Ordering number : EN2555B

SANYO Semiconductors
DATA SHEET

2SB1302 — PNP Epitaxial Planar Silicon Transistor
High-Current Switching Applications

Applications

- DC-DC converters, motor drivers, relay drivers, lamp drivers.

Features

- Adoption of FBET, MBIT processes.
- Low collector-to-emitter saturation voltage.
- Large current capacity.
- Fast switching speed.
- Ultrasmall size making it easy to provide high-density, small-sized hybrid IC's.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–25	V
Collector-to-Emitter Voltage	V_{CEO}		–20	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–5	A
Collector Current (Pulse)	I_{CP}		–8	A
Collector Dissipation	P_C	Mounted on a ceramic board (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		–55 to +150	°C

Marking : BJ

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–20V, I_E=0A			–500	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0A			–500	nA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–500mA	100*		400*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–4A	60			
Gain-Bandwidth Product	f_T	V_{CE}=–5V, I_C=–200mA		320		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		60		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=–3A, I_B=–60mA		–250	–500	mV
Base-to-Emitterr Saturation Voltage	V_{BE}(sat)	I_C=–3A, I_B=–60mA		–1.0	–1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0A	–25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0A	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}	See specified Test Circuit.		200		ns
Fall Time	t_f	See specified Test Circuit.		10		ns

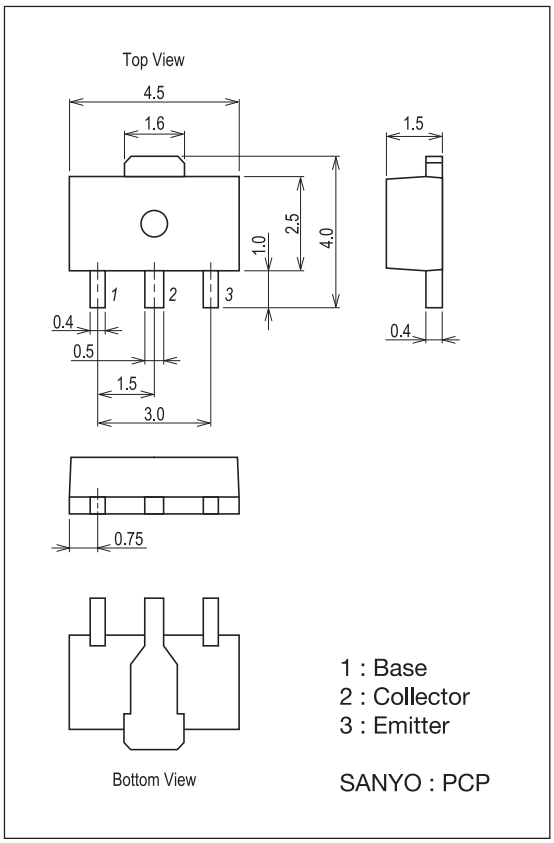
*: The 2SB1302 is classified by 500mA h_{FE} as follows:

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

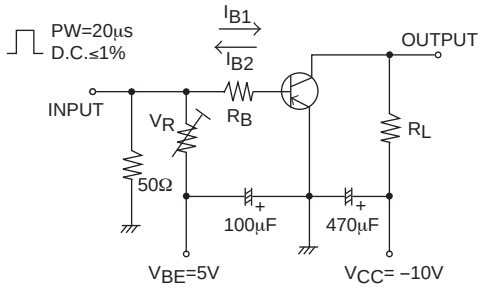
Package Dimensions

unit : mm (typ)

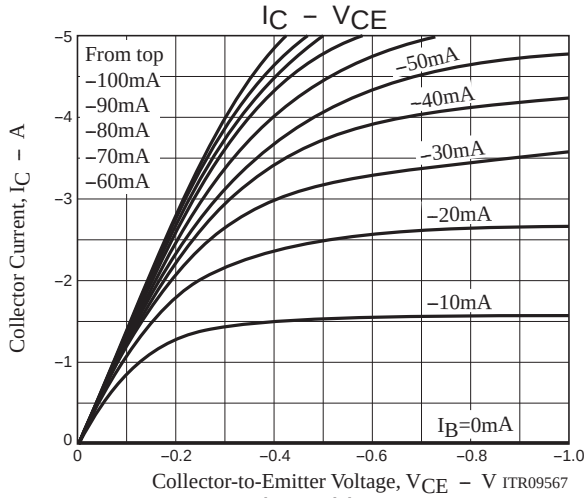
7007B-004

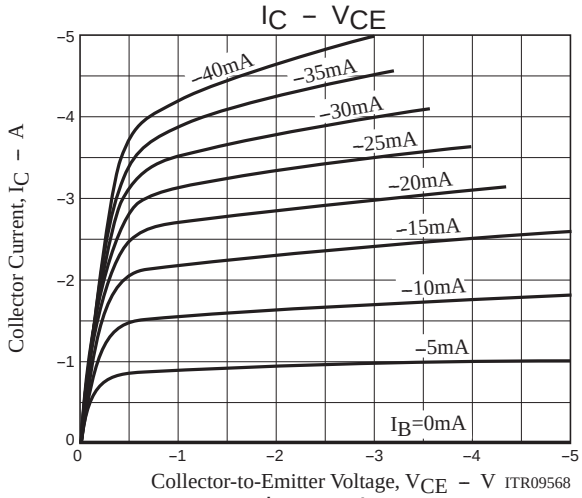


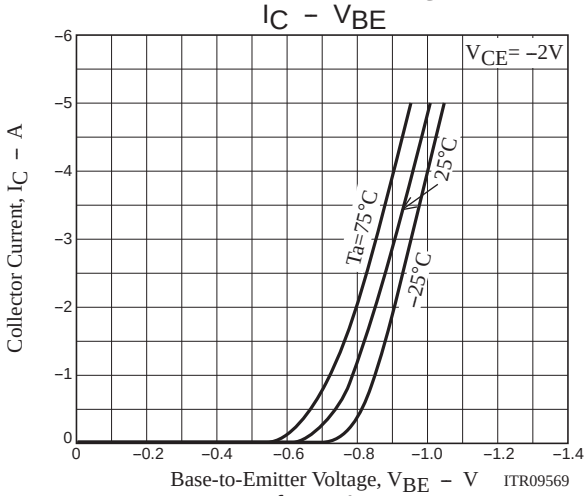
Switching Time Test Circuit

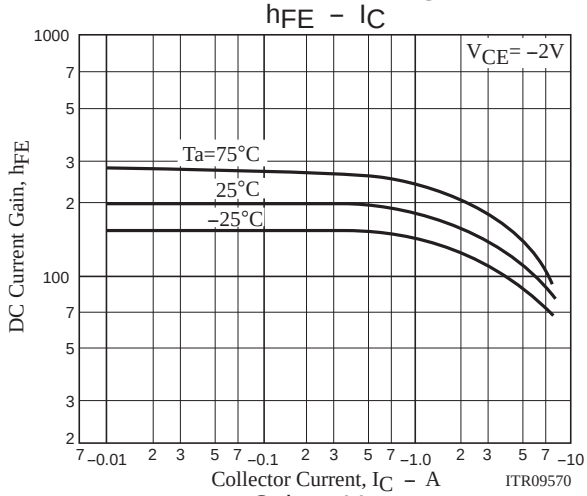


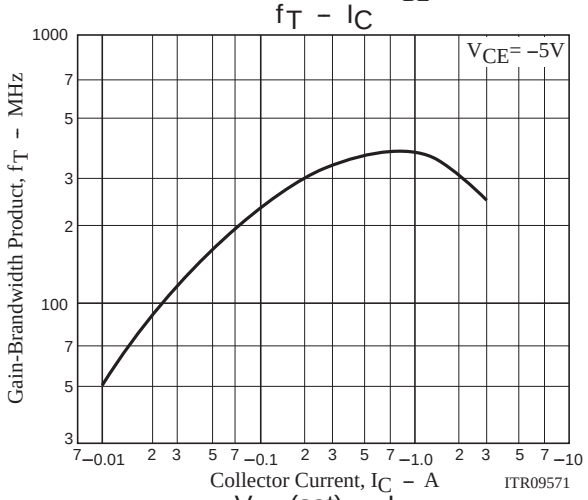
I_C=10I_{B1}= –10I_{B2}= –2A

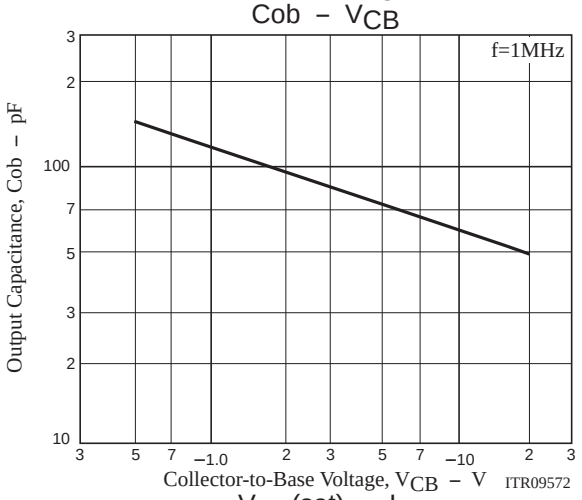

IC – VCE
From top
–100mA
–90mA
–80mA
–70mA
–60mA
–50mA
–40mA
–30mA
–20mA
–10mA
IB=0mA
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR09567

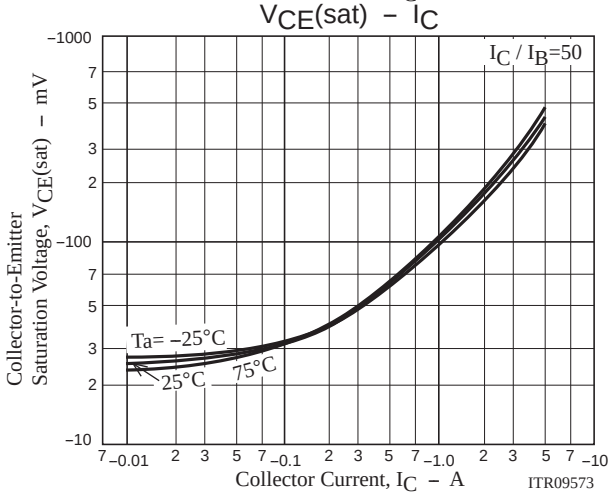

IC – VCE
–40mA
–35mA
–30mA
–25mA
–20mA
–15mA
–10mA
–5mA
IB=0mA
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR09568

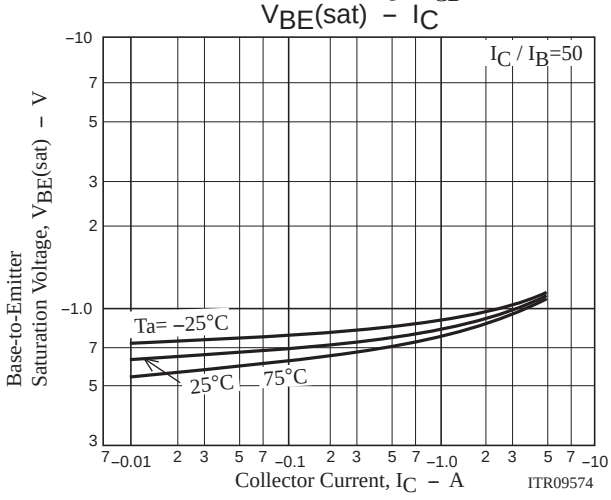

IC – VBE
VCE= –2V
Ta=75°C
25°C
–25°C
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR09569


hFE – IC
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – A
ITR09570


fT – IC
VCE= –5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
ITR09571


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR09572


VCE(sat) – IC
IC / IB=50
Ta= –25°C
25°C
75°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
ITR09573


VBE(sat) – IC
IC / IB=50
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR09574