



## HIGH CURRENT NPN SILICON TRANSISTOR

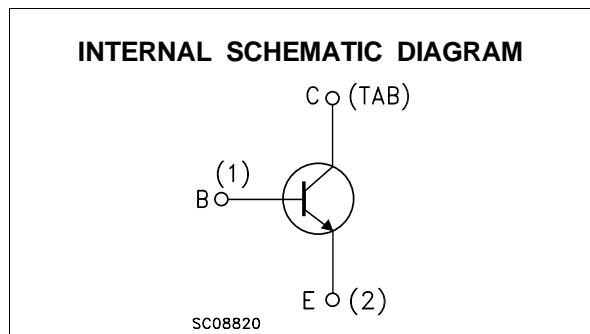
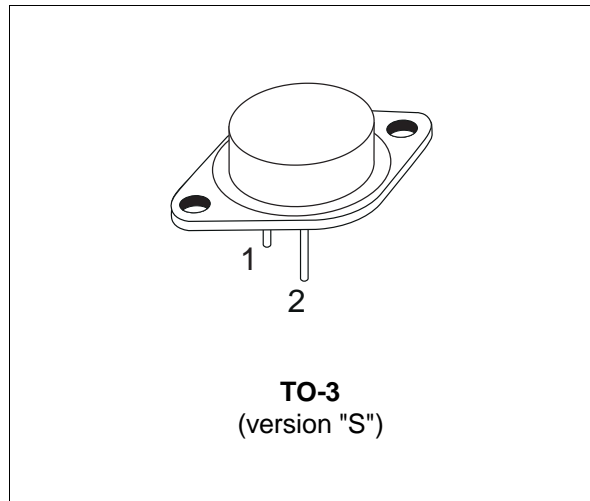
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH RUGGEDNESS

### APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- SWITCHING REGULATORS

### DESCRIPTION

The BUV20 is silicon Multiepitaxial Planar NPN transistor mounted in jedec TO-3 metal case. It is intended for use in switching and linear applications in military and industrial equipment.



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage ( $I_E = 0$ )	160	V
$V_{CER}$	Collector-Emitter Voltage ( $R_{BE} = 100\Omega$ )	150	V
$V_{CEX}$	Collector-Emitter Voltage ( $V_{BE} = -1.5V$ )	160	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	125	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	50	A
$I_{CM}$	Collector Peak Current	60	A
$I_B$	Base Current	10	A
$P_{tot}$	Total Power Dissipation at $T_{case} \leq 25^\circ C$	250	W
$T_{stg}$	Storage Temperature	-65 to 200	$^\circ C$
$T_j$	Junction Temperature	200	$^\circ C$

## BUV20

### THERMAL DATA

R <sub>thj-case</sub>	Thermal Resistance Junction-case	Max	0.7	°C/W
-----------------------	----------------------------------	-----	-----	------

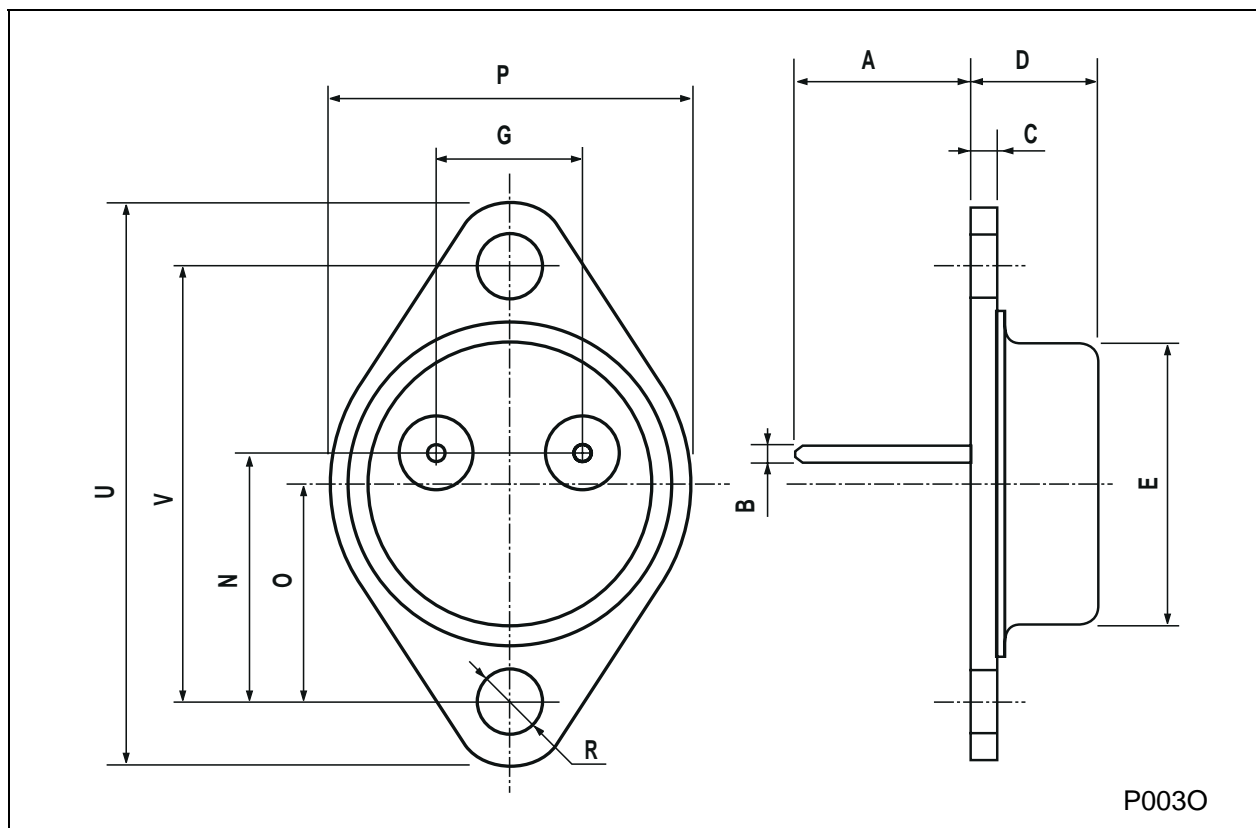
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CEX</sub>	Collector Cut-off Current (V <sub>BE</sub> = -1.5V)	V <sub>CE</sub> = 160 V V <sub>CE</sub> = 160 V      T <sub>case</sub> = 125 °C			3 12	mA mA
I <sub>CEO</sub>	Collector Cut-off Current (I <sub>B</sub> = 0)	V <sub>CE</sub> = 100 V			3	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>B</sub> = 0)	I <sub>C</sub> = 200 mA      L = 25 mH	125			V
V <sub>(BR)EB0*</sub>	Emitter-base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 50 mA	7			V
V <sub>CE(sat)*</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 25 A    I <sub>B</sub> = 2.5 A I <sub>C</sub> = 50 A    I <sub>B</sub> = 5 A		0.3 0.7	0.6 1.2	V V
V <sub>BE(sat)*</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 50 A    I <sub>B</sub> = 5 A		1.4	2	V
h <sub>FE*</sub>	DC Current Gain	V <sub>CE</sub> = 2 V    I <sub>C</sub> = 25 A V <sub>CE</sub> = 4 V    I <sub>C</sub> = 50 A	20 10		60	
f <sub>T</sub>	Transition frequency	V <sub>CE</sub> = 15 V    I <sub>C</sub> = 2 A    f = 100 MHz	8			MHz
t <sub>on</sub> t <sub>f</sub> t <sub>s</sub>	RESISTIVE LOAD Turn-on Time Fall Time Storage Time	I <sub>C</sub> = 50 A    I <sub>B1</sub> = -I <sub>B2</sub> = 5 A			1.5 0.3 1.2	μs μs μs

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

**TO-3 (version S) MECHANICAL DATA**

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	11.00		13.10	0.433		0.516
B	1.47		1.60	0.058		0.063
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



Information furnished is believed to be accurate and reliable. However, STMicroelectronics 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 STMicroelectronics. Specification mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a trademark of STMicroelectronics

© 2000 STMicroelectronics – Printed in Italy – All Rights Reserved

STMicroelectronics GROUP OF COMPANIES

Australia - Brazil - China - Finland - France - Germany - Hong Kong - India - Italy - Japan - Malaysia - Malta - Morocco -  
Singapore - Spain - Sweden - Switzerland - United Kingdom - U.S.A.

<http://www.st.com>