New Jersey Semi-Conductor Products, Inc.

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Absolute Maximum Ratings

Collector-Base Voltage	100V
Collector-Emitter Voltage	80V
Emitter-Base Voltage	8V
D.C. Collector Current	5A
Power Dissipation at 25° C Ambient Temperature	2W
Power Dissipation at 100° C Case Temperature	30W
Operating and Storage Temperature Range	—65 to 200°C

- ☐ Operating Voltages: V_{CEO} to 80 min.
- ☐ Fast Switching: T_{on} 300 nsec.
- ☐ Fast Switching: T_{off} 2000 nsec.
- ☐ Beta Guaranteed at 3 current levels.

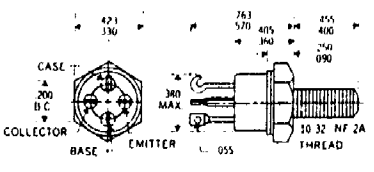
5 AMP POWER SWITCHING TRANSISTORS 2N3996-2N3999

SILICON PLANAR NPN POWER TRANSISTORS

Electrical Specifications (at 25°C unless noted)†

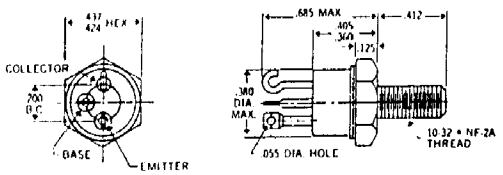
Test	Symbol	2N3996 2N3998 Min.	2N3996 2N3998 Max.	2N3997 2N3999 Min.	2N3997 2N3999 Max.	Units	Test Conditions
D.C. Current gain	h_{FE}	30	—	60	—	—	I_C=50 mA, V_{CE}=2V
D.C. Current gain (Note 1)	h_{FE}	40	120	80	240	—	I_C=1A, V_{CE}=2V
D.C. Current gain (Note 1)	h_{FE}	15	—	20	—	—	I_C=5A, V_{CE}=5V
D.C. Current gain, —55°C (Note 1)	h_{FE}	10	—	20	—	—	I_C=1A, V_{CE}=2V
Collector saturation voltage (Note 1)	V_{CE} (sat)	—	0.25	—	0.25	V	I_C=1A, I_B=100 mA
Collector saturation voltage (Note 1)	V_{CE} (sat)	—	2	—	2	V	I_C=5A, I_B=500 mA
Base saturation voltage (Note 1)	V_{BE} (sat)	0.6	1.2	0.6	1.2	V	I_C=1A, I_B=100 mA
Base saturation voltage (Note 1)	V_{BE} (sat)	—	1.6	—	1.6	V	I_C=5A, I_B=500 mA
Collector-emitter breakdown voltage (Note 1)	BV_{CEO}	80	—	80	—	V	I_C=50 mA, I_B=0
Emitter-base cutoff current	I_{EBO}	—	0.5	—	0.5	μA	V_{BE}=5V, I_C=0
Emitter-base cutoff current	I_{EBO}	—	10	—	10	μA	V_{BE}=8V, I_C=0
Collector cutoff current	I_{CES}	—	5	—	5	μA	V_{CE}=90V, R_{BE}=0
Collector cutoff current	I_{CEO}	—	10	—	10	μA	V_{CE}=60V, I_B=0
Collector cutoff current, 150°C	I_{CES}	—	50	—	50	μA	V_{CE}=90, R_{BE}=0
Collector capacitance	C_{ob}	—	150	—	150	pf	V_{CB}=10V, I_E=0, f=1 mHz
A.C. Current gain (high frequency)	h_{fe}	4	—	4	—	—	I_C=1A, V_{CE}=5V, f=10 mHz
Switching speeds Turn-on time	t_{on}	—	0.3	—	0.3	μSec	I_C=1A
Switching speeds Turn-off time	t_{off}	—	1.5	—	2	μSec	I_{b1}=100mA, I_{b2}= —100 mA

TO-111



ALL ELEMENTS ISOLATED FROM CASE

TO-59



Quality Semi-Conductors