SGS-THOMSON MICROELECTRONICS

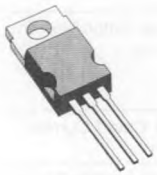
BD241/A/B/C
BD242/A/B/C

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

DESCRIPTION

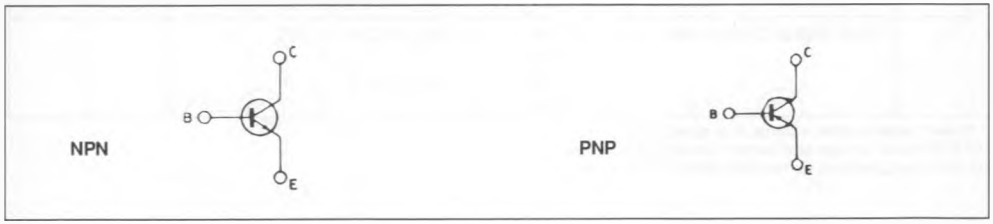
The BD241, BD241A, BD241B and BD241C are silicon epitaxial-base NPN power transistors in Jedec TO-220 plastic package, intended for use in medium power linear and switching applications.

The complementary PNP types are the BD242, BD242A, BD242B and BD242C respectively.



TO-220

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	NPN PNP*	Value				Unit
			BD241 BD242	BD241A BD242A	BD241B BD242B	BD241C BD242C	
V_{CER}	Collector-emitter Voltage (R_{BE} = 100 Ω)		55	70	90	115	V
V_{CEO}	Collector-emitter Voltage (I_B = 0)		45	60	80	100	V
V_{EBO}	Emitter-base Voltage (I_C = 0)		5				V
I_C	Collector Current		3				A
I_{CM}	Collector Peak Current		5				A
I_B	Base-Current		1				A
P_{tot}	Total Power Dissipation at $T_{case} \leq 25$ °C $T_{amb} \leq 25$ °C		40 2				W W
T_{stg}	Storage Temperature		– 65 to 150				°C
T_j	Junction Temperature		150				°C

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	3.13	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	62.5	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cutoff Current (I_B = 0)	for **BD241/42/41A/42A** V_{CE} = 30 V			0.3	mA
		for **BD241B/42B/41C/42C** V_{CE} = 60 V			0.3	mA
I_{CES}	Collector Cutoff Current (V_{BE} = 0)	for **BD241/42** V_{CE} = 45 V			0.2	mA
		for **BD241A/42A** V_{CE} = 60 V			0.2	mA
		for **BD241B/42B** V_{CE} = 80 V			0.2	mA
		for **BD241C/42C** V_{CE} = 100 V			0.2	mA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{EB} = 5 V			1	mA
$V_{CEO(sus)}$*	Collector-emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **BD241/42**	45			V
		for **BD241A/42A**	60			V
		for **BD241B/42B**	80			V
		for **BD241C/42C**	100			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = 3 A I_B = 0.6 A			1.2	V
$V_{BE(on)}$*	Base-emitter Voltage	I_C = 3 A V_{CE} = 4 V			1.8	V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V	25			
		I_C = 3 A V_{CE} = 4 V	10			
h_{fe}	Small Signal Current Gain	I_C = 0.5 A V_{CE} = 10 V f = 1 KHz	20			
		I_C = 0.5 A V_{CE} = 10 V f = 1 MHz	3			

* 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.