



2SC4306

High-Current Switching Applications

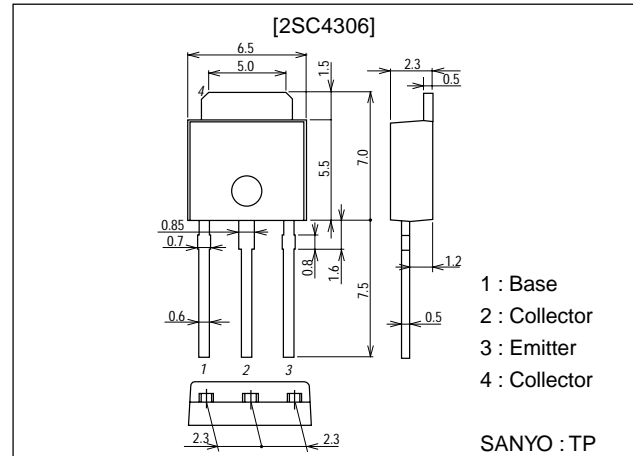
Features

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.
- Small and slim package making it easy to make 2SC4306-used set smaller.

Package Dimensions

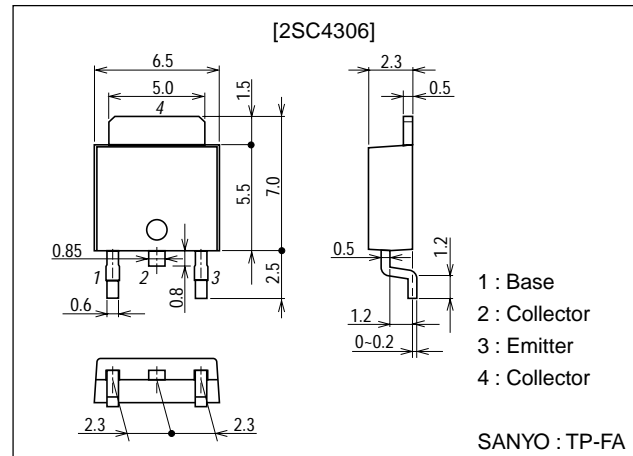
unit:mm

2045B



unit:mm

2044B



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Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		30	V
Collector-to-Emitter Voltage	V_{CEO}		20	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		8	A
Collector Current (Pulse)	I_{CP}		12	A
Base Current	I_B		1.5	A
Collector Dissipation	P_C		1	W
		$T_c=25^\circ\text{C}$	15	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

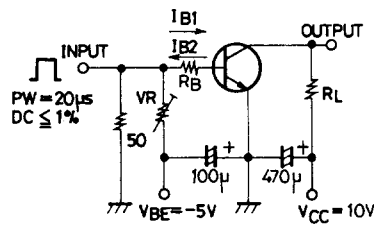
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=20\text{V}, I_E=0$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4\text{V}, I_C=0$			1	μA
DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}, I_C=500\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE}=2\text{V}, I_C=6\text{A}$	70			
Gain-Bandwidth Product	f_T	$V_{CE}=2\text{V}, I_C=500\text{mA}$		250		MHz
Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, f=1\text{MHz}$		60		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=5\text{A}, I_B=250\text{mA}$		220	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=5\text{A}, I_B=250\text{mA}$		1	1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	5			V
Turn-ON Time	t_{on}	See specified test circuit.		30	300	ns
Storage Time	t_{stg}	See specified test circuit.		250	1000	ns
Fall Time	t_f	See specified test circuit.		15	150	ns

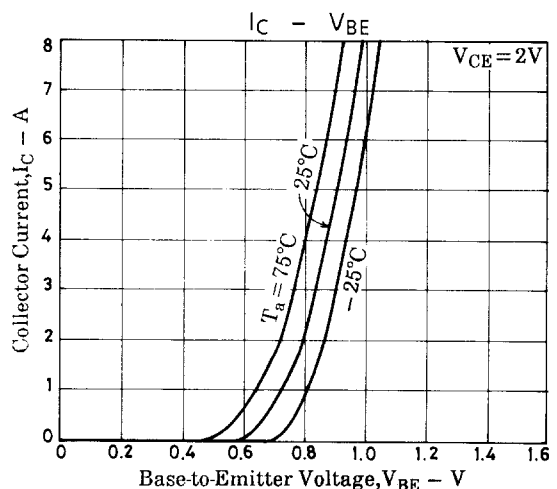
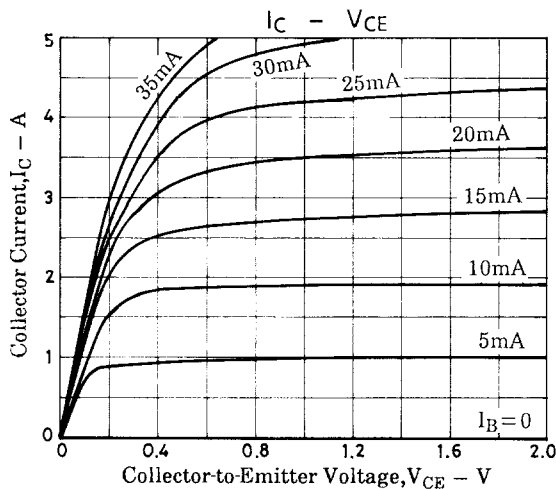
* : The 2SC4306 is classified by 500mA h_{FE} as follows :

100	R	200	140	S	280	200	T	400
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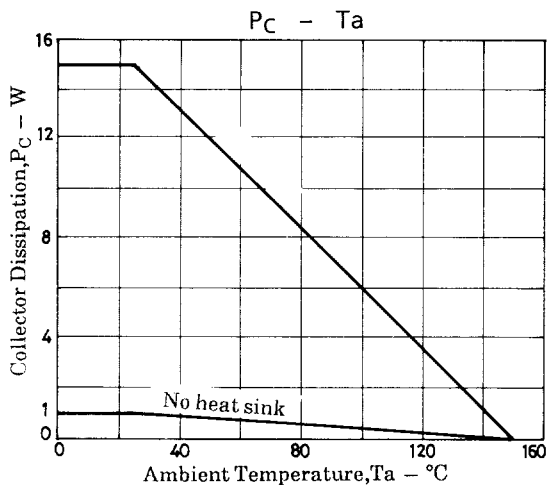
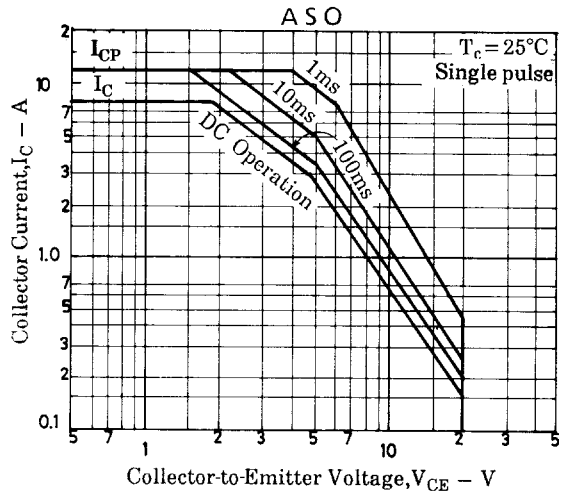
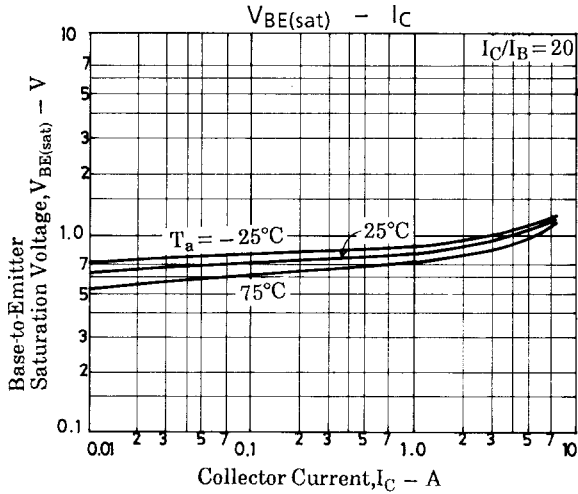
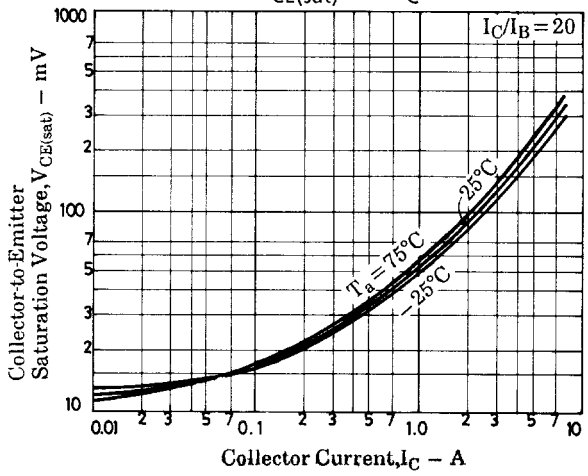
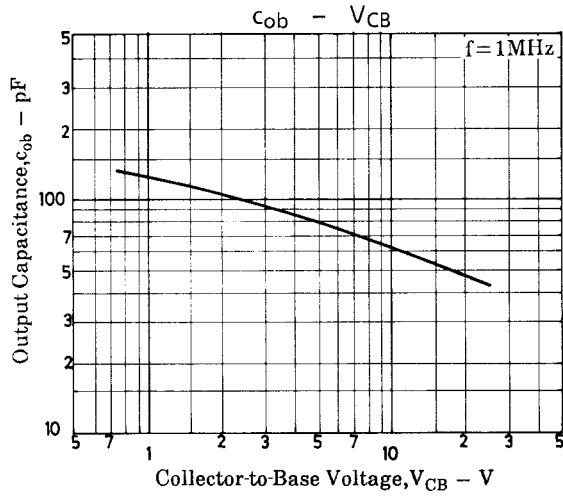
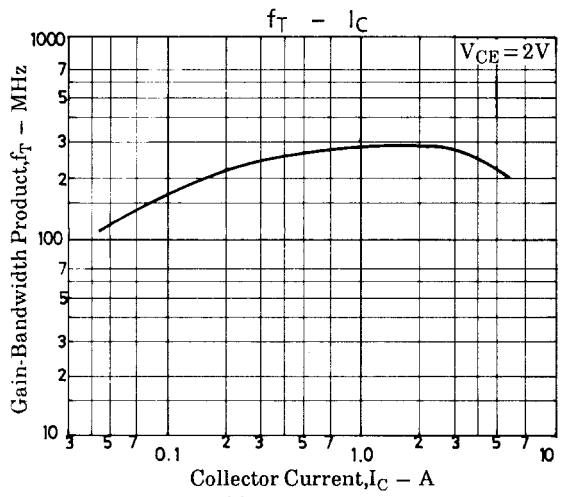
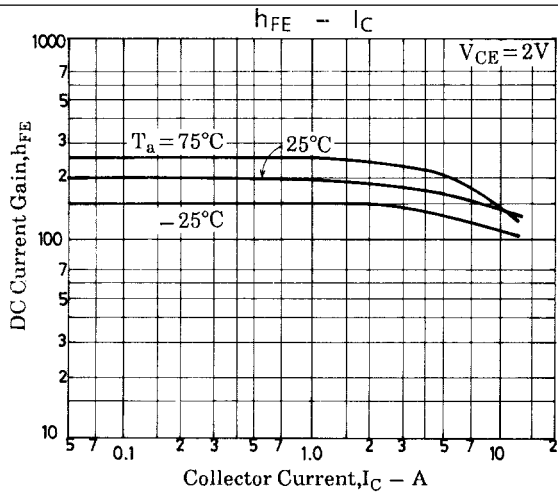
Switching Time Test Circuit



$20I_{B1} = -20I_{B2} = I_C = 5\text{A}$ Unit (resistance : Ω , capacitance : F)



2SC4306



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