

# New Jersey Semi-Conductor Products, Inc.

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 U.S.A.

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**2N6040 thru 2N6042 PNP**  
**2N6043 thru 2N6045 NPN**  
**MJE6040 thru MJE6041 PNP**  
**MJE6043 thru MJE6045 NPN**

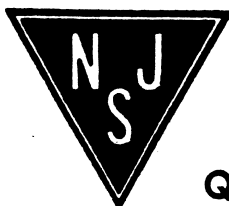
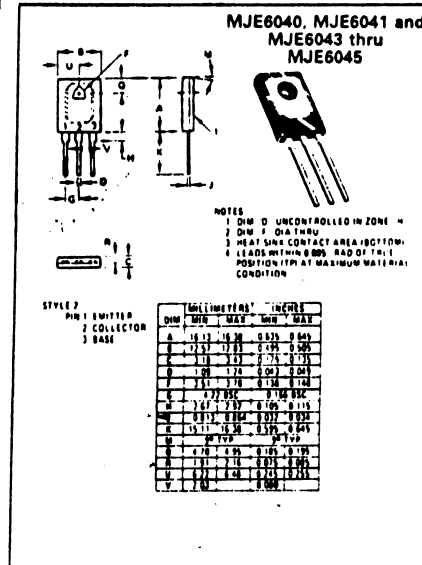
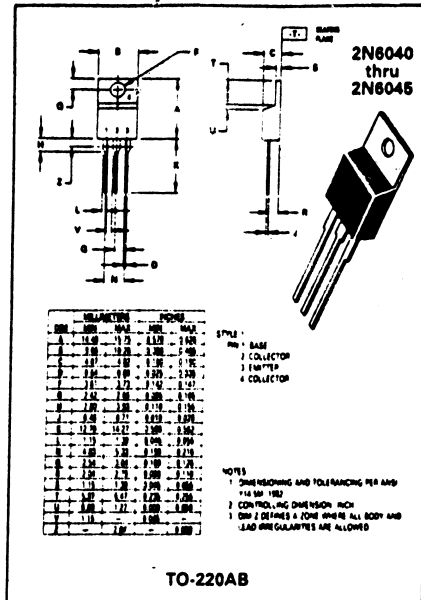
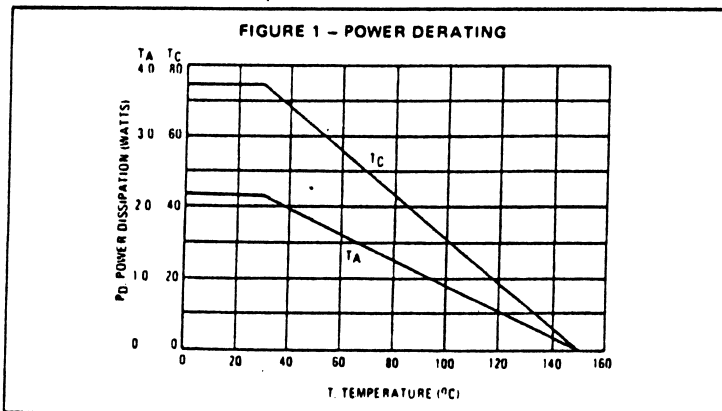
### \*MAXIMUM RATINGS

Rating	Symbol	2N6040	2N6041	2N6042	Unit
		2N6043 MJE6040	2N6044 MJE6041	2N6045 MJE6045	
Collector-Emitter Voltage	V <sub>CEO</sub>	60	80	100	V <sub>dC</sub>
Collector-Base Voltage	V <sub>CB</sub>	60	80	100	V <sub>dC</sub>
Emitter-Base Voltage	V <sub>EB</sub>	← 5.0 →			V <sub>dC</sub>
Collector Current - Continuous	I <sub>C</sub>	← 8.0 →			A <sub>dC</sub>
		← 16 →			
Base Current	I <sub>B</sub>	← 120 →			mA <sub>dC</sub>
Total Power Dissipation @ T <sub>C</sub> = 25°C	P <sub>D</sub>	← 75 →			Watts
		← 0.60 →			
Total Power Dissipation @ T <sub>A</sub> = 25°C	P <sub>D</sub>	← 2.2 →			Watts
		← 0.0175 →			
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	← -65 to +150 →			°C

### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	θ <sub>JC</sub>	1.67	°C/W
Thermal Resistance, Junction to Ambient	θ <sub>JA</sub>	57	°C/W

\*Indicates JEDEC Registered Data



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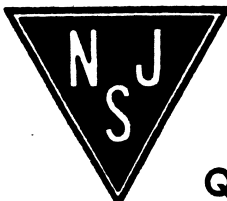
TELEPHONE: (973) 376-2922  
 (212) 227-6000  
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**2N6040 thru 2N6042 PNP**  
**2N6043 thru 2N6045 NPN**  
**MJE6040 thru MJE6041 PNP**  
**MJE6043 thru MJE6045 NPN**

**\*ELECTRICAL CHARACTERISTICS** (T<sub>C</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Sustaining Voltage (I <sub>C</sub> = 100 mA, I <sub>B</sub> = 0)	V <sub>CE(sus)</sub>	80 80 100	- - -	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CE</sub> = 80 Vdc, I <sub>B</sub> = 0) (V <sub>CE</sub> = 80 Vdc, I <sub>B</sub> = 0) (V <sub>CE</sub> = 100 Vdc, I <sub>B</sub> = 0)	I <sub>CEO</sub>	- - -	20 20 20	μA
Collector Cutoff Current (V <sub>CE</sub> = 60 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc) (V <sub>CE</sub> = 80 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc) (V <sub>CE</sub> = 100 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc) (V <sub>CE</sub> = 60 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc, T <sub>C</sub> = 150°C) (V <sub>CE</sub> = 80 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc, T <sub>C</sub> = 150°C) (V <sub>CE</sub> = 100 Vdc, V <sub>BE(off)</sub> = 1.5 Vdc, T <sub>C</sub> = 150°C)	I <sub>CEx</sub>	- - - - - -	20 20 20 200 200 200	μA
Collector Cutoff Current (V <sub>CB</sub> = 80 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 80 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 100 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	- - -	20 20 20	μA
Emitter Cutoff Current (V <sub>BE</sub> = 5.0 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	-	2.0	mA
<b>ON CHARACTERISTICS</b>				
DC Current Gain (I <sub>C</sub> = 4.0 A, V <sub>CE</sub> = 4.0 Vdc) 2N6040, 41, 2N6043, 44, MJE6040, 41, MJE6043, 44 (I <sub>C</sub> = 3.0 A, V <sub>CE</sub> = 4.0 Vdc) 2N6042, 2N6045, MJE6045 (I <sub>C</sub> = 8.0 A, V <sub>CE</sub> = 4.0 Vdc) All Types	h <sub>FE</sub>	1000 1000 100	20,000 20,000 -	-
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 4.0 A, I <sub>B</sub> = 16 mA) 2N6040, 41, 2N6043, 44, MJE6040, 41, MJE6043, 44 (I <sub>C</sub> = 3.0 A, I <sub>B</sub> = 12 mA) 2N6042, 2N6045, MJE6045 (I <sub>C</sub> = 8.0 A, I <sub>B</sub> = 80 mA) All Types	V <sub>CE(sat)</sub>	- - -	2.0 2.0 4.0	V <sub>dc</sub>
Base-Emitter Saturation Voltage (I <sub>C</sub> = 8.0 A, I <sub>B</sub> = 80 mA)	V <sub>BE(sat)</sub>	-	4.5	V <sub>dc</sub>
Base-Emitter On Voltage (I <sub>C</sub> = 4.0 A, V <sub>CE</sub> = 4.0 Vdc)	V <sub>BE(on)</sub>	-	2.8	V <sub>dc</sub>
<b>DYNAMIC CHARACTERISTICS</b>				
Small-Signal Current Gain (I <sub>C</sub> = 3.0 A, V <sub>CE</sub> = 4.0 Vdc, f = 10 MHz)	h <sub>fe</sub>	40	-	-
Output Capacitance (V <sub>CB</sub> = 10 Vdc, I <sub>E</sub> = 0.1 + 0.1 MHz)	C <sub>ob</sub>	- -	300 200	pF
Small-Signal Current Gain (I <sub>C</sub> = 3.0 A, V <sub>CE</sub> = 4.0 Vdc, f = 10 kHz)	h <sub>fe</sub>	300	-	-

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