

Silicon NPN Power Transistors

2SC4131

DESCRIPTION

- With TO-3PML package
- Low collector saturation voltage

APPLICATIONS

- For chopper regulator,switch and general purpose applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

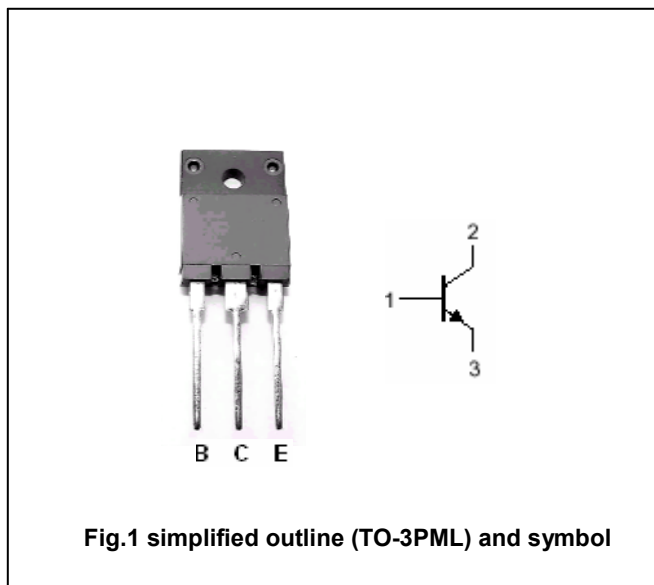


Fig.1 simplified outline (TO-3PML) and symbol

Absolute maximum ratings(Tc=25□)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	100	V
V_{CEO}	Collector-emitter voltage	Open base	50	V
V_{EBO}	Emitter-base voltage	Open collector	15	V
I_C	Collector current		15	A
I_{CM}	Collector current-peak		25	A
I_B	Base current		4	A
P_C	Collector power dissipation	$T_c=25□$	60	W
T_j	Junction temperature		150	□
T_{stg}	Storage temperature		-55~150	□

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CHARACTERISTICS

T_j=25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =25mA; I _B =0	50			V
V _{CE(sat)}	Collector-emitter saturation voltage	I _C =5 A; I _B =80m A			0.5	V
V _{BE(sat)}	Base-emitter saturation voltage	I _C =5 A; I _B =80m A			1.2	V
I _{CBO}	Collector cut-off current	V _{CB} =100V; I _E =0			10	μA
I _{EBO}	Emitter cut-off current	V _{EB} =15V; I _C =0			10	μA
h _{FE}	DC current gain	I _C =5A ; V _{CE} =1V	50			
f _T	Transition frequency	I _C =1A ; V _{CE} =12V		18		MHz
C _{OB}	Output capacitance	I _E =0; V _{CB} =10V; f=1MHz		210		pF

Switching times

t _{on}	Turn-on time	I _C =5A; R _L =4Ω I _{B1} =-I _{B2} =80mA V _{CC} =20V		0.5		μs
t _s	Storage time			2.0		μs
t _f	Fall time			0.4		μs

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PACKAGE OUTLINE

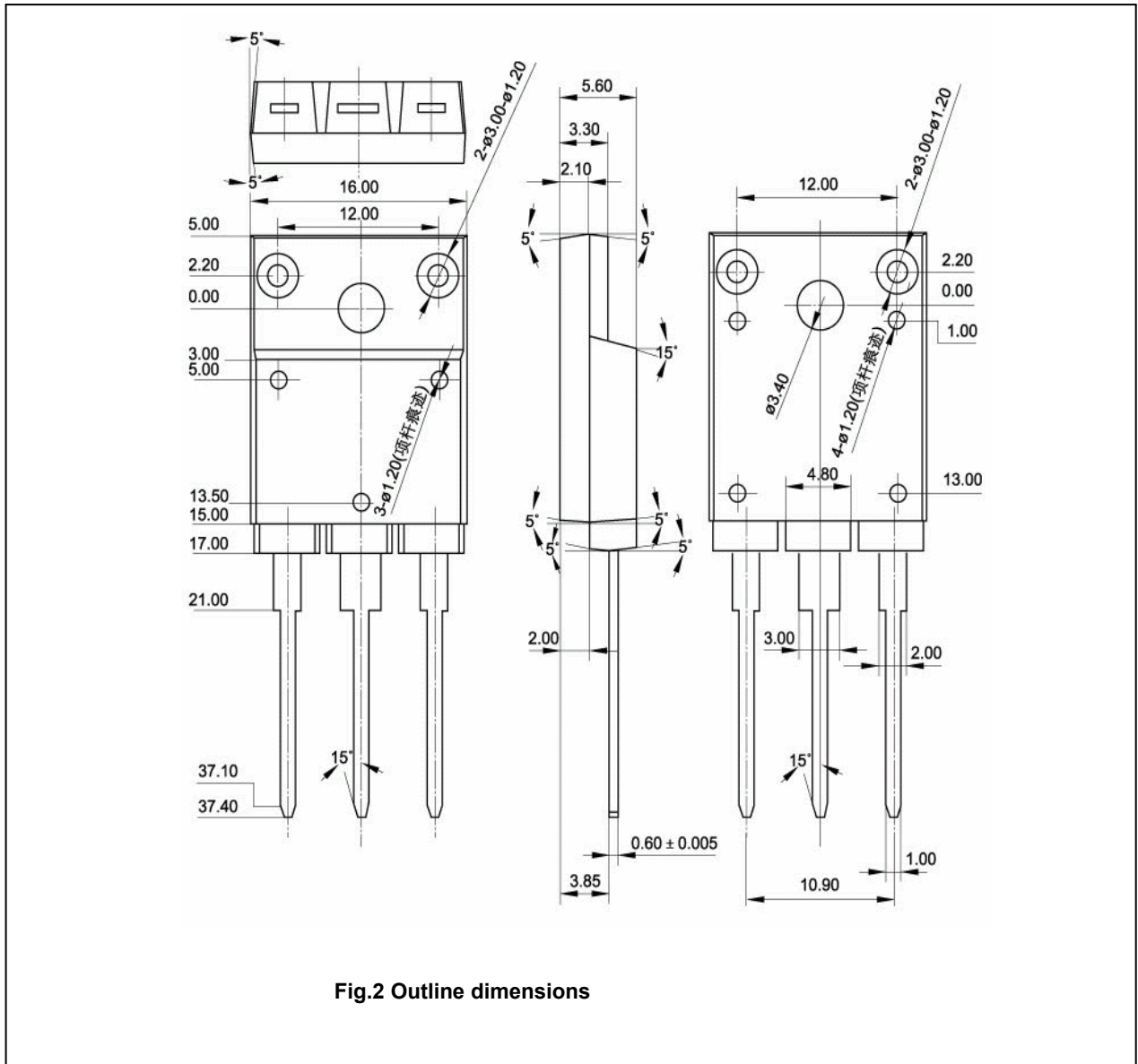


Fig.2 Outline dimensions

LOW VCE (sat) 2SC4131

Silicon NPN Epitaxial Planar Transistor

Application : DC-DC Converter, Emergency Lighting Inverter and General Purpose

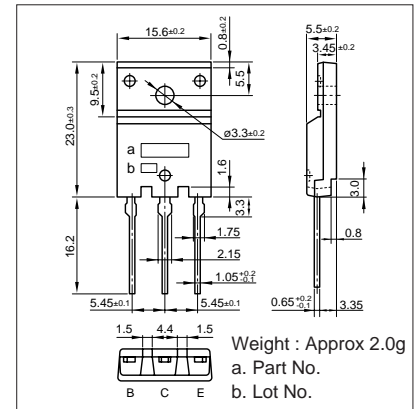
Absolute maximum ratings (Ta=25°C)

Symbol	Ratings	Unit
V _{CB0}	100	V
V _{CEO}	50	V
V _{EBO}	15	V
I _c	15(Pulse25)	A
I _B	4	A
P _c	60(Tc=25°C)	W
T _j	150	°C
T _{stg}	-55 to +150	°C

Electrical Characteristics (Ta=25°C)

Symbol	Conditions	Ratings	Unit
I _{CB0}	V _{CB} =100V	10max	μA
I _{EBO}	V _{EB} =15V	10max	μA
V _{(BR)CEO}	I _c =25mA	50min	V
h _{FE}	V _{CE} =1V, I _c =5A	60 to 360	
V _{CE(sat)}	I _c =5A, I _B =80mA	0.5max	V
V _{BE(sat)}	I _c =5A, I _B =80mA	1.2max	V
f _r	V _{CE} =12V, I _E =-1A	18typ	MHz
C _{OB}	V _{CB} =10V, f=1MHz	210typ	pF

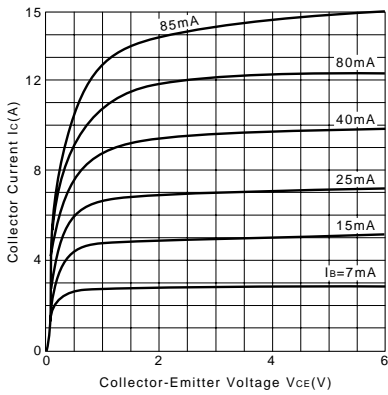
External Dimensions FM100(TO3PF)



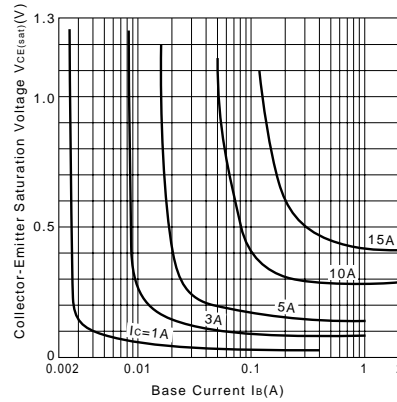
Typical Switching Characteristics (Common Emitter)

V _{CC} (V)	R _L (Ω)	I _c (A)	V _{BB1} (V)	V _{BB2} (V)	I _{B1} (A)	I _{B2} (A)	t _{on} (μs)	t _{stg} (μs)	t _f (μs)
20	4	5	10	-5	0.08	-0.08	0.5typ	2.0typ	0.4typ

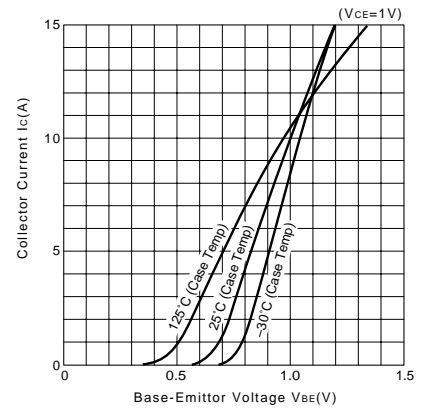
I_c-V_{CE} Characteristics (Typical)



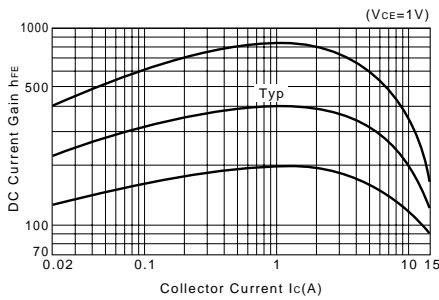
V_{CE(sat)}-I_B Characteristics (Typical)



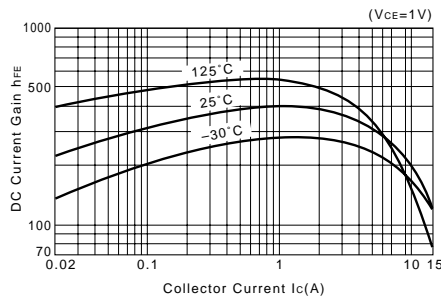
I_c-V_{BE} Temperature Characteristics (Typical)



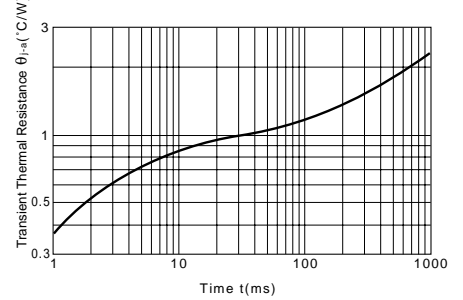
h_{FE}-I_c Characteristics (Typical)



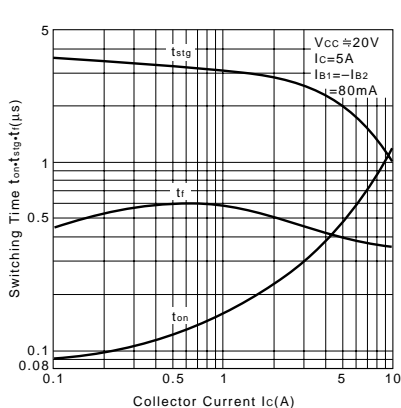
h_{FE}-I_c Temperature Characteristics (Typical)



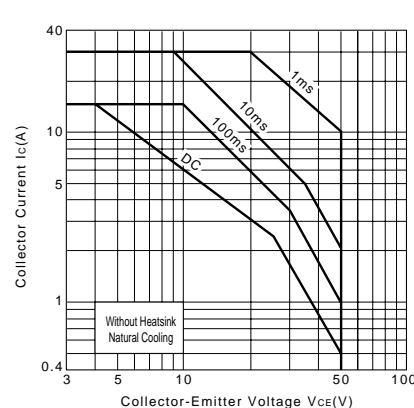
θ_{j-a}-t Characteristics



t_{on}•t_{stg}•t_r-I_c Characteristics (Typical)



Safe Operating Area (Single Pulse)



P_c-T_a Derating

