

# SILICON TRANSISTORS



### Maximum Ratings

### Electrical Characteristics At T<sub>J</sub>=25°C

TYPE	P <sub>D</sub>	P <sub>D</sub>	V <sub>CB0</sub>	V <sub>CE0</sub>	V <sub>EB0</sub>	I <sub>C</sub>	h <sub>FE</sub> @ V <sub>CE</sub> /I <sub>C</sub>	V <sub>CE</sub> (sat) @ I <sub>C</sub> /I <sub>B</sub>	f <sub>T</sub>	I <sub>CB0</sub>	C <sub>ob</sub>	Case		
NPN	T <sub>a</sub> =25°C	T <sub>c</sub> =25°C	V	V	V	mA	min/max	V/mA	MHz	nA	pF			
PNP	W	W												
TR 5 2N3701	0.5	1.8	140	80	7	1000	40/120	10/150	0.2	150/15	80	12	TO-18	
2N4030	0.8	4	60	60	5	1000	40/120	5/100	0.5	500/50	100	50	TO-39	
2N4031	0.8	4	80	80	5	1000	40/120	5/100	0.5	500/50	100	50	TO-39	
2N4032	0.8	4	60	60	5	1000	100/300	5/100	0.5	500/50	150	50	TO-39	
2N4033	0.8	4	80	80	5	1000	100/300	5/100	0.5	500/50	150	50	TO-39	
BCY11S	0.6	3	60	60	9	250	12/-	2/30	-	-	100	100	TO-39	
SK100	0.8	4	60	50	6	500	40/300	5/150	-	-	100	1000	TO-39	
TR 4 SK100A	0.8	4	60	50	6	500	40/120	5/150	-	-	100	1000	TO-39	
SK100B	0.8	4	60	50	6	500	100/300	5/150	-	-	100	1000	TO-39	
SK100H	0.8	4	80	60	6	1000	100/300	5/150	0.3	150/15	150	1000	TO-39	
SK101	0.8	4	40	30	5	500	40/300	5/150	-	-	100	1000	TO-39	
SK102	0.8	4	30	30	3.5	1000	40/300	5/500	-	-	100	1000	TO-39	
SL100	0.8	4	60	50	6	500	40/300	5/150	-	-	100	1000	TO-39	
SL100A	0.8	4	60	50	6	500	40/120	5/150	-	-	100	1000	TO-39	
SL100B	0.8	4	60	50	6	500	100/300	5/150	-	-	100	1000	TO-39	
TR 5 SL100H	0.8	5	80	60	7	1000	100/300	5/150	0.3	150/15	100	1000	15	TO-39
SL101	0.8	4	40	30	5	500	40/300	5/150	-	-	100	1000	20	TO-39
SL102	0.8	4	30	30	3.5	1000	40/300	5/500	-	-	100	1000	20	TO-39
TR 16 SF103	0.4	1.8	30	24	5	250	40/300	5/150	-	-	250	1000	8	TO-18
TR 17 SG103	0.4	1.8	30	24	5	250	40/300	5/150	-	-	250	1000	8	TO-18
TR 5 BFX 84	0.8	-	100	60	5	1000	30/-	10/150	0.35	150/15	50	500	-	TO-39
BFX 85	0.8	-	100	60	5	1000	70/-	10/150	0.35	150/15	50	500	-	TO-39
TR 5 BFX 86	0.8	-	40	35	5	1000	70/-	10/150	0.35	150/15	50	500	-	TO-39

### (c) Audio output matched pairs

TYPE	P <sub>D</sub>	V <sub>CB0</sub>	V <sub>CE0</sub>	V <sub>EB0</sub>	I <sub>C</sub>	h <sub>FE</sub> @ V <sub>CE</sub> /I <sub>C</sub>	V <sub>CE</sub> (sat) @ I <sub>C</sub> /I <sub>B</sub>	f <sub>T</sub>	Case	
NPN	mw	V	V	V	A	min-max	V	MHz		
PNP										
TR 5 BC 187B	800	25	20	5.0	1.5	* 30-375	IV/500	0.5	60	TO-92 <sup>+</sup>
TR 4 BC 188B	800	25	20	5.0	1.5	* 80-375	IV/500	0.5	60	TO-92 <sup>+</sup>
5- BC 368	800	25	20	5.0	1.0	85-375	IV/500	0.5	65	TO-92 <sup>+</sup>
TR 4 BC 369	800	25	20	5.0	1.0	85-375	IV/500	0.5	65	TO-92 <sup>+</sup>

$\frac{h_{FE1}/h_{FE2}}{\text{ratio of matched pair 187/188}} = 1.4 @ I_C=500 \text{ mA}/V_{CE}=1\text{V}$

### (d) Medium speed switches

#### Maximum Ratings

#### Electrical Characteristics At T<sub>J</sub>=25°C

TYPE	P <sub>D</sub>	V <sub>CB0</sub>	V <sub>CE0</sub>	V <sub>EB0</sub>	I <sub>C</sub>	h <sub>FE</sub> @ V <sub>CE</sub> /I <sub>C</sub>	V <sub>CE</sub> (sat) @ I <sub>C</sub> /I <sub>B</sub>	f <sub>T</sub>	I <sub>CB0</sub>	C <sub>ob</sub>	t <sub>on</sub>	t <sub>off</sub>	Case		
NPN	T <sub>a</sub> =25°C	V	(sus)	V	mA	min/max	V	MHz	nA	pF	ns	ns			
PNP	W		V												
TR 16 2N995	0.36	20	15	4	200	35/140	1/20	0.2	20/2	100	5	10	65	125	TO-18
2N2218	0.8	60	30	5	800	40/120	10/150	0.4	150/15	250	10	8	-	-	TO-39
2N2218A	0.8	75	40	6	800	40/120	10/150	0.3	150/15	250	10	8	35	285	TO-39
2N2219	0.8	60	30	5	800	100/300	10/150	0.4	150/15	250	10	8	-	-	TO-39
2N2219A	0.8	75	40	6	800	100/300	10/150	0.3	150/15	300	10	8	35	285	TO-39
TR 17 2N2221	0.5	60	30	5	800	40/120	10/150	0.4	150/15	250	10	8	-	-	TO-18
2N2221A	0.5	75	40	6	800	40/120	10/150	0.3	150/15	250	10	8	35	285	TO-18
2N2222	0.5	60	30	5	800	100/300	10/150	0.4	150/15	250	10	8	-	-	TO-18
2N2222A	0.5	75	40	6	800	100/300	10/150	0.3	150/15	300	10	8	35	285	TO-18
2N2696	0.36	25	25	4	500	30/130	1/50	0.25	50/2.5	100	25	20	75	170	TO-18
2N2904	0.6	60	40	5	600	40/120	10/150†	0.4	150/15	200	20	8	45	100	TO-39
2N2904A	0.6	60	60	5	600	40/120	10/150†	0.4	150/15	200	10	8	45	100	TO-39
2N2905	0.6	60	40	5	600	100/300	10/150†	0.4	150/15	200	20	8	45	100	TO-39
2N2905A	0.6	60	60	5	600	100/300	10/150†	0.4	150/15	200	10	8	45	100	TO-39
TR 16 2N2906	0.4	60	40	5	600	40/120	10/150†	0.4	150/15	200	20	8	45	100	TO-18
2N2906A	0.4	60	60	5	600	40/120	10/150†	0.4	150/15	200	10	8	45	100	TO-18
2N2907	0.4	60	40	5	600	100/300	10/150†	0.4	150/15	200	20	8	45	100	TO-18
2N2907A	0.4	60	60	5	600	100/300	10/150†	0.4	150/15	200	10	8	45	100	TO-18
2N3250	0.36	50	40	5	200	50/150	1/10	0.5	50/5	250	20**	6	70	225	TO-18
2N3251	0.36	50	40	5	200	100/300	1/10	0.5	50/5	300	20**	6	70	250	TO-18
2N3251A	0.36	60	60	5	200	100/300	1/10	0.5	50/5	300	20**	6	70	250	TO-18
SF105	0.4	20	20	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18
SF106	0.4	40	40	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18
SF107	0.4	60	60	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18
SG105	0.5	20	20	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18
SG106	0.5	40	40	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18
SG107	0.5	60	60	5	500	75*	10/10	0.4	150/15	200	20	8	50	200	TO-18

\* Typical gain.

\*\* I<sub>CEX</sub>

† Pulse duration ≤ 300 μs

Duty cycle ≤ 2%



