EPITAXIAL-BASE NPN/PNP

BD241 BD242
BD241A BD242A
BD241B BD242B
BD241C BD242C

MEDIUM POWER LINEAR AND SWITCHING APPLICATIONS

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,

ABSOLUTE MAXIMUM RATINGS

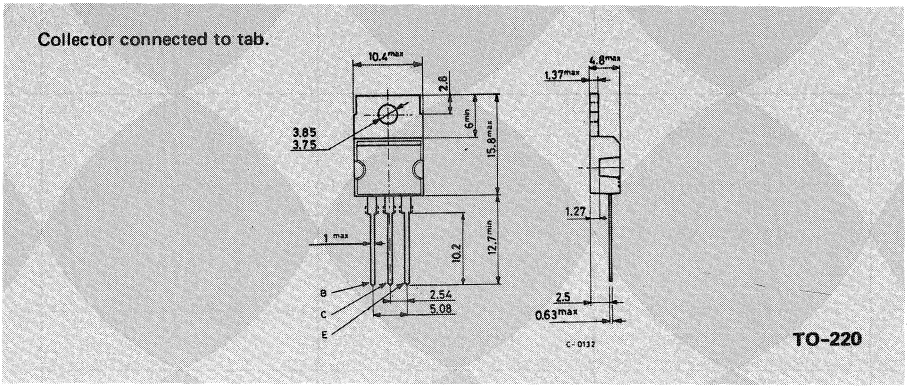
		NPN / PNP*	BD241 / BD242	BD241A / BD242A	BD241B / BD242B	BD241C / BD242C
V_{CER}	Collector-emitter voltage ($R_{BE}=100\Omega$)		55V	70V	90V	115V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)		45V	60V	80V	100V
V_{EBO}	Emitter-base voltage ($I_C = 0$)		5V			
I_C	Collector current		3A			
I_{CM}	Collector peak current		5A			
I_B	Base-current		1A			
P_{tot}	Total power dissipation at $T_{case} \leq 25°C$		40W			
	$T_{amb} \leq 25°C$		2W			
T_{stg}	Storage temperature		-65 to 150°C			
T_j	Junction temperature		150°C			

*** For PNP types voltage and current values are negative**

INTERNAL SCHEMATIC DIAGRAM

MECHANICAL DATA

Dimensions in mm



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)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector cutoff current (I_B = 0)	for **BD241/42/41A/42A** V_{CE} = 30V			0.3	mA
		for **BD241B/42B/41C/42C** V_{CE} = 60V			0.3	mA
I_{CES}	Collector cutoff current (V_{BE} = 0)	for **BD241/42** V_{CE} = 45V			0.2	mA
		for **BD241A/42A** V_{CE} = 60V			0.2	mA
		for **BD241B/42B** V_{CE} = 80V			0.2	mA
		for **BD241C/42C** V_{CE} = 100V			0.2	mA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 5V			1	mA
$V_{CEO\ (sus)}$*	Collector-emitter sustaining voltage (I_B = 0)	I_C = 30mA				
		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 = 3A I_B = 0.6A			1.2	V
$V_{BE\ (on)}$*	Base-emitter voltage	I_C = 3A V_{CE} = 4V			1.8	V
h_{FE}*	DC current gain	I_C = 1A V_{CE} = 4V	25			—
		I_C = 3A V_{CE} = 4V	10			—
h_{fe}	Small signal current gain	I_C = 0.5A V_{CE} = 10V f = 1KHz	20			—
		I_C = 0.5A V_{CE} = 10V f = 1MHz	3			—

* Pulsed: pulse duration = 300μs, duty cycle $\leq$ 2%.

For PNP types voltage and current values are negative

For the characteristics curves see TIP31/TIP32 series