

Silicon NPN Power Transistors

2SC3748

DESCRIPTION

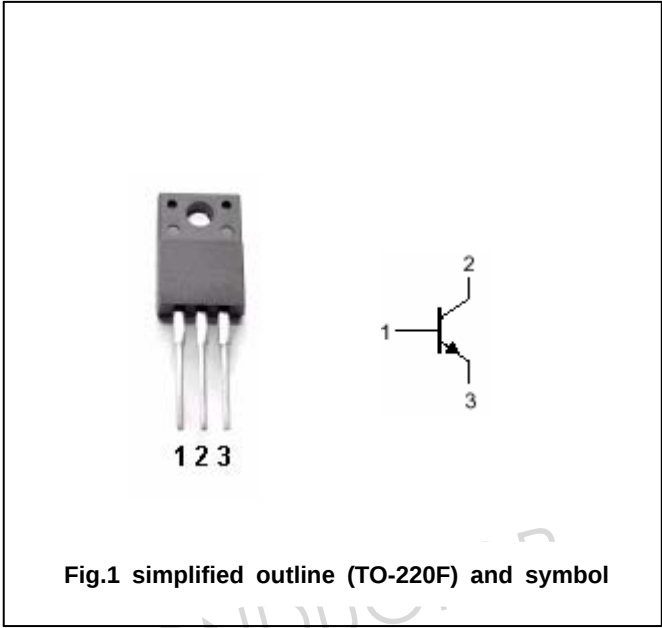
- With TO-220F package
- Low saturation voltage.
- Excellent dependence of h_{FE} on current.
- Fast switching speed.

APPLICATIONS

- Car-use inductance drivers, lamp drivers.
- Inverters drivers, conveters (strobes, flashes, FLT lighting circuits).
- Power amplifiers
- High-speed switching applications

PINNING

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



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

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	80	V
V_{CEO}	Collector-emitter voltage	Open base	60	V
V_{EBO}	Emitter-base voltage	Open collector	5	V
I_C	Collector current		10	A
I_{CM}	Collector current-peak		12	A
P_C	Collector dissipation		2	W
		$T_C=25$	30	
T_j	Junction temperature		150	
T_{stg}	Storage temperature		-55~150	

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CHARACTERISTICS

T_j=25 unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CBO}	Collector-base breakdown voltage	I _C =1mA; I _E =0	80			V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =1mA; R _{BE} =∞	60			V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =1mA; I _C =0	5			V
V _{CEsat}	Collector-emitter saturation voltage	I _C =5A; I _B =0.25A			0.4	V
I _{CBO}	Collector cut-off current	V _{CB} =40V; I _E =0			100	μA
I _{EBO}	Emitter cut-off current	V _{EB} =4V; I _C =0			100	μA
h _{FE}	DC current gain	I _C =1A; V _{CE} =2V	70		280	
f _T	Transition frequency	I _C =1A; V _{CE} =5V		100		MHz

Switching times

t _{on}	Turn-on time	V _{CC} =20V; I _C =5A I _{B1} =-I _{B2} =0.25A R _L =4Ω		0.1		μs
t _{stg}	Storage time			0.5		μs
t _f	Fall time			0.1		μs

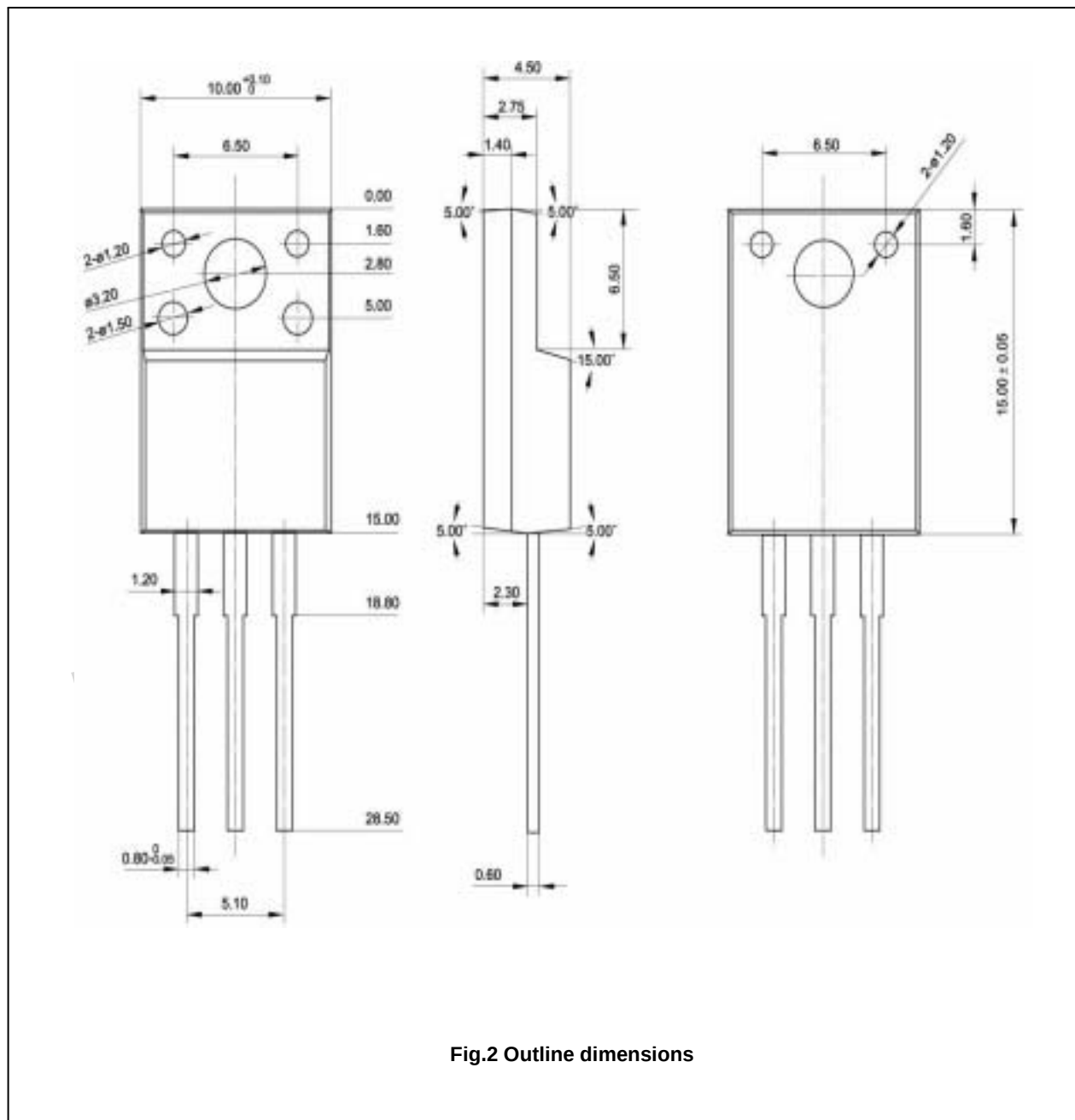
◆ h_{FE} Classifications

Q	R	S
70-140	100-200	140-280

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PACKAGE OUTLINE



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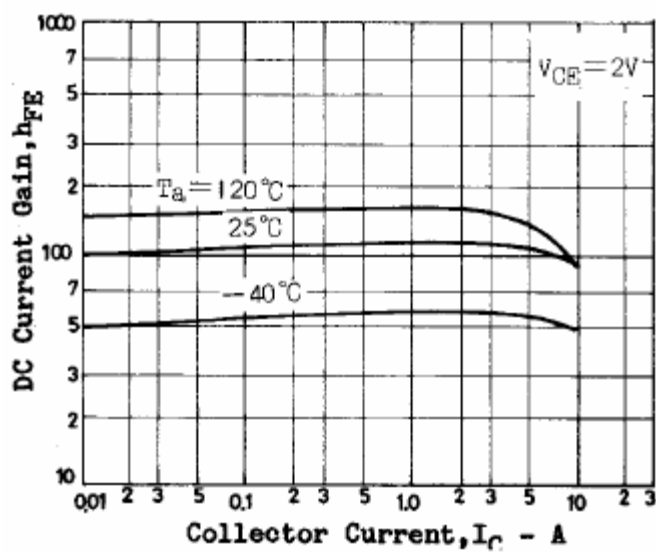


Fig.3 DC current Gain

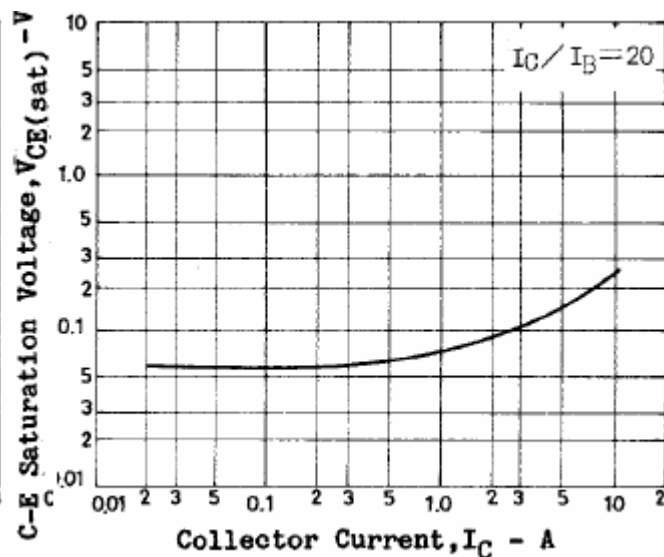


Fig.4 Collector-Emitter Saturation Voltage

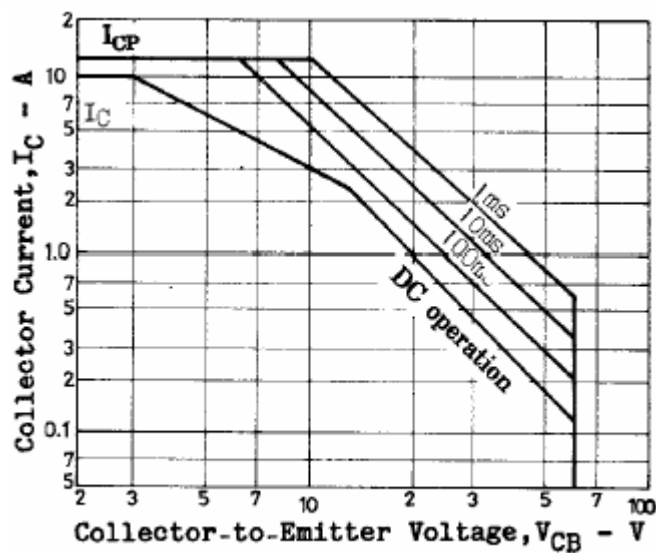


Fig.5 Safe Operating Area