

勝特力材料 886-3-5753170  
 勝特力电子(上海) 86-21-54151736  
 勝特力电子(深圳) 86-755-83298787  
[Http://www.100y.com.tw](http://www.100y.com.tw)

NPN Transistors



Medium Power

Type No.	Case Style	V <sub>CBO</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CES</sub> * I <sub>CBO</sub> (nA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> & I <sub>C</sub> & V <sub>CE</sub> (V)				V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
						Min	Max	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	Max	Min	Max		Min	Max					
2N699	TO-39	120	60	5	2 60	40	120	150	10	5.0	1.3	150	20	50	50				12	
2N1613 also Avail. JAN/TX/V Versions	TO-5	75	35	7	10 60	20	40	120	150	1.5	1.3	150	25	60	50			12	(Note 1)	12
2N1711	TO-5	75	35	7	10 60	40	100	300	150	1.5	1.3	150	25	70	50			8	(Note 1)	12
2N1890	TO-39	100	60	7	10 75	100	300	150	10	1.2	0.9	50	15	60	50					12
2N1893 also Avail. JAN/TX/V Versions	TO-39	100	80	7	10 90	40	35	120	150	1.2	0.9	50	15	50	50					12
2N2102	TO-39	120	65	7	2 60	10	20	35	10	0.5	1.1	150	15	60	50					12
2N2192	TO-39	60	40	5	10 30	15	75	100	300	0.35	1.3	150	10	50	50					12

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**Medium Power** (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (mA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub>			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
						Min	Max	I <sub>C</sub> (mA)	Max	Min	Max		Min	Max					
2N2192A	TO-39	60	40	5	10 30	15	0.01	10	0.25	1.3	150	20	50	50				12	
						75	0.1	10											
						100	300	10											10
						70		150											10
						35		500											10
15		1A	10																
2N2193	TO-39	80	50	8	10 80	15	0.01	10	0.35	1.3	150	20	50	50				12	
						30	0.1	10											
						40	120	10											10
						30		150											10
						20		500											10
15		1A	10																
2N2193A	TO-39	80	50	8	10 60	15	0.1	10	0.25	1.3	150	20	50	50				12	
						30	10	10											
						40	120	150											10
						30		150											1
						20		500											10
15		1A	10																
2N2243	TO-39	120	80	7	10 60	15	0.1	10	0.35	1.3	150	15	50	50				12	
						30	10	10											
						40	120	150											10
						30		150											1
						15		500											10
2N2243A	TO-39	120	80	7	10 60	15	0.1	10	0.25	1.3	150	15	50	50				12	
						30	10	10											
						40	120	150											10
						30		150											1
						15		500											10
2N3019 also Avail. JAN/TX/V Versions	TO-39	140	80	7	10 90	50	0.1	10	0.2	1.1	150	12	100	50				12	
						90	10	10											
						100	300	150											10
						50		500											10
						15		1A											10

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Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CS</sub> * @ V <sub>CB</sub> (V)		h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub> (V)				V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)			t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.		
					I <sub>CB0</sub> (nA) Max	V <sub>CB</sub> (V)	Min	Max	I <sub>C</sub> (mA)	V <sub>CE</sub> (V)	Max	Min	Max		Min	Max	I <sub>C</sub> (mA)						
2N3020	TO-39	140	80	7	10	90	30	100	0.1	10	0.2	1.1	150	12	80	50				12			
							40	120	10	10													
							40	120	150	10											0.5	500	
							30	100	500	10													
							15		1A	10													
2N3053	TO-39	60	40	5	250	30	25	150	2.5	1.4	1.7	150	15	100	50				12				
							50	250	150											10			
2N3107	TO-39	100	60	7	10	60	35	0.1	10	0.25	1.1	150	20	70	50	1000	7	(Notes 5 & 6)	12				
							100	300	150											10			
							40		500											10	1.0	2.0	1A
2N3108	TO-39	100	60	7	10	60	20	0.1	10	0.25	1.1	150	20	60	50	600	7	(Notes 5 & 6)	12				
							40	120	150											10			
							25		500											10	1.0	2.0	1A
2N3109	TO-39	80	40	7	10*	60	35	0.1	10	0.25	1.1	150	25	70	50	1000	7	(Notes 5 & 6)	12				
							100	300	150											10			
							40		500											10	1.0	2.0	1A
2N3110	TO-39	80	40	7	10*	60	20	0.1	10	0.25	1.1	150	25	60	50	600	7	(Notes 5 & 6)	12				
							40	120	150											10			
							25		500											10	1.0	2.0	1A
2N3568		Same as PN3568																	12				
2N3665	TO-39	120	80	10	50*	60	30	10	10	0.5	1.2	150	12	60	50				12				
							40	120	150											10			
							25		500											10	1.2	1.8	500
2N3666	TO-39	120	80	10	50*	60	70	10	10	0.5	1.2	150	12	60	50				12				
							100	300	150											10			
							50		500											10	1.2	1.8	500
2N3700	TO-18	140	80	7	10	90	50	1	10	0.2	1.1	150	12	100	200	5				12			
							90		10												10		
							100	300	150												10	0.5	500
							50		500												10		
							15		1A												10		

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**Medium Power** (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (mA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> @ I <sub>C</sub> (mA) & V <sub>CE</sub> (V)				V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)			t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
						Min	Max	Min	Max		Min	Max	Min		Max	Min	Max					Min
2N3701	TO-18	140	80	7	10 90	40	120	150	10	0.2		150	12	80	50				12			
						40	120	10	10													
						30	100	0.1	10	0.5	1.1	500										
						30	100	500	10													
15		1	10																			
2N3945	TO-39	70	50	8	40 60	25		10	10	0.5	1.2	150	12	60	50				12			
						40	250	150	10													
						20		500	10	1.8	1.8	500										
2N4945	TO-92 (92)	80	80	5	50 40	40	120	150	1	0.25		150		60	900	50				12		
MPSA05	TO-92 (92)		60	4	100 60	50		10	1	0.25		100		100	100					12		
MPSA06	TO-92 (92)		80	4	100 80	50		10	1	0.25		100		100	100					12		
PN3568	TO-92 (92)	80	60	5	50 40	40		30	1	0.25		150	20	60	600	50				12		
TN1711	TO-237 (91)	75		7	10 60	20		0.01	10	1.5		150	25						12			
						35		0.1	10													
						75		10	11	1.3		150										
						100		150	10													
40	300	500	10																			
TN2102	TO-237 (91)	120	65	7	10 60	10		0.01	10	0.5	1.1	150	15	60	50				12			
						20		0.1	10													
						35		10	10	0.5	1.1	150	15	60	50							
						40	120	150	10													
						25		500	10													
10		1A	10																			
TN3019	TO-237 (91)	140	80	7	10 90	50		1	10	0.2	1.1	150	12	100	50				12			
						90		10	10													
						100	300	150	10	0.5		500										
						50		500	10													
						15		1A	10													

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Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * (V)		V <sub>EBO</sub> (V) Min	I <sub>CS</sub> * (nA)		h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub> (V)				V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
			V <sub>CEO</sub> (V) Min	Max		I <sub>CB0</sub> @ V <sub>CB</sub> (V) Max	Min	Max	Min	Max	Min	Max	Min		Max						
TN3020	TO-237 (91)	140	80	7	10	90	30	100	1	10	0.2	1.1	150	12	80	50				12	
							40	120	10	10											
							40	120	150	10	0.5		500								
							30	100	500	10											
							15		1A	10											
TN3053	TO-237 (91)	60	40	5	250	30	25		150	2.5	1.4	1.7	150	15	100	50				12	
							50	250	150	10											
PN3566	TO-92 (92)	40	30	5	50	20	150	600	10	10	1.0		100	25	4	100	30				13
PN3567	TO-92 (92)	80	40	5	50	40	40	120	150	1	0.25		150	20	60	600	50				13
							40		30	1											
PN3569	TO-92 (92)	80	40	5	50	40	100	300	150	1	0.25		150	20	60	600	50				13
							100		30	1											
2N3566		Same as PN3566																		13	
2N3567		Same as PN3567																		13	
2N3569		Same as PN3568																		13	
2N2657	TO-39	80	50	8	100	60	15		5A	6	0.5	1.5	1A	150	20	200	15		2	34	
							40	120	1A	2											3.0
2N2658	TO-39	100	80	8	100	60	15		5A	6	0.5	1.5	1A		20	200	15		2	34	
							40	120	1A	2											3.0
2N2890	TO-39	100	80	5	50 μA	60	25		2A	5	0.5	1.2	1A	70	30	200	15		3	34	
							30	90	1A	2											
							20		100	2											
2N2891	TO-39	100	80	5	50 μA	60	50	300	50	10	0.5	1.2	1A	70	30	200	15		3	34	
							35		100												
							80	150	1A	2	0.75	1.3	2A								
							40		2A	8											

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**Medium Power** (Continued)

Type No.	Case Style	VCBO (V) Min	VCER* VCEO (V) Min	VEBO (V) Min	ICES* ICBO (nA) @ VCB Max	hFE @ IC & VCE			VCE(SAT) (V) & Max	VBE(SAT) (V) @ IC Max	IC (mA)	Cob (pF) Max	fT (MHz) @ IC		toff (ns) Max	NF (dB) Max	Test Conditions	Process No.	
						Min	Max	Max					Min	Max					Min
2N5148	TO-39		80		1 μA 60	20	50	5	0.46	1.2	100	70	60	200				34	
						30	90	1A											5
						15		2A											5
						5		3A											5
2N5150	TO-39		80		1 μA 60	60	50	5	0.46	1.2	100	70	60	200				34	
						70	200	1A											5
						30		2A											5
						15		3A											5
2N5336	TO-39		80		10 μA 80	30	600	2	0.7	1.2	2A		30	500	2200		7	34	
						30	120	2A											2
						20		5A											2
2N5338	TO-39		100		10 μA 100	30	600	2	0.7	1.2	2A		30	500	2200		7	34	
						30	120	2A											2
						20		5A											2
2N3439	TO-39	450	350	7	20 μA 360	40	160	20	10	0.5	1.3	50	10	15	10		10	36	
2N3440	TO-39		250		20 μA* 300	40	160	20	10									36	
2N6591	TO-202 (55)	150	150	5	200 100	40	250	10	10	0.8	200							36	
						40	200	100	10										
2N6592	TO-202 (55)	200	200	5	200 150	30	250	10	10	0.8	200							36	
						40	200	100	10										
2N6593	TO-202 (55)	250	250	5	200 200	30	250	10	10	0.8	200							36	
						30	200	100	10										
2N6720	TO-237 (91)	175	150	6	1 μA 150	25	50	10	0.5	100			30	300	50			36	
						30		100											10
						15		250											10
						10	50	500											10
2N6721	TO-237 (91)	225	200	6	1 μA 200	25	50	10	0.5	100			30	300	50			36	
						30		100											10
						15		250											10
						10	50	500											10

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Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (nA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub>			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.	
						Min	Max	Min			Max	Min					Max
2N6722	TO-237 (91)	275	250	6	1 μA 250	25	50	10	0.5	100	30	300	50			36	
						30	100	10									
						15	250	10									
						10	50	500									10
2N6723	TO-237 (91)	325	300	6	1 μA 300	25	50	10	0.5	100	30	300	50			36	
						30	100	10									
						15	250	10									
						10	50	500									10
92PU36	TO-237 (91)	175	150	6	1 μA 150	25	50	10	0.5	100						36	
						30	300	100									10
						15	250	10									
						10	500	10									
92PU36A	TO-237 (91)	225	200	6	1 μA 200	25	50	10	0.5	100						36	
						30	300	100									10
						15	250	10									
						10	500	10									
92PU36B	TO-237 (91)	275	250	6	1 μA 250	25	50	10	0.5	100						36	
						30	300	100									10
						15	250	10									
						10	500	10									
92PU36C	TO-237 (91)	325	300	6	1 μA 300	25	50	10	0.5	100						36	
						30	300	100									10
						15	250	10									
						10	500	10									
D40P1	TO-202 (55)		120		10 μA 200	20	2	10	1.0	100	15	10	80			36	
D40P3	TO-202 (55)		180		10 μA 250	20	2	10	1.0	1.5	100	15	10	80			36
D40P5	TO-202 (55)		225		10 μA 300	20	2	10	1.0	1.5	100	15	10	80			36

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**Medium Power (Continued)**

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						Min	Max	I <sub>C</sub> (mA)			Min	Max					
NSD36	TO-202 (55)	175	150	6	1 μA 150	25	50	10	0.5	15	10	50				36	
						30	300	100									10
						15		250									10
						10		500									10
NSD36A	TO-202 (55)	225	200	6	1 μA 200	25	50	10	0.5	15	10	50				36	
						30	300	100									10
						15		250									10
						10		500									10
NSD36B	TO-202 (55)	275	250	6	1 μA 250	25	50	10	0.5	15	10	50				36	
						30	300	100									10
						15		250									10
						10		500									10
NSD36C	TO-202 (55)	325	300	6	1 μA 300	25	50	10	0.5	15	10	50				36	
						30	300	100									10
						15		250									10
						10		500									10
NSD3439	TO-202 (55)		350		20 μA 300	30	2	10	0.5	1.3	50	20	15	10		36	
						40	160	20									10
NSD3440	TO-202 (55)		250		500 μA 200	30	2	10	0.5	1.3	50	20	15	10		36	
						40	160	20									10
TN3440	TO-237 (91)		250		20 μA 250	30	2	10	0.5	1.3	50		15	10		36	
						40	160	20									10
2N6714	TO-237 (91)	40	30	5	100 40	55	10	1	0.5	100	50	500	50			37	
						60	100	1									
						50	250	1A									1
92PU01	TO-237 (91)		30	5	100 40	55	10	1	0.5	1A	30	100	50			37	
						60	100	1									
						50	1A	1									
D40D1	TO-202 (55)		30		100* 45	50	150	100	0.5	1.5	500					37	
						10		1A									

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Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (mA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> Min	h <sub>FE</sub> Max	I <sub>C</sub> (mA) @ V <sub>CE</sub> (V)	V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA) Min	I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) Min	f <sub>T</sub> (MHz) Max	I <sub>C</sub> (mA) @ (mA)	t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
D40D2	TO-202 (55)		30		100* 45	120	360	100 1A	0.5	1.5	500								37
D40D3	TO-202 (55)		30		100* 45	290	10	100 1A		1.5	500								37
D40E1	TO-202 (55)		30		100* 40	50	10	100 1A 2	1.0	1.3	1A								37
D42C1	TO-202 (56)		30		1 μA 30	25	10	200 1A 1	0.5	1.3	1A	30							37
D42C2	TO-202 (56)		30		1 μA 30	40	20	120 200 1A 1	0.5	1.3	1A	30							37
D42C3	TO-202 (56)		30		1 μA 30	40	20	200 2A 1	0.5	1.3	1A	30							37
NSDU01	TO-202 (55)	40	30	5	100 30	55	60	10 100 1A 1	0.5	1.2	1A	30	50		50				37
92PU01A	TO-237 (91)		40	5	100 50	55	60	10 100 1A 1	0.5		1A	30	100		50				38
92PU05	TO-237 (91)	60	100 60	4	100 80	80	50	50 250 500 1	0.35		250	30	50		200				38
D40D4	TO-202 (55)		45		100* 60	50	10	150 100 1A	0.5	1.5	500								38
D40D5	TO-202 (55)		45		100* 60	120	10	360 100 1A	0.5	1.5	500								38
D40D6	TO-202 (55)		45		100* 60	50	10	150 100 1A	1.0	1.5	500								38
D40D7	TO-202 (55)		60		100* 60	50	10	150 100 1A	1.0	1.5	500								38
D40D8	TO-202 (55)		60		100* 75	120	10	360 100 1A 2	1.0	1.5	500								38

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**Medium Power (Continued)**

Type No.	Case Style	V <sub>CBO</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CBO</sub> (nA) @ V <sub>CB</sub> (V) Max		h <sub>FE</sub> Max @ I <sub>C</sub> (mA) & V <sub>CE</sub> (V)			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA) Max		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
					Min	Max	Min	Max	Min	Max	Min		Max	Min				
D40E5	TO-202 (55)		60		100*	70	50 10	100 1A	2	1.0	1.3	1A						38
D42C4	TO-202 (56)		45		1 μA	45	25 10	200 1A	1	0.5	1.3	1A	30					38
D42C5	TO-202 (56)		45		1 μA	45	40 20	120 1A	1	0.5	1.3	1A	30					38
D42C6	TO-202 (56)		45		1 μA	45	40 20	200 2A	1 1	0.5	1.3	1A	30					38
MPS6715	TO-237 TO-226 (99)		40	5	100	50	55 60 50	10 100 1A	1 1 1	0.5		1A	30	50				38
MPS6717	TO-226 (99)	80	80	5	100	60	80 50 20	50 250 500	1 1 1	0.35		250		50 500 200				38
MPSW01	TO-226 (99)		40	5	100	50	55 60 50	10 100 1A	1 1 1	0.5		1A	30	100	50			38
NSD102	TO-202 (55)	60	45	5	100	60	40 50 40 25	10 150 100 500 1A	5 5 5 5	0.2 0.4	0.9 1.2	100 500	30	60	50			38
NSD103	TO-202 (55)	60	45	5	100	60	50 120 50 30	10 360 100 500 1A	5 5 5 5	0.2 0.4	0.9 1.2	100 500	30	60	50			38
NSD6179	TO-202 (55)		50		500 μA	60	30 40 10	500 250 1A	2 2 2	0.5	1.2	500						38
NSDU01A	TO-202 (55)	50	40	5	100	40	55 60 50	10 100 1A	1 1 1	0.5	1.2	1A	30	50	50			38

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Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CS</sub> * I <sub>CB0</sub> (nA) @ V <sub>CB</sub> (V) Max		h <sub>FE</sub> @ I <sub>C</sub> (mA) & V <sub>CE</sub> (V)			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
					Min	Max	Min	Max	Min	Max	Min		Max	Min				
NSDU05	TO-202 (55)	60	60	4	100	60	80	50	1	0.35	250	30	50	200				38
NSE181	TO-202 (56)		60		100	80	50	250	10	1	0.3	500		50	200			38
							30		500	1								
							12		1A	1.5	0.9	1.5	1.5A					
2N6553	TO-202 (55)	100	100	5	100	80	60		10	1	1.0	1A	75	250	100			39
							80	250	50	1								
							60		250	1								
							25		500	1								
2N6717	TO-237 (91)	80	80	5	100	60	80		50	1	0.35	250	50	500	200			39
							50	250	250	1								
							20		500	1								
2N6718	TO-237 (91)	100	100	5	100	80	80		50	1	0.35	350	50	500	200			39
							50	250	250	1								
							20		500	1								
2N6731	TO-237 (91)	100	80	5	100	80	100		10	2	0.35	350	50	500	200			39
							100	300	350	2								
92PU06	TO-237 (91)	80	100	4	100	80	20	500	500	1	0.35	250	30	50	200			39
							50	250	250	1								
							80	50	50	1								
92PU07	TO-237 (91)	100	100	4	100	80	80		50	1	0.35	250	30	50	200			39
							50		250	1								
							20		500	1								
92PU100	TO-237 (91)	100	80		100	80	20		10	5	0.35	350	20	50	100			39
							50	150	100	5								
							10		1A	5								
D40D10	TO-202 (55)		75		100*	90	50	150	100	2	1.0	1.5	500				39	
							10		1A	2								
D40D11	TO-202 (55)		75		100*	90	120	360	100	2	1.0	1.5	500				39	
							10		1A	2								

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**Medium Power** (Continued)

Type No.	Case Style	V <sub>CBO</sub> (V) Min	V <sub>CER</sub> * V <sub>CBO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CBO</sub> (nA) Max	V <sub>CB</sub> (V)	h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub>				V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub>			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub>			t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
							Min	Max	Min	Max	Min	Max	Min		Max	Min	Max				
D40D13	TO-202 (55)		75		100*	90	50	150	100	2	1.0	1.5	500							39	
D40D14	TO-202 (55)		75		100*	90	120	360	100	2	1.0	1.5	500							39	
D40E7	TO-202 (55)		80		100*	90	50		100	2	1.0	1.3	1A							39	
MPSW06	TO-226 (99)	80	80	4	100	80	80		50	1	0.35		250	30	50	200				39	
NSD104	TO-202 (55)	100	80	7	100	100	20		10	5	0.2	0.9	100	30	60	50				39	
							50	150	100	5											
							10		1A	5	0.5	1.2	500								
NSD105	TO-202 (55)	100	80	7	100	100	10		10	5	0.2	0.9	100	30	60	50				39	
							120	360	100	5											
							10		1A	5	0.5	1.2	500								
NSD106	TO-202 (55)	140	100	7	100	140	20		10	5	0.2	0.9	100	30	60	50				39	
							50	150	100	5											
							25		500	5	0.5	1.2	500	50							
NSD6178	TO-202 (55)		75		500 μA	80	30		50	2	0.5	1.2	500							39	
							40	250	500	2											
							10		1A	2											
NSDU06	TO-202 (55)	80	80	4	100	80	80		50	1	0.35		250	30	50	200				39	
							50		250	1											
							20		500	1											
NSDU07	TO-202 (55)	100	100	4	100	100	80		50	1	0.35		250	30	50	200				39	
							50		250	1											
							20		500	1											
2N6711	TO-237 (90)	160	160	7	50	100	15		1	10					40	200	10			48	
							15		10	10											
							30	200	30	10											

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Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> @ V <sub>CB</sub> (nA) (V)		h <sub>FE</sub> I <sub>C</sub> & V <sub>CE</sub> Min Max (mA) (V)			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> Max Min Max (mA)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> Min Max (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
					Max	Max	Max	Max	Max	Min	Max		Min	Max				
2N6712	TO-237 (90)	250	250	7	50	200	15	1	10				40	200	10			48
2N6713	TO-237 (90)	300	300	7	50	250	15	1	10				40	200	10			48
2N6719	TO-237 (91)	300	300	7	100	200	25	1	10				30	300	15			48
2N6733	TO-237 (91)	200	200	6	100	160	25	1	10	2.0	20		50	200	10			48
2N6734	TO-237 (91)	250	250	6	100	200	25	1	10	2.0			50	200	10			48
2N6735	TO-237 (91)	300	300	6	100	260	25	1	10				50	200	10			48
92PE487	TO-237 (90)	160	160	7	50	100	15	1	10	1.0	30	3						48
92PE488	TO-237 (90)	250	250	7	50	100	15	10	10	1.0	30	3						48
92PE489	TO-237 (90)	300	300	7	50	200	15	1	10	1.0	30	3						48
92PU10	TO-237 (91)		300		100	200	25	1	10	0.75	30	3.5						48
92PU391	TO-237 (91)	200	200	6	100	160	25	1	10	2.0	2.0	20	2.5	50	10			48
92PU392	TO-237 (91)	250	250	6	100	200	25	1	10	2.0	2.0	20	2.5	50	10			48

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**Medium Power** (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CE</sub> * I <sub>CB0</sub> (nA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> Max @ I <sub>C</sub> & V <sub>CE</sub> (V)			V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)			C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
						Min	Max	Min		Max	Min	Max		Min	Max				
92PU393	TO-237 (91)	300	300	6	100 260	25 40	1 10	10 10	2.0	2.0	20	2.5	50	10					48
D40N1	TO-202 (55)		250		10 μA 250	20 30 20	4 10	10 10					50	20					48
D40N2	TO-202 (55)		250		10 μA 250	30 60 30	4 10	10 10					50	20					48
D40N3	TO-202 (55)		300		10 μA 300	20 30 20	4 10	10 10					50	20					48
D40N4	TO-202 (55)		300		10 μA 300	30 60 30	4 10	10 10					50	20					48
MPS6733	TO-226 (99)	200	200	6	100 160	25 40	1 10	10 10	2.0		20		50	200	10				48
MPS6734	TO-226 (99)	250	250	6	100 200	25 40	1 10	10 10	2.0				50	200	10				48
MPS6735	TO-226 (99)	300	300	6	100 260	25 40	1 10	10 10					50	200	10				48
MPSA42	TO-92 (92)	300	300	6	100 200	25 40 40	1 10	10 10 10	0.5	0.9	20	3	50	10					48
MPSA43	TO-92 (92)	200	200	6	100 160	25 40 50	1 10	10 10 30	0.4	0.9	20	4	50	10					48
92PU10 MPSW10	TO-226 (99)		300		100 200	25 40 40	1 10	10 10 10	0.75		30	3.5							48
MPSA42 MPSW42	TO-226 (99)	300	300	6	100 200	25 40 40	1 10	10 10 10	0.5	0.9	20	3	50	10					48

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**Medium Power** (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EB0</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (nA) @ V <sub>CB</sub> (V) Max	h <sub>FE</sub> @ I <sub>C</sub> & V <sub>CE</sub> (V)			V <sub>CE(SAT)</sub> (V) & Max	V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA)		C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.
						Min	Max	Min		Max	Min		Max	Min				
MPSA43 MPSW43	TO-226 (99)	200	200	6	100 160	25 40 5	1 10 2000	10 10 10	0.4	0.9	20	4	50	10				48
NSD131	TO-202 (55)	250	250	7	100 150	15 15 30	1 10 90	10 10 10	1.0	0.85	20	3						48
NSD132	TO-202 (55)	250	250	7	100 150	15 30 60	1 10 180	10 10 10	1.0	0.85	20	3						48
NSD133	TO-202 (55)	300	300	7	100 150	15 15 30	1 10 90	10 10 10	1.0	0.85	20	3						48
NSD134	TO-202 (55)	300	300	7	100 150	15 30 60	1 10 180	10 10 10	1.0	0.85	20	3						48
NSD135	TO-202 (55)	375	375	7	100 150	15 30 30	1 10 30	10 10 10	1.0	0.85	20	3						48
NSD457	TO-202 (55)	160	160	5	50 100	25	30	10	1.0		30							48
NSD458	TO-202 (55)	250	250	5	50 200	25	30	10	1.0		30							48
NSD459	TO-202 (55)	300	300	5	50 250	25	30	10	1.0		30							48
NSDU10	TO-202 (55)	300	300	8	200 200	25 40 40	1 10 30	15 15 10	1.5	0.8	20	3	60					48
NSE457	TO-202 (55)	160	160	5	50 100	25	30	10	1.0		30							48
NSE458	TO-202 (55)	250	250	5	50 200	25	30	10	1.0		30							48

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### Medium Power (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CER</sub> * V <sub>CEO</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CES</sub> * I <sub>CB0</sub> (nA) @ V <sub>CB</sub> (V) Max		h <sub>FE</sub> @ I <sub>C</sub> (mA) & V <sub>CE</sub> (V)			V <sub>CE(SAT)</sub> (V) & V <sub>BE(SAT)</sub> (V) @ I <sub>C</sub> (mA) Max	C <sub>ob</sub> (pF) Max	f <sub>T</sub> (MHz) @ I <sub>C</sub> (mA)		t <sub>off</sub> (ns) Max	NF (dB) Max	Test Conditions	Process No.		
					Min	Max	Min	Max	Min			Max	Min					Max	
NSE459	TO-202 (55)	300	300	5	50	250	25	30	10	1.0	30						48		
TN3742	TO-237 (91)	300	300	7	100	200	10	3	10	0.75	1.0	10	6	30	10			48	
							15	10	10										
							20	200	30	10	1.0	1.2							30
							20	50	20										

**TEST CONDITIONS:**

Note 1: I<sub>C</sub> = 50 mA, V<sub>CC</sub> = 100V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA.

Note 2: I<sub>C</sub> = 500 μA, V<sub>CE</sub> = 10V, f = 1 kHz.

Note 3: I<sub>C</sub> = 500 mA, V<sub>CC</sub> = 30V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 50 mA.

Note 4: I<sub>C</sub> = 150 mA, V<sub>CC</sub> = 30V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 15 mA.

Note 5: I<sub>C</sub> = 100 μA, V<sub>CC</sub> = 10V, f = 1 kHz.

Note 6: I<sub>C</sub> = 500 mA, V<sub>CC</sub> = 30V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 50 mA.

Note 7: I<sub>C</sub> = 2A, V<sub>CC</sub> = 40V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 200 mA.

Note 8: I<sub>C</sub> = 1 mA, V<sub>CE</sub> = 6V, f = 60 kHz.

Note 9: I<sub>C</sub>/I<sub>B</sub> = 8.

Note 10: I<sub>C</sub>/I<sub>B</sub> = 12.5.

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