

# POWER TRANSISTORS

## 10 Amp, 120V, Planar NPN

### FEATURES

- Collector-Base Voltage: up to 120V
- Peak Collector Current: 10A
- Fast Switching
- Beta Guaranteed at 3 Current Levels

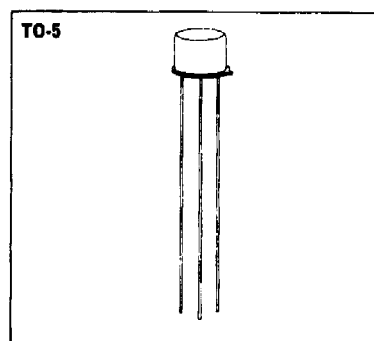
### ABSOLUTE MAXIMUM RATINGS

Collector-Base Voltage, $V_{CBO}$	120V
Collector-Emitter Voltage, $V_{CEO}$	80V
Emitter-Base Voltage, $V_{EBO}$	7V
D.C. Collector Current, $I_C$	10A
Power Dissipation	
25°C Ambient	1.25W
100°C Case	5W
Operating and Storage Temperature Range	-65°C to 200°C

### MECHANICAL SPECIFICATIONS

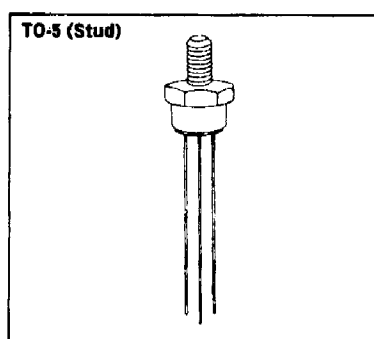
**2N5552**

	INCHES	MILLIMETERS
A	.335 - .370	8.51 - 9.40
B	.305 - .335	7.75 - 8.51
C	.240 - .260	6.09 - 6.60
D	1.5 MIN.	38.10 MIN.
E	.010 - .030	.254 - .762
F	.017 ± .002 .001	.432 ± .051 .025
G	.200	5.08
H	.100	2.54
J	.031 ± .003	.787 ± .076
K	.029 - .045	.736 - 1.14
L	.100	2.54

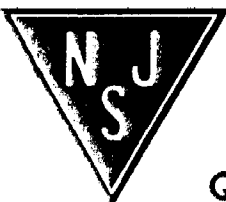


**5552-4**

	INCHES	MILLIMETERS
A	.340 - .360	8.63 - 9.14
B	.315 - .335	8.00 - 8.51
C	.095 - .115	2.41 - 2.92
D	1.5 MIN.	38.10 MIN.
E	.017 ± .001	.432 ± .0254
F	.337 - .387	9.57 - 9.83
G	.424 - .437	10.77 - 11.10
H	.200	5.08



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.



**ELECTRICAL SPECIFICATIONS (at 25°C unless noted)†**

Test	Symbol	Min.	Max.	Units	Test Conditions	
D.C. Current Gain	$h_{FE}$	40	250	—	$I_C = 0.5A, V_{CE} = 2V$	
D.C. Current Gain (Note 2)	$h_{FF}$	50	150	—	$I_C = 5A, V_{CE} = 5V$	
D.C. Current Gain (Note 2)	$h_{FE}$	30	—	—	$I_C = 10A, V_{CE} = 5V$	
Collector Saturation Voltage (Note 2)	$V_{CE(sat)}$	—	0.5	V	$I_C = 5A, I_B = 0.5A$	
Collector Saturation Voltage (Note 2)	$V_{CE(sat)}$	—	1.0	V	$I_C = 10A, I_B = 1A$	
Base Saturation Voltage (Note 2)	$V_{BE(sat)}$	—	1.3	V	$I_C = 5A, I_B = 0.5A$	
Base Saturation Voltage (Note 2)	$V_{BE(sat)}$	—	1.8	V	$I_C = 10A, I_B = 1A$	
Collector-Emitter Sustaining Voltage (Note 2)	$BV_{CER}$	120	—	V	$I_C = 100mA, R_{BE} = 10\Omega$	
Collector-Emitter Sustaining Voltage (Note 2)	$V_{CEO(sus)}$	80	—	V	$I_C = 100mA, I_B = 0$	
Collector-Emitter Voltage (Note 2)	$BV_{CES}$	120	—	V	$I_C = 0.2\mu A, R_{BE} = 0$	
Emitter-Base Breakdown Voltage	$BV_{EBO}$	7	—	V	$I_E = 10\mu A, I_C = 0$	
Collector Cutoff Current	$I_{CES}$	—	0.2	$\mu A$	$V_{CE} = 120V, R_{BE} = 0$	
Collector Cutoff Current, 150°C	$I_{CES}$	—	0.1	mA	$V_{CE} = 80, R_{BE} = 0, T = 150^\circ C$	
Collector Capacitance	$C_{pbo}$	—	150	pf	$V_{CB} = 10, I_C = 0, f = 1MHz$	
A.C. Current Gain	$h_{fb}$	3	—	—	$I_C = 0.5A, V_{CE} = 5V, f = 10MHz$	
Switching Speeds	Turn-on Time	$t_{on}$	—	100	ns	$I_C = 5A$
	Turn-off Time	$t_{off}$	—	700	ns	$I_{BI} = 250ma, I_{IV} = -250ma$

**Notes:**

1. The device may be switched between maximum rated collector current and maximum rated collector-emitter voltage along a resistive load line provided the switching time is less than 10 microseconds. Switching at low speed through regions of high instantaneous power dissipation may cause second breakdown to occur, with consequent damage to the device.

2. Pulse width = 300 $\mu s$ ; duty cycle  $\leq 2\%$ .

† All values in this table are JEDEC registered.

**Switching Speed Circuit**

