

**Silicon NPN Power Transistors**

**BUW13 BUW13A**

**DESCRIPTION**

- With TO-3PN package
- High voltage,high speed

**APPLICATIONS**

- Converters
- Inverters
- Switching regulators
- Motor control systems

**PINNING (See Fig.2)**

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

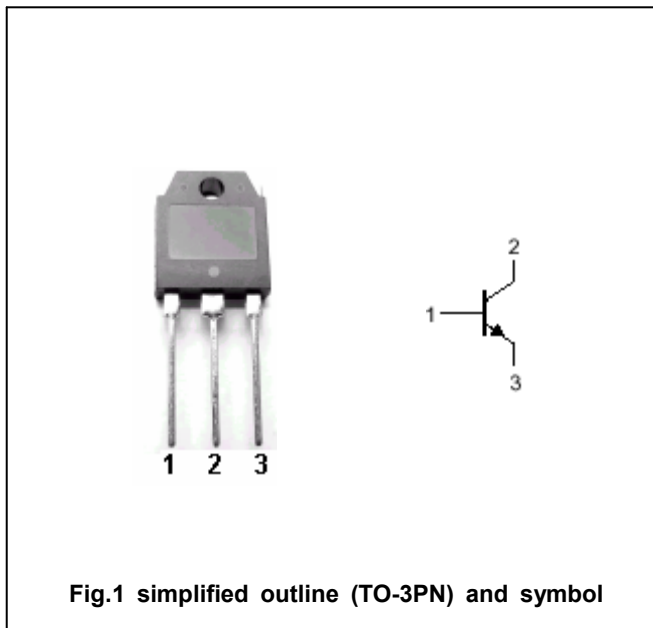


Fig.1 simplified outline (TO-3PN) and symbol

**Absolute maximum ratings(Ta=25°C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	BUW13	850	V
		BUW13A	1000	
V <sub>CEO</sub>	Collector-emitter voltage	BUW13	400	V
		BUW13A	450	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	9	V
I <sub>C</sub>	Collector current		15	A
I <sub>CM</sub>	Collector current-peak		30	A
I <sub>B</sub>	Base current		6	A
I <sub>BM</sub>	Base current-peak		9	A
P <sub>T</sub>	Total power dissipation	T <sub>C</sub> =25°C	175	W
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~175	°C

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## CHARACTERISTICS

T<sub>j</sub>=25 °C unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	BUW13	I <sub>C</sub> =0.1A; I <sub>B</sub> =0; L=25mH	400			V
		BUW13A		450			
V <sub>CEsat</sub>	Collector-emitter saturation voltage	BUW13	I <sub>C</sub> =10A; I <sub>B</sub> =2A			1.5	V
		BUW13A	I <sub>C</sub> =8A; I <sub>B</sub> =1.6A				
V <sub>BEsat</sub>	Base-emitter saturation voltage	BUW13	I <sub>C</sub> =10A; I <sub>B</sub> =2A			1.6	V
		BUW13A	I <sub>C</sub> =8A; I <sub>B</sub> =1.6A				
I <sub>CES</sub>	Collector cut-off current		V <sub>CE</sub> =Rated V <sub>CES</sub> ; V <sub>BE</sub> =0 TC=125 °C			1.0 4.0	mA
I <sub>EBO</sub>	Emitter cut-off current		V <sub>EB</sub> =9V; I <sub>C</sub> =0			10	mA
h <sub>FE-1</sub>	DC current gain		I <sub>C</sub> =20mA; V <sub>CE</sub> =5V	10		35	
h <sub>FE-2</sub>	DC current gain		I <sub>C</sub> =1.5A; V <sub>CE</sub> =5V	10		35	

Switching times resistive load

t <sub>on</sub>	Turn-on time	For BUW13 I <sub>C</sub> =10A; I <sub>B1</sub> =-I <sub>B2</sub> =2A			1.0	μs
t <sub>s</sub>	Storage time				4.0	μs
t <sub>f</sub>	Fall time	For BUW13A I <sub>C</sub> =8A; I <sub>B1</sub> =-I <sub>B2</sub> =1.6A			0.8	μs

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PACKAGE OUTLINE

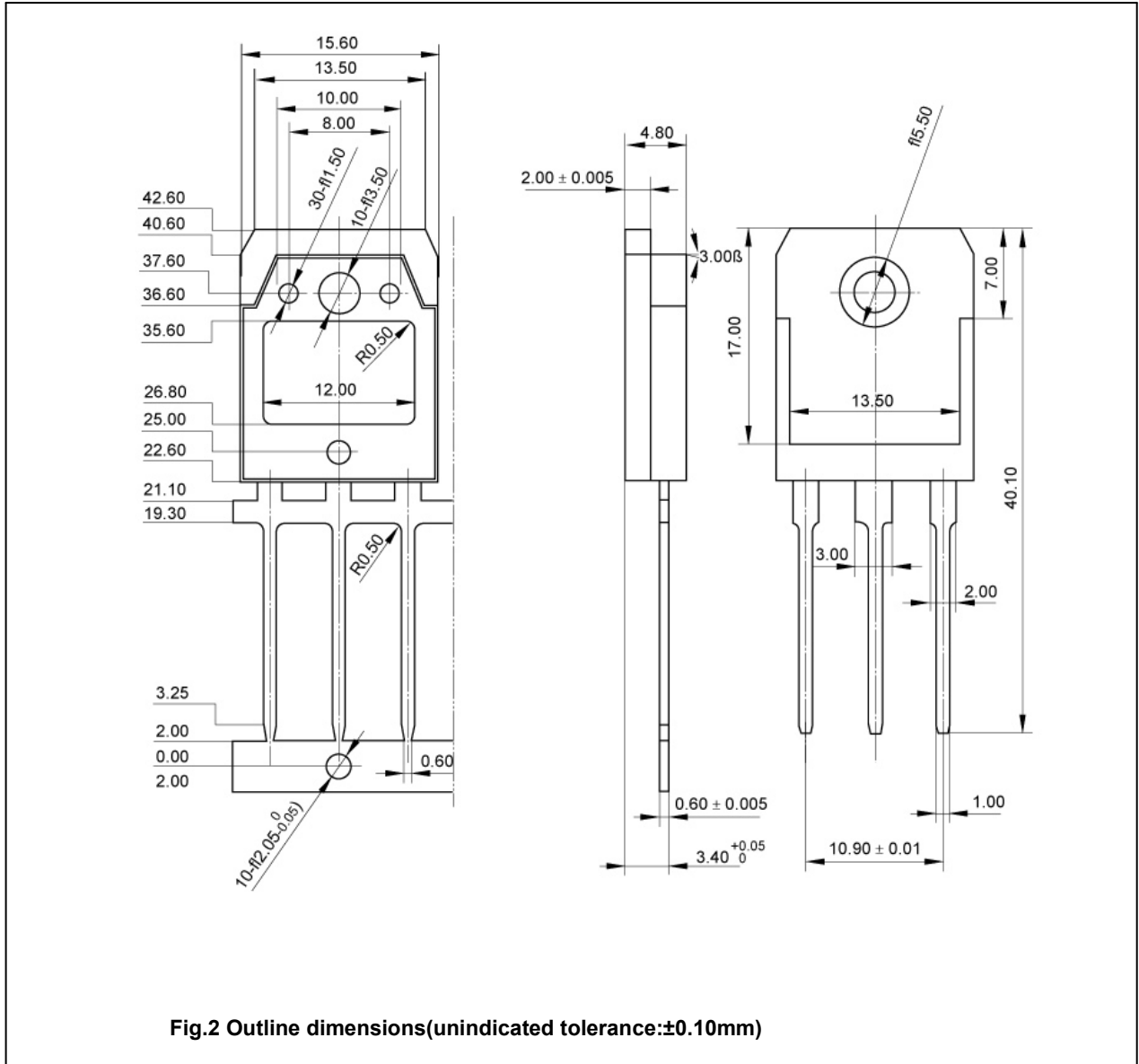


Fig.2 Outline dimensions(unindicated tolerance:  $\pm 0.10\text{mm}$ )