

SILICON NPN SWITCHING TRANSISTORS

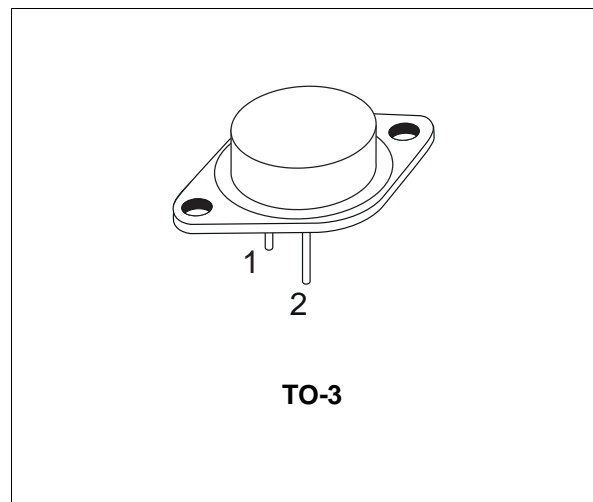
- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH DC CURRENT GAIN

APPLICATIONS

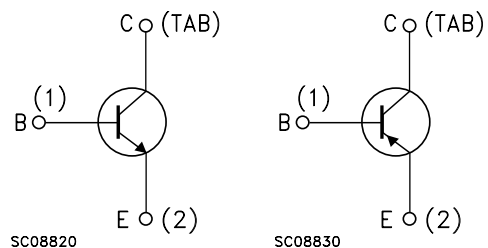
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BDW51C is a silicon epitaxial-base NPN transistor in Jedec TO-3 metal case. It is intended for use in power linear and switching applications. The complementary PNP is the BDW52C.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		NPN	BDW51C	
		PNP	BDW52C	
V_{CBO}	Collector-Base Voltage ($I_E = 0$)		100	V
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)		100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)		100	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)		5	V
I_C	Collector Current		15	A
I_{CM}	Collector Peak Current (repetitive)		20	A
I_B	Base Current		7	A
P_{tot}	Total Dissipation at $T_c = 25^\circ\text{C}$		125	W
T_{stg}	Storage Temperature		-65 to 200	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		200	$^\circ\text{C}$

For PNP types voltage and current values are negative.

BDW51C / BDW52C

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	1.4	$^{\circ}C/W$
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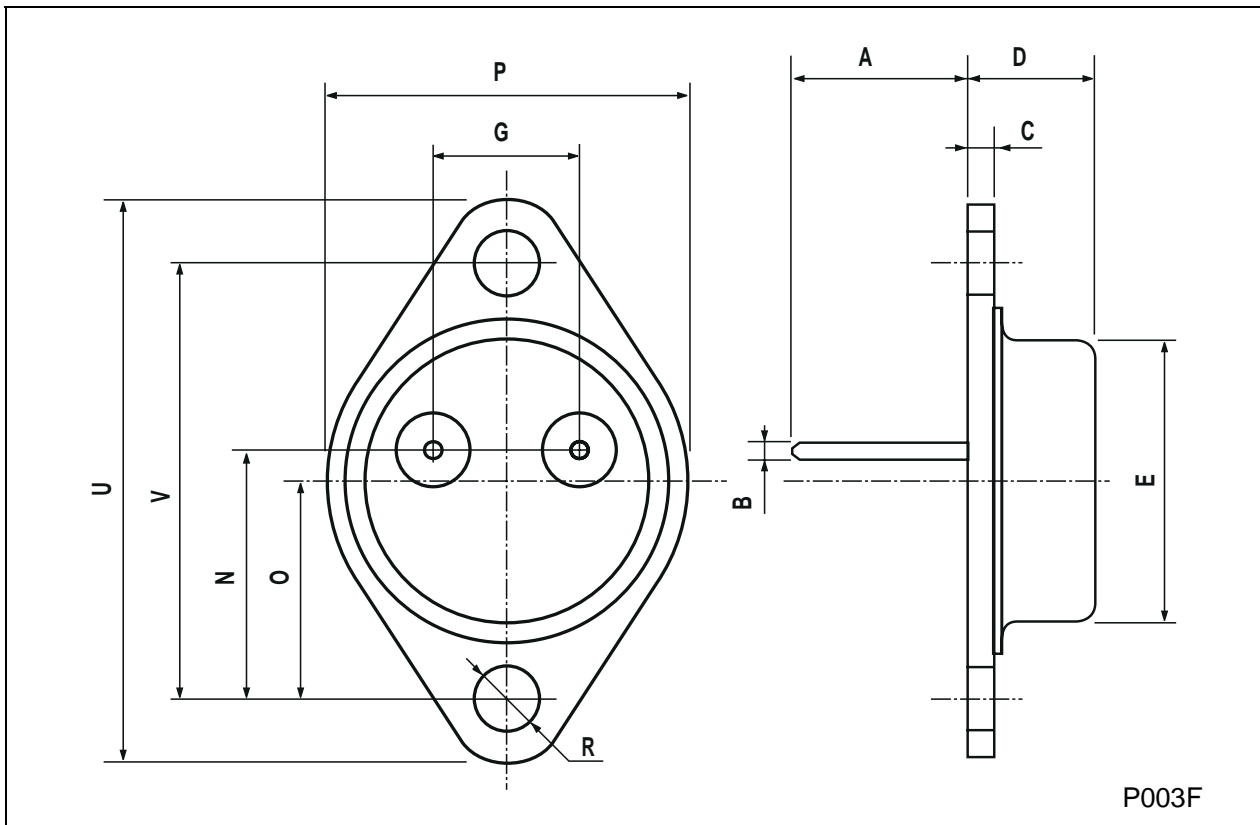
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current ($I_E = 0$)	$V_{CB} = 100 V$ $V_{CB} = 100 V$ $T_{case} = 150^{\circ}C$			500 5	μA mA
I_{CEO}	Collector Cut-off Current ($I_B = 0$)	$V_{CE} = 50 V$			1	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{EB} = 5 V$			2	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 100 mA$	100			V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	$I_C = 5 A$ $I_B = 0.5 A$ $I_C = 10 A$ $I_B = 2.5 A$			1 3	V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	$I_C = 10 A$ $I_B = 2.5 A$			2.5	V V
V_{BE*}	Base-Emitter Voltage	$I_C = 5 A$ $V_{CE} = 4 V$			1.5	V
h_{FE*}	DC Current Gain	$I_C = 5 A$ $V_{CE} = 4 V$ $I_C = 10 A$ $V_{CE} = 4 V$	20 5		150	
f_T	Transition frequency	$I_C = 1 A$ $V_{CE} = 4 V$	3			MHz

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-3 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	0.97		1.15	0.038		0.045
C	1.50		1.65	0.059		0.065
D	8.32		8.92	0.327		0.351
E	19.00		20.00	0.748		0.787
G	10.70		11.10	0.421		0.437
N	16.50		17.20	0.649		0.677
P	25.00		26.00	0.984		1.023
R	4.00		4.09	0.157		0.161
U	38.50		39.30	1.515		1.547
V	30.00		30.30	1.187		1.193



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