

# New Jersey Semi-Conductor Products, Inc.

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## 2N4918 thru 2N4920 (SILICON)

**MEDIUM-POWER PLASTIC PNP SILICON TRANSISTORS**  
... designed for driver circuits, switching, and amplifier applications. These high performance plastic devices feature:

- Low Saturation Voltage -  $V_{CE(sat)} = 0.6$  Vdc (Max) @  $I_C = 1.0$  Amp
- Excellent Power Dissipation Due to Thermopad Construction -  $P_D = 30$  and  $40$  W @  $T_C = 25^\circ\text{C}$
- Excellent Safe Operating Area
- Gain Specified to  $I_C = 1.0$  Amp
- Complement to NPN 2N4921, 2N4922, 2N4923 and MJE4921, MJE4922, MJE4923
- Choice of Packages - 2N4918 thru 2N4920, 30 Watts, Case 77  
MJE4918 thru MJE4920, 40 Watts, Case 199

### \*MAXIMUM RATINGS

Ratings	Symbol	2N4918 MJE4918	2N4919 MJE4919	2N4920 MJE4920	Unit
Collector-Emitter Voltage	$V_{CE0}$	40	60	80	Vdc
Collector-Base Voltage	$V_{CB}$	40	60	80	Vdc
Emitter-Base Voltage	$V_{EB}$	5.0			Vdc
Collector Current - Continuous (1)	$I_C$	1.0			Adc
		3.0			Adc
Base Current	$I_B$	1.0			Adc
		1.0			Adc
		2N4918 series		MJE4918 series	
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	30 0.24	40	40 0.32	Watts W/ $^\circ\text{C}$
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +150			$^\circ\text{C}$

### THERMAL CHARACTERISTICS (2)

Characteristic	Symbol	2N4918/20	MJE4918/20	Unit
Thermal Resistance, Junction to Case	$\theta_{JC}$	4.16	3.125	$^\circ\text{C/W}$

\*Indicates JEDEC Registered Data for 2N4918 Series

(1) The 1.0 Amp maximum  $I_C$  value is based upon JEDEC current gain requirements. The 3.0 Amp maximum value is based upon actual current handling capability of the device (See Figure 5).

(2) Recommend use of thermal compound for lowest thermal resistance.

Characteristic	Fig. No.	Symbol	Min	Max	Unit
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### OFF CHARACTERISTICS

Collector-Emitter Sustaining Voltage (1) ( $I_C = 0.1$ Adc, $I_B = 0$ )	—	$V_{CE0(sus)}$	40	—	Vdc
			2N4918, MJE4918 2N4919, MJE4919 2N4920, MJE4920		
Collector Cutoff Current ( $V_{CE} = 20$ Vdc, $I_B = 0$ ) ( $V_{CE} = 30$ Vdc, $I_B = 0$ ) ( $V_{CE} = 40$ Vdc, $I_B = 0$ )	—	$I_{CEO}$	—	0.5	mAdc
			2N4918, MJE4918 2N4919, MJE4919 2N4920, MJE4920		
Collector Cutoff Current ( $V_{CE} = \text{Rated } V_{CE0}$ , $V_{BE(off)} = 1.5$ Vdc) ( $V_{CE} = \text{Rated } V_{CE0}$ , $V_{BE(off)} = 1.5$ Vdc, $T_C = 125^\circ\text{C}$ )	13	$I_{CEX}$	—	0.1	mAdc
Collector Cutoff Current ( $V_{CB} = \text{Rated } V_{CB}$ , $I_E = 0$ )	—	$I_{CBO}$	—	0.1	mAdc
Emitter Cutoff Current ( $V_{BE} = 5.0$ Vdc, $I_C = 0$ )	—	$I_{EBO}$	—	1.0	mAdc

### ON CHARACTERISTICS

DC Current Gain (1) ( $I_C = 50$ mAdc, $V_{CE} = 1.0$ Vdc) ( $I_C = 500$ mAdc, $V_{CE} = 1.0$ Vdc) ( $I_C = 1.0$ Adc, $V_{CE} = 1.0$ Vdc)	9	$h_{FE}$	40	—	—
			20	100	
			10	—	
Collector-Emitter Saturation Voltage (1) ( $I_C = 1.0$ Adc, $I_B = 0.1$ Adc)	10 12 14	$V_{CE(sat)}$	—	0.6	Vdc
Base-Emitter Saturation Voltage (1) ( $I_C = 1.0$ Adc, $I_B = 0.1$ Adc)	12 14	$V_{BE(sat)}$	—	1.3	Vdc
Base-Emitter On Voltage (1) ( $I_C = 1.0$ Adc, $V_{CE} = 1.0$ Vdc)	12 14	$V_{BE(on)}$	—	1.3	Vdc

### SMALL-SIGNAL CHARACTERISTICS

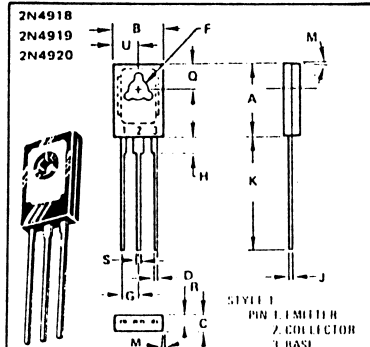
Current Gain - Bandwidth Product ( $I_C = 250$ mAdc, $V_{CE} = 10$ Vdc, $f = 1.0$ MHz)	—	$f_T$	3.0	—	MHz
Output Capacitance ( $V_{CB} = 10$ Vdc, $I_E = 0$ , $f = 100$ kHz)	—	$C_{ob}$	—	100	pF
Small-Signal Current Gain ( $I_C = 250$ mAdc, $V_{CE} = 10$ Vdc, $f = 1.0$ kHz)	—	$h_{fe}$	25	—	—

\*Indicates JEDEC Registered Data for 2N4918 Series.

(1) Pulse Test:  $PW \approx 300 \mu\text{s}$ , Duty Cycle  $\approx 2.0\%$

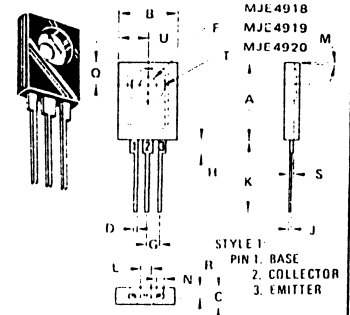
### 3 AMPERE GENERAL-PURPOSE POWER TRANSISTORS

40-80 VOLTS  
30 and 40 WATTS



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.80	11.05	0.425	0.435
B	7.49	7.75	0.295	0.305
C	2.41	2.67	0.095	0.105
D	0.51	0.66	0.020	0.026
F	2.92	3.00	0.115	0.118
G	2.56 BSC		0.091 BSC	
H	2.16	2.41	0.085	0.095
J	0.38	0.64	0.015	0.025
K	15.38	16.64	0.605	0.655
M	30 TYP		30 TYP	
Q	3.76	4.01	0.148	0.158
R	1.14	1.40	0.045	0.055
S	0.64	0.89	0.025	0.035
U	3.68	3.94	0.145	0.155

CASE 77 03



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	16.08	16.33	0.633	0.643
B	17.57	17.83	0.495	0.505
C	3.18	3.43	0.125	0.135
D	0.51	0.76	0.020	0.030
F	3.61	3.86	0.142	0.152
G	2.54 BSC		0.100 BSC	
H	2.63	2.92	0.105	0.115
J	0.43	0.69	0.017	0.027
K	14.73	14.99	0.580	0.590
L	2.18	2.41	0.085	0.095
M	30 TYP		30 TYP	
N	1.47	1.73	0.058	0.068
Q	4.78	5.03	0.188	0.198
R	1.91	2.16	0.075	0.085
S	0.81	0.86	0.032	0.034
T	6.99	7.24	0.275	0.285
U	6.22	6.48	0.245	0.255

1. DIM "G" IS TO CENTER LINE OF LEADS.  
CASE 199 04