

HIGH VOLTAGE NPN SILICON POWER TRANSISTORS

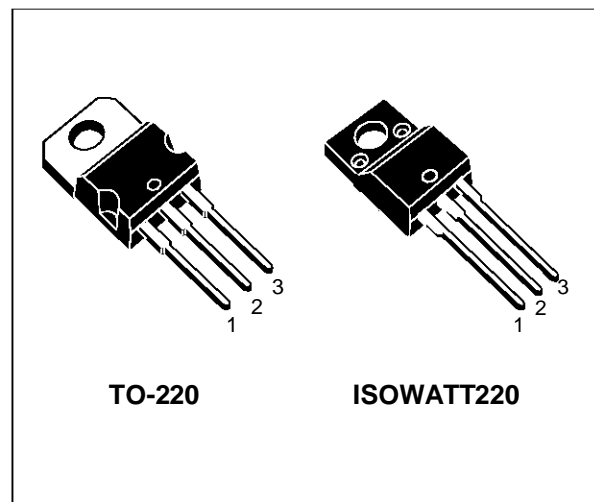
- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- FAST SWITCHING SPEED
- U.L. RECOGNISED ISOWATT220 PACKAGE (U.L. FILE # E81734 (N))

APPLICATIONS

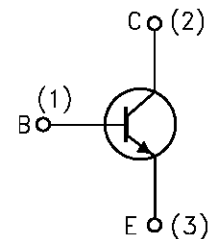
- GENERAL PURPOSE SWITCHING
- SWITCH MODE POWER SUPPLIES
- ELECTRONIC BALLASTS FOR FLUORESCENT LIGHTING

DESCRIPTION

The BUV46A and BUV46FI are silicon multiepitaxial mesa NPN transistors in the Jedec TO-220 plastic package and ISOWATT220 fully isolated package respectively, intended for high voltage, fast switching applications.



INTERNAL SCHEMATIC DIAGRAM



SC08960

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	TO-220 ISOWATT220	BUV46 BUV46FI	BUV46A	Unit
V_{CES}	Collector-Emitter Voltage ($V_{BE} = 0$)		850	1000	V
V_{CEX}	Collector-Emitter Voltage ($V_{BE} = -2.5V$)		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		5		A
I_B	Base Current		3		A
			TO-220	ISOWATT220	
P_{tot}	Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$		70	30	W
T_{stg}	Storage Temperature		-65 to 150		$^\circ\text{C}$
T_j	Max. Operating Junction Temperature		150		$^\circ\text{C}$

BUV46/FI-BUV46A

THERMAL DATA

			TO-220	ISOWATT220	
$R_{thj-case}$	Thermal Resistance Junction-Case	Max	1.76	4.12	°C/W

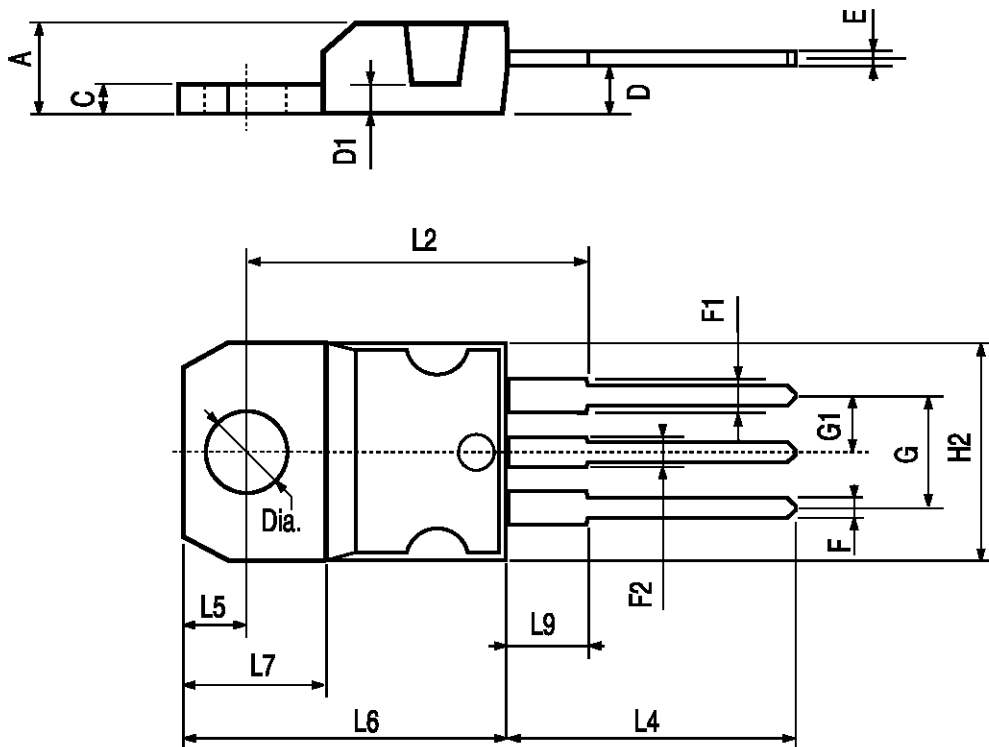
ELECTRICAL CHARACTERISTICS ($T_{case} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CER}	Collector Cut-off Current ($R_{BE} = 10\Omega$)	$V_{CE} = V_{CEX}$ $V_{CE} = V_{CEX}$ $T_C = 125\text{ }^{\circ}\text{C}$			0.1 1	mA mA
I_{CEX}	Collector Cut-off Current	$V_{CE} = V_{CEX}$ $V_{BE} = -2.5\text{ V}$ $V_{CE} = V_{CEX}$ $V_{BE} = -2.5\text{ V}$ $T_C = 125\text{ }^{\circ}\text{C}$			0.3 2	mA
I_{EBO}	Emitter Cut-off Current ($I_C = 0$)	$V_{BE} = 7\text{ V}$			1	mA
$V_{CEO(sus)}^*$	Collector-Emitter Sustaining Voltage	$I_C = 100\text{ mA}$ for BUV46/FI for BUV46A	400 450			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	for BUV46/FI $I_C = 2.5\text{ A}$ $I_B = 0.5\text{ A}$ $I_C = 3.5\text{ A}$ $I_B = 0.7\text{ A}$ for BUV46A $I_C = 2\text{ A}$ $I_B = 0.4\text{ A}$ $I_C = 3\text{ A}$ $I_B = 0.6\text{ A}$			1.5 5 1.5 5	V V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	for BUV46/FI $I_C = 2.5\text{ A}$ $I_B = 0.5\text{ A}$ for BUV46A $I_C = 2\text{ A}$ $I_B = 0.4\text{ A}$			1.3 1.3	V V
t_{on} t_s t_f	Turn-on Time Storage Time Fall Time	$I_C = 2.5\text{ A}$ $V_{CC} = 150\text{ V}$ $I_{B1} = -I_{B2} = 0.5\text{ A}$ for BUV46/FI			1 3 0.8	μs μs μs
t_{on} t_s t_f	Turn-on Time Storage Time Fall Time	$I_C = 2\text{ A}$ $V_{CC} = 150\text{ V}$ $I_{B1} = -I_{B2} = 0.4\text{ A}$ for BUV46A			1 3 0.8	μs μs μs

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

TO-220 MECHANICAL DATA

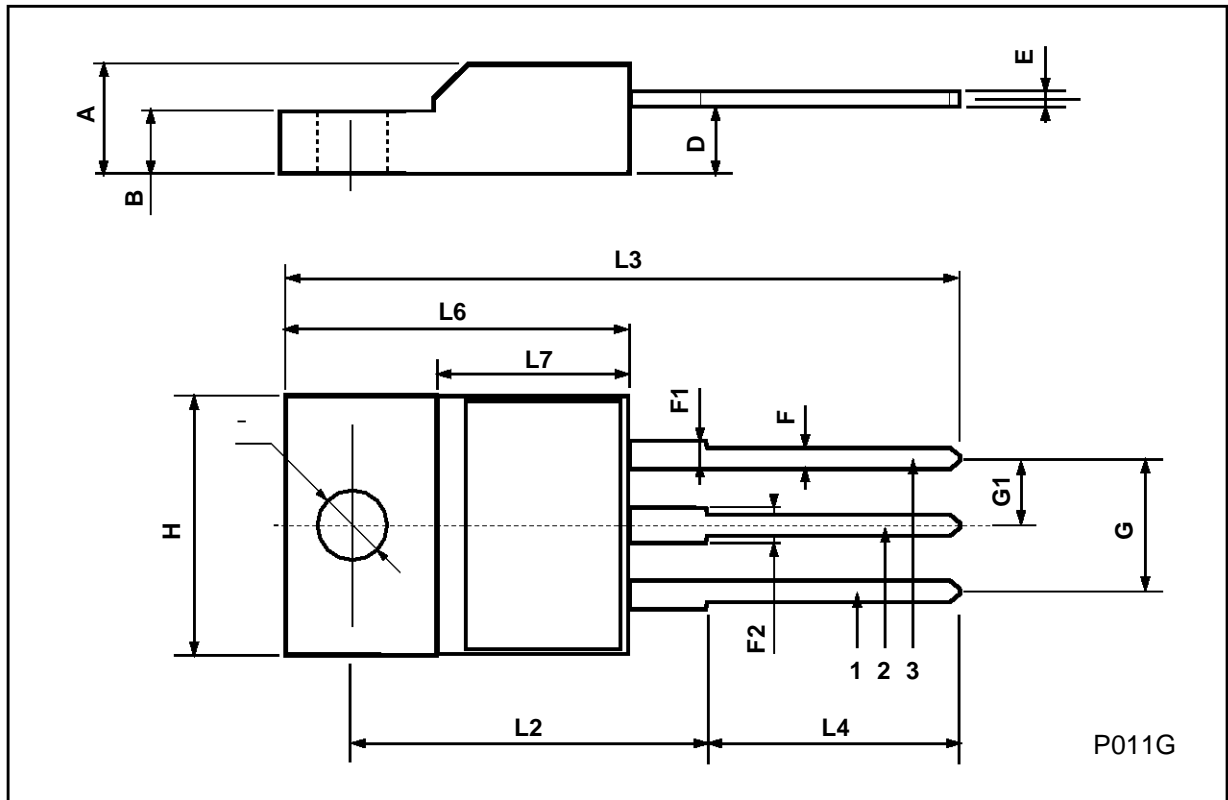
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
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



P011C

ISOWATT220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.4		4.6	0.173		0.181
B	2.5		2.7	0.098		0.106
D	2.5		2.75	0.098		0.108
E	0.4		0.7	0.015		0.027
F	0.75		1	0.030		0.039
F1	1.15		1.7	0.045		0.067
F2	1.15		1.7	0.045		0.067
G	4.95		5.2	0.195		0.204
G1	2.4		2.7	0.094		0.106
H	10		10.4	0.393		0.409
L2		16			0.630	
L3	28.6		30.6	1.126		1.204
L4	9.8		10.6	0.385		0.417
L6	15.9		16.4	0.626		0.645
L7	9		9.3	0.354		0.366
Ø	3		3.2	0.118		0.126



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 - Italy - Japan - Korea - Malaysia - Malta - Morocco - The Netherlands -
Singapore - Spain - Sweden - Switzerland - Taiwan - Thailand - United Kingdom - U.S.A

...