

Inchange Semiconductor

Product Specification

Silicon NPN Power Transistors

BUW13F BUW13AF

DESCRIPTION

- With TO-3PFa 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

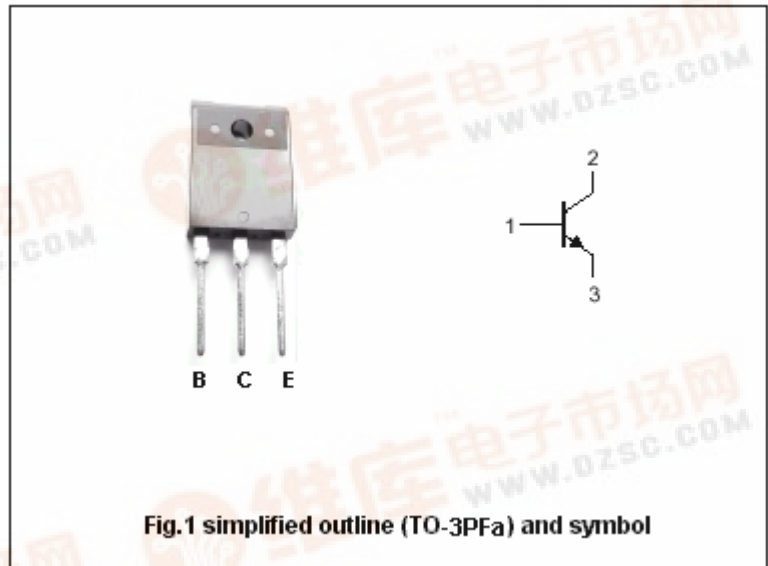


Fig.1 simplified outline (TO-3PFa) and symbol

Absolute maximum ratings(Ta=25 )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CB0</sub>	Collector-base voltage	BUW13F	850	V
		BUW13AF	1000	
V <sub>CEO</sub>	Collector-emitter voltage	BUW13F	400	V
		BUW13AF	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	50	W
T <sub>j</sub>	Junction temperature		150	
T <sub>stg</sub>	Storage temperature		-65~150	

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-a</sub>	Thermal resistance from junction to ambient	35	K/W

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## CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	BUW13F	I <sub>C</sub> =0.1A; I <sub>B</sub> =0; L=25mH	400			V
		BUW13AF		450			
V <sub>CEsat</sub>	Collector-emitter saturation voltage	BUW13F	I <sub>C</sub> =10A; I <sub>B</sub> =2A			1.5	V
		BUW13AF	I <sub>C</sub> =8A; I <sub>B</sub> =1.6A				
V <sub>BEsat</sub>	Base-emitter saturation voltage	BUW13F	I <sub>C</sub> =10A; I <sub>B</sub> =2A			1.6	V
		BUW13AF	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 T <sub>j</sub> =125			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 BUW13F I <sub>C</sub> =10A; I <sub>B1</sub> =-I <sub>B2</sub> =-2A For BUW13AF I <sub>C</sub> =8A; I <sub>B1</sub> =-I <sub>B2</sub> =-1.6A			1.0	μs
t <sub>s</sub>	Storage time				4.0	μs
t <sub>f</sub>	Fall time				0.8	μs

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PACKAGE OUTLINE

