

Silicon NPN Power Transistors

BUT12F BUT12AF

DESCRIPTION

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

APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor control systems

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

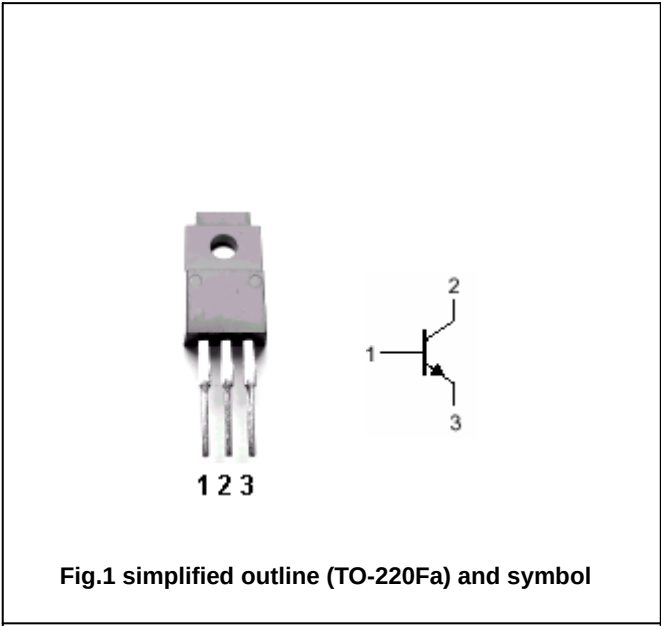


Fig.1 simplified outline (TO-220Fa) and symbol

Absolute maximum ratings (Tc=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V _{CBO}	Collector-base voltage	BUT12F	850	V
		BUT12AF	1000	
V _{CEO}	Collector-emitter voltage	BUT12F	400	V
		BUT12AF	450	
V _{EBO}	Emitter-base voltage	Open collector	9	V
I _C	Collector current		8	A
I _{CM}	Collector current-peak		20	A
I _B	Base current		4	A
I _{BM}	Base current-peak		6	A
P _{tot}	Total power dissipation	T _C =25°C	23	W
T _j	Junction temperature		150	°C
T _{stg}	Storage temperature		-65~150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	VALUE	UNIT
R _{th j-a}	Thermal resistance from junction to ambient	55	K/W

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CHARACTERISTICS

T_j=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEO(SUS)}	Collector-emitter sustaining voltage	BUT12F	400			V
		BUT12AF	450			
V _{CEsat}	Collector-emitter saturation voltage	BUT12F			1.5	V
		BUT12AF				
V _{BEsat}	Base-emitter saturation voltage	BUT12F			1.5	V
		BUT12AF				
I _{CES}	Collector cut-off current	BUT12F			1.0 3.0	mA
		BUT12AF			1.0 3.0	
I _{EBO}	Emitter cut-off current	V _{EB} =9V; I _C =0			10	mA
h _{FE-1}	DC current gain	I _C =10mA; V _{CE} =5V	10		35	
h _{FE-2}	DC current gain	I _C =1A; V _{CE} =5V	10		35	

Switching times resistive load

t _{on}	Turn-on time	For BUT12F I _C =6A; I _{B1} =-I _{B2} =1.2A; V _{CC} =250V For BUT12AF I _C =5A; I _{B1} =-I _{B2} =1A; V _{CC} =250V			1.0	μs
t _s	Storage time				4.0	μs
t _f	Fall time				0.8	μs

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PACKAGE OUTLINE

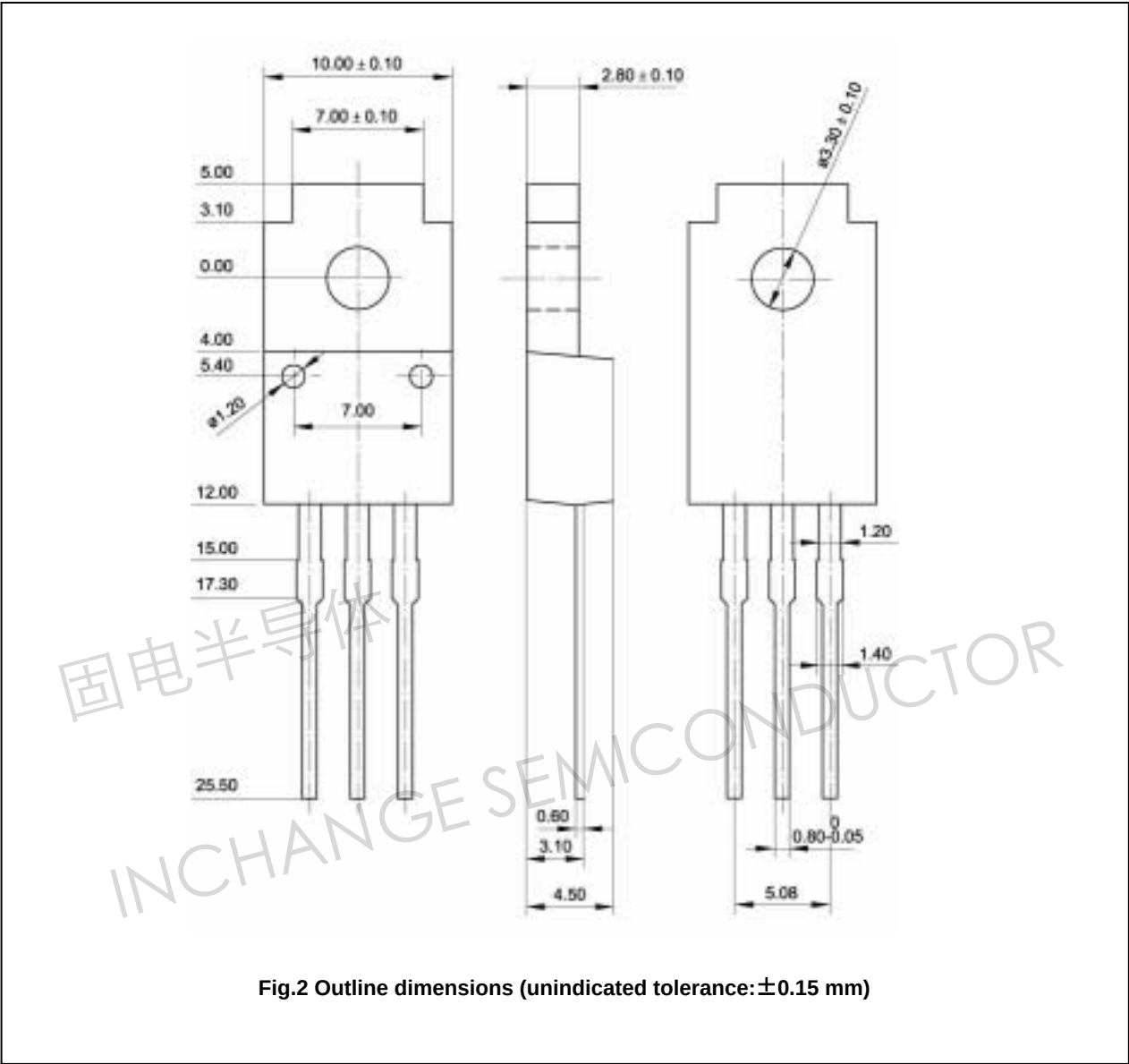


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)