



2SB1205

Bipolar Transistor

-20V, -5A, Low $V_{CE(sat)}$, PNP Single TP/TP-FA

ON Semiconductor®

<http://onsemi.com>

Applications

- Flash, voltage regulators, relay drivers, lamp drivers

Features

- Adoption of FBET, MBIT processes
- Low saturation voltage
- Fast switching speed
- Large current capacity
- Small and slim package making it easy to make 2SB1205-applied sets smaller

Specifications

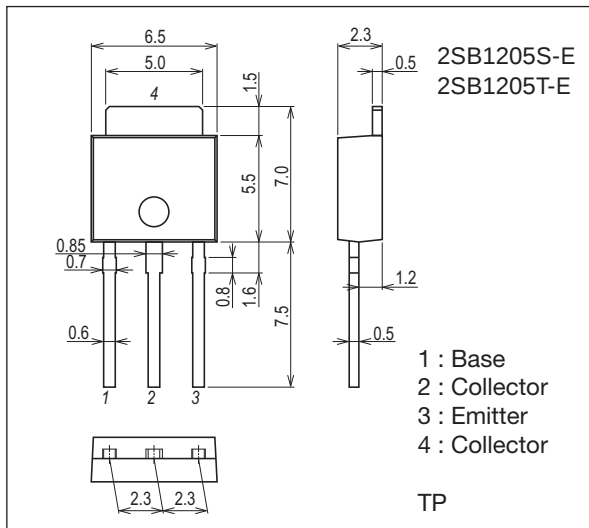
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

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

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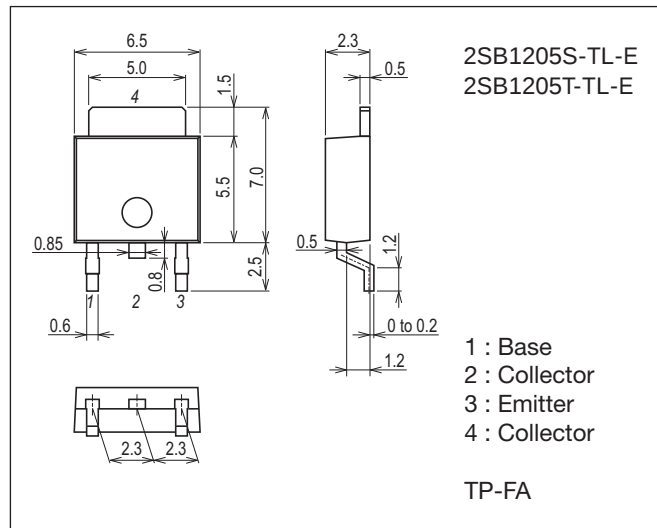
Package Dimensions unit : mm (typ)

7518-003



Package Dimensions unit : mm (typ)

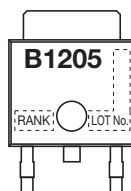
7003-003



Product & Package Information

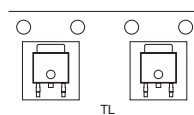
- Package : TP
- JEITA, JEDEC : SC-64, TO-251
- Minimum Packing Quantity : 500 pcs./bag

Marking (TP, TP-FA)

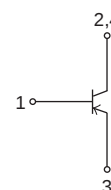


- Package : TP-FA
- JEITA, JEDEC : SC-63, TO-252
- Minimum Packing Quantity : 700 pcs./reel

Packing Type (TP-FA) : TL



Electrical Connection



2SB1205

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Parameter	Symbol	Conditions	Ratings	Unit
Base Current	I_B		-0.5	A
Collector Dissipation	P_C		1	W
		$T_c=25^\circ\text{C}$	10	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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.

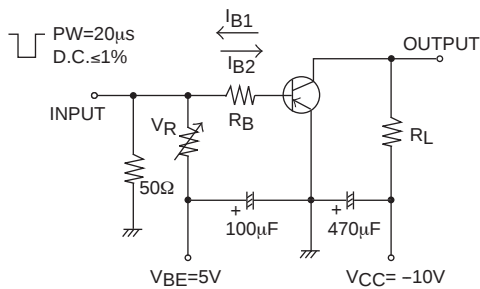
Electrical Characteristics at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-20\text{V}, I_E=0\text{A}$			-500	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0\text{A}$			-500	nA
DC Current Gain	h_{FE1}	$V_{CE}=-2\text{V}, I_C=500\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE}=-2\text{V}, I_C=-4\text{A}$	60			
Gain-Bandwidth Product	f_T	$V_{CE}=-5\text{V}, I_C=-200\text{mA}$		320		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		-250	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=-3\text{A}, I_B=-60\text{mA}$		-1.0	-1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0\text{A}$	-25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0\text{A}$	-5			V
Turn-On Time	t_{on}	See specified Test Circuit.		40		ns
Storage Time	t_{stg}			200		ns
Fall Time	t_f			10		ns

* : The 2SB1205 is classified by 500mA h_{FE} as follows :

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

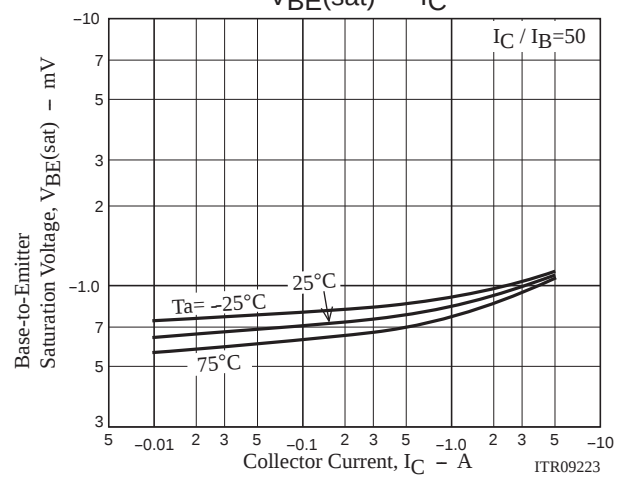
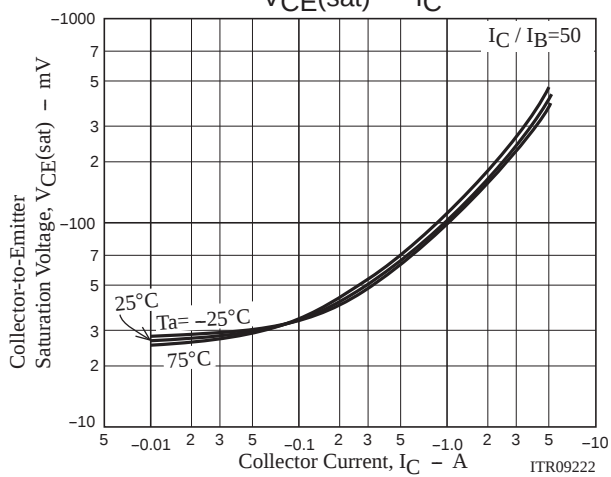
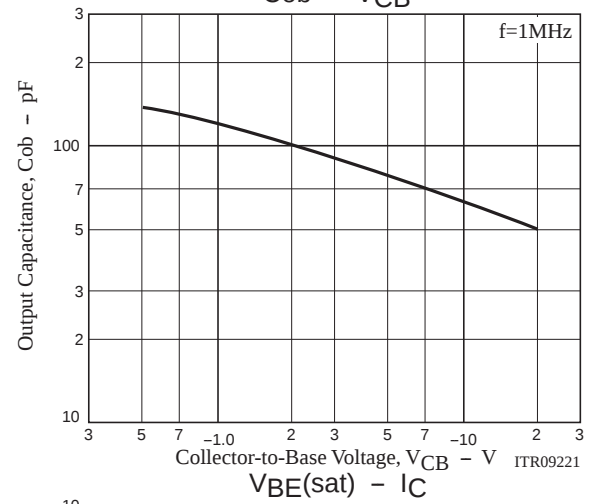
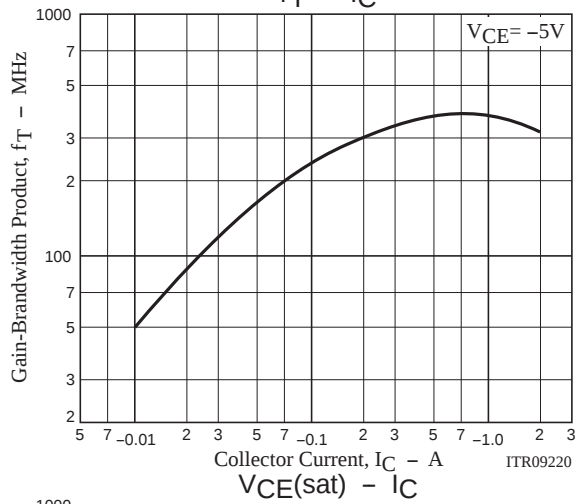
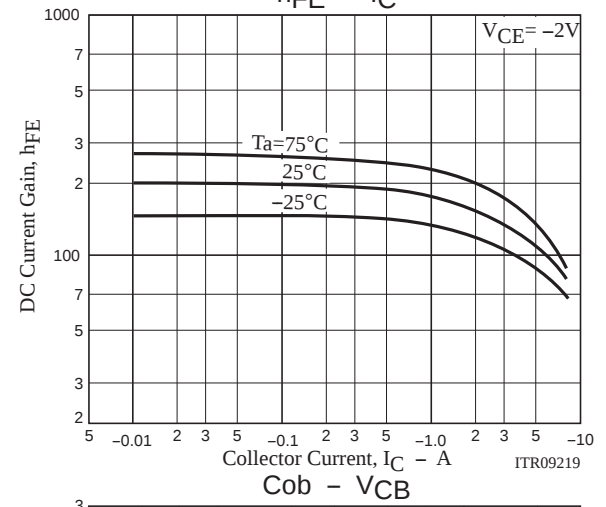
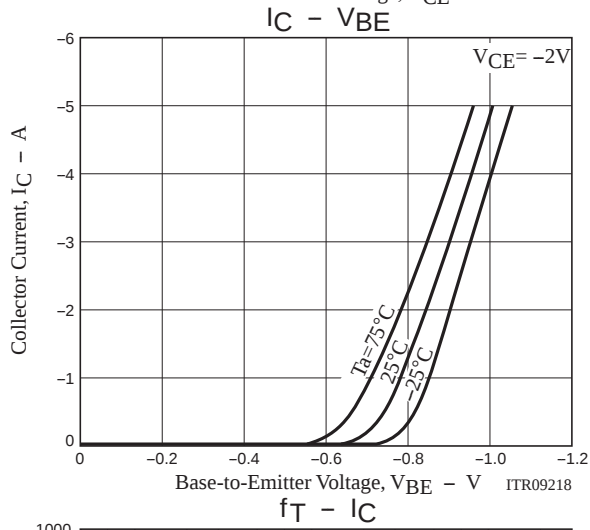
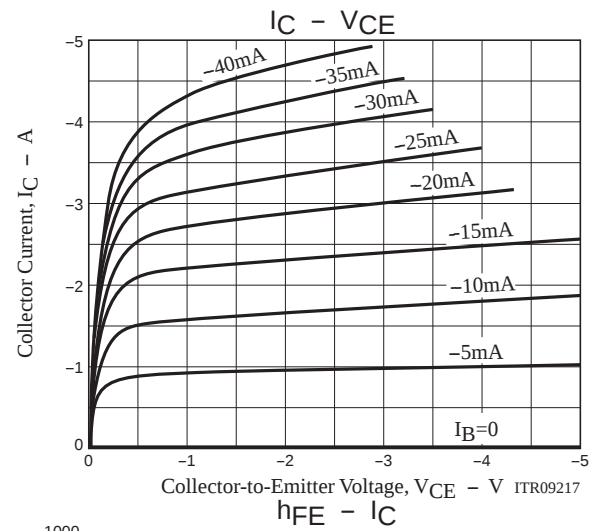
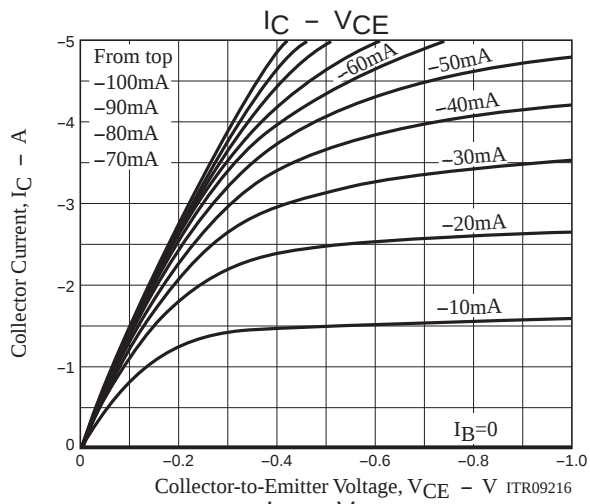
Switching Time Test Circuit

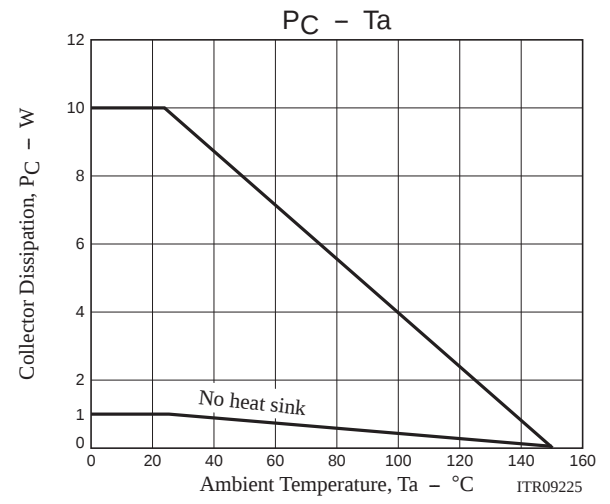
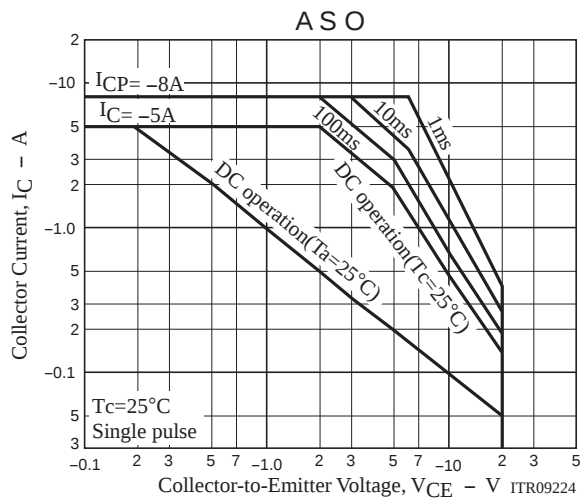


$$I_C=10I_{B1}=-10I_{B2}=-2\text{A}$$

Ordering Information

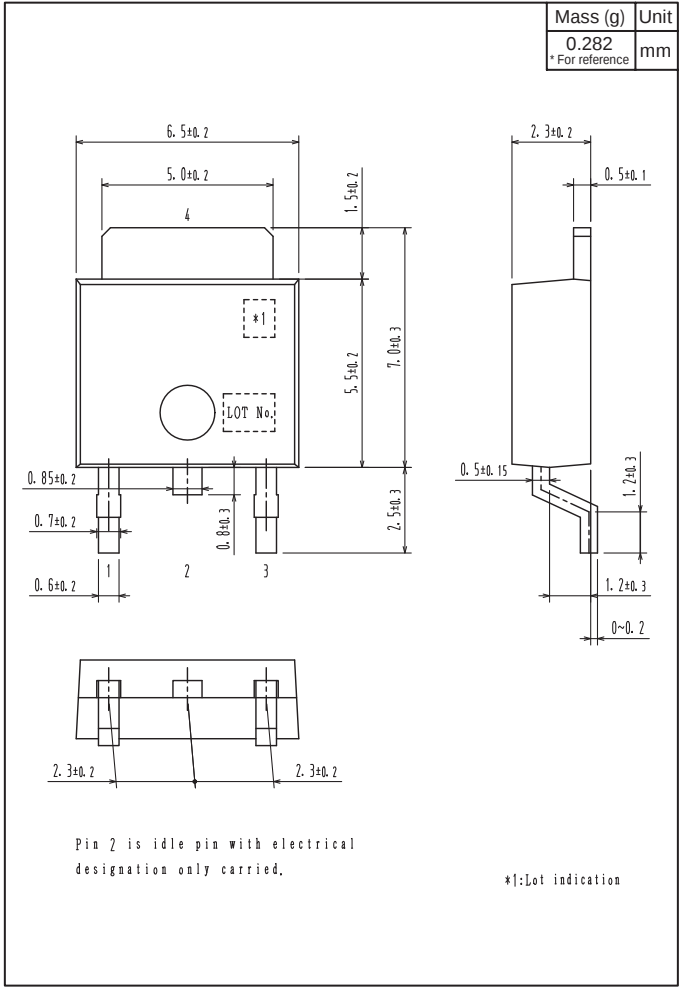
Device	Package	Shipping	memo
2SB1205S-E	TP	500pcs./bag	Pb Free
2SB1205T-E	TP	500pcs./bag	
2SB1205S-TL-E	TP-FA	700pcs./reel	
2SB1205T-TL-E	TP-FA	700pcs./reel	



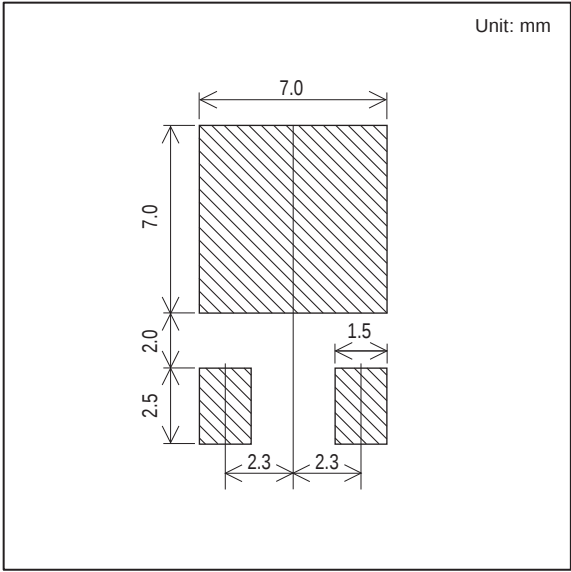


Outline Drawing

2SB1205S-TL-E, 2SB1205T-TL-E

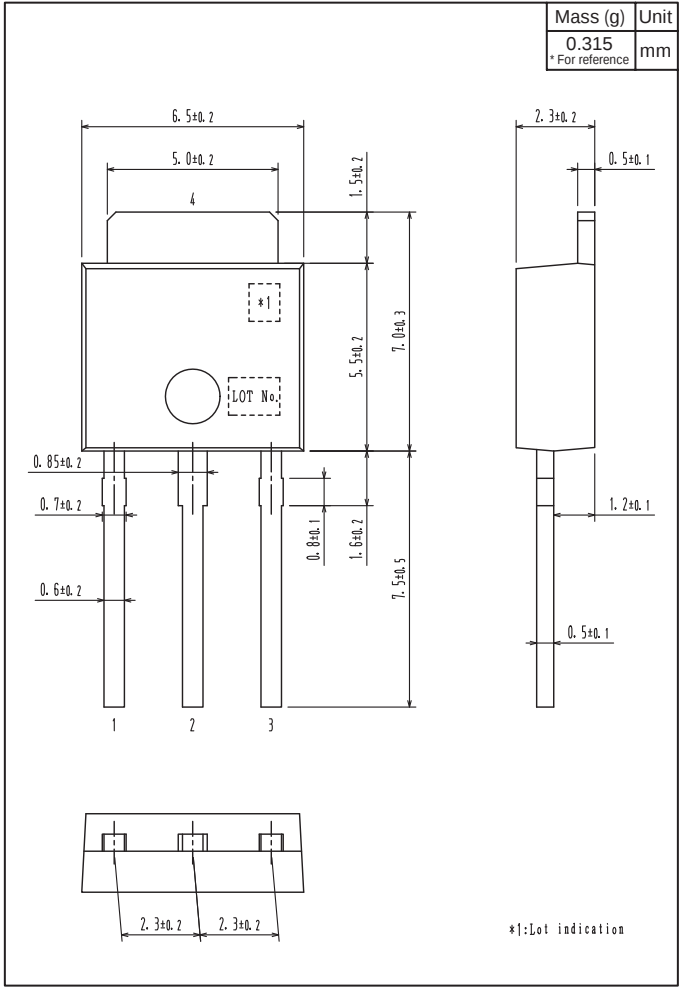


Land Pattern Example



Outline Drawing

2SB1205S-E, 2SB1205T-E



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