

# New Jersey Semi-Conductor Products, Inc.

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## COMPLEMENTARY SILICON PLASTIC POWER TRANSISTORS

... designed for use in general purpose power amplifier and switching applications.

### FEATURES:

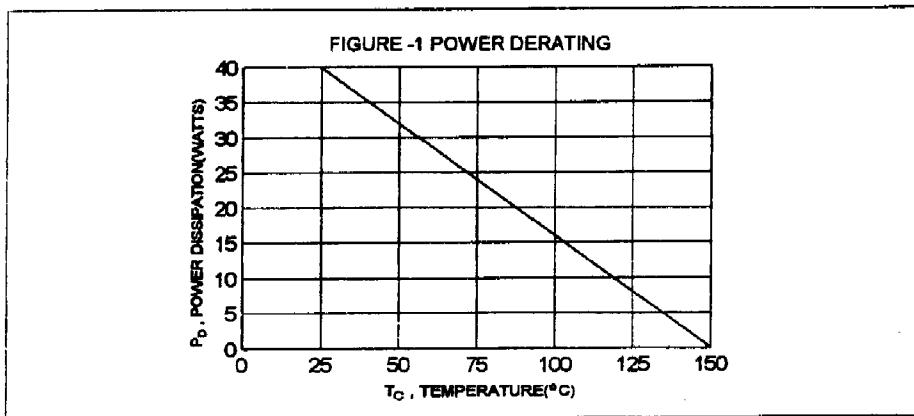
- \* Collector-Emitter Sustaining Voltage -  
 $V_{CE(sus)}$  = 45V(Min)- BD241, BD242  
60V(Min)- BD241A, BD242A  
80V(Min)- BD241B, BD242B  
100V(Min)- BD241C, BD242C
- \* DC Current Gain  $hFE = 25(\text{Min}) @ I_C = 1.0A$
- \* Current Gain-Bandwidth Product  $fT = 3.0 \text{ MHz (Min)} @ I_C = 500mA$

### MAXIMUM RATINGS

Characteristic	Symbol	BD241	BD241A	BD241B	BD241C	Unit
		BD242	BD242A	BD242B	BD242C	
Collector-Emitter Voltage	$V_{CEO}$	45	60	80	100	V
Collector-Base Voltage	$V_{CBO}$	55	70	90	115	V
Emitter-Base Voltage	$V_{EBO}$	5.0				V
Collector Current - Continuous - Peak	$I_C$	3.0 5.0				A
Base Current	$I_B$	1.0				A
Total Power Dissipation @ $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	40 0.32				W W/°C
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-65 to +150				°C

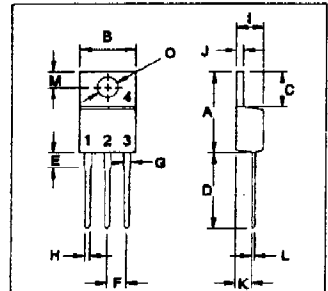
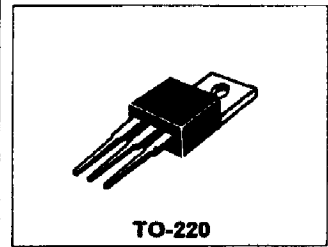
### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	3.125	°C/W



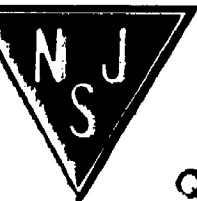
NPN	PNP
BD241	BD242
BD241A	BD242A
BD241B	BD242B
BD241C	BD242C

3 AMPERE  
COMPLEMENTARY SILICON  
POWER TRANSISTORS  
45-100 VOLTS  
40 WATTS



PIN 1. BASE  
2. COLLECTOR  
3. EMITTER  
4. COLLECTOR (CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	14.98	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.98
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90



NJ Semi-Conductors reserves the right to change test conditions, parameters 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.

Quality Semi-Conductors

**ELECTRICAL CHARACTERISTICS (  $T_c = 25^\circ\text{C}$  unless otherwise noted )**

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Sustaining Voltage(1) ( $I_c = 30\text{mA}, I_B = 0$ )	BD241, BD242 BD241A, BD242A BD241B, BD242B BD241C, BD242C	$V_{CE(sus)}$	45 60 80 100	V
Collector Cutoff Current ( $V_{CE} = 30\text{V}, I_B = 0$ ) ( $V_{CE} = 60\text{V}, I_B = 0$ )	BD241/42/41A/42A BD241B/42B/41C/42C	$I_{CEO}$	0.3 0.3	mA
Collector Cutoff Current ( $V_{CE} = 45\text{V}, V_{EB} = 0$ ) ( $V_{CE} = 60\text{V}, V_{EB} = 0$ ) ( $V_{CE} = 80\text{V}, V_{EB} = 0$ ) ( $V_{CE} = 100\text{V}, V_{EB} = 0$ )	BD241/42 BD241A/42A BD241B/42B BD241C/42C	$I_{CES}$	0.2 0.2 0.2 0.2	mA
Emitter Cutoff Current ( $V_{EB} = 5\text{V}, I_C = 0$ )		$I_{EBO}$	1.0	mA

**ON CHARACTERISTICS (1)**

DC Current Gain ( $V_{CE} = 4.0\text{V}, I_C = 1.0\text{A}$ ) ( $V_{CE} = 4.0\text{V}, I_C = 3.0\text{A}$ )	$h_{FE}$	25 10		
Collector-Emitter Saturation Voltage ( $I_C = 3.0\text{A}, I_B = 600\text{mA}$ )	$V_{CE(sat)}$		1.2	V
Base-Emitter On Voltage ( $I_C = 3.0\text{A}, V_{CE} = 4.0\text{V}$ )	$V_{BE(On)}$		1.8	V

**DYNAMIC CHARACTERISTICS**

Current Gain-Bandwidth Product (2) ( $I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 1\text{MHz}$ )	$f_T$	3.0		MHz
Small-Signal Current Gain ( $I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 1\text{KHz}$ )	$h_{fe}$	20		

(1) Pulse Test: Pulse width = 300  $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

(2)  $f_T = |h_{fe}| \cdot f_{max}$