

Silicon NPN Power Transistors

2SD1271 2SD1271A

DESCRIPTION

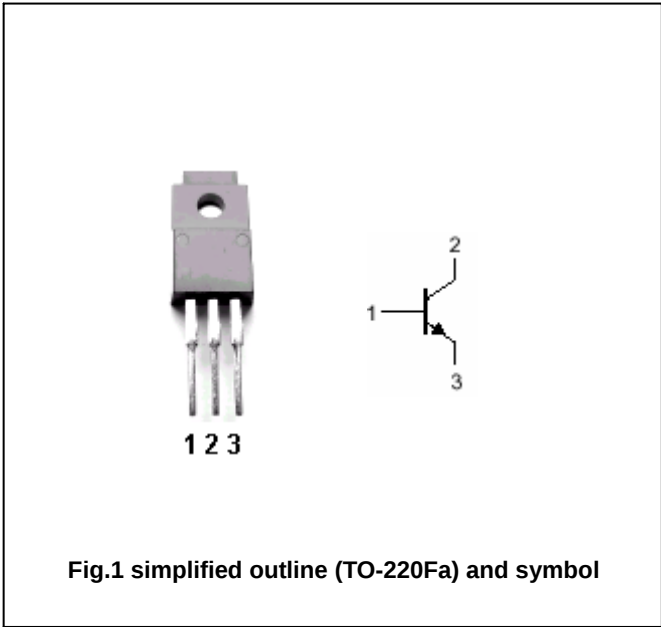
- With TO-220Fa package
- Complement to type 2SB946/946A
- Low collector saturation voltage
- Good linearity of h_{FE}
- Large collector current I_C

APPLICATIONS

- For power switching applications

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter



ABSOLUTE MAXIMUM RATINGS AT $T_a=25$

SYMBOL	PARAMETER		CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	2SD1271	Open emitter	130	V
		2SD1271A		150	
V_{CEO}	Collector-emitter voltage	2SD1271	Open base	80	V
		2SD1271A		100	
V_{EBO}	Emitter-base voltage		Open collector	7	V
I_C	Collector current (DC)			7	A
I_{CM}	Collector current-peak			15	A
P_C	Collector power dissipation	$T_c=25$		40	W
		$T_a=25$		2	
T_j	Junction temperature			150	
T_{stg}	Storage temperature			-55~150	

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CHARACTERISTICS

Tj=25 unless otherwise specified

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
V_{CE0}	Collector-emitter voltage	2SD1271	$I_C=10mA, I_B=0$	80			V
		2SD1271A		100			
V_{CEsat}	Collector-emitter saturation voltage		$I_C=5A; I_B=0.25A$			0.5	V
V_{BEsat}	Base-emitter saturation voltage		$I_C=5A; I_B=0.25A$			1.5	V
I_{CBO}	Collector cut-off current		$V_{CB}=100V; I_E=0$			10	μA
I_{EBO}	Emitter cut-off current		$V_{EB}=5V; I_C=0$			50	μA
h_{FE-1}	DC current gain		$I_C=0.1A; V_{CE}=2V$	45			
h_{FE-2}	DC current gain		$I_C=3A; V_{CE}=2V$	60		260	
f_T	Transition frequency		$I_C=0.5A; V_{CE}=10V$		30		MHz

Switching times

t_{on}	Turn-on time	$I_C=3A; I_{B1}=-I_{B2}=0.3A$ $V_{CC}=50V$		0.5		μs
t_s	Storage time			1.5		μs
t_f	Fall time			0.1		μs

◆ h_{FE-2} Classifications

R	Q	P
60-120	90-180	130-260

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PACKAGE OUTLINE

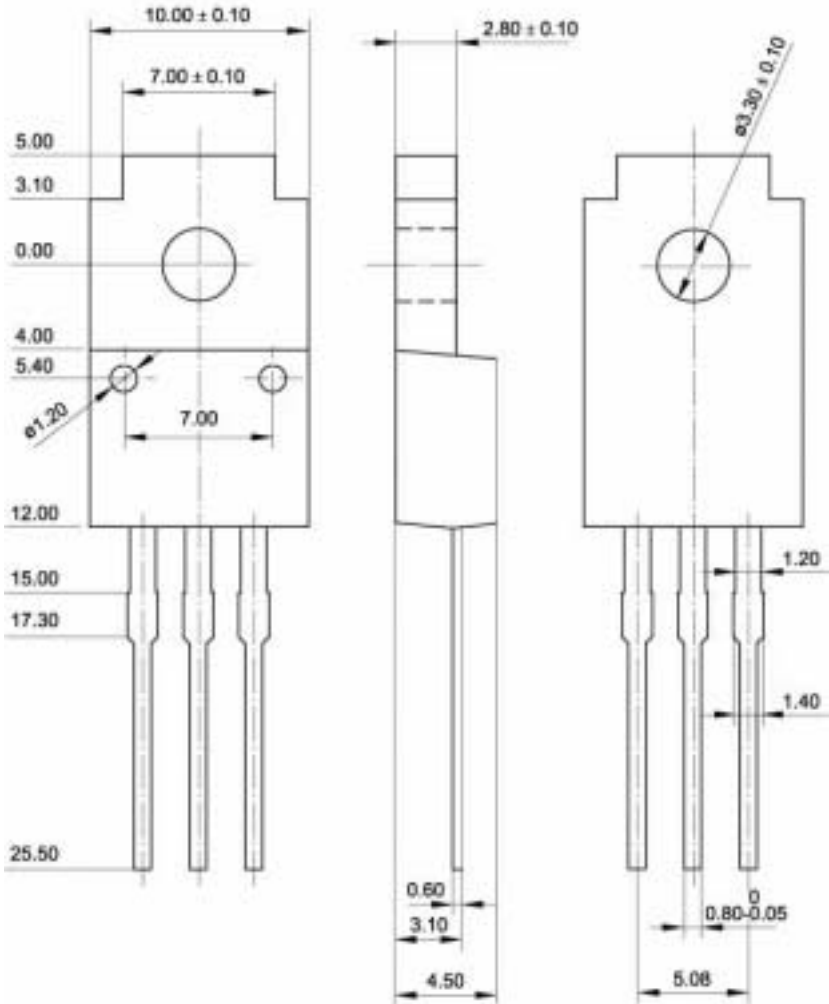


Fig.2 Outline dimensions (unindicated tolerance: ± 0.15 mm)

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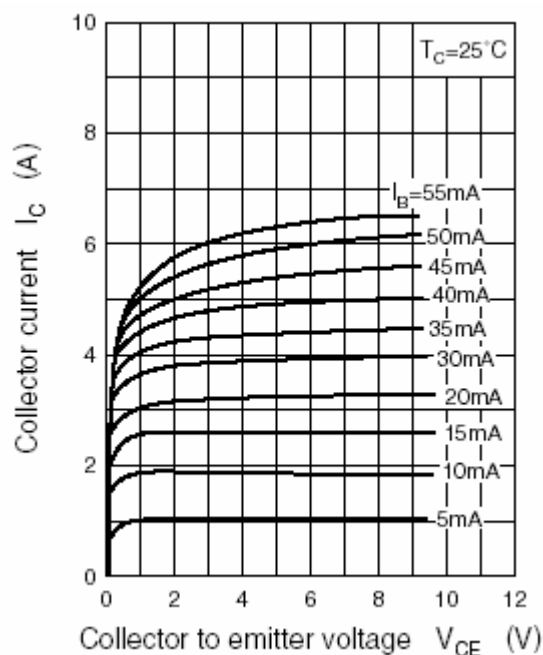


Fig.3 Static Characteristic

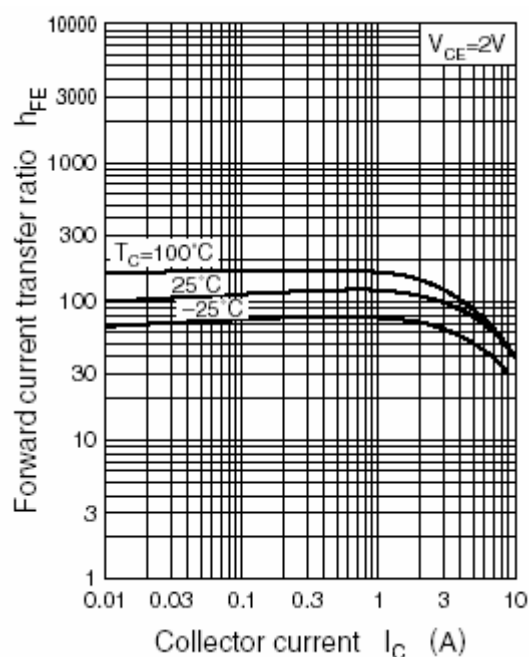


Fig.4 DC current Gain

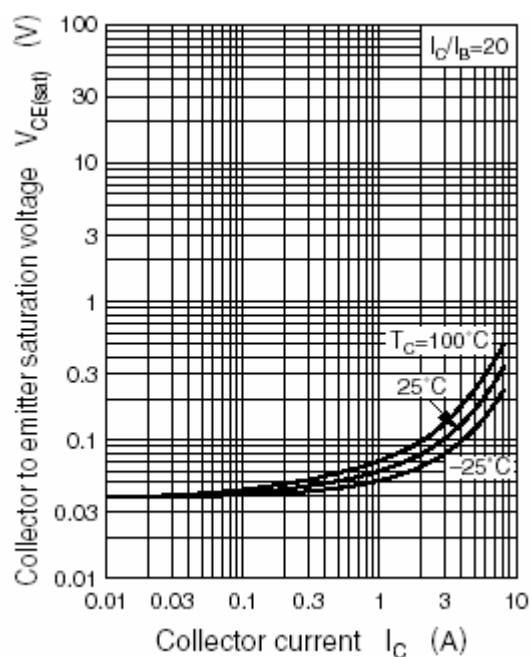


Fig.5 Collector-Emitter Saturation Voltage

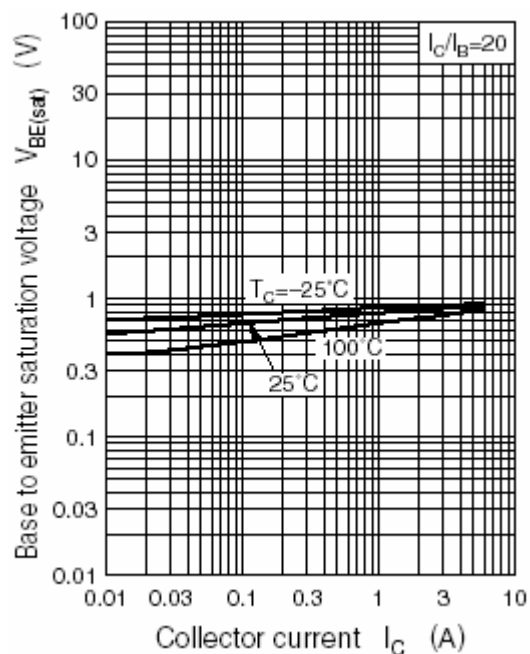


Fig.6 Base-Emitter Saturation Voltage

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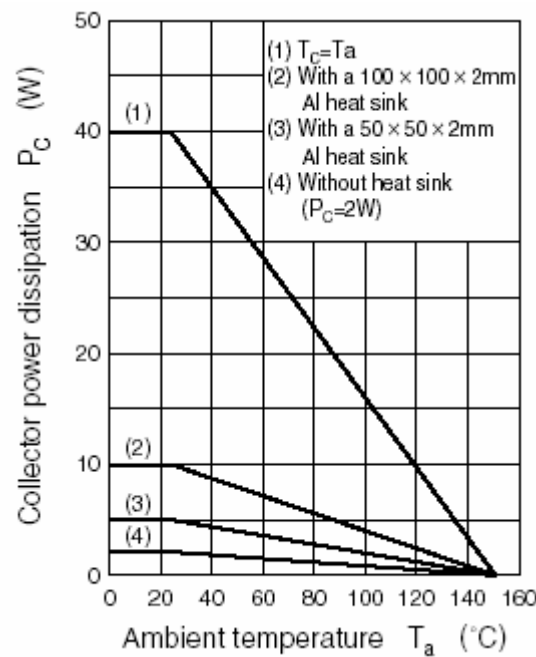


Fig.7 Power Derating

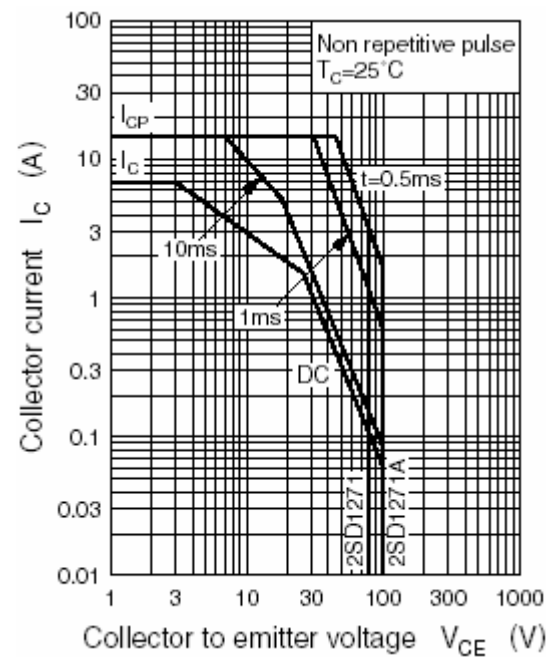


Fig.8 Safe Operating Area