



ON Semiconductor®

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# 2SB1121

## Bipolar Transistor -25V, -2A, Low VCE(sat) PNP Single PCP

### Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

### Features

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

### Specifications

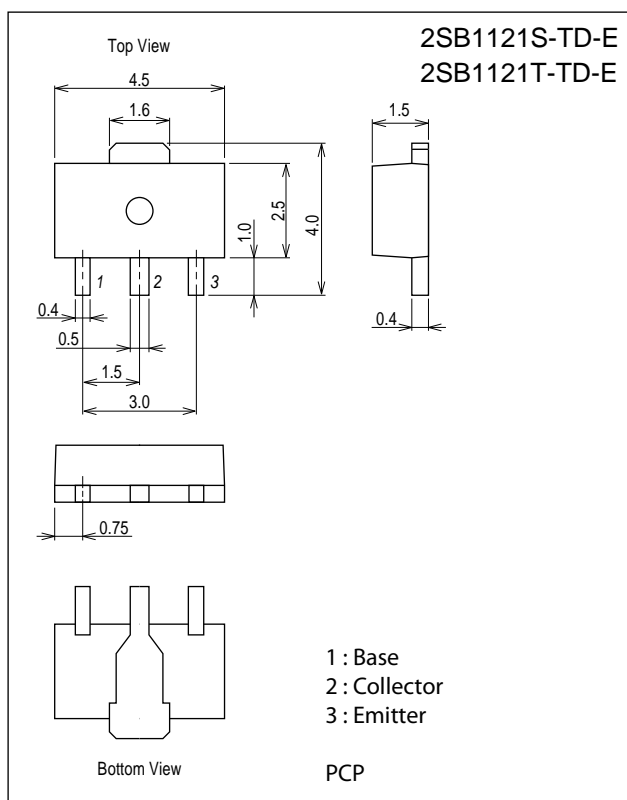
**Absolute Maximum Ratings** at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector to Base Voltage	V <sub>CB0</sub>		-30	V
Collector to Emitter Voltage	V <sub>CEO</sub>		-25	V
Emitter to Base Voltage	V <sub>EBO</sub>		-6	V
Collector Current	I <sub>C</sub>		-2	A
Collector Current (Pulse)	I <sub>CP</sub>		-5	A

Continued on next page.

### Package Dimensions

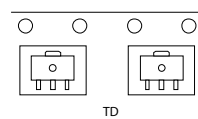
unit : mm (typ)  
7007B-004



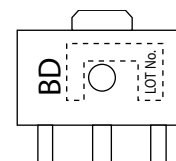
### Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

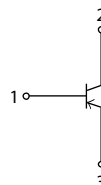
### Packing Type: TD



### Marking



### Electrical Connection



# 2SB1121

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Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	$P_C$		500	mW
		When mounted on ceramic substrate (250mm <sup>2</sup> ×0.8mm)	1.3	W
Junction Temperature	$T_j$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

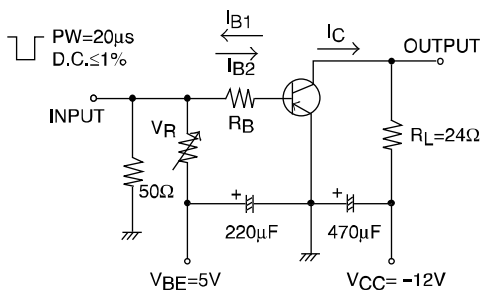
## Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-20\text{V}, I_E=0\text{A}$			-0.1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0\text{A}$			-0.1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=-2\text{V}, I_C=-100\text{mA}$	140*		400*	
	$h_{FE2}$	$V_{CE}=-2\text{V}, I_C=-1.5\text{A}$	65			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-10\text{V}, I_C=-50\text{mA}$		150		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10\text{V}, f=1\text{MHz}$		32		pF
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.5\text{A}, I_B=-75\text{mA}$		-0.35	-0.6	V
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.5\text{A}, I_B=-75\text{mA}$		-0.85	-1.2	V
Collector to Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0\text{A}$	-30			V
Collector to Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-25			V
Emitter to Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0\text{A}$	-6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		60		ns
Storage Time	$t_{stg}$			350		ns
Fall Time	$t_f$			25		ns

\*: The 2SB1121 is classified by 100mA  $h_{FE}$  as follows:

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

## Switching Time Test Circuit

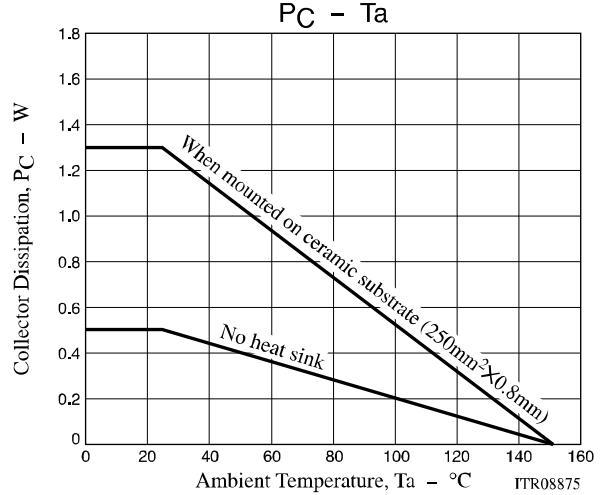
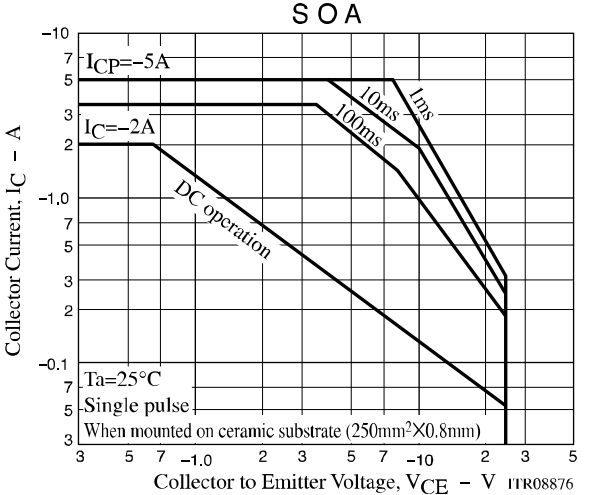
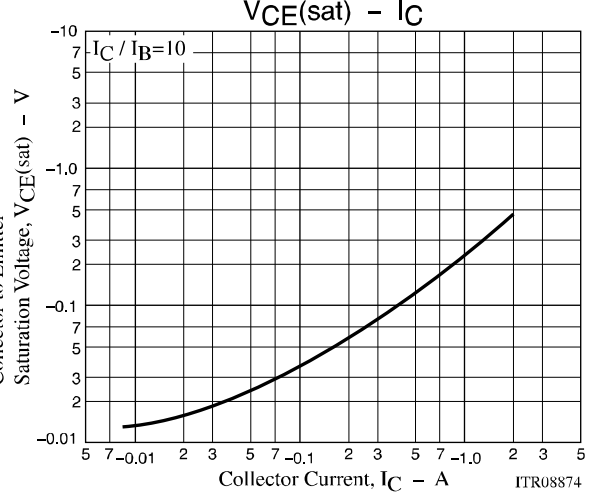
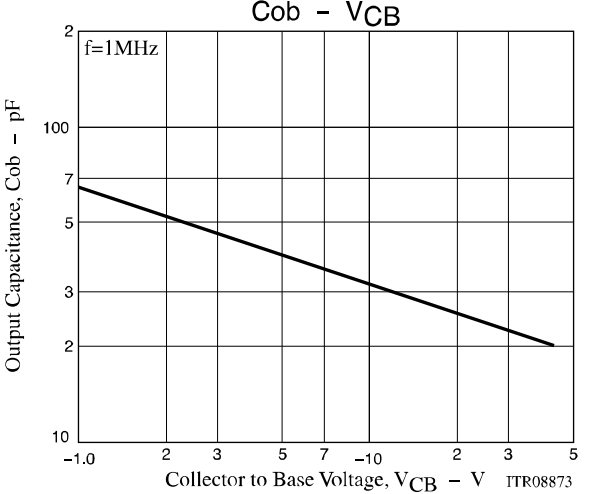
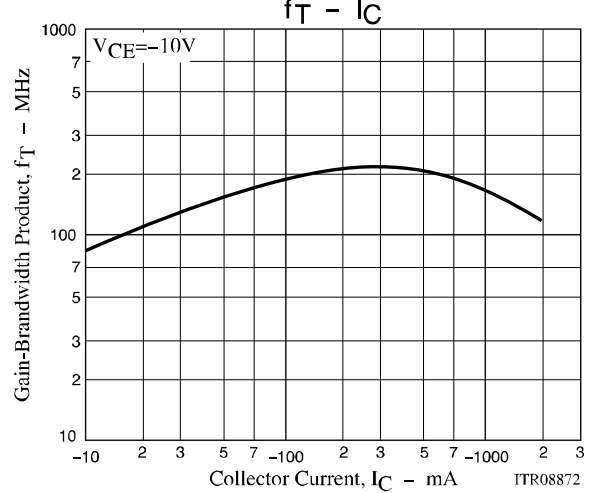
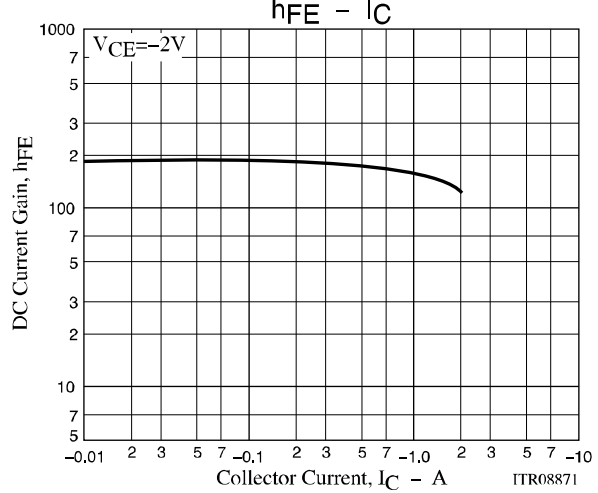
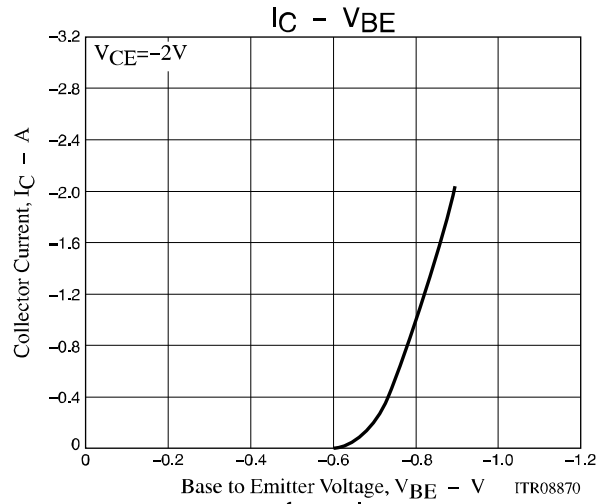
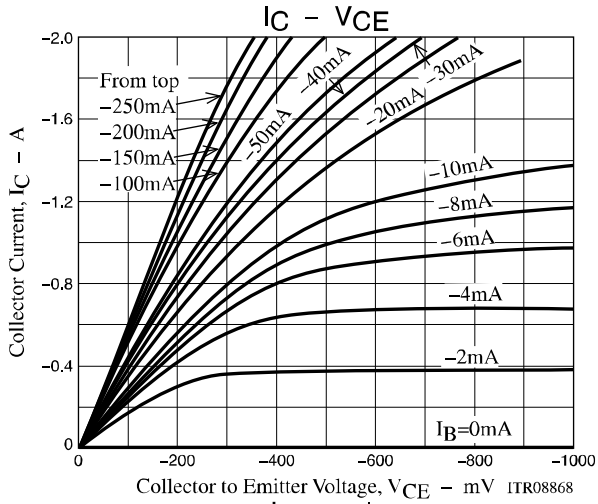


$$I_C = 20I_{B1} = -20I_{B2} = -0.5\text{A}$$

## Ordering Information

Device	Package	Shipping	Memo
2SB1121S-TD-E 2SB1121T-TD-E	PCP	1,000pcs./reel	Pb-Free

# 2SB1121

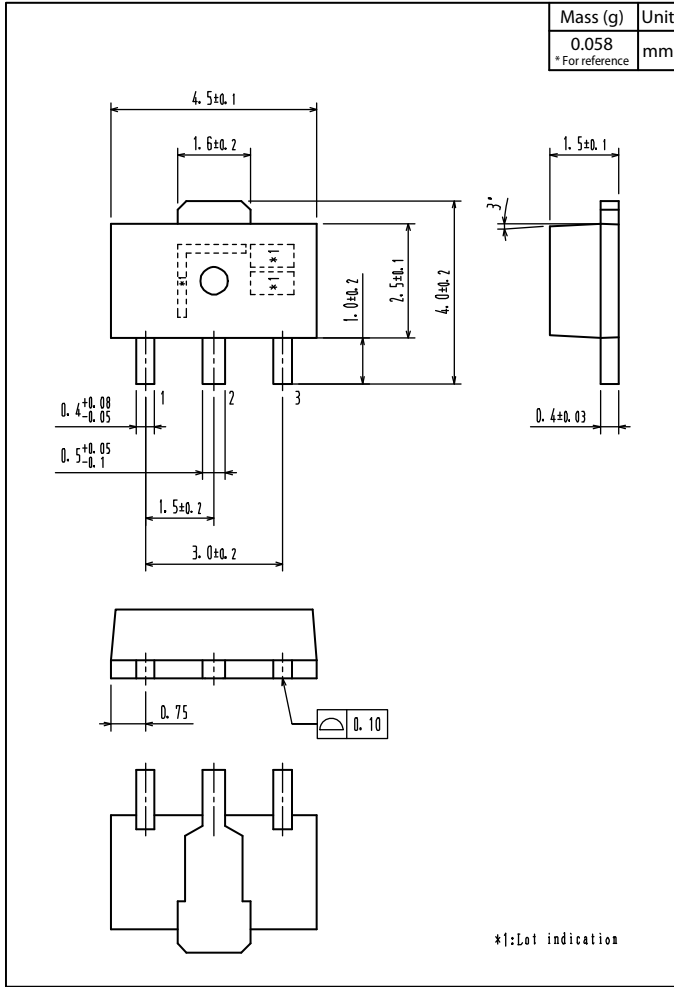


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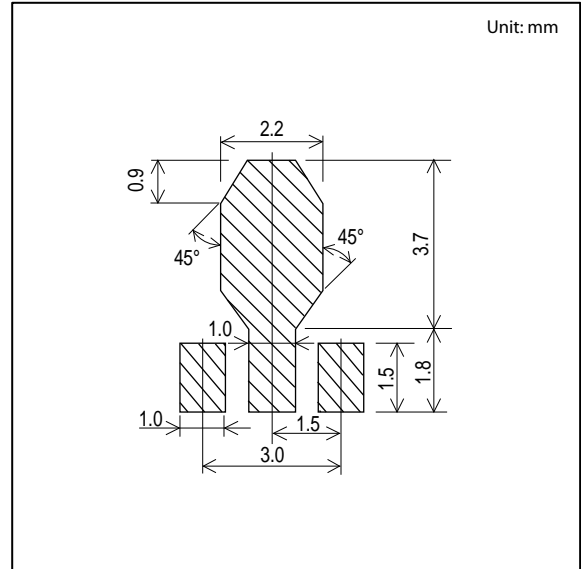
## Outline Drawing

2SB1121S-TD-E

2SB1121T-TD-E



## Land Pattern Example



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