Silicon NPN Power Transistors 2SD1213

DESCRIPTION

- With TO-3PN package
- Low collector-to-emitter saturation voltage
  : $V_{CE(sat)}$= 0.4V(max.)
- Large current capacity.
- Complement to type 2SB904

APPLICATIONS

- Large current switching of relay drivers, high-speed inverters, converters.

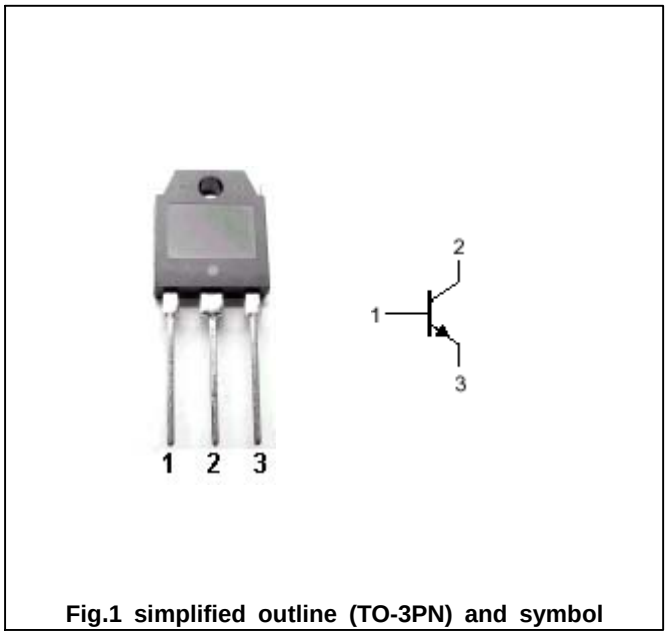

Fig.1 simplified outline (TO-3PN) and symbol

PINNING

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

Absolute maximum ratings (Ta=25℃)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V_{CBO}	Collector-base voltage	Open emitter	60	V
V_{CEO}	Collector-emitter voltage	Open base	30	V
V_{EBO}	Emitter-base voltage	Open collector	6	V
I_C	Collector current (DC)		20	A
I_{CP}	Collector current (Pulse)		30	A
P_C	Collector power dissipation	T_C=25℃	60	W
		T_a=25℃	2.5	
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_{CEO}	Collector-emitter breakdown voltage	I_C=1mA ;R_{BE}=∞	30			V
V_{CBO}	Collector-base breakdown voltage	I_C=1mA; I_E=0	60			V
V_{EBO}	Emitter-base breakdown voltage	I_E=1mA; I_C=0	6			V
V_{CEsat}	Collector-emitter saturation voltage	I_C=8A; I_B=0.4A			0.4	V
I_{CBO}	Collector cut-off current	V_{CB}=40V; I_E=0			0.1	mA
I_{EBO}	Emitter cut-off current	V_{EB}=4V; I_C=0			0.1	mA
h_{FE-1}	DC current gain	I_C=1A ; V_{CE}=2V	70		280	
h_{FE-2}	DC current gain	I_C=10A ; V_{CE}=2V	30			
f_T	Transition frequency	I_C=1A ; V_{CE}=5V		120		MHz
Switching times						
t_{on}	Turn-on time	I_C=10A I_{B1}=-I_{B2}=-0.5A		0.3		μs
t_s	Storage time			0.6		μs
t_f	Fall time			0.02		μs

◆ h_{FE-1} Classifications

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

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PACKAGE OUTLINE

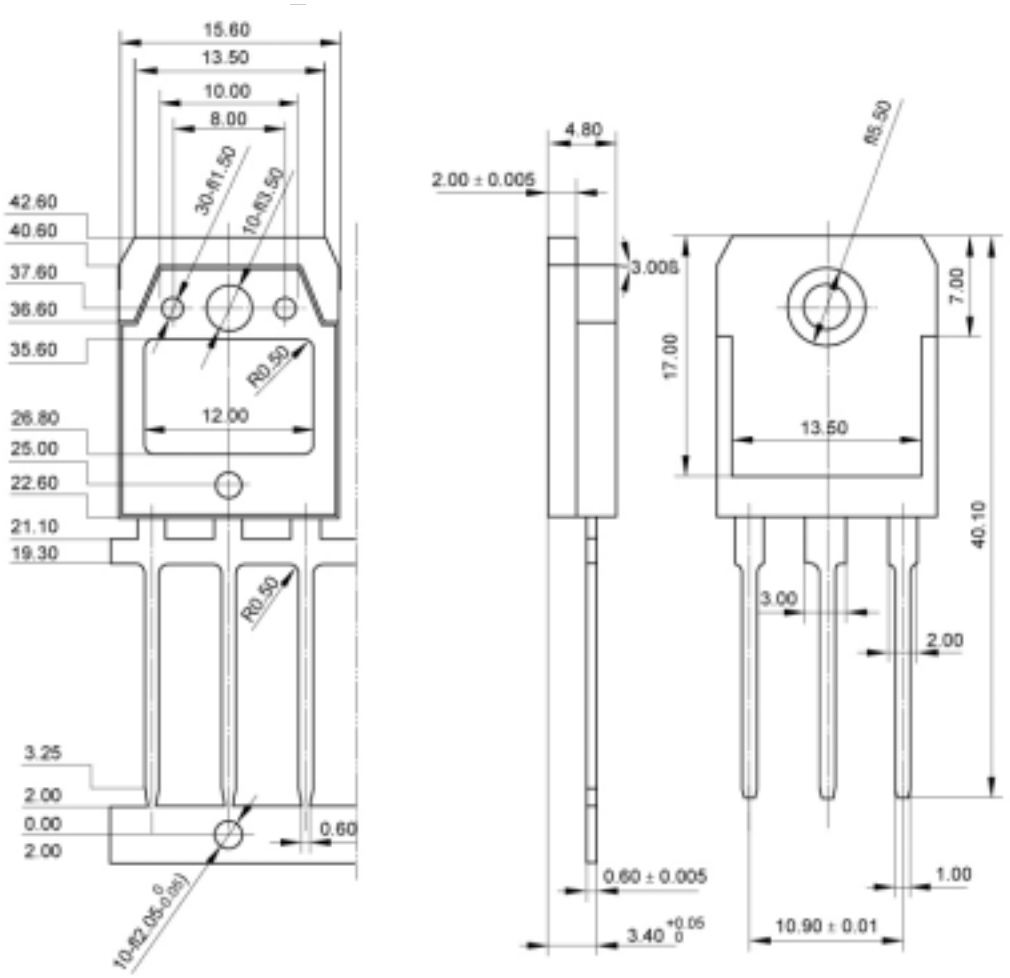

Fig.2 outline dimensions (unindicated tolerance:±0.10 mm)