

## Silicon NPN Power Transistors

## BUF405AFP

## DESCRIPTION

- With TO-220F package
- High voltage,high speed

## APPLICATIONS

- Switch mode power supplies
- Motor drivers

## PINNING

PIN	DESCRIPTION
1	Base
2	Collector;connected to mounting base
3	Emitter

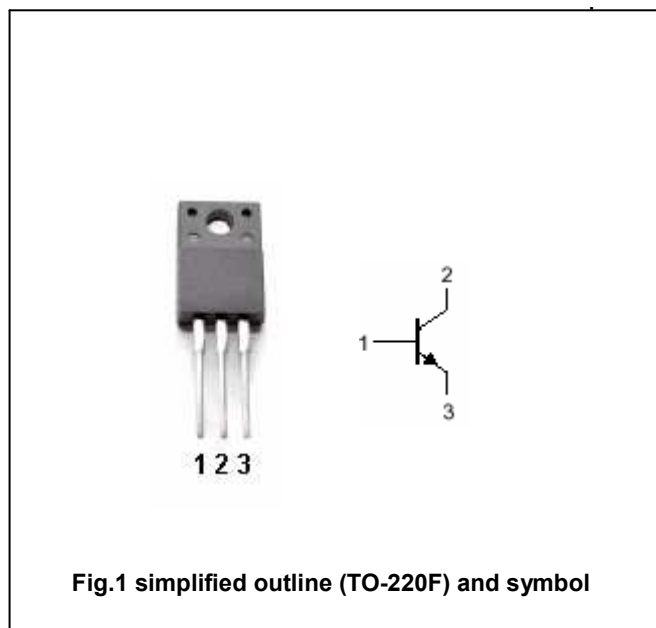


Fig.1 simplified outline (TO-220F) and symbol

Absolute maximum ratings( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$V_{CBO}$	Collector-base voltage	Open emitter	1000	V
$V_{CEO}$	Collector-emitter voltage	Open base	450	V
$V_{EBO}$	Emitter-base voltage	Open collector	7	V
$I_C$	Collector current (DC)		7.5	A
$I_{CM}$	Collector current-Peak	$t_p < 5\text{ms}$	15	A
$I_B$	Base current (DC)		3	A
$I_{BM}$	Base current-Peak	$t_p < 5\text{ms}$	4.5	A
$P_{tot}$	Total power dissipation	$T_C=25^\circ\text{C}$	39	W
$T_j$	Maximum operating junction temperature		150	$^\circ\text{C}$
$T_{stg}$	Storage temperature		-65~150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
$R_{th\ j-case}$	Thermal resistance junction to case	3.2	$^\circ\text{C}/\text{W}$

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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	I <sub>C</sub> =200mA ; I <sub>B</sub> =0; L=25mH	450			V
V <sub>(BR)EBO</sub>	Emitter-base breakdown voltage	I <sub>E</sub> =50mA ; I <sub>C</sub> =0	7			V
V <sub>CEsat-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =2.5A; I <sub>B</sub> =0.25A T <sub>C</sub> =100 °C		0.8	2.8	V
V <sub>CEsat-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =5A ; I <sub>B</sub> =1A T <sub>C</sub> =100 °C		0.5	2.0	V
V <sub>BEsat-1</sub>	Base-emitter saturation voltage	I <sub>C</sub> =2.5A; I <sub>B</sub> =0.25A T <sub>C</sub> =100 °C		0.9	1.5	V
V <sub>BEsat-2</sub>	Base-emitter saturation voltage	I <sub>C</sub> =5A ; I <sub>B</sub> =1A T <sub>C</sub> =100 °C		1.1	1.5	V
I <sub>CEV</sub>	Collector cut-off current	V <sub>CE</sub> =1000V; V <sub>BE</sub> =-1.5V T <sub>C</sub> =100 °C			100 500	μA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =5V; I <sub>C</sub> =0			1	mA

Switching times inductive load

t <sub>s</sub>	Storage time	I <sub>C</sub> =2.5A ; V <sub>CC</sub> =50V I <sub>B1</sub> =0.25A; V <sub>BB</sub> =-5V ; L=1mH R <sub>BB</sub> =2.4Ω; V <sub>clamp</sub> =400V		0.8		μs
t <sub>f</sub>	Fall time			0.05		μs

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PACKAGE OUTLINE

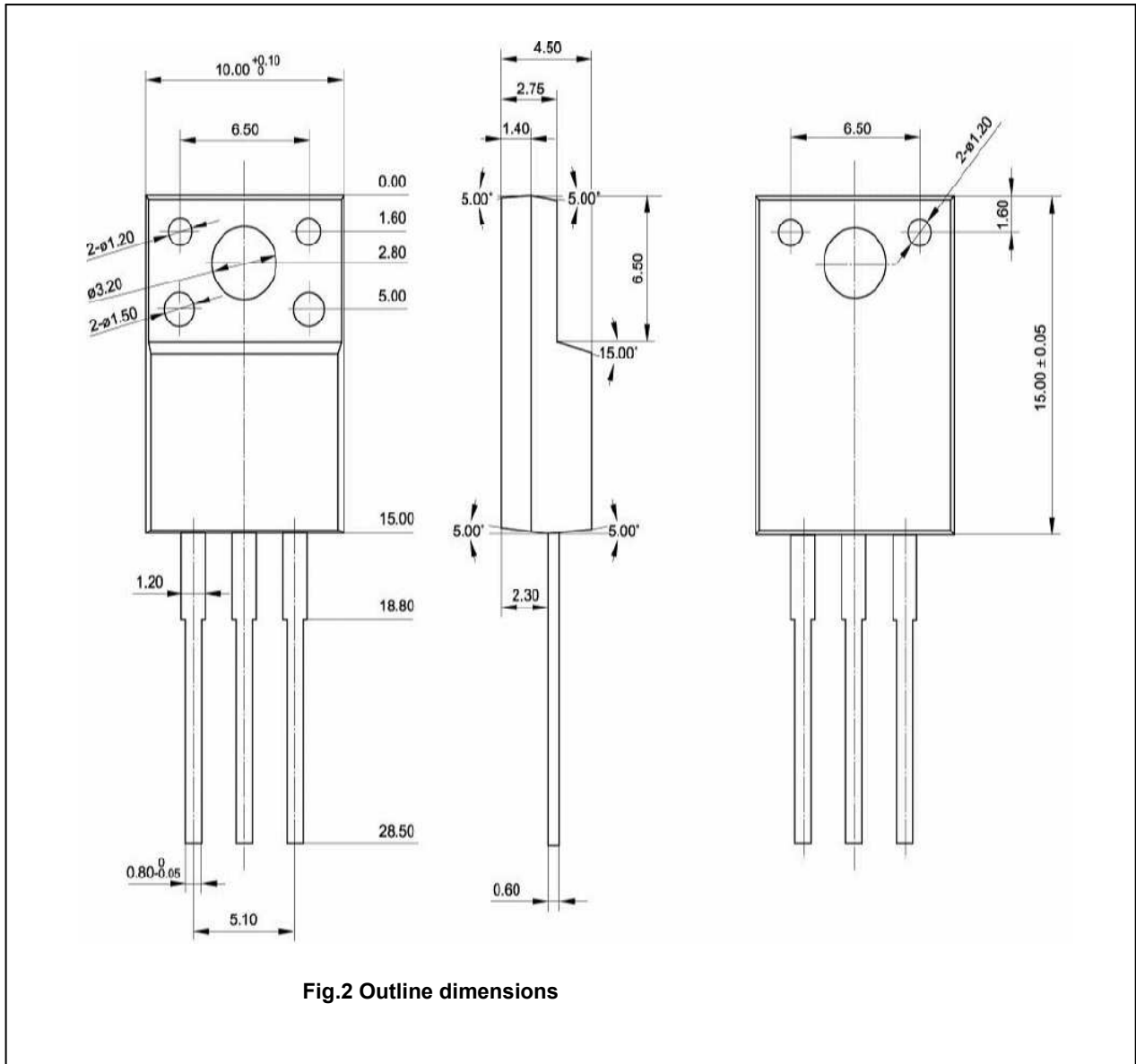


Fig.2 Outline dimensions