

# 2SA2098 / 2SC5887



## High-Current Switching Applications

### Applications

- Relay drivers, lamp drivers, motor drivers.

### Features

- Adoption of MBIT processes.
- Large current capacitance.
- Low collector-to-emitter saturation voltage.
- High-speed switching.

### Specifications

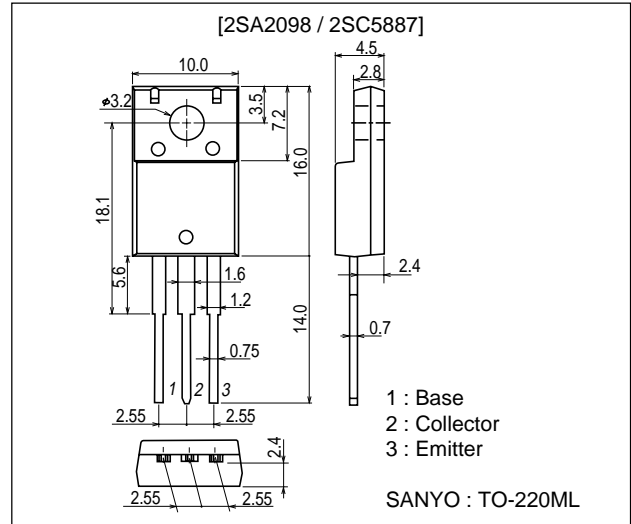
( ) : 2SA2098

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>		(-50)60	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)50	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(-)6	V
Collector Current	I <sub>C</sub>		(-)15	A
Collector Current (Pulse)	I <sub>CP</sub>		(-)20	A
Base Current	I <sub>B</sub>		(-)3	A
Collector Dissipation	P <sub>C</sub>		2	W
		T <sub>c</sub> =25°C	30	W
Junction Temperature	T <sub>J</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

### Package Dimensions

unit : mm  
2041A



### Electrical Characteristics

at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I <sub>CB0</sub>	V <sub>CB</sub> =(-)40V, I <sub>E</sub> =0			(-)10	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			(-)10	μA
DC Current Gain	h <sub>FE</sub>	V <sub>CE</sub> =(-)2V, I <sub>C</sub> =(-)1A	180		(400)560	
Gain-Bandwidth Product	f <sub>T</sub>	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)1A		(200)300		MHz

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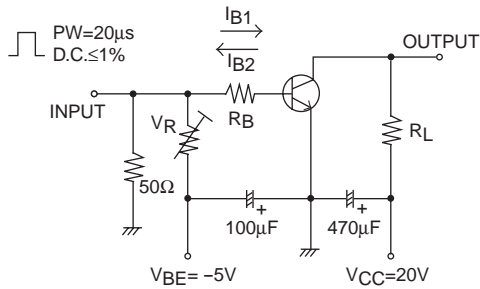
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# 2SA2098 / 2SC5887

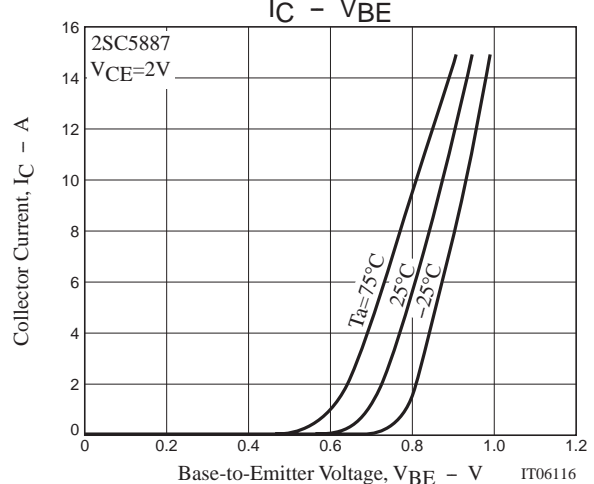
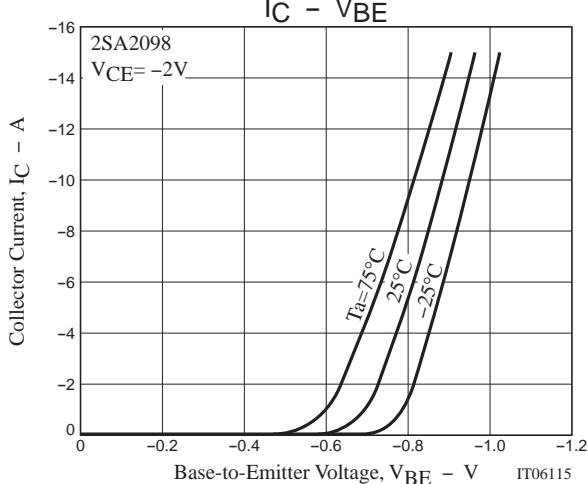
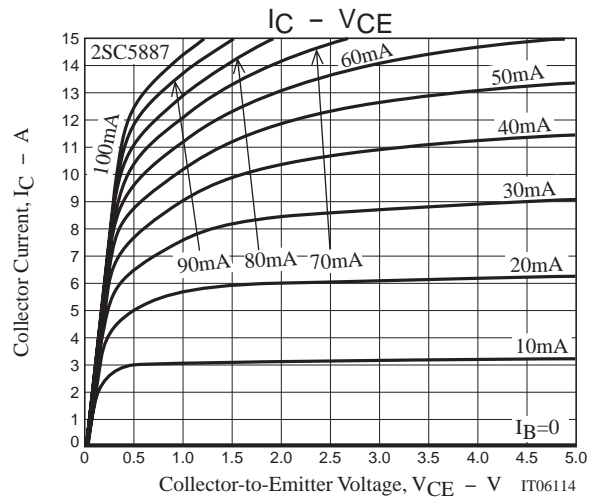
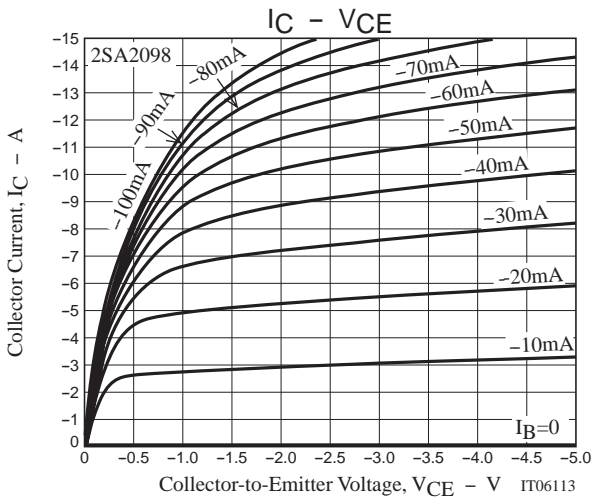
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V <sub>CB</sub> =(-)10V, f=1MHz		(200)100		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =(-)7A, I <sub>B</sub> =(-)350mA		(-200)160	(-500)400	mV
Base-to-Emitter Saturation Voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> =(-)7A, I <sub>B</sub> =(-)350mA		(-)0.94	(-)1.4	V
Collector-to-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> =(-)100μA, I <sub>E</sub> =0	(-50)60			V
Collector-to-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> =(-)1mA, R <sub>BE</sub> =∞	(-)50			V
Emitter-to-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> =(-)100μA, I <sub>C</sub> =0	(-)6			V
Turn-ON Time	t <sub>d(on)</sub>	See specified Test Circuit.		(80)50		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit.		(400)700		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit.		(30)40		ns

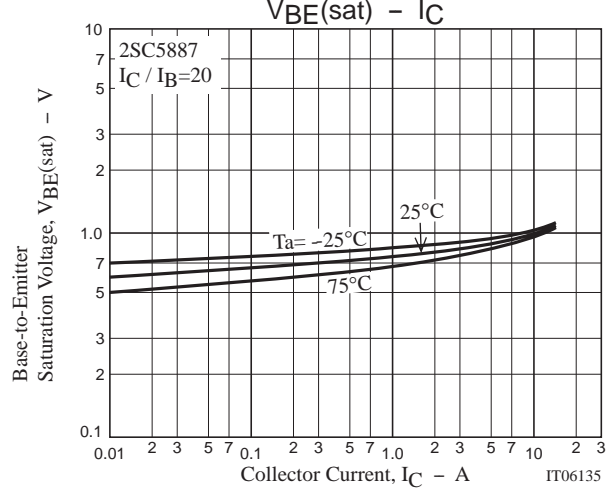
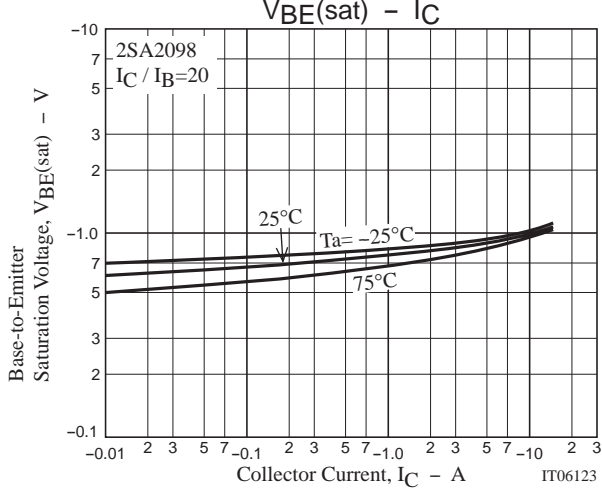
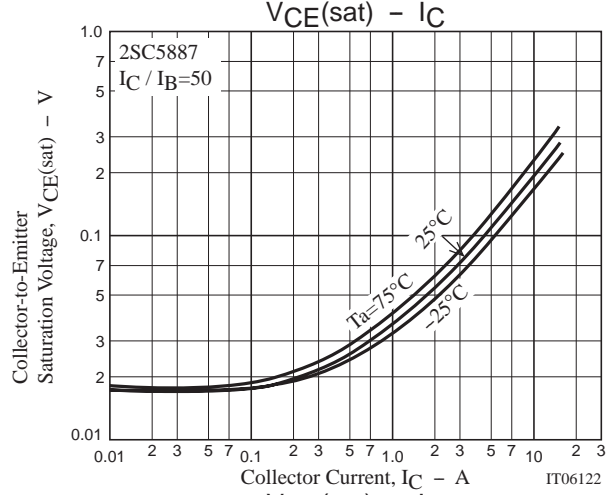
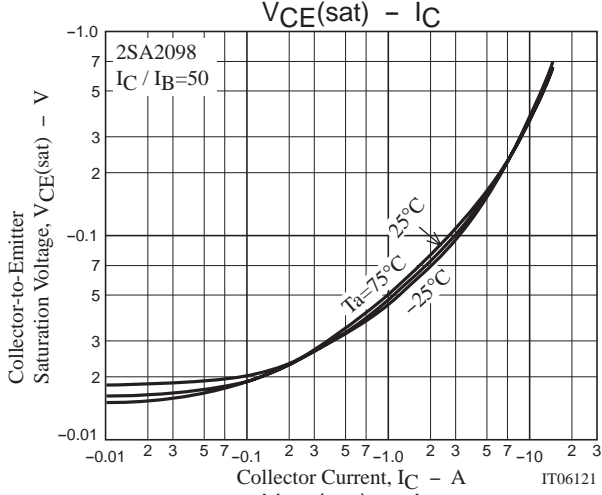
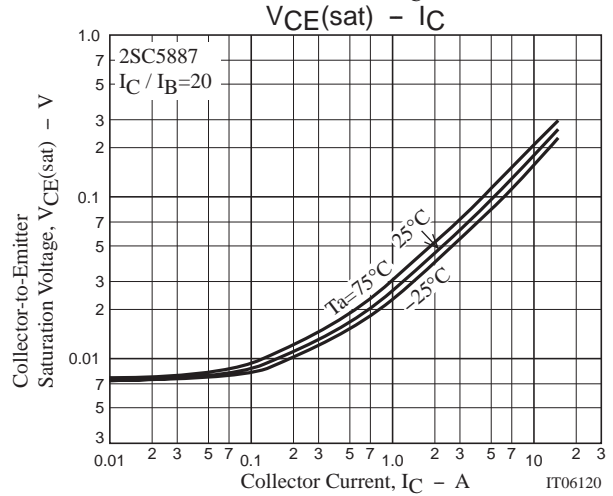
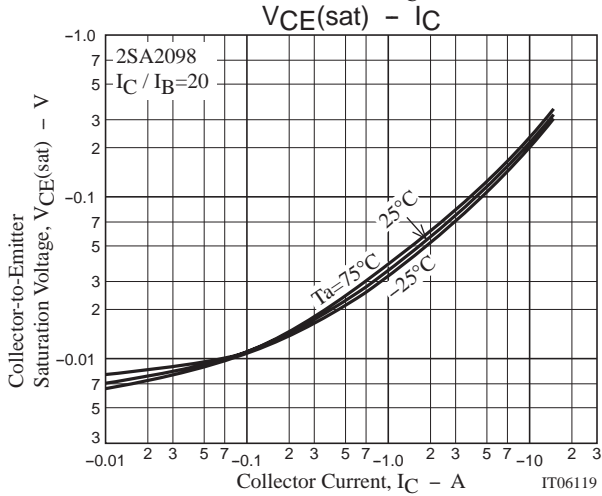
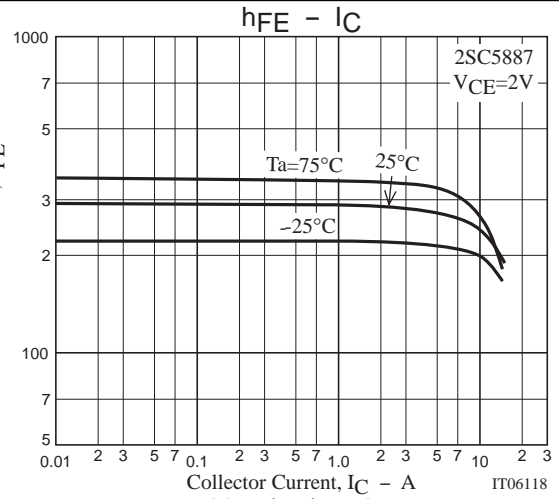
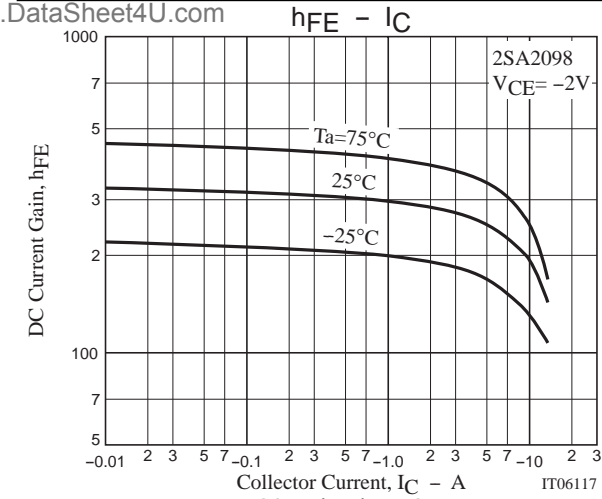
## Switching Time Test Circuit



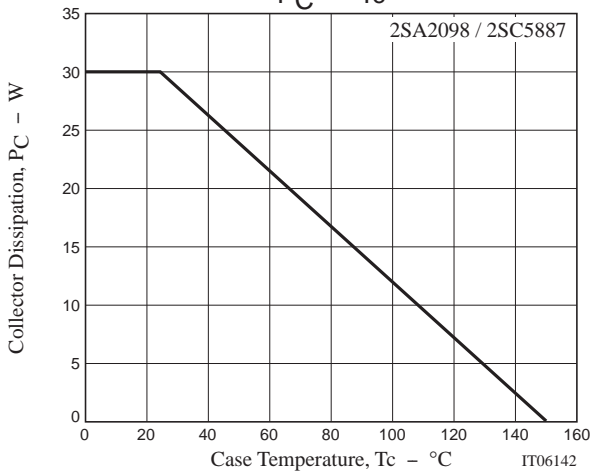
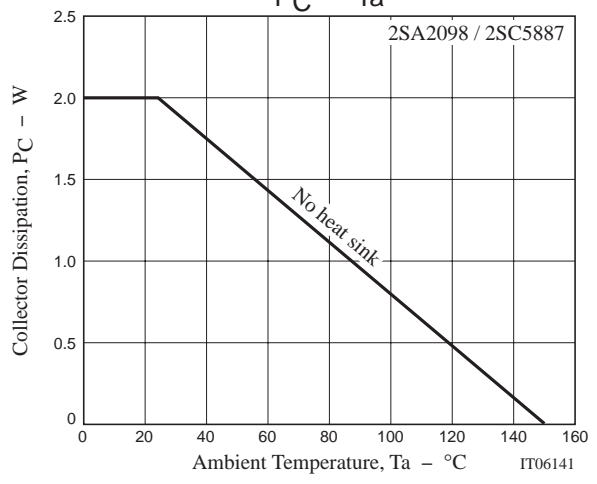
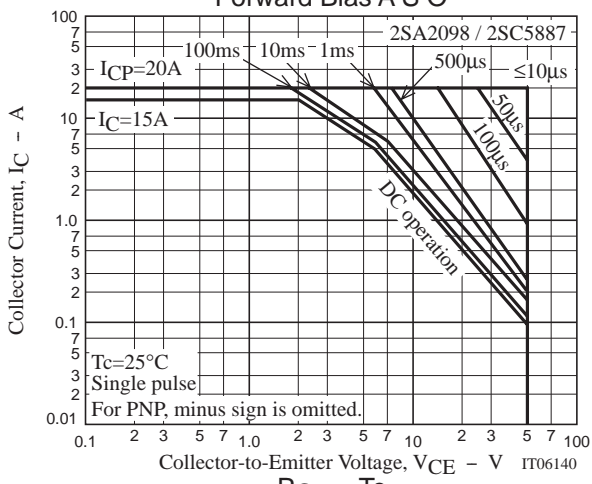
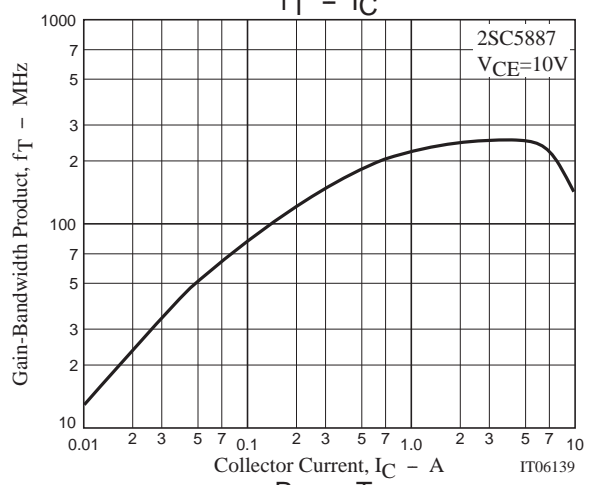
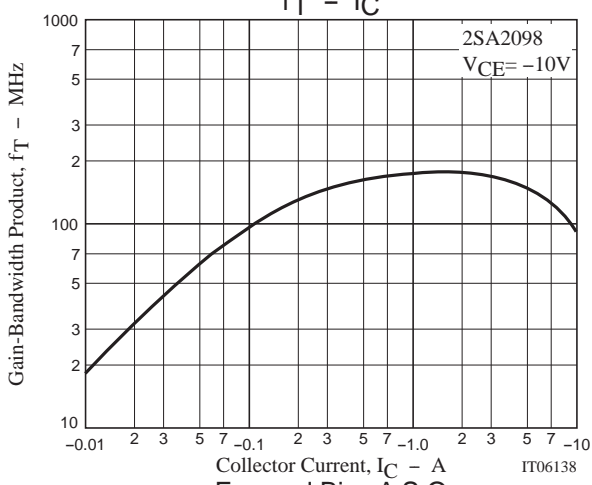
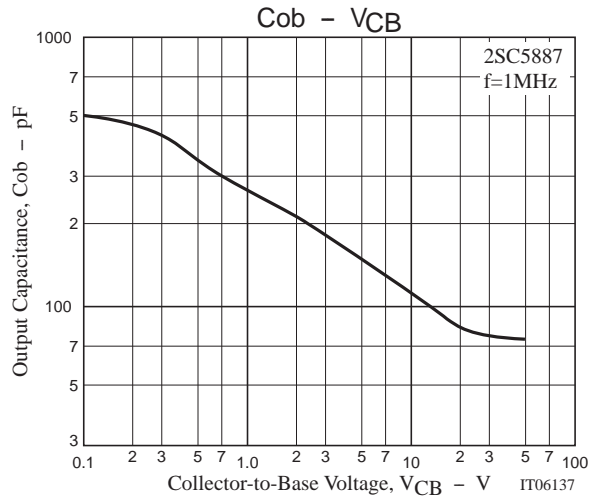
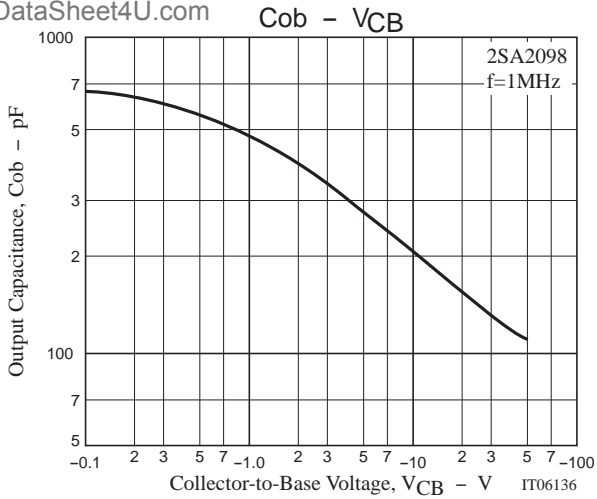
I<sub>C</sub>=20I<sub>B1</sub>= -20I<sub>B2</sub>=5A  
 (For PNP, minus sign is omitted.)



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