

Silicon NPN Power Transistors

BUT12F BUT12AF

DESCRIPTION

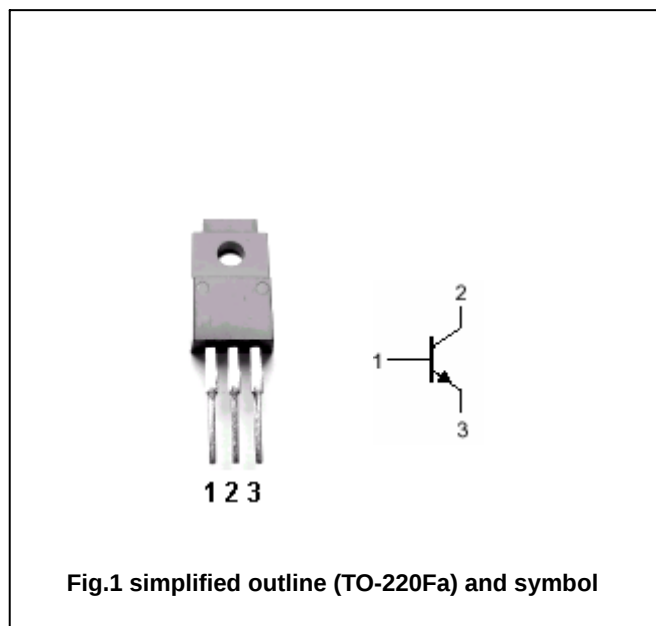
- With TO-220Fa package
- High voltage ,high speed

APPLICATIONS

- Converters
- Inverters
- Switching regulators
- Motor control systems

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



Absolute maximum ratings (Tc=25)

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	BUT12F	Open emitter	850	V
		BUT12AF		1000	
V_{CEO}	Collector-emitter voltage	BUT12F	Open base	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		$T_C=25$	23	W
T_j	Junction temperature			150	
T_{stg}	Storage temperature			-65~150	

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 unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V _{CEQ(SUS)}	Collector-emitter sustaining voltage	BUT12F	I _C =0.1A; I _B =0; L=25mH	400			V
		BUT12AF		450			
V _{CEsat}	Collector-emitter saturation voltage	BUT12F	I _C =6A; I _B =1.2A			1.5	V
		BUT12AF	I _C =5A; I _B =1A				
V _{BEsat}	Base-emitter saturation voltage	BUT12F	I _C =6A; I _B =1.2A			1.5	V
		BUT12AF	I _C =5A; I _B =1A				
I _{CES}	Collector cut-off current	BUT12F	V _{CE} =850V; V _{BE} =0 T _j =125			1.0 3.0	mA
		BUT12AF	V _{CE} =1000V; V _{BE} =0 T _j =125			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	

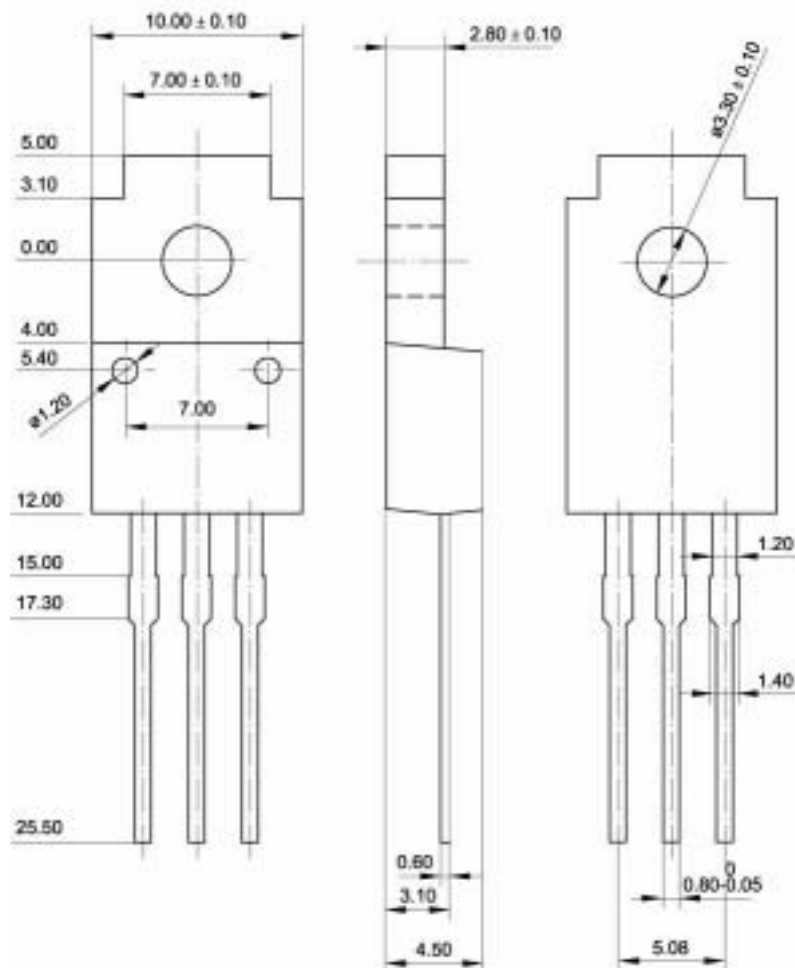
Switching times resistive load

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)