TO-92 (92)	18	18	5	500	18	75	225	2	4.5				4							23
MPS2716	TO-92 (92)	18	18	5	500	18	75	225	2	4.5				3.5							23
MPS2923	TO-92 (92)	25	25	5	500	25	90	180 (1 kHz)	2	10				12							23
MPS2924	TO-92 (92)	25	25	5	500	25	150	300 (1 kHz)	2	10				12							23
MPS2925	TO-92 (92)	25	25	5	500	25	235	470 (1 kHz)	2	10				12							23
MPS2926	TO-92 (92)	25	25	5	500	18	35 (1 kHz)	470 (5 Groups)	2	10				3.5							23
MPS3642	TO-92 (92)	Same as PN3642, see page 1-22 for explanation																			23
MPS3721	TO-92 (92)				500	18	60	660 (1 kHz)	2	10				3.5							23
MPS3826	TO-92 (92)	60	45	4	100	30	40	160	10	10				3.5	200	800	10				23
MPS3827	TO-92 (92)	60	45	4	100	30	100	400	10	10				3.5	200	800	10				23
MPS6512	TO-92 (92)	40	30	4	50	30	30		100	10	0.5		50	3.5							23
						50	100	2	10												
MPS6513	TO-92 (92)	40	30	4	50	30	60		100	10	0.5		50	3.5							23
						90	180	2	10												
MPS6514	TO-92 (92)	40	25	4	50	30	90		100	10	0.5		50	3.5							23
						150	300	2	10												
MPS6515	TO-92 (92)	40	25	4	50	30	150		100	10	0.5		50	3.5							23
						250	500	2	10												

GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max	h_{FE} Min	h_{FE} 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	Max	@ I_C (mA)	t_{off} (ns) Max	NF (dB) Max	Test Conditions	Process No.
NS3903	TO-18	60	40	6		15		100	1	0.2	0.65	0.85	10	4	250		10	225		6	23
						30		50	1												
						50	150	10	1	0.3		0.95	50								
						35		1	1												
						20		100 μA	1												
NS3904	TO-18	60	40	6		30		100	1	0.2	0.65	0.85	10	4	300		10	250		6	23
						60		50	1												
						100	300	10	1	0.3		0.95	50								
						70		1	1												
						40		100 μA	1												
PN3691	TO-92 (92)	35	20	4	50	40	160	10	1	0.7		0.9	10	3.5	200	500	10				23
PN3692	TO-92 (92)	35	20	4	50	100	400	10	1	0.7		0.9	10	3.5	200	500	10				23
ST3904	TO-92 (92)	60	40	6		40		0.1	1	0.2	0.65	0.85	10	4	300		10		8	7	23
						70		1	1												
						100	300	10	1												
						60		50	1												
						30		100	1	0.3		0.95	50								
2N2712	TO-92 (94)	18	18	5	500	18	75	225	2	4.5				12	80	300	2				27
2N2714	TO-92 (94)	18	18	5	500	18	75	225	2	4.5	0.3	0.6	1.2	50							27
2N3394	TO-92 (94)	25	25	5	100	18	55	110	2	4.5				10							27
2N3693	TO-92 (92)	Same as MPS3693, see page 1-26 for explanation																			27
2N3694	TO-92 (92)	Same as PN3694, see page 1-26 for explanation																			27
2N3721	TO-92 (94)	18	18	5	500	18	60	660 (1 kHz)	2	10				12							27
2N3827	TO-92 (94)	60	45	4	100	30	100	400	10	10				3.5	200	800	10				27
2N3858	TO-92 (94)	30	30	4	500	18	60	120	2	4.5				4	90	250	2				27

TEST CONDITIONS:

(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, I_{B1} = I_{B2} = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, I_{B1} = I_{B2} = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, I_{B1} = I_{B2} = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.

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GENERAL PURPOSE AMPS AND SWITCHES (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CBO} (nA) @ V_{CB} (V) Max		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	NF (dB) Max	Test Conditions	Process No.
2N3859	TO-92 (94)	30	30	4	500	18	100	200	2	4.5					4	90	250	2				27
2N3860	TO-92 (94)	30	30	4	500	18	150	300	2	4.5					4	90	250	2				27
2N5127	TO-92 (92)	Same as PN5127, see below for explanation																				27
2N5131	TO-92 (92)	Same as PN5131, see below for explanation																				27
2N5132	TO-92 (92)	Same as PN5132, see below for explanation																				27
2N5219	TO-92 (92)	20	15	3	100	10	35	500	2	10	0.4		1.0	10	4	150		10				27
2N5223	TO-92 (92)	25	20	3	100	10	50	800	2	10	0.7		1.2	10	4	150		10				27
MPS3693	TO-92 (92)	45	45	4	50	35	40	160	10	10					3.5	200		10		4	9	27
MPS3694	TO-92 (92)	45	45	4	50	35	100	400	10	10					3.5	200		10		4	9	27
MPS6564	TO-92 (92)		45	5	500	40	25		10	5	0.5			10	4							27
MPS6565	TO-92 (92)	60	45	4	100	30	40	160	10	10	0.4			10	3.5							27
MPS6566	TO-92 (92)	60	45	4	100	30	100	400	10	10	0.4			10	3.5	200		10				27
MPSA10	TO-92 (92)		40	4	100	30	40	400	5	10					4	50		5				27
PN3694	TO-92 (92)	45	45	4	50	30	100	400	10	1					6	200		10				27
PN5127	TO-92 (92)	20	12	3	50	10	15	300	2	10	0.3		1.0	10	3.5	150		2				27
PN5131	TO-92 (92)	20	15	3	50	10	35	500	10	1	1.0			10	6	100		10				27
PN5132	TO-92 (92)	20	20	3	50	10	30	400	10	10	2.0		0.9	10	3.5	200		10				27

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TEST CONDITIONS:

(1) I_C = 300 μA, V_{CE} = 10V, f = 1 kHz. (2) I_C = 150 mA, V_{CC} = 30V, $I_B{}^1 = I_B{}^2$ = 15 mA. (3) I_C = 100 μA, V_{CE} = 10V, f = 1 kHz. (4) I_C = 300 mA, V_{CC} = 25V, $I_B{}^1 = I_B{}^2$ = 30 mA. (5) I_C = 100 μA, V_{CE} = 4.5V, f = 15.7 kHz. (6) I_C = 10 mA, V_{CC} = 3V, $I_B{}^1 = I_B{}^2$ = 1 mA. (7) I_C = 100 μA, V_{CE} = 5V, f = 15.7 kHz. (8) I_C = 250 μA, V_{CE} = 5V, f = 10 Hz–15.7 kHz. (9) I_C = 3 mA, V_{CE} = 10V, f = 1 MHz. (10) I_C = 10 μA, V_{CE} = 5V, f = 15.7 kHz.