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

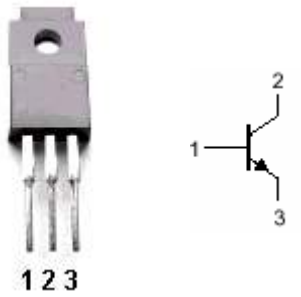

Fig.1 simplified outline (TO-220Fa) and symbol

Absolute maximum ratings (Tc=25℃)

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
$R_{th\ j\text{-}a}$	Thermal resistance from junction to ambient	55	K/W

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CHARACTERISTICS

Tj=25℃ unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEO(SUS)}$	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

PACKAGE OUTLINE

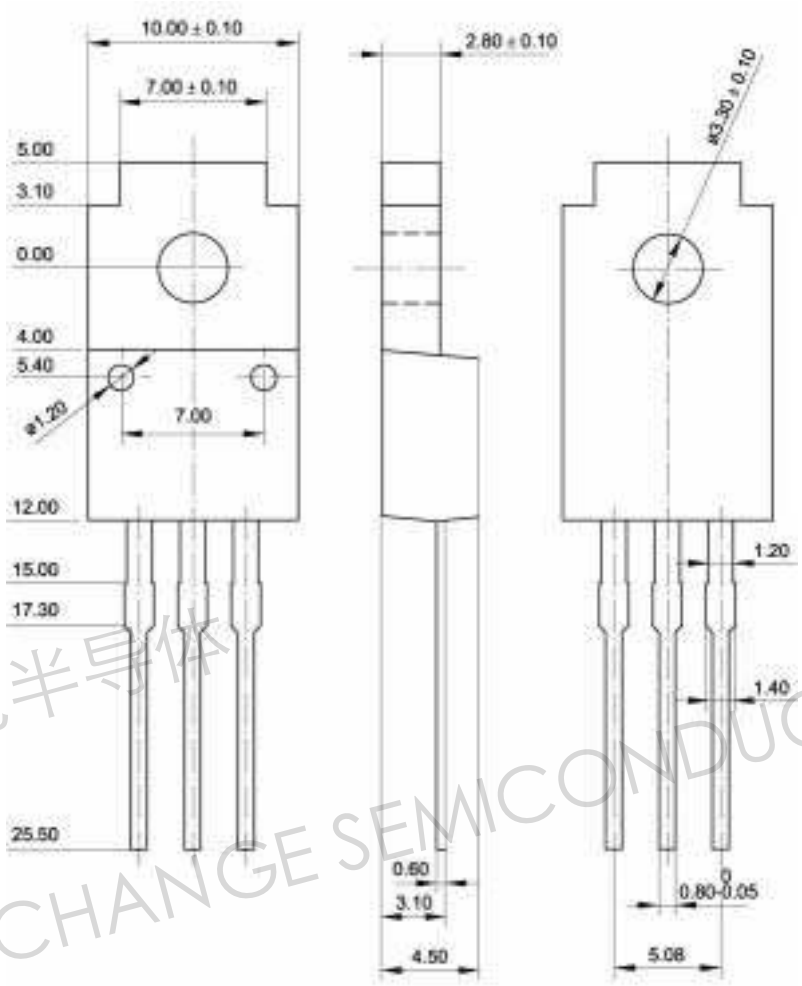

Fig.2 Outline dimensions (unindicated tolerance:±0.15 mm)