

**2SB1140****20V/5A Switching Applications****Applications**

- Strobes, power supplies, relay drivers, lamp drivers.

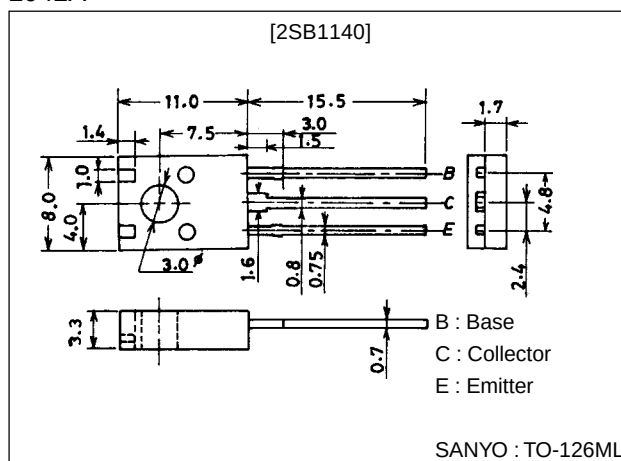
Features

- Adoption of FBET, MBIT processes.
- Low saturation voltage.
- Large current capacity.
- Short switching time.

Package Dimensions

unit:mm

2042A

**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
Base Current	I_B		-0.5	A
Collector Dissipation	P_C		1.5	W
		Tc=25°C	10	W
Junction Temperature	T_j		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = -20V, I_E = 0$			-500	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = -4V, I_C = 0$			-500	nA
DC Current Gain	h_{FE1}	$V_{CE} = -2V, I_C = -500mA$	100*		400*	
	h_{FE2}	$V_{CE} = -2V, I_C = -4A$	60			
Gain-Bandwidth Product	f_T	$V_{CE} = -5V, I_C = -200mA$		320		MHz
Output Capacitance	C_{ob}	$V_{CB} = -10V, f = 1MHz$		60		pF

* : The 2SB1140 is classified by 500mA h_{FE} as follows :

100	R	200	140	S	280	200	T	400
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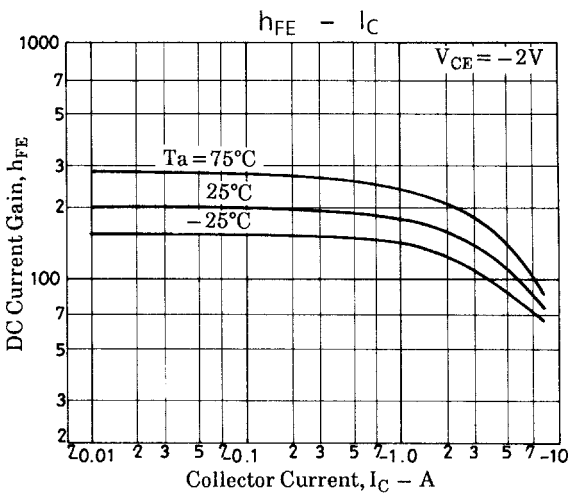
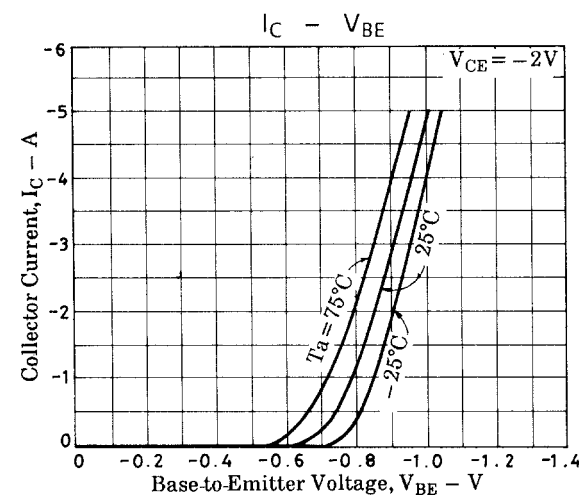
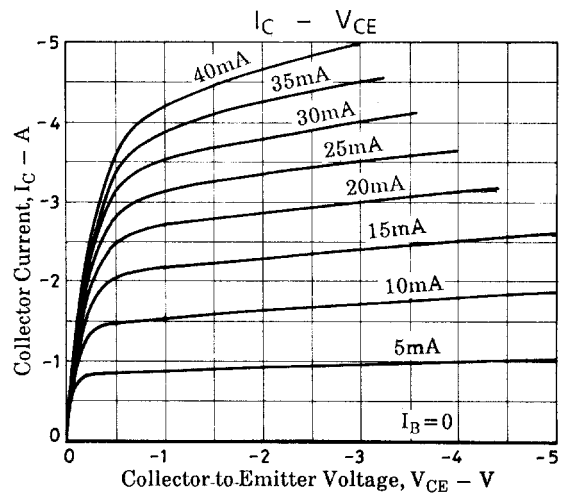
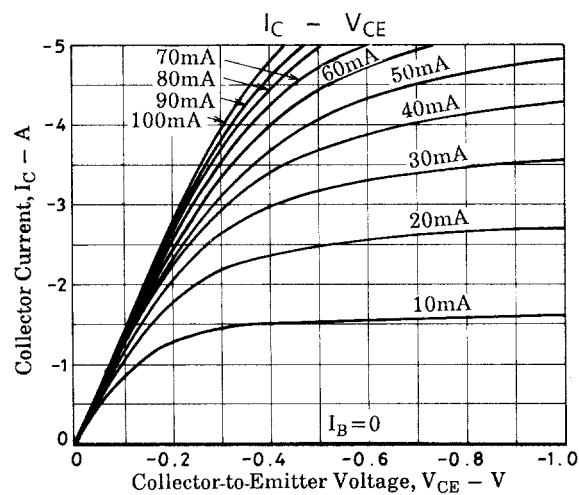
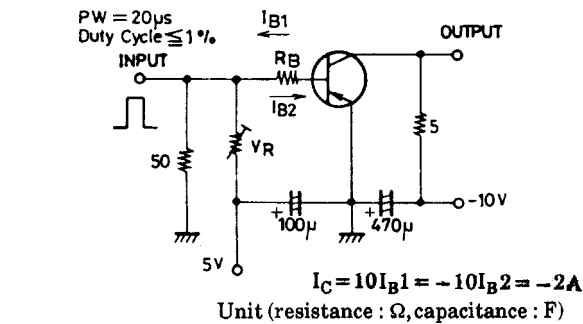
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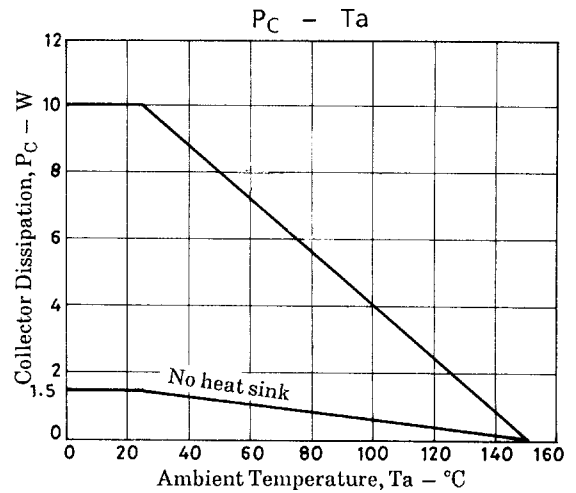
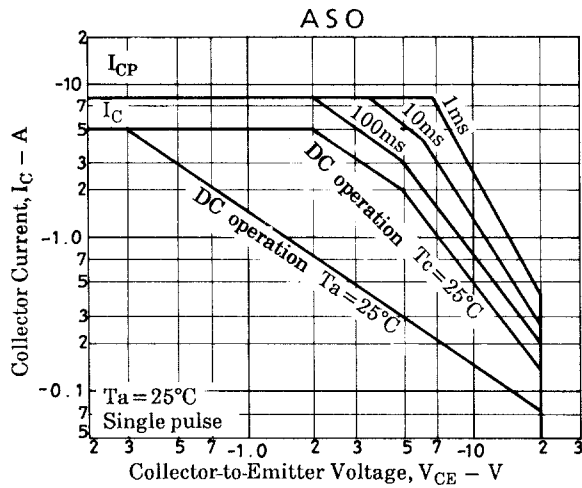
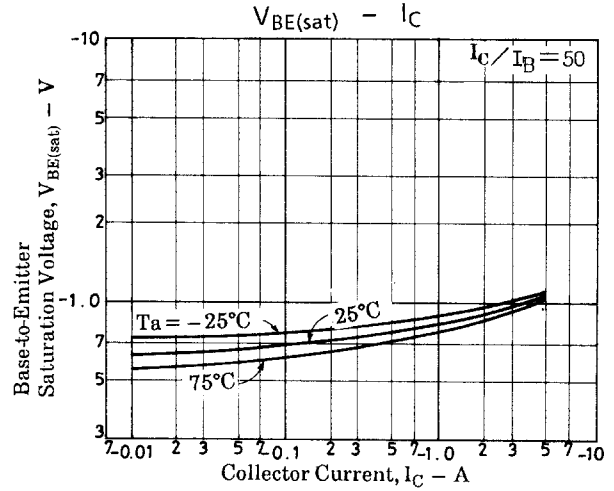
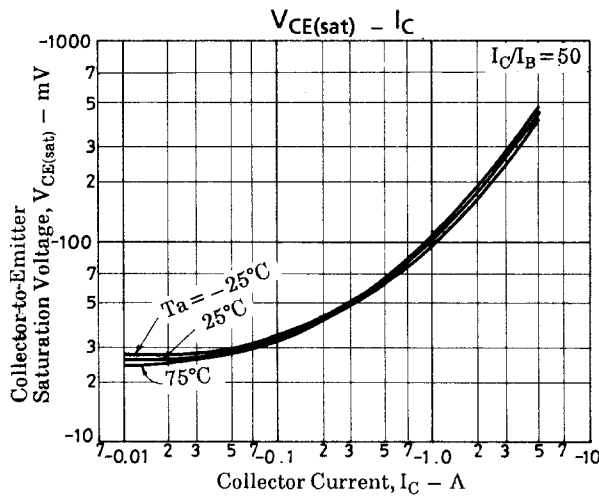
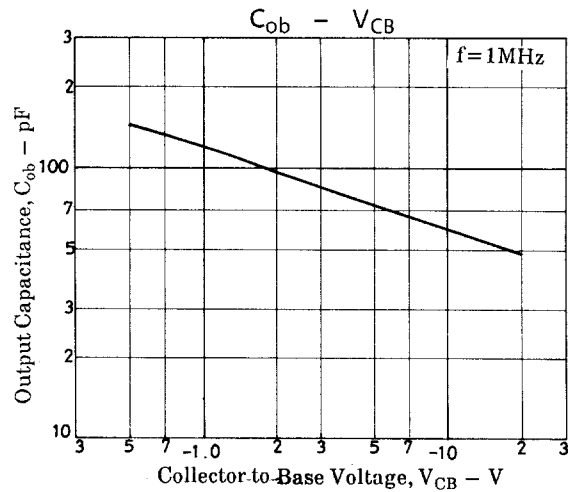
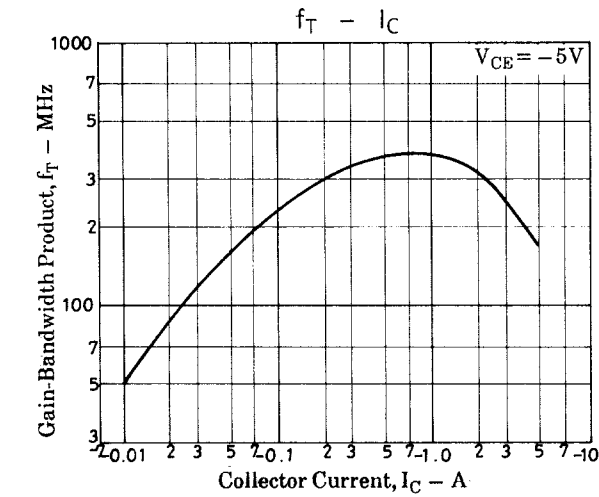
92098HA (KT)/4017KI/D176TA No.2069-1/4

2SB1140

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -3A, I_B = -60mA$		-250	-500	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -3A, I_B = -60mA$		-1.0	-1.3	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	-25			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	-20			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	-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

Switching Time Test Circuit





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