

## HIGH VOLTAGE NPN SILICON POWER TRANSISTORS

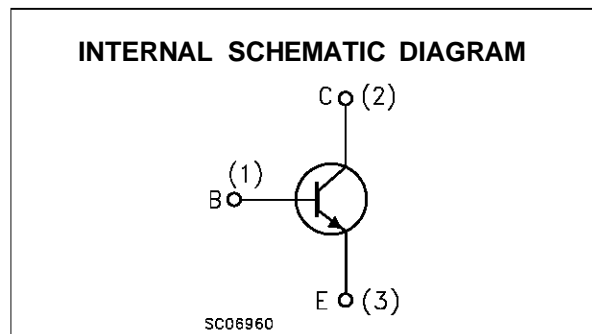
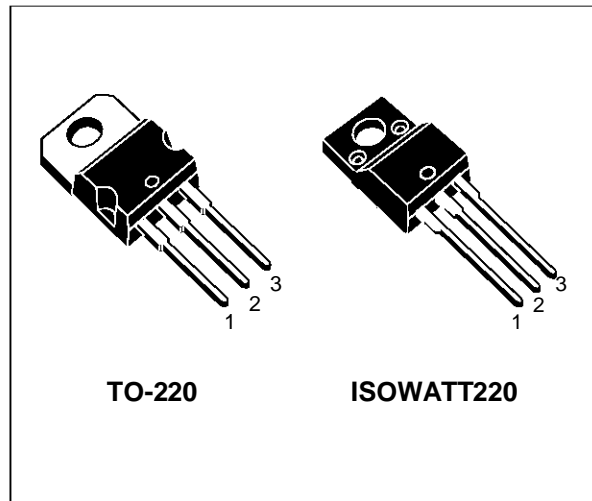
- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR
- HIGH VOLTAGE CAPABILITY
- MINIMUM LOT-TO-LOT SPREAD FOR RELIABLE OPERATION
- FAST SWITCHING SPEED
- U.L. RECOGNISED ISOWATT220 PACKAGE (U.L. FILE # E81734 (N))

### 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.



### 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
			<b>TO-220</b>	<b>ISOWATT220</b>	
$P_{tot}$	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

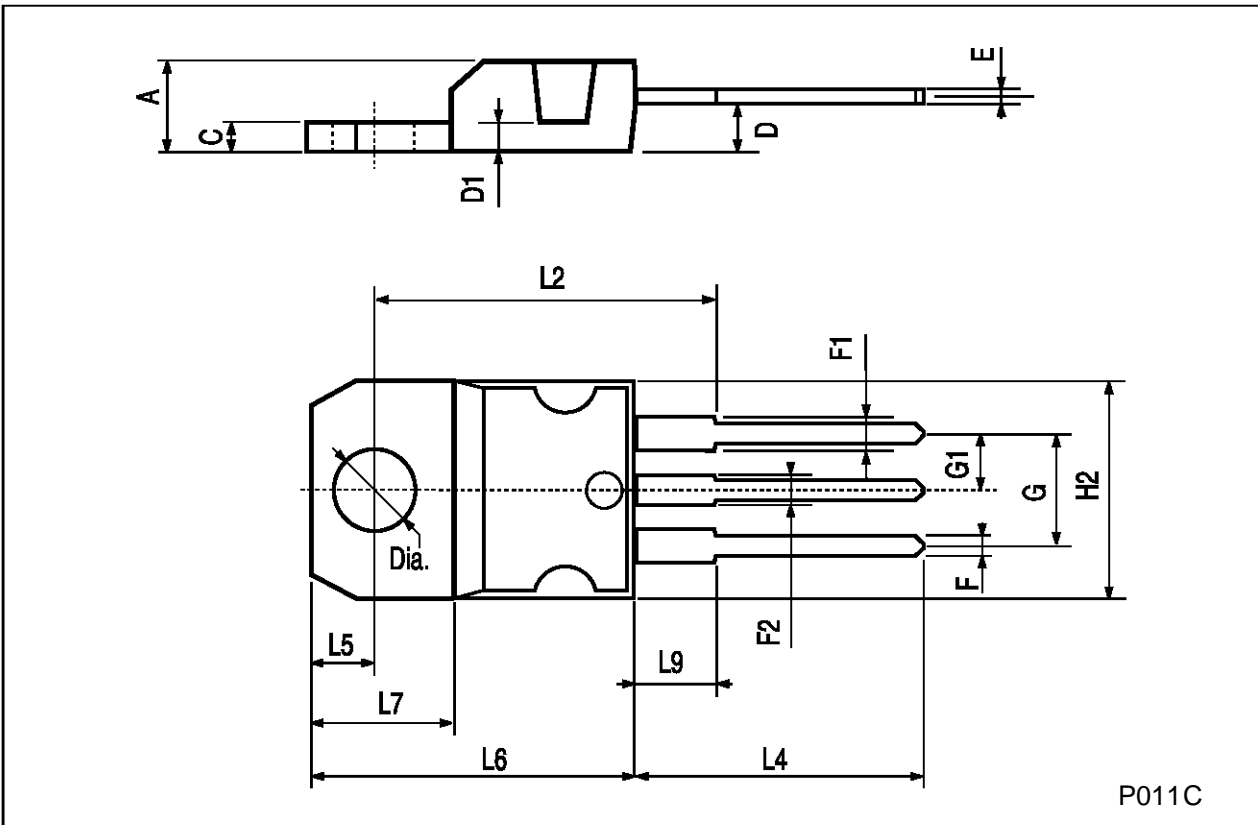
## ELECTRICAL CHARACTERISTICS ( $T_{case} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CER}$	Collector Cut-off Current ( $R_{BE} = 10\Omega$ )	$V_{CE} = V_{CEX}$ $V_{CE} = V_{CEX}$ $T_C = 125\text{ °C}$			0.1 1	mA mA
$I_{CEX}$	Collector Cut-off Current	$V_{CE} = V_{CEX}$ $V_{BE} = -2.5\text{ V}$ $V_{CE} = V_{CEX}$ $V_{BE} = -2.5\text{ V}$ $T_C = 125\text{ °C}$			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 <b>BUV46/FI</b> for <b>BUV46A</b>	400 450			V V
$V_{CE(sat)}^*$	Collector-Emitter Saturation Voltage	for <b>BUV46/FI</b> $I_C = 2.5\text{ A}$ $I_B = 0.5\text{ A}$ $I_C = 3.5\text{ A}$ $I_B = 0.7\text{ A}$ for <b>BUV46A</b> $I_C = 2\text{ A}$ $I_B = 0.4\text{ A}$ $I_C = 3\text{ A}$ $I_B = 0.6\text{ A}$			1.5 5 1.5 5	V V V V
$V_{BE(sat)}^*$	Base-Emitter Saturation Voltage	for <b>BUV46/FI</b> $I_C = 2.5\text{ A}$ $I_B = 0.5\text{ A}$ for <b>BUV46A</b> $I_C = 2\text{ A}$ $I_B = 0.4\text{ A}$			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 <b>BUV46/FI</b>			1 3 0.8	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$
$t_{on}$ $t_s$ $t_f$	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 <b>BUV46A</b>			1 3 0.8	$\mu\text{s}$ $\mu\text{s}$ $\mu\text{s}$

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

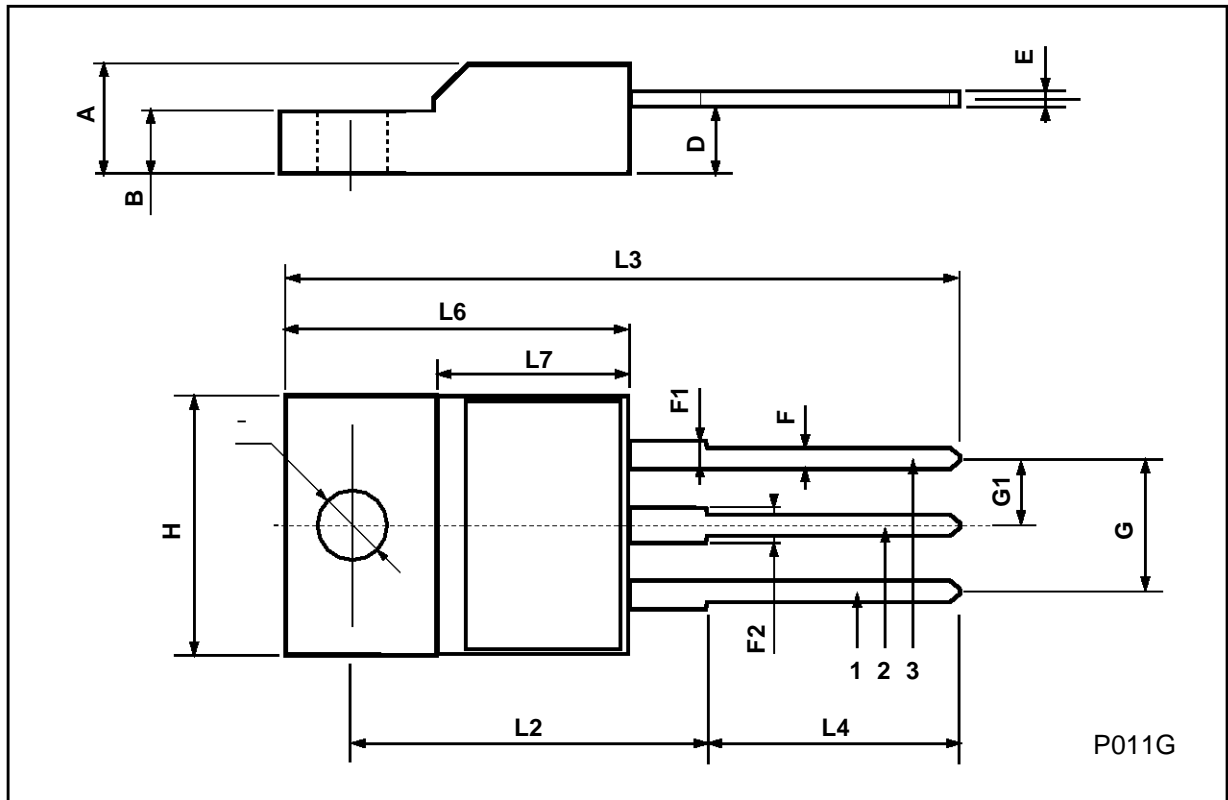
**TO-220 MECHANICAL DATA**

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



**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



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