

## HIGH POWER NPN SILICON TRANSISTORS

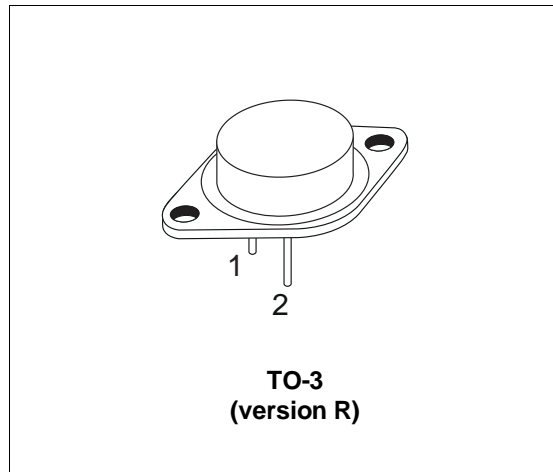
- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

### APPLICATIONS

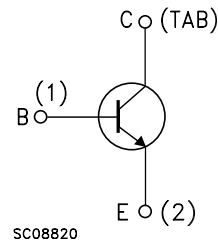
- HIGH FREQUENCY AND EFFICIENCY CONVERTERS
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The BUX98 and BUX98A are silicon multiepitaxial mesa NPN transistor in jedec TO-3 metal case, intended and industrial applications from single and three-phase mains operation.



### INTERNAL SCHEMATIC DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BUX98	BUX98A	
$V_{CEER}$	Collector-Emitter Voltage ( $R_{BE} = \leq 10 \Omega$ )	850	1000	V
$V_{CES}$	Collector-Base Voltage ( $V_{BE} = 0$ )	850	1000	V
$V_{CEO}$	Collector-Emitter Voltage ( $I_B = 0$ )	400	450	V
$V_{EBO}$	Emitter-Base Voltage ( $I_C = 0$ )	7		V
$I_C$	Collector Current	30		A
$I_{CM}$	Collector Peak Current ( $t_p < 5$ ms)	60		A
$I_{CP}$	Collector Peak Current non Rep. ( $t_p < 20 \mu s$ )	80		A
$I_B$	Base Current	8		A
$I_{BM}$	Base Peak Current ( $t_p < 5$ ms)	30		A
$P_{tot}$	Total Power Dissipation at $T_{case} < 25 \text{ }^\circ\text{C}$	250		W
$T_{stg}$	Storage Temperature	-65 to 200		$^\circ\text{C}$
$T_j$	Max Operating Junction Temperature	200		$^\circ\text{C}$

## BUX98 / BUX98A

### THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	0.7	°C/W
----------------	----------------------------------	-----	-----	------

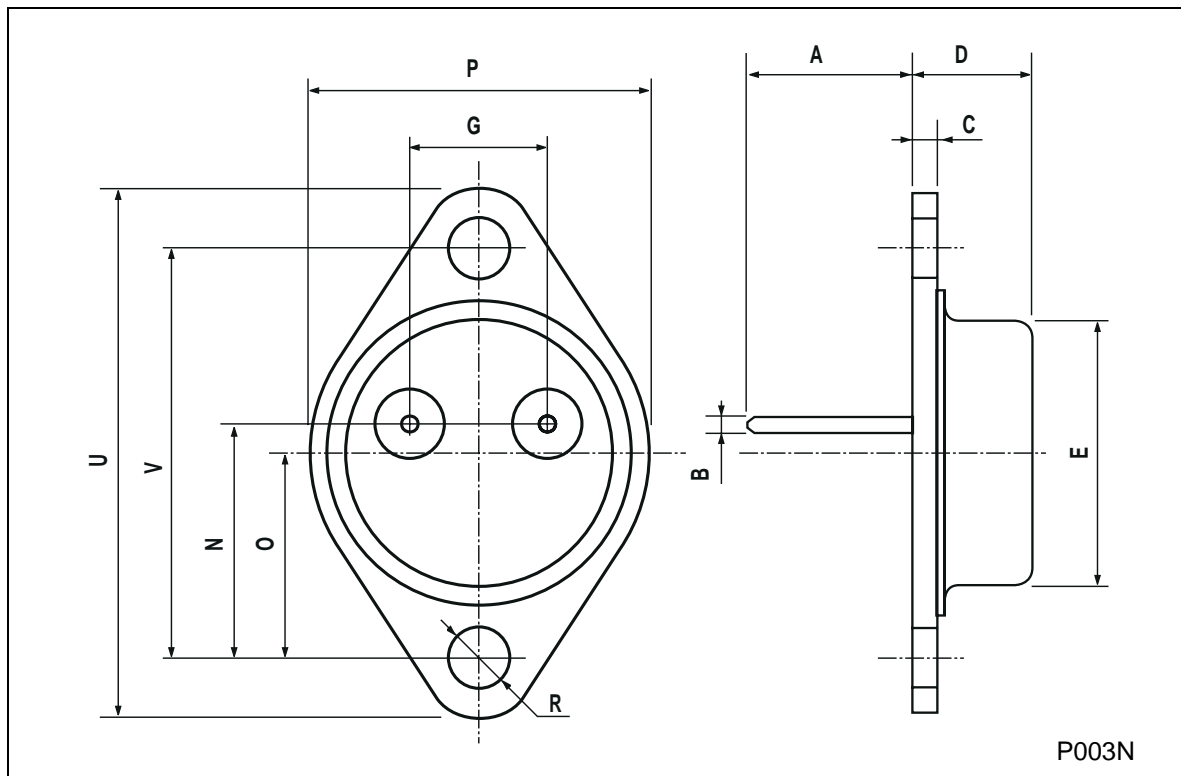
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CER}$	Collector Cut-off Current ( $R_{BE} = 10\ \Omega$ )	$V_{CE} = V_{CES}$ $V_{CE} = V_{CES}$ $T_{CASE} = 125\text{ °C}$			1 8	$\mu\text{A}$ mA
$I_{CES}$	Collector Cut-off Current ( $V_{BE} = 0$ )	$V_{CE} = V_{CES}$ $V_{CE} = V_{CES}$ $T_{CASE} = 125\text{ °C}$			400 4	$\mu\text{A}$ mA
$I_{CEO}$	Collector Cut-off Current ( $I_B = 0$ )	$V_{CE} = V_{CEO}$			2	mA
$I_{EBO}$	Emitter Cut-off Current ( $I_C = 0$ )	$V_{EB} = 5\text{ V}$			2	mA
$V_{CEO(sus)*}$	Collector-Emitter Sustaining Voltage	$I_C = 200\text{ mA}$ for <b>BUX98</b> for <b>BUX98A</b>	400 450			V V
$V_{CER(sus)*}$	Collector-Emitter Sustaining Voltage	$L = 2\text{ mH}$ for <b>BUX98</b> for <b>BUX98A</b> $I_C = 1\text{ A}$	850 1000			V V
$V_{CE(sat)*}$	Collector-Emitter Saturation Voltage	for <b>BUX98</b> $I_C = 20\text{ A}$ for <b>BUX98A</b> $I_C = 16\text{ A}$ $I_C = 24\text{ A}$ $I_B = 4\text{ A}$ $I_B = 3.2\text{ A}$ $I_B = 5\text{ A}$			1.5 1.5 5	V V V
$V_{BE(sat)*}$	Base-Emitter Saturation Voltage	for <b>BUX98</b> $I_C = 20\text{ A}$ for <b>BUX98A</b> $I_C = 16\text{ A}$ $I_B = 4\text{ A}$ $I_B = 3.2\text{ A}$			1.6 1.6	V V
$t_{on}$	Turn-on Time	for <b>BUX98</b>			1	$\mu\text{s}$
$t_s$	Storage Time	$V_{CC} = 150\text{ V}$ $I_C = 20\text{ A}$			3	$\mu\text{s}$
$t_f$	Fall Time	$I_{B1} = - I_{B2} = 4\text{ A}$			0.8	$\mu\text{s}$
$t_{on}$	Turn-on Time	for <b>BUX98A</b>			1	$\mu\text{s}$
$t_s$	Storage Time	$V_{CC} = 150\text{ V}$ $I_C = 16\text{ A}$			3	$\mu\text{s}$
$t_f$	Fall Time	$I_{B1} = - I_{B2} = 3.2\text{ A}$			0.8	$\mu\text{s}$

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle = 1.5 %

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

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		11.7			0.460	
B	0.96		1.10	0.037		0.043
C			1.70			0.066
D			8.7			0.342
E			20.0			0.787
G		10.9			0.429	
N		16.9			0.665	
P			26.2			1.031
R	3.88		4.09	0.152		0.161
U			39.50			1.555
V		30.10			1.185	



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