



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

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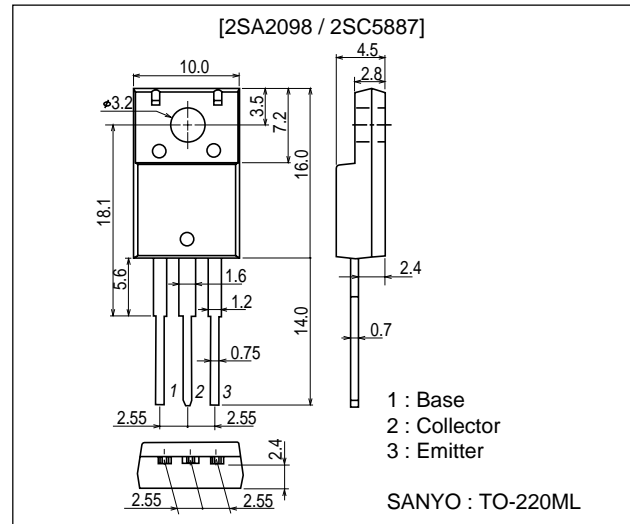
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-50)60	V
Collector-to-Emitter Voltage	V_{CEO}		(-)50	V
Emitter-to-Base Voltage	V_{EBO}		(-)6	V
Collector Current	I_C		(-)15	A
Collector Current (Pulse)	I_{CP}		(-)20	A
Base Current	I_B		(-)3	A
Collector Dissipation	P_C		2	W
		$T_c=25^\circ\text{C}$	30	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Package Dimensions

unit : mm

2041A



Electrical Characteristics

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=-40\text{V}, I_E=0$			(-)10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4\text{V}, I_C=0$			(-)10	μA
DC Current Gain	h_{FE}	$V_{CE}=-2\text{V}, I_C=-1\text{A}$	180		(400)560	
Gain-Bandwidth Product	f_T	$V_{CE}=-10\text{V}, I_C=-1\text{A}$		(200)300		MHz

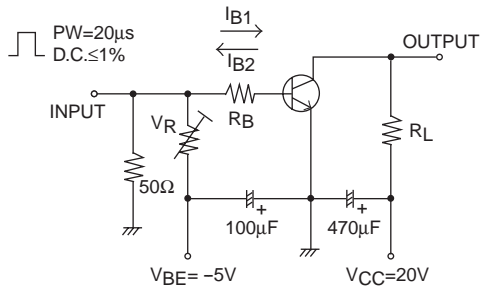
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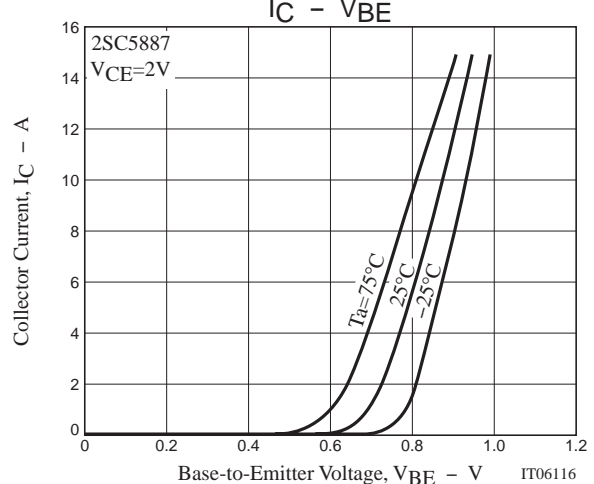
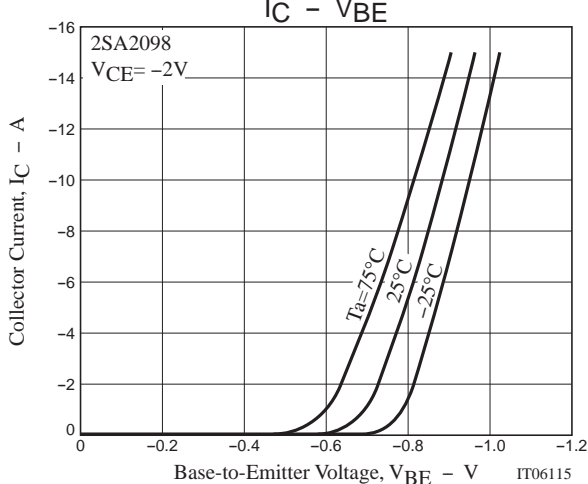
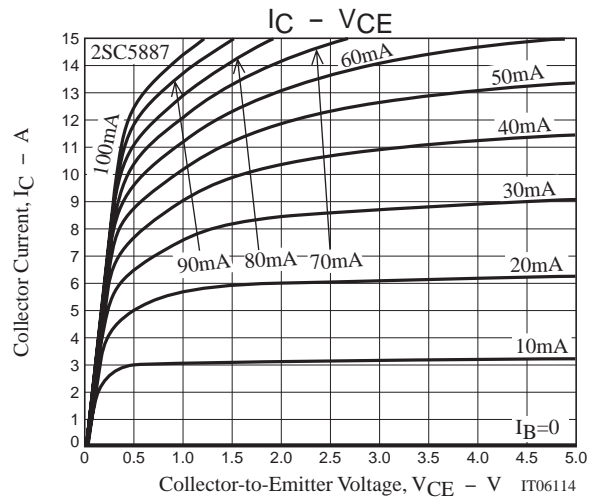
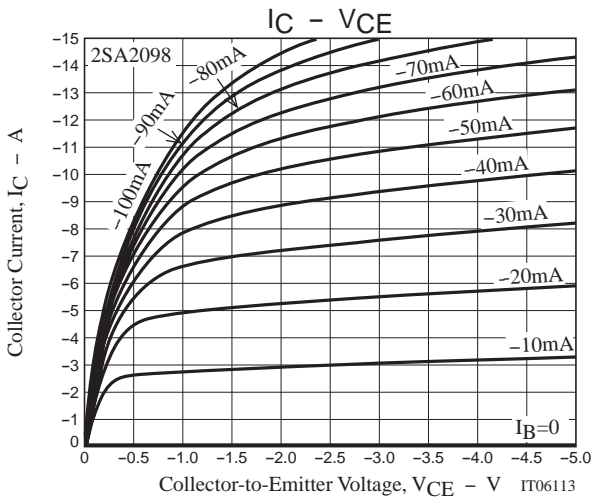
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output Capacitance	Cob	V _{CB} =(-)10V, f=1MHz		(200)100		pF
Collector-to-Emitter Saturation Voltage	V _{CE(sat)}	I _C =(-)7A, I _B =(-)350mA		(-200)160	(-500)400	mV
Base-to-Emitter Saturation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

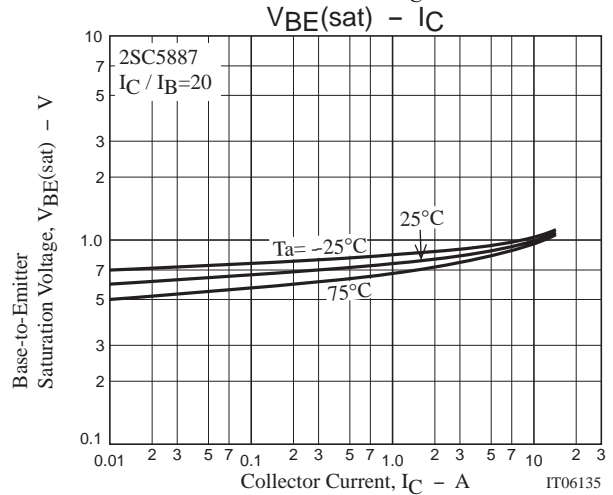
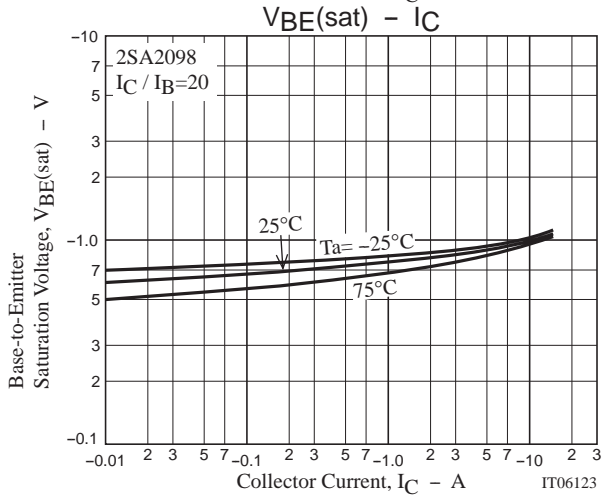
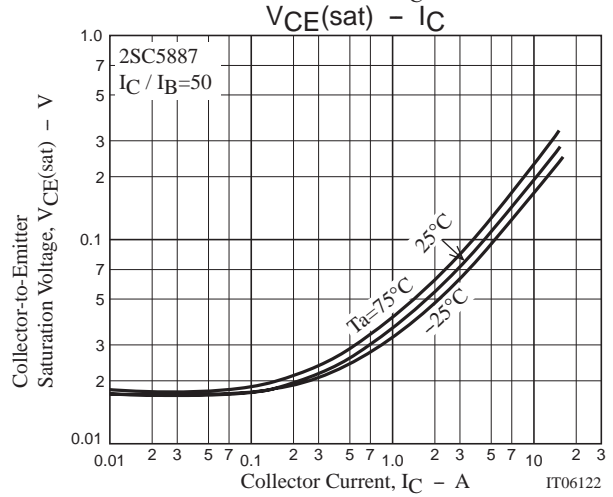
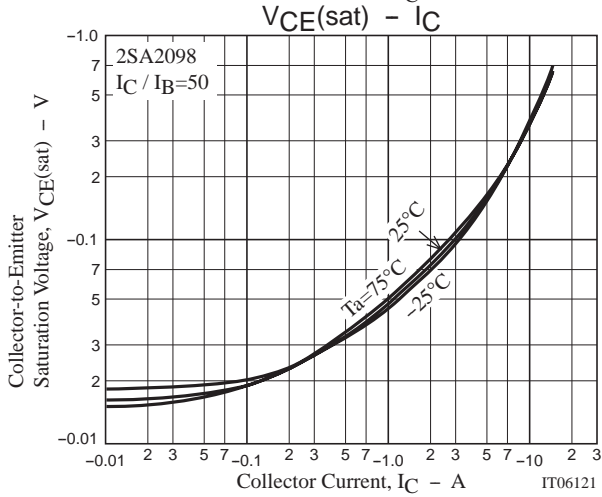
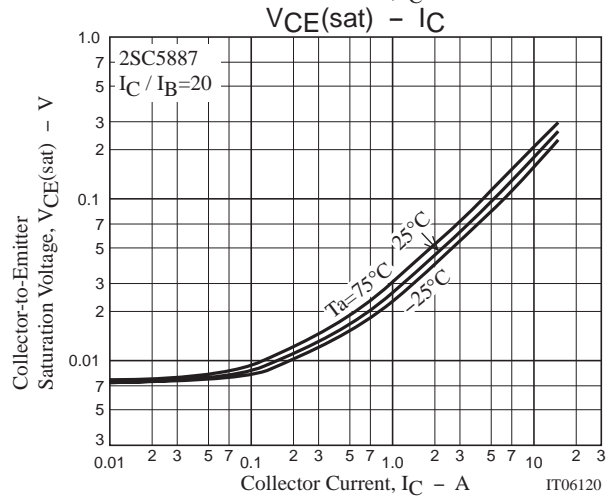
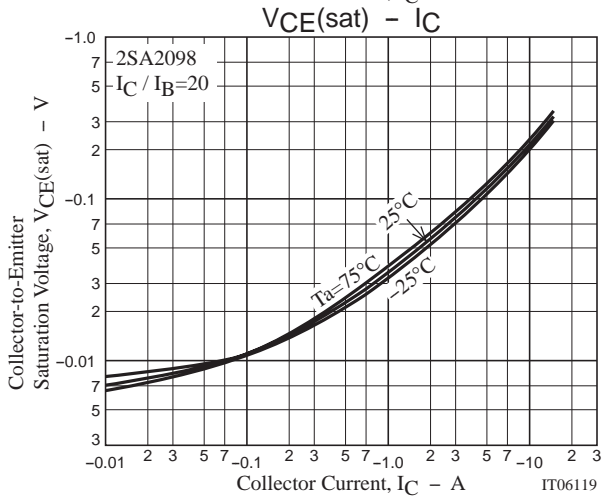
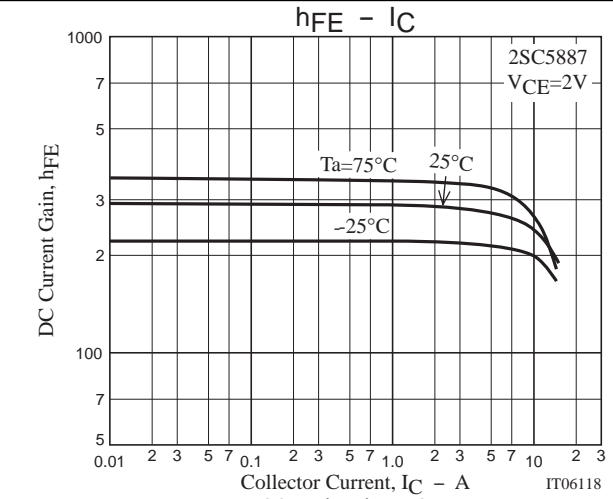
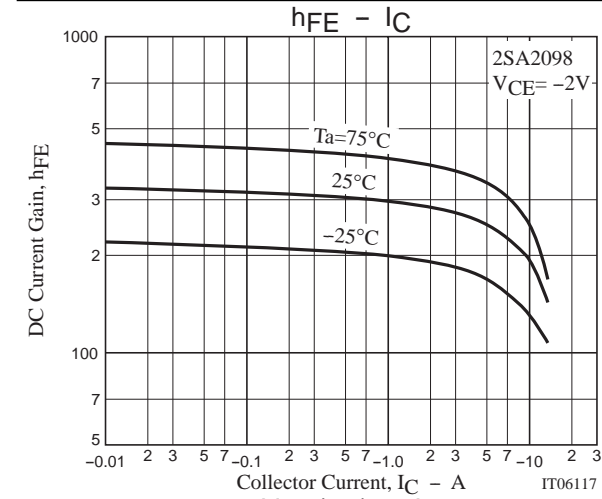
Switching Time Test Circuit



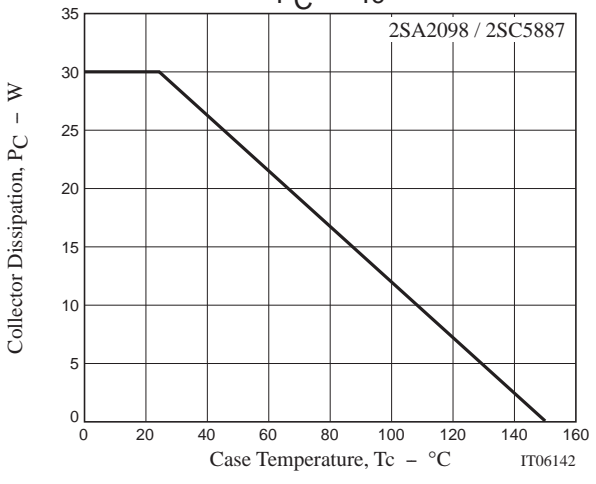
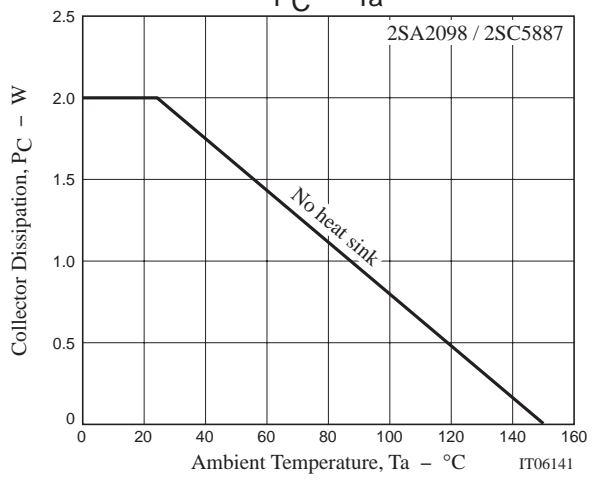
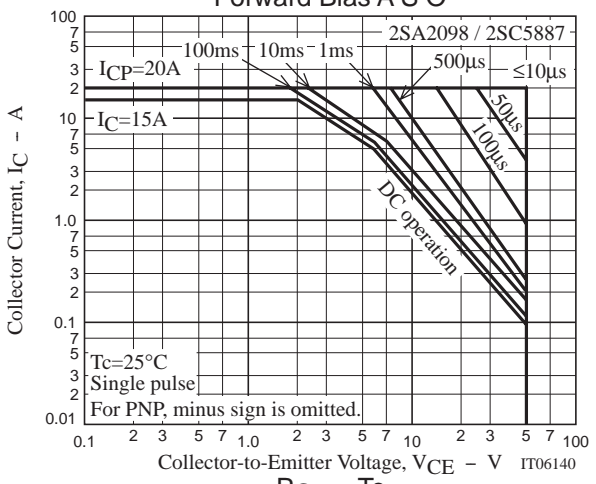
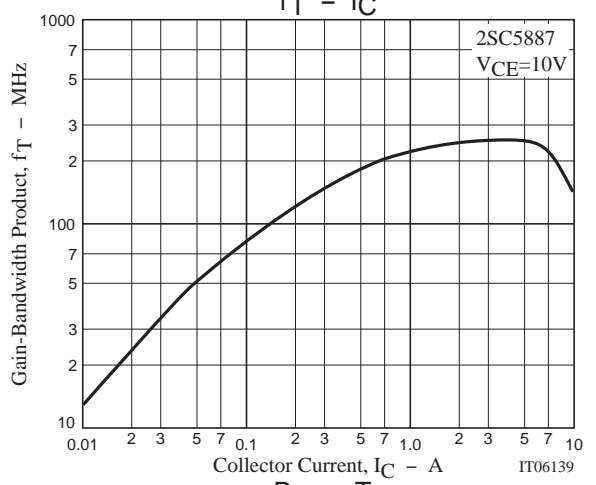
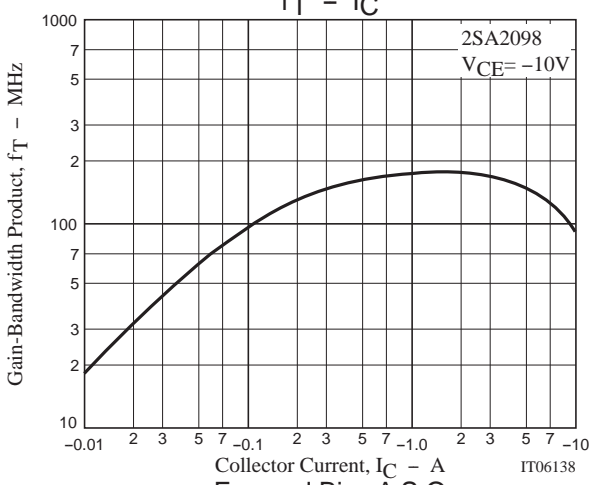
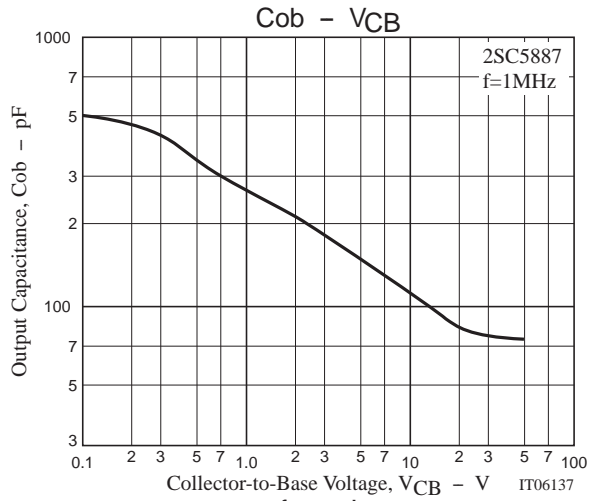
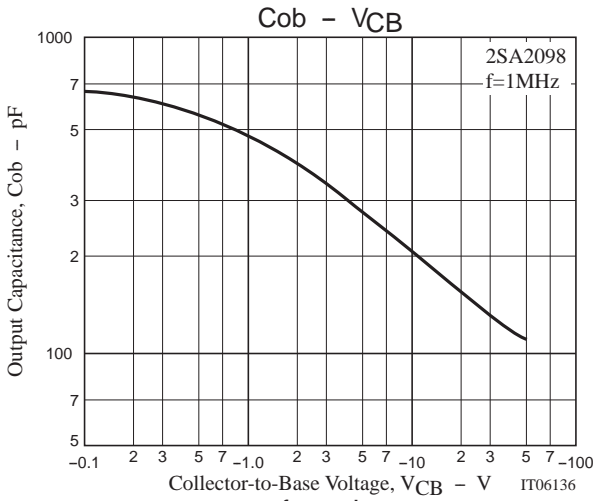
I_C=20I_{B1}= -20I_{B2}=5A
 (For PNP, minus sign is omitted.)



2SA2098 / 2SC5887



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