NATL SEMICOND DISCRETE 11E D 6501130 0037081 9 T-31-01

National Semiconductor

Medium Power

Type 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	NF (dB) Max	Test Conditions	Process No.
2N4030	TO-39	60	60	5	50	50	15		1A	5	1.0			1A	20	100	400	50	400		(Note 3)	67
							25		500	5	0.5			500								
							40		100	5	0.15		0.9	150								
							30	120	0.1	5												
2N4031	TO-39	80	80	5	50	60	10		1A	5	0.5			500	20	100	400	50	400		(Note 3)	67
							25		500	5	0.15		0.9	150								
							40	120	100	5												
							30		0.1	5												
2N4032	TO-39	60	60	5	50	50	40		1A	5	1.0			1A	20	150	500	50	400		(Note 3)	67
							70		500	5	0.5			500								
							100	300	100	5	0.15		0.9	150								
							75		0.1	5												
2N4033 also Avail. JAN/TX/V Versions	TO-39	80	80	5	50	60	25		1A	5	0.5			500	20	150	500	50	400		(Note 3)	67
							70		500	5	0.15		0.9	150								
							100	300	100	5												
							75		0.1	5												
2N4036	TO-39	90	85	7	20	60	20		500	10	0.6		1.4	150	30	60		50	700		(Note 4)	67
							40	140	150	10												
							20		0.1	10												
2N4037	TO-39	60	40	7	250	60	50	250	150	10	1.4			150	30	60		50				67
							15		1	10												
2N4314	TO-39	90	65		250	60	50	250	150	10	1.4			150	30	60		50				67
							15		1	10												
2N4354		Same as PN4354																				67
2N4355		Same as PN4355																				67
2N4356		Same as PN4356																				67

Medium Power (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CES}* I_{CBO} (nA) @ V_{CB} (V) Max	h_{FE} Min	h_{FE} Max	@ I_C (mA)	& V_{CE} (V)	$V_{CE(SAT)}$ (V) & $V_{BE(SAT)}$ (V) @ I_C (mA) Max	$V_{BE(SAT)}$ Min	$V_{BE(SAT)}$ Max	I_C (mA)	C_{OB} (pF) Max	f_T (MHz) @ I_C (mA) Min	f_T Max	I_C	t_{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
MPSA55	TO-92 (92)		60	4	100 @ 60	50		100	1	0.25			100		50		100				67
						50		10	1												
MPSA56	TO-92 (92)		80	4	100 @ 80	50		100	1	0.25			100		50		100				67
						50		10	1												
MPS4354	TO-92 (92)	Same as PN4354																			67
MPS4355	TO-92 (92)	Same as PN4355																			67
MPS4356	TO-92 (92)	Same as PN4356																			67
MPS6562	TO-92 (92)	25	25	5	100 @ 20	50	200	500	1	0.5			500	30	60		10				67
						50		100	1												
						35		10	1												
PN4354	TO-92 (92)	60	60	5	50 @ 50	30		500	10	0.15		0.9	150	30	100	500	50	400	3	14/15	67
						40		100	10												
						50	500	10	10	0.5		1.1	500								
						40		1	10												
						25		0.1	10												
PN4355	TO-92 (92)	60	60	5	50 @ 50	75		500	10	0.15		0.9	150	30	100	500	50	400	3	14/15	67
						75		100	10												
						100	400	10	10	0.5		1.1	500								
						75		1	10												
						60		0.1	10												
PN4356	TO-92 (92)	80	80	5	50 @ 50	30		500	10	0.15		0.9	150	30	100	500	50	400	3	14/15	67
						40		100	10												
						50	250	10	10	0.5		1.1	500								
						40		1	10												
						25		0.1	10												
PN5855	TO-92 (92)	60	60	5	100 @ 40	50	300	150	10	0.4		1.3	15	15	100		50		4		67
						50		10	10												
						50		500	10												
						15		1A	10												

Medium Power (Continued)

Type 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	NF (dB) Max	Test Conditions	Process No.
PN5857	TO-92 (92)	80	80	5	100	60	50	300	150	10	0.4		1.3	15	15	100		50				67
							50		10	10												
							50		500	10												
							15		1A	10												
TN4033	TO-237 (91)	80	80	5	50	60	75		0.1	5	0.15		0.9	150	20	150	500	50				67
							100	300	100	5	0.5			500								
							70		500	5												
							25		1A	5												
TN4036	TO-237 (91)	90	65	7	20	60	20		0.1	10	0.65		1.4	150	30	60	50					67
							40	140	150	10												
							20		500	10												
TN4037	TO-237 (91)	60	40	7	250	60	15		1	10	1.4			150	30	60	200	50				67
							50	250	150	10												
TN4314	TO-237 (91)	90	65		250	60	15		1	10	1.4			150	30	60		50				67
							50	250	150	10												
MPSA92	TO-92 (92)	300	300	5	250	200	25		1	10	0.5		0.9	20	6	50		10				76
							40		10	10												
							25		30	10												
MPSA93	TO-92 (92)	200	200	5	250	160	25		1	10	0.4		0.9	20	8	50		10				76
							40		10	10												
							25	150	30	10												
MPSW92	TO-92 (99)	200	200	5	250	200	25		1	10	0.5		0.9	20	6	50		10				76
							40		10	10												
							25		30	10												
2N6726	TO-237 (91)	40	30	5	100	40	55		10	1	0.5			1A		50		50				77
							60		100	1												
							50	200	1A	1												
2N6727	TO-237 (91)	50	40	5	100	50	55		10	1	0.5			1A		50	500	50				77
							80		100	1												
							50	250	1A	1												
92PU51	TO-237 (91)		30		100	40	50		1A	1	0.5			1A	30	50		50				77
							60		100	1												
							55		10	1												

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Medium Power (Continued)

Type No.	Case Style	V_{CBO} (V) Min	V_{CEO} (V) Min	V_{EBO} (V) Min	I_{CES}* 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.
92PU51A	TO-237 (91)		40		100 50	50		1A	1	0.5			1A	30	80		50				77
						60		100	1												
						55		10	1												
NSD202	TO-202 (55)	60	45	5	100 60	25		1A	5	0.2		0.9	100	30	60		50				77
						40		500	5												
						50	150	100	5												
						40		10	5	0.4		1.2	500								
NSD203	TO-202 (55)	60	45	5	100 60	30		1A	5	0.2		0.9	100	30	60		50				77
						50		500	5												
						120	360	100	5												
						50		10	5	0.4		1.2	500								
NSDU51	TO-202 (55)	40	30	5	100 30	50		1A	1	0.7			1A	30	50		50				77
						60		100	1												
						55		10	1												
NSDU51A	TO-202 (85)	50	40	5	100 40	50		1A	1	0.7			1A	30	50		50				77
						60		100	1												
						55		10	1												
D41D1	TO-202 (55)		30		100* 45	10		1A	2	0.5		1.5	500								78
						50	150	100	2												
D41D2	TO-202 (55)		30		100* 45	20		1A	2	0.5		1.5	500								78
						120	300	100	2												
D41D4	TO-202 (55)		45		100* 60	10		1A	2	0.5		1.5	500								78
						50	150	100	2												
D41D5	TO-202 (55)		45		100* 60	20		1A	2	0.5		1.5	500								78
						120	360	100	2												
D41D7	TO-202 (55)		60		100* 75	10		1A	2	1.0		1.5	500								78
						50	150	100	2												
D41D8	TO-202 (55)		60		100* 75	20		1A	2	1.0		1.5	500								78
						120	360	100	2												
D41D10	TO-202 (55)		75		100* 90	10		1A	2	1.0		1.5	500								78
						50	150	100	2												

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Medium Power (Continued)

Type 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	NF (dB) Max	Test Conditions	Process No.
D41D11	TO-202 (55)		75		100*	90	20		1A	2	1.0		1.5	500								78
							120	360	100	2												
D41D13	TO-202 (55)		75		100*	90	50	150	100	2	1.0		1.5	500								78
D41D14	TO-202 (55)		75		100*	90	120	360	100	2	1.0		1.5	500								78
D41E1	TO-202 (55)		30		100*	40	10		1A	2	1.0		1.3	1A								78
							50		100	2												
D41E5	TO-202 (55)		60		100*	70	10		1A	2	1.0		1.3	1A								78
							50		100	2												
D41E7	TO-202 (55)		80		100*	90	10		1A	2	1.0		1.3	1A								78
							50		100	2												
NSDU52	TO-202 (55)	60	40	5	100	40	30		500	10	0.4		1.3	150	20	150		20				78
							50	300	150	10												
							50		10	10												
2N6554	TO-202 (55)	60	60	5	100	40	25		500	1	1.0			1A	18	75	250	100				78
							60		250	1												
							80	300	50	1												
							80		10	1	0.5			250								
2N6555	TO-202 (55)	60	60	5	100	60	25		500	1	1.0			1A	18	78	250	100				78
							60		250	1												
							80	300	50	1												
							60		10	1	0.8			250								
2N6556	TO-202 (55)	100	100	5	100	80	25		500	1	1.0			1A	18	75	250	100				78
							60		250	1												
							80	300	50	1												
							60		10	1	0.5			250								

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Medium Power (Continued)

Type 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	Max	@ I_C (mA)	t_{OFF} (ns) Max	NF (dB) Max	Test Conditions	Process No.
2N6706	TO-237 (90)	60	45	5	100	60	40		50	2	1.0			1A		50		50				78
							40	250	250	2												
							25		500	2	0.5			500								
2N6709	TO-237 (90)	80	60	5	100	80	40		50	2	1.0			1A		50		50				78
							40	250	250	2												
							25		500	2	0.5			500								
2N6710	TO-237 (90)	100	80	5	100	100	40		50	2	1.0			1A		50		50				78
							40	250	250	2												
							25		500	2	0.5			500								
MPS6727	TO-92 (99)	50	40	5	100	50	60		100	1	0.5		1.2	1A	30							78
							50	250	1A	1												
NSD6180	TO-202 (55)		75		500	80	10		1A	2	0.5		1.2	500	30	50		50				78
							40	250	500	2												
							30		50	2												
NSD6181	TO-202 (55)		50		500	60	10		1A	2	0.5		1.2	500	30	50		50				78
							40	250	500	2												
							30		50	2												
NSDU55	TO-202 (55)	60	60	4	100	60	20		500	1	0.35			250	30	50		200				78
							50		250	1												
							80		50	1												
PE8550	TO-92 (92)	30	25	6	100	20	50	200	10	1	0.15		0.9	200	40	100		50				78
							65	200	100	1												
							65	200	500	1												
							40	200	1A	1	0.5		1.2	1A								
TN4234	TO-237 (91)	40	40	7	0.1 mA	40	40		100	1	0.6		1.5	1A	100							78
							30	150	250	1												
							20		500	1												
							10		1A	1												
TN4235	TO-237 (91)	60	60	7	0.1 mA	60	40		100	1	0.6		1.5	1A	100							78
							30	150	250	1												
							20		500	1												
							10		1A	1												

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Medium Power (Continued)

Type 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	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.
TN4236	TO-237 (91)	80	80	7	0.1 mA	80	40		100	1	0.6		1.5	1A	100							78
							30	150	250	1												
							20		500	1												
							10		1A	1												
2N6728	TO-237 (91)	60	60	5	100	40	80		50	1	0.35			250		50		50				79
							50	250	250	1												
							20		500	1												
2N6729	TO-237 (91)	80	80	5	100	60	80		50	1	0.35			250		50		50				79
							50	250	250	1												
							20		500	1												
2N6730	TO-237 (91)	100	100	5	100	80	80		50	1	0.35			250		50		50				79
							50	250	250	1												
							20		500	1												
2N6732	TO-237 (91)	100	80	5	100	80	100		10	2	0.35			350		50		50				79
							100	300	350	2												
92PU55	TO-237 (91)		60		100	40	20		500	1	0.35			250	30	50		200				79
							50		250	1												
							80		50	1												
92PU56	TO-237 (91)		80		100	60	20		500	1	0.35			250	30	50		200				79
							50		250	1												
							80		50	1												
92PU57	TO-237 (91)		100		100	80	20		500	1	0.35			250	30	50		200				79
							50		250	1												
							80		50	1												
NSD204	TO-202 (55)	100	80	7	100	100	10		1A	5	0.2		0.9	100	30	60		50				79
							50	150	100	5												
							20		10	5	0.5		1.2	500								
NSD205	TO-202 (55)	100	80	7	100	100	10		1A	5	0.2		0.9	100	30	60		50				79
							120	360	100	5												
							20		10	5	0.5		1.2	500								

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Medium Power (Continued)

Type 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	NF (dB) Max	Test Conditions	Process No.
NSD206	TO-202 (55)	140	100	7	100	140	25		500	5	0.2		0.9	100	30	60		50				79
							50	150	100	5												
							20		10	5	0.5		1.2	500								
NSDU56	TO-202 (55)	80	80	4	100	80	20		500	1	0.35			250	30	50		200				79
							50		250	1												
							80		50	1												
NSDU57	TO-202 (55)	100	100	4	100	100	20		500	1	0.35			250	30	50		200				79
							50		250	1												
							80		50	1												

TEST CONDITIONS:

Note 1: I_C = 50 mA, V_{CC} = 100V, $I_B{}^1$ = $I_B{}^2$ = 5 mA.
Note 2: I_C = 500 μA, V_{CE} = 10V, f = 1 kHz.
Note 3: I_C = 500 mA, $I_B{}^1$ = $I_B{}^2$ = 50 mA.
Note 4: I_C = 150 mA, V_{CC} = 30V, $I_B{}^1$ = $I_B{}^2$ = 15 mA.
Note 5: I_C = 100 μA, V_{CC} = 10V, f = 1 kHz.
Note 6: I_C = 500 mA, V_{CC} = 30V, $I_B{}^1$ = $I_B{}^2$ = 50 mA.
Note 7: I_C/I_B = 8.