



2SA1641

High-Current Switching Applications

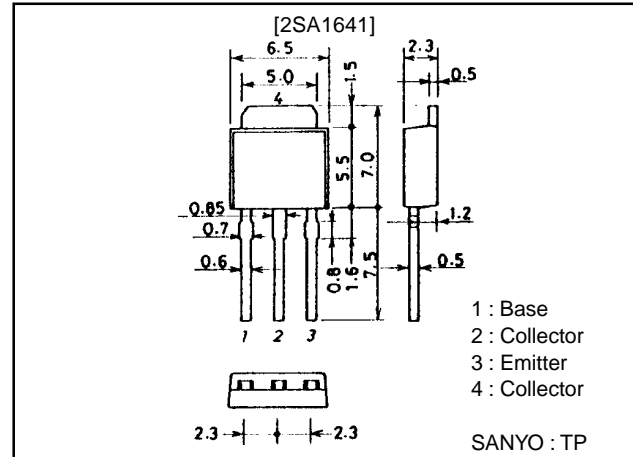
Features

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Fast switching speed.
- Large current capacity.
- Small and slim package making it easy to make 2SA1641-used set smaller.

Package Dimensions

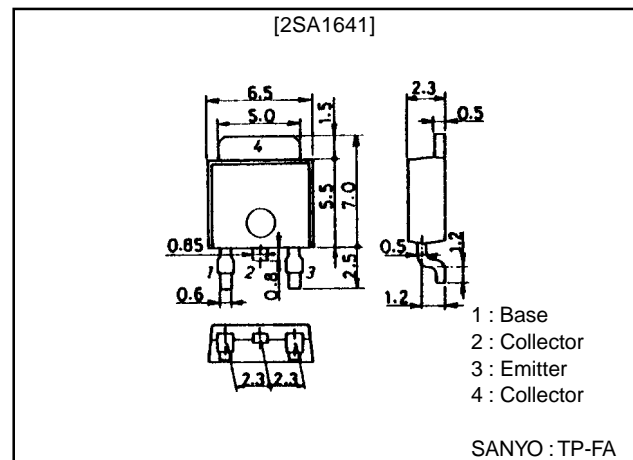
unit:mm

2045B



unit:mm

2044B



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Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		-25	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	$^\circ\text{C}$

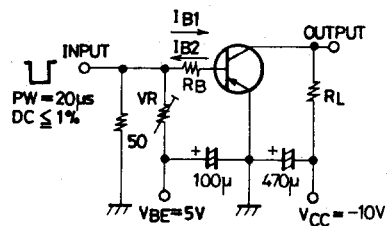
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-20\text{V}, I_E=0$			-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}	$V_{CE}=-2\text{V}, I_C=-6\text{A}$	60			
Gain-Bandwidth Product	f_T	$V_{CE}=-2\text{V}, I_C=-500\text{mA}$		200		MHz
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 Output Capacitance	C_{ob}	$V_{CB}=-10\text{V}, f=1\text{MHz}$		85		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-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	$V_{(BR)EBO}$	$I_E=-10\mu\text{A}, I_C=0$	-5			V
Turn-ON Time	t_{on}	See specified Test Circuit		30	300	ns
Storage Time	t_{stg}	See specified Test Circuit		200	800	ns
Fall Time	t_f	See specified Test Circuit		15	150	ns

* : The 2SA1641 is classified by 500mA h_{FE} as follows :

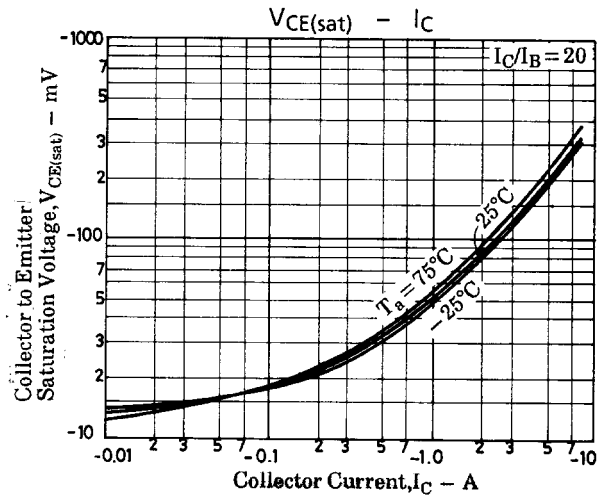
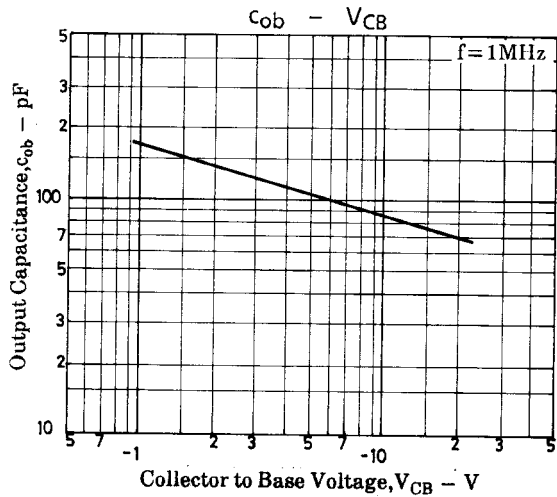
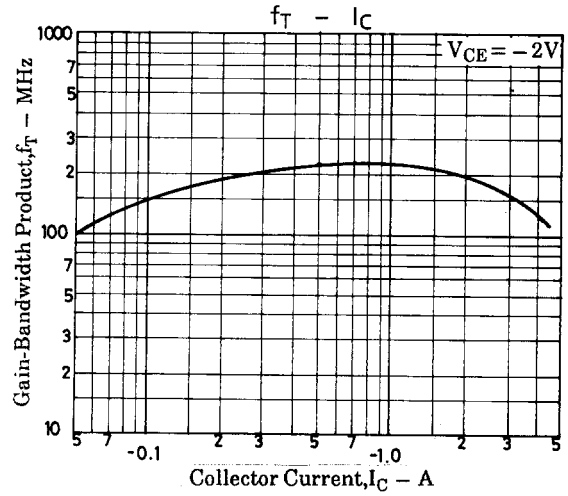
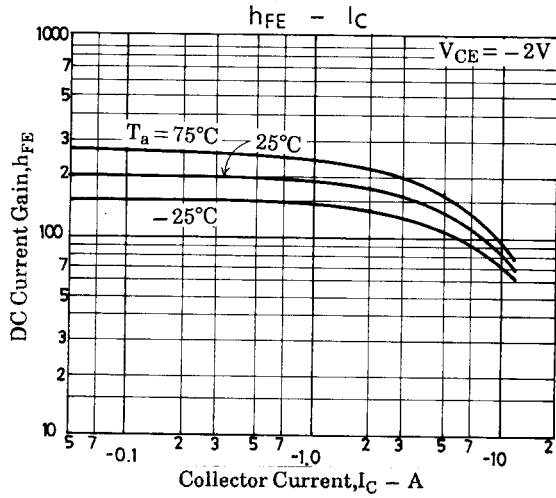
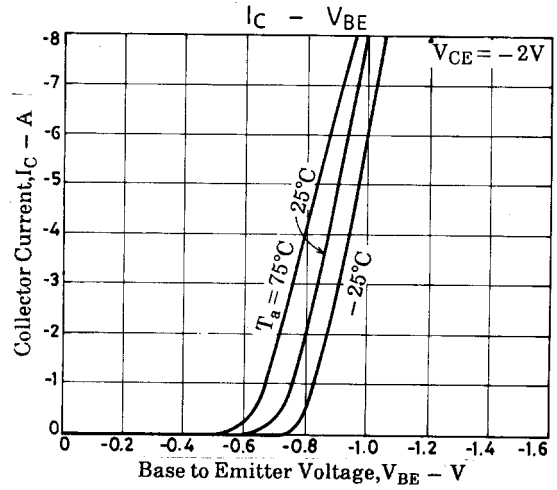
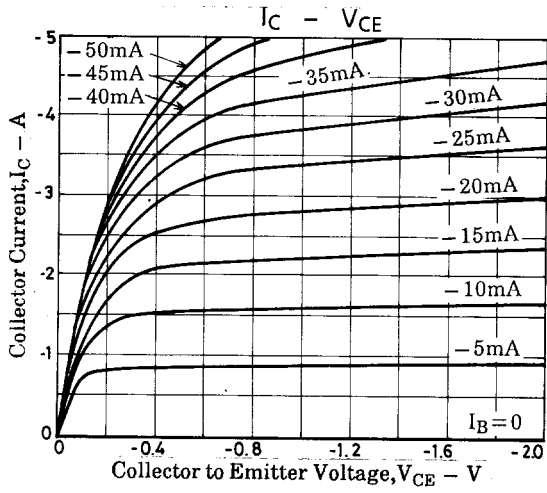
100	R	200	140	S	280	200	T	400
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Switching Time Test Circuit

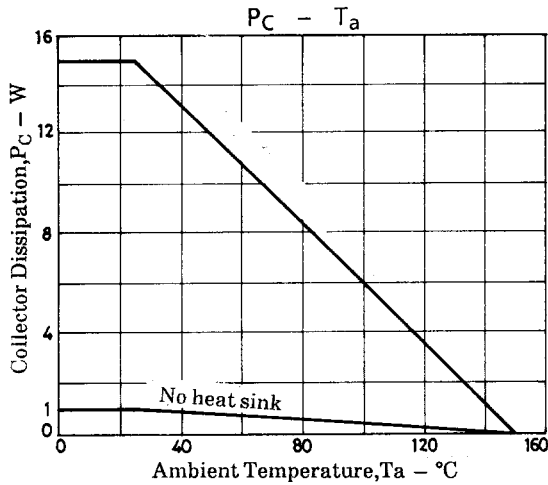
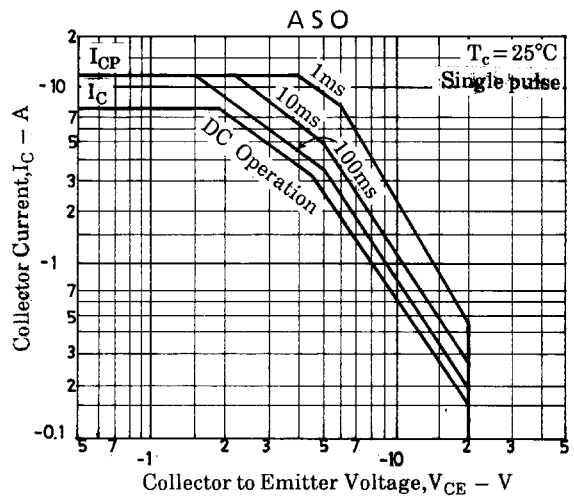
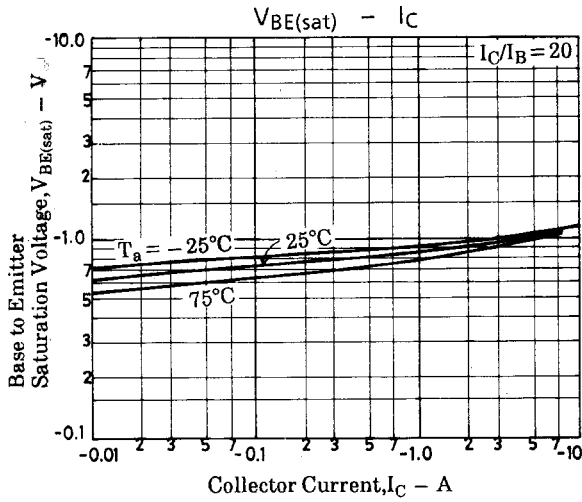


$20I_{B1} = -20I_{B2} = I_C = -5\text{A}$
 Unit (resistance : Ω , capacitance : F)

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