



## SATURATED SWITCHES (Continued)

Type No.	Case Style	V <sub>CB0</sub> (V) Min	V <sub>CE0</sub> (V) Min	V <sub>EBO</sub> (V) Min	I <sub>CE0</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</sub> (SAT) (V) & V <sub>BE</sub> (SAT) (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	1	Max	Min	Max	Min		Max	Min	Max					Min
2N3546	TO-52	15	12	4.5	10	10	15	100	1	0.15	0.7	0.9	10	6	700	10	30		9	64	
							25	50	1	0.25	0.8	1.3	50								
							30	120	1	0.5		1.6	100								
							20		1												
2N3576	TO-52	20	15	5	10	15	10	100	1	0.15	0.75	0.95	10	4.5	400	10	50		5	64	
							40	120	10	0.5	0.5		1.1								100
2N5056	TO-52	15	15	4.5	50*	10	20	100	1	0.13	0.72	0.92	10	4.5	600	30	35		3	64	
							30	100	30	0.5	0.19	0.8	1.15								30
							20		10	0.3											
							12		1	0.5	0.45	0.95	1.5								100
2N5057	TO-52	15	15	4.5	50*	10	30	100	1	0.13	0.72	0.92	10	4.5	800	30	35		3	64	
							40	100	30	0.5	0.19	0.8	1.15								30
							30		10	0.3	0.45	0.95	1.5								100
							20		1	0.5											
2N3304	TO-52	6	6	4	10*	3	20	50	1	0.15	0.7	0.8	1	3.5	500	10	60		7	65	
							30	120	10	0.3	0.16	0.8	1.0								10
							15		1	0.5	0.5		1.5								50
2N3451	TO-52	6	6	4	10*	3	20	50	1	0.16	0.8	1.0	10	5.5	500	10	60		7	65	
							30	120	10	0.3	0.5		1.5								50
2N3639	TO-92 (92)	Same as PN3639, see page 2-4 for explanation																	65		
2N3640	TO-92 (92)	Same as PN3640, see page 2-4 for explanation																	65		
2N4208	TO-52	12	12	4.5	10*	6	30	50	1	0.13		0.8	1	3	700	10	20		5	65	
							30	120	10	0.3	0.15	0.8	0.95								10
							15		1	0.5	0.5		1.5								50
2N4209	TO-52	15	15	4.5	10*	8	40	50	1	0.15		0.8	1	3	850	10	20		5	65	
							50	120	10	0.3	0.18	0.8	0.95								10
							35		1	0.5	0.6		1.5								50
2N4258	TO-92 (92)	Same as PN4258, see page 2-4 for explanation																	65		
2N4258A	TO-92 (92)	Same as PN4258A, see page 2-4 for explanation																	65		
2N5140	TO-92 (92)	Same as PN5140, see page 2-4 for explanation																	65		

### TEST CONDITIONS:

(1) I<sub>C</sub> = 30 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = 3 mA, I<sub>B</sub><sup>2</sup> = 1.5 mA. (2) I<sub>C</sub> = 30 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1.5 mA. (3) I<sub>C</sub> = 30 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 3 mA. (4) 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. (5) I<sub>C</sub> = 10 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (6) I<sub>C</sub> = 10 mA, V<sub>CC</sub> = 1.5V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (7) I<sub>C</sub> = 10 mA, V<sub>CC</sub> = 1.5V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 500 μA. (8) I<sub>C</sub> = 10 mA, V<sub>CC</sub> = 2V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 1 mA. (9) I<sub>C</sub> = 50 mA, V<sub>CC</sub> = 3V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 5 mA. (10) I<sub>C</sub> = 1A, V<sub>CC</sub> = 30V, I<sub>B</sub><sup>1</sup> = I<sub>B</sub><sup>2</sup> = 100 mA.

## Conversion of TO-105/TO-106 to TO-92 (Continued)

### Bipolar

TO-105/106	TO-92	TO-105/106	TO-92	TO-105/106	TO-92
EN2222	PN2222-18	2N3692	PN3692-18	2N4965	2N5086-18
EN2369A	PN2369A-18	2N3693	MPS3693-18	2N4966	2N5209-18
EN2484	PN2484-18	2N3694	PN3694-18	2N4967	2N5210-18
3N2907	PN2907-18	2N4121	PN4121-18	2N4968	2N5209-18
EN918	PN918-18	2N4122	PN4122-18	2N4969	PN2221-18
EN930	PN930-18	2N4140	PN4140-18	2N4970	PN2222-18
SM3904	2N3904-18	2N4141	PN4141-18	2N4971	PN2906-18
SM3906	2N3906-18	2N4142	PN4142-18	2N4972	PN2907-18
2N3563	PN3563-18	2N4143	PN4143-18	2N5127	PN5127-18
2N3564	PN3564-18	2N4248	PN4248-18	2N5128	PN5128-5
2N3565	PN3565-18	2N4249	PN4249-18	2N5129	PN5129-18
2N3566	PN3566-5	2N4250	PN4250-18	2N5130	PN5130-18
2N3567	PN3567-5	2N4250A	PN4250A-18	2N5131	PN5131-18
2N3568	PN3568-5	2N4258	PN4258-18	2N5132	PN5132-18
2N3569	PN3569-5	2N4258A	PN4258A-18	2N5133	PN5133-18
2N3638	PN3638-5	2N4274	PN4274-18	2N5134	PN5134-18
2N3638A	PN3638A-5	2N4275	PN4275-18	2N5135	PN5135-18
2N3639	PN3639-18	2N4354	PN4354-5	2N5136	PN5136-5
2N3640	PN3640-18	2N4355	PN4355-5	2N5137	PN5137-18
2N3641	PN3641-5	2N4356	PN4356-5	2N5138	PN5138-18
2N3642	PN3642-5	2N4916	PN4916-18	2N5139	PN5139-18
2N3643	PN3643-5	2N4917	PN4917-18	2N5142	PN5142-18
2N3644	PN3644-5	2N4944	PN2222A-18	2N5143	PN5143-18
2N3645	PN3645-5	2N4945	PN2222A-18	2N5910	PN5910-18
2N3646	PN3646-18	2N4946	PN2222A-18		
2N3691	PN3691-18	2N4964	MPSA70-18		

### FETs

TO-106	TO-92	TO-106	TO-92	TO-106	TO-92
E100	J203-18	E300	J300-18	KE4393	PN4393-18
E101	J201-18	E304	J304-18	KE4416	PN4416-18
E102	J202-18	E305	J305-18	KE4857	PN4857-18
E103	J203-18	E308	J308-18	KE4858	PN4858-18
E108	J108-18	E309	J309-18	KE4859	PN4859-18
E109	J109-18	E310	J310-18	KE4860	PN4860-18
E110	J110-18	E311	J309-18	KE4861	PN4861-18
E111	J111-18	E312	J310-18	ITE4391	PN4391-18
E112	J112-18	KE3684	PN3684-18	ITE4392	PN4392-18
E113	J113-18	KE3685	PN3685-18	ITE4393	PN4393-18
E114	J114-18	KE3686	PN3686-18	P1086E	P1086-18
E174	J174-18	KE3687	PN3687-18	P1087E	P1087-18
E175	J175-18	KE4091	PN4091-18	U1897E	U1897-18
E176	J176-18	KE4092	KE4092-18	U1898E	U1898-18
E201	J201-18	KE4093	PN4093-18	U1899E	U1899-18
E202	J202-18	KE4220	PN4220-18	2N4302	PN4302-18
E203	J203-18	KE4221	PN4221-18	2N4303	PN4303-18
E210	J210-18	KE4222	PN4222-18	2N4304	PN4304-18
E211	J211-18	KE4223	PN4223-18	2N4342	PN4342-18
E212	J212-18	KE4224	PN4224-18	2N4343	PN4343-18
E270	J270-18	KE4391	PN4391-18	2N4360	PN4360-18
E271	J271-18	KE4392	PN4392-18	2N5033	PN5033-18
				2N5163	PN5163-18