

## COMPLEMENTARY SILICON POWER TRANSISTORS

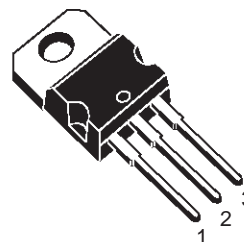
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

### DESCRIPTION

The BD241A, BD241B and BD241C are silicon epitaxial-base NPN transistors mounted in Jedec TO-220 plastic package.

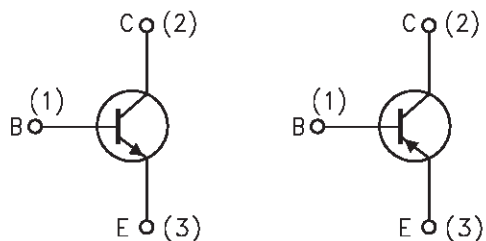
They are intended for use in medium power linear and switching applications.

The complementary PNP types are BD242A, BD242B and BD242C respectively.



TO-220

### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value				Unit
		NPN	BD241A	BD241B	BD241C	
		PNP	BD242A	BD242B	BD242C	
V <sub>CER</sub>	Collector-Base Voltage (R <sub>BE</sub> = 100 Ω)		70	90	115	V
V <sub>CEO</sub>	Collector-Emitter Voltage (I <sub>B</sub> = 0)		60	80	100	V
V <sub>EBO</sub>	Emitter-Base Voltage (I <sub>C</sub> = 0)		5			V
I <sub>C</sub>	Collector Current		3			A
I <sub>CM</sub>	Collector Peak Current		5			A
I <sub>B</sub>	Base Current		1			A
P <sub>tot</sub>	Total Dissipation at T <sub>c</sub> ≤ 25 °C		40			W
P <sub>tot</sub>	Total Dissipation at T <sub>amb</sub> ≤ 25 °C		2			W
T <sub>stg</sub>	Storage Temperature		-65 to 150			°C

## BD241A/B/C/BD242A/B/C

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	3.13	°C/W
R <sub>thj-amb</sub>	Thermal Resistance Junction-ambient	Max	62.5	°C/W

### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = rated V <sub>CEO</sub>			0.2	mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	for <b>BD241A/BD242A</b> V <sub>CE</sub> = 30 V for <b>BD241B/BD242B</b> V <sub>CE</sub> = 60 V for <b>BD241C/BD242C</b> V <sub>CE</sub> = 60 V			0.3 0.3 0.3	mA mA mA
I <sub>EBO</sub>	Emitter Cut-off Current (I <sub>C</sub> = 0)	V <sub>EB</sub> = 5 V			1	mA
V <sub>CEO(sus)*</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 30 mA for <b>BD241A/BD242A</b> for <b>BD241B/BD242B</b> for <b>BD241C/BD242C</b>	60 80 100			V V V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 3 A I <sub>B</sub> = 0.6 A			1.2	V
V <sub>BE*</sub>	Base-Emitter Voltage	I <sub>C</sub> = 3 A V <sub>CE</sub> = 4 V			1.8	V
h <sub>FE*</sub>	DC Current Gain	I <sub>C</sub> = 1 A V <sub>CE</sub> = 4 V I <sub>C</sub> = 3 A V <sub>CE</sub> = 4 V	25 10			
h <sub>fe</sub>	Small Signal Current Gain	I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 10 V f = 1MHz I <sub>C</sub> = 0.5 A V <sub>CE</sub> = 10 V f = 1KHz	3 20			

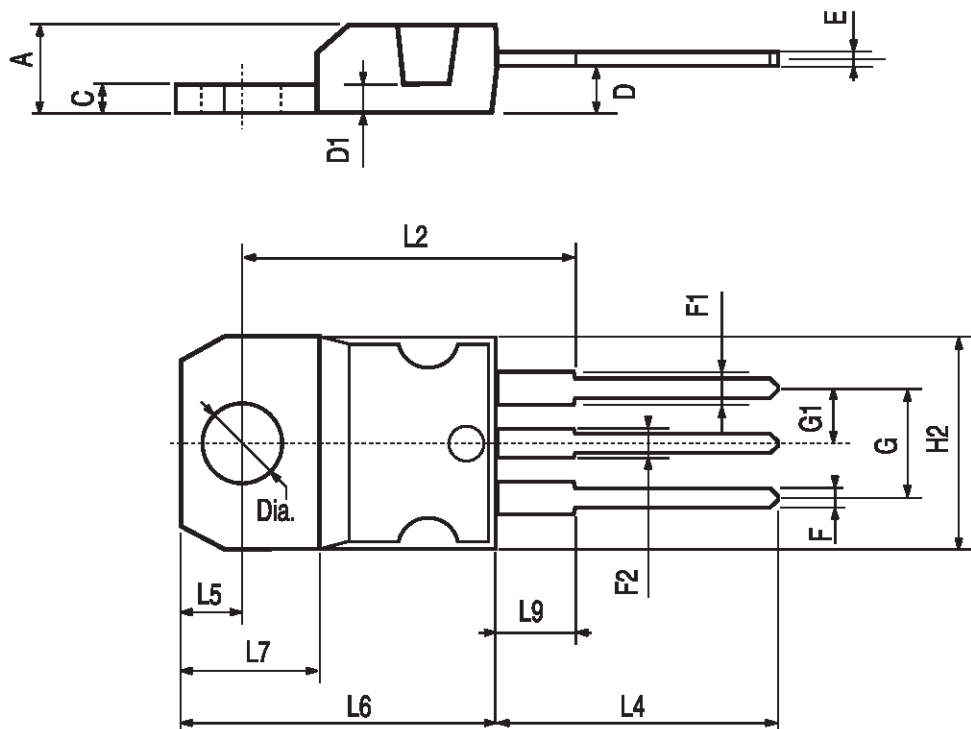
\* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %

For PNP types voltage and current values are negative.

For the characteristics curves see TIP31/TIP32 series.

## TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151



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