

## COMPLEMENTARY SILICON POWER TRANSISTORS

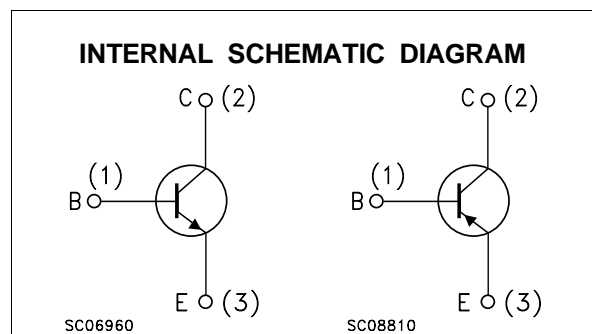
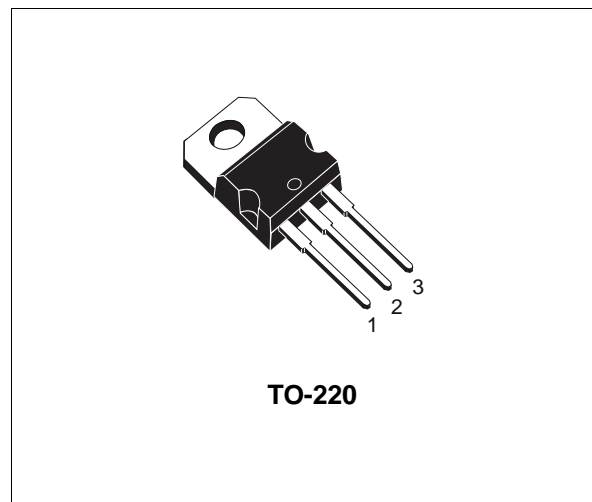
- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

### 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.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value			Unit	
		NPN	BD241A	BD241B		BD241C
		PNP	BD242A	BD242B		BD242C
$V_{CER}$	Collector-Base Voltage ( $R_{BE} = 100 \Omega$ )		70	90	115	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )		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 Dissipation at $T_c \leq 25^\circ C$		40			W
$P_{tot}$	Total Dissipation at $T_{amb} \leq 25^\circ C$		2			W
$T_{stg}$	Storage Temperature		-65 to 150			$^\circ C$
$T_j$	Max. Operating Junction Temperature		150			$^\circ C$

For PNP types voltage and current values are negative.

## 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

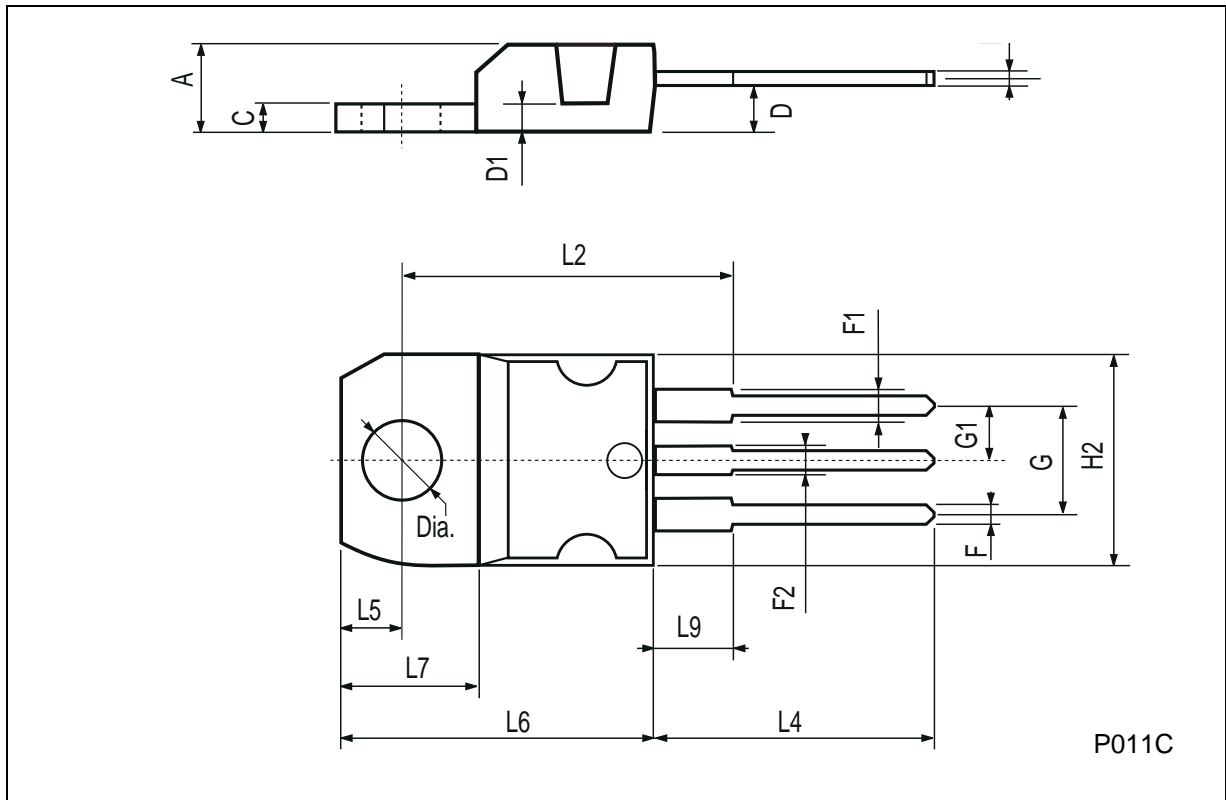
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

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



Information furnished is believed to be accurate and reliable. However, SGS-THOMSON Microelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of SGS-THOMSON Microelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. SGS-THOMSON Microelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of SGS-THOMSON Microelectronics.

© 1997 SGS-THOMSON Microelectronics - Printed in Italy - All Rights Reserved

SGS-THOMSON Microelectronics GROUP OF COMPANIES  
Australia - Brazil - Canada - China - France - Germany - Hong Kong - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -  
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A