Ordering number:ENN779D

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1209/2SC2911

160V/140mA High-Voltage Switching and AF 100W Predriver Applications

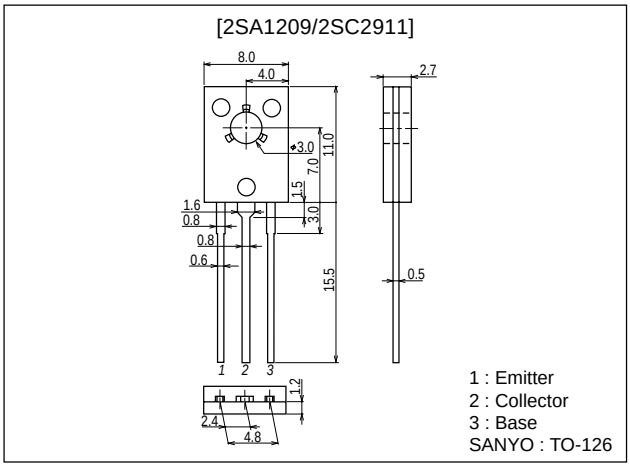
Features

- Adoption of FBET process.
- High breakdown voltage.
- Good linearity of h_{FE} and small C_{ob}.
- Fast switching speed.

Package Dimensions

unit:mm

2009B



( ) : 2SA1209

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)180	V
Collector-to-Emitter Voltage	V_{CEO}		(–)160	V
Emitter-to-Base Voltage	V_{EBO}		(–)5	V
Collector Current	I_C		(–)140	mA
Collector Current (Pulse)	I_{CP}		(–)200	mA
Collector Dissipation	P_C		1	W
		Tc=25˚C	10	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–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}=(–)80V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(–)5V, I_C=(–)10mA	100*		400*	
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)10mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(4.0)3.0		pF

*: The 2SA1209/2SC2911 are classified by 10mA h_{FE} as follows :

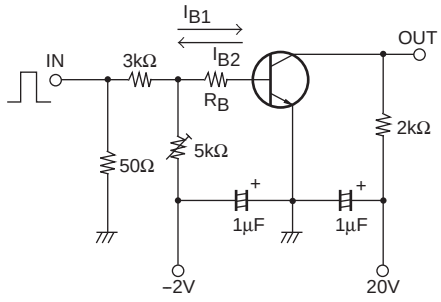
Continued on next page.

Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

Continued from preceding page.

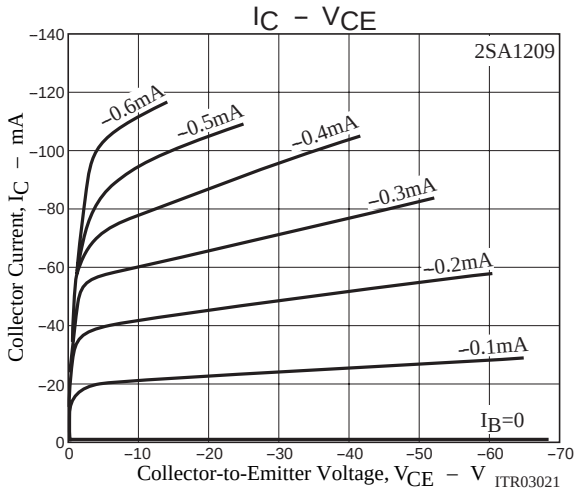
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)50mA, I_B=(–)5mA		0.07 (–0.14)	0.3 (–0.4)	V
Turn-ON Time	t_{on}	See specified Test Circuit		0.1		μs
Fall Time	t_f	See specified Test Circuit		0.1		μs
Storage Time	t_{stg}	See specified Test Circuit		1.5		μs

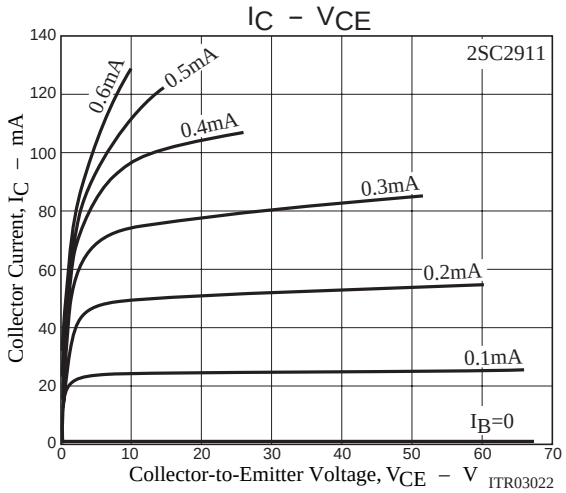
Switching Test Circuit

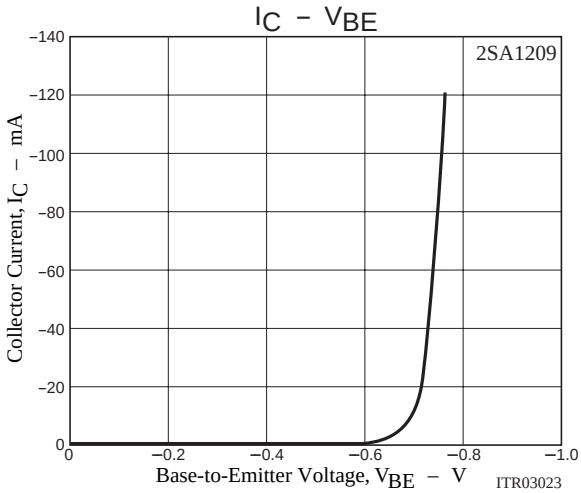


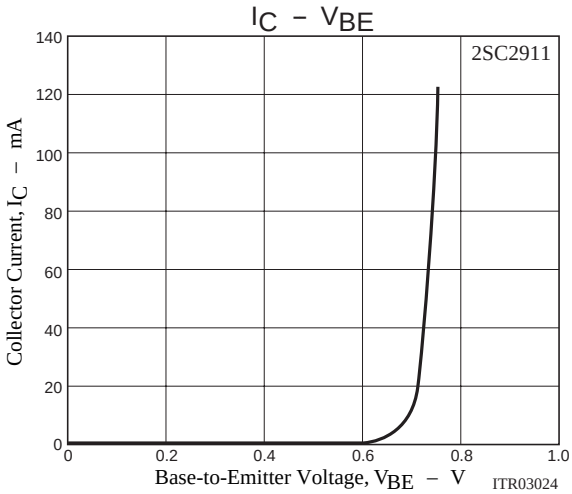
I_C=10I_{B1}=–10I_{B2}=10mA

(For PNP, the polarity is reversed.)

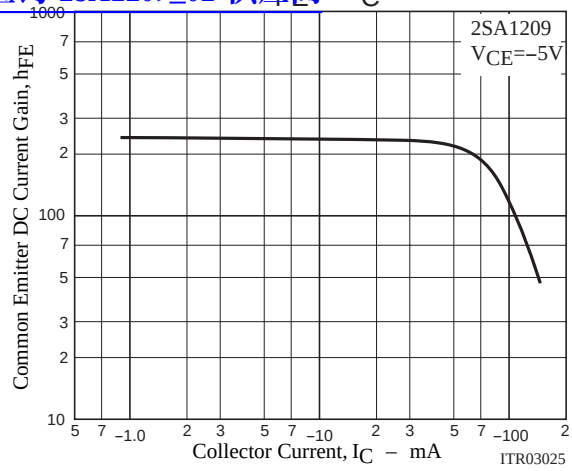


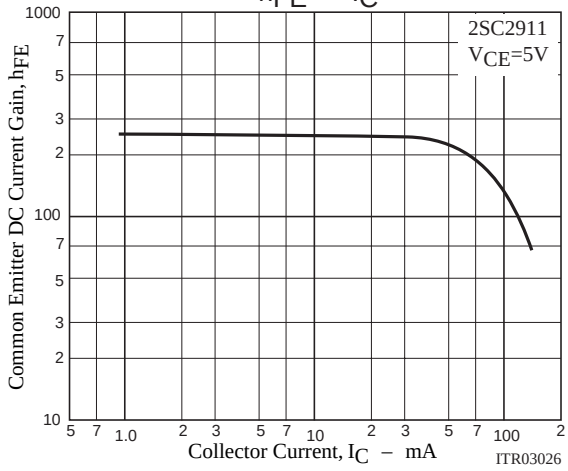




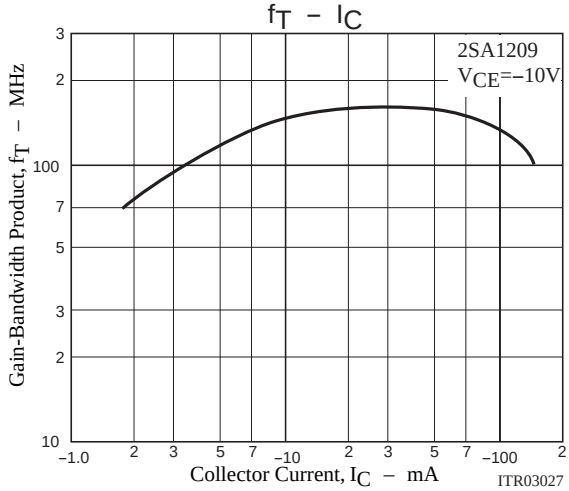


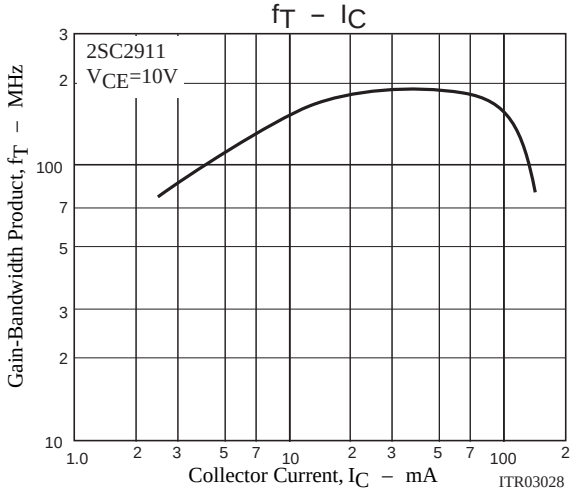
h_{FE} – I_C



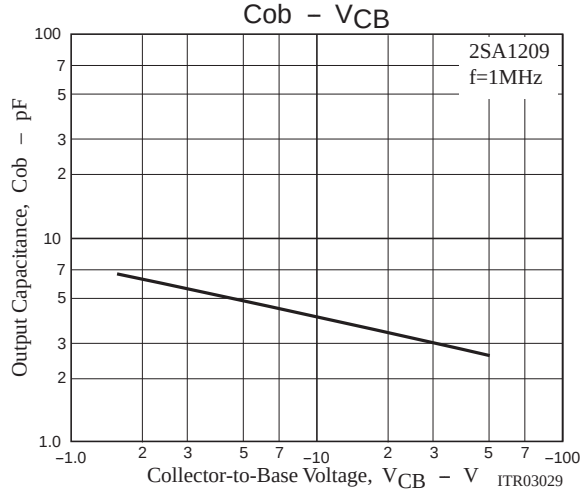


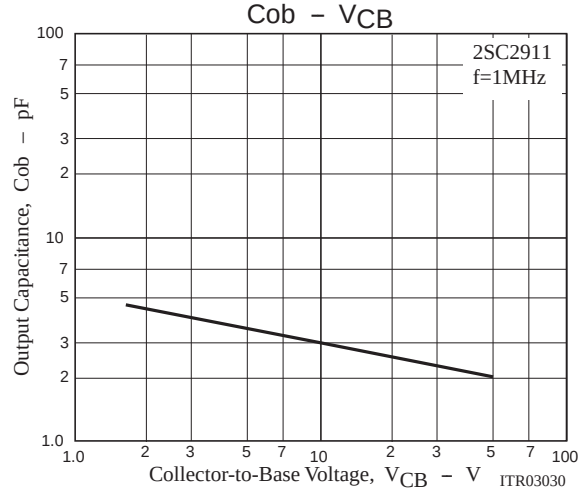
f_T – I_C



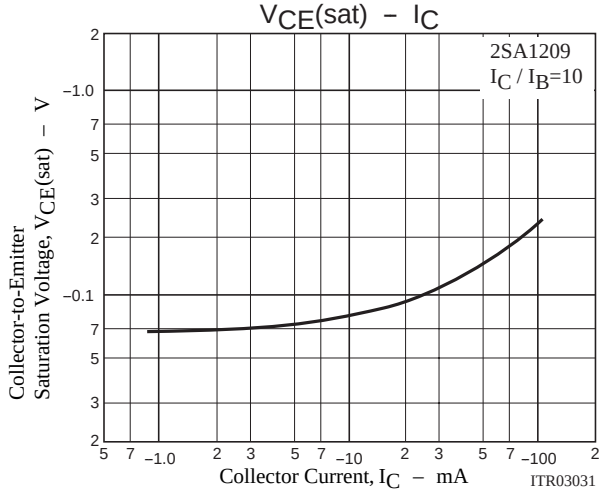


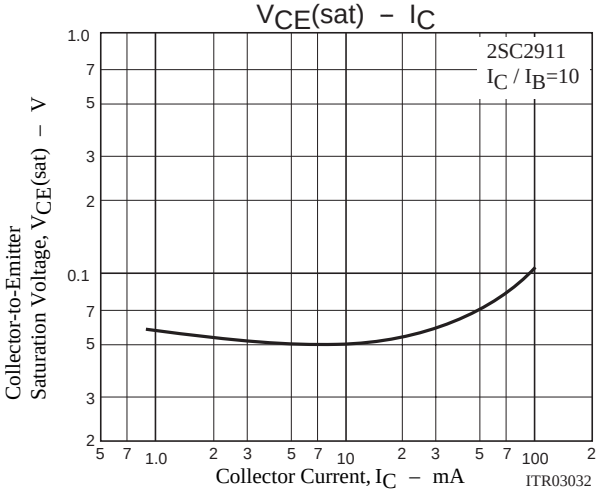
Cob – V_{CB}



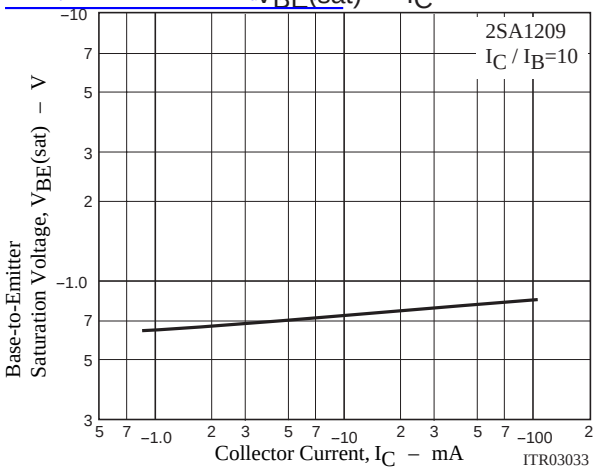


V_{CE}(sat) – I_C

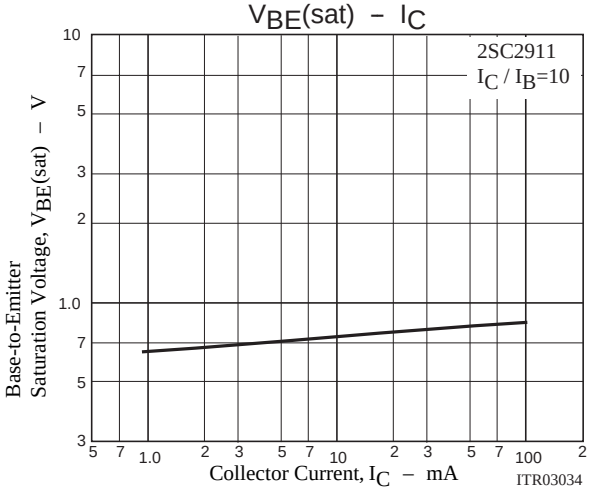




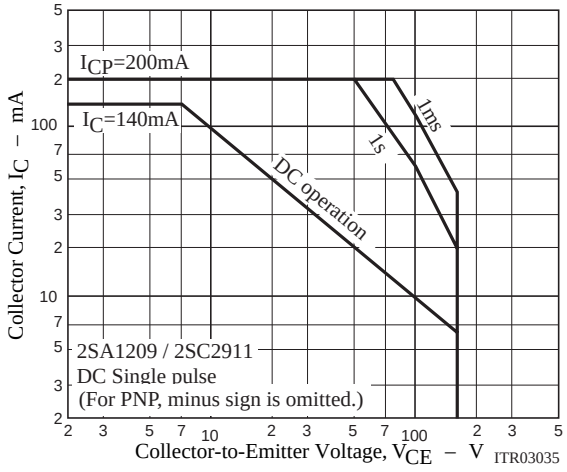
$V_{BE}(sat)$ – I_C



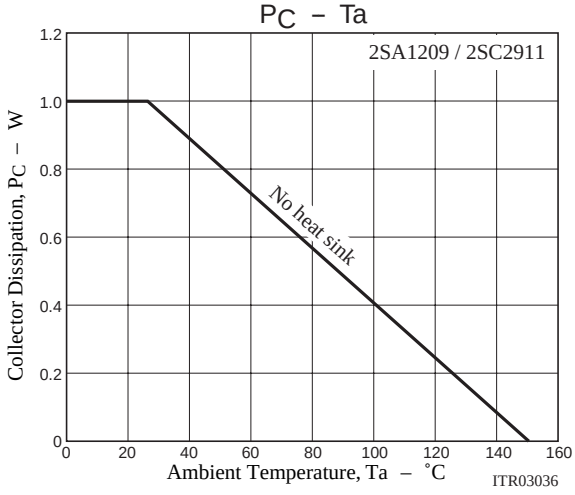
$V_{BE}(sat)$ – I_C



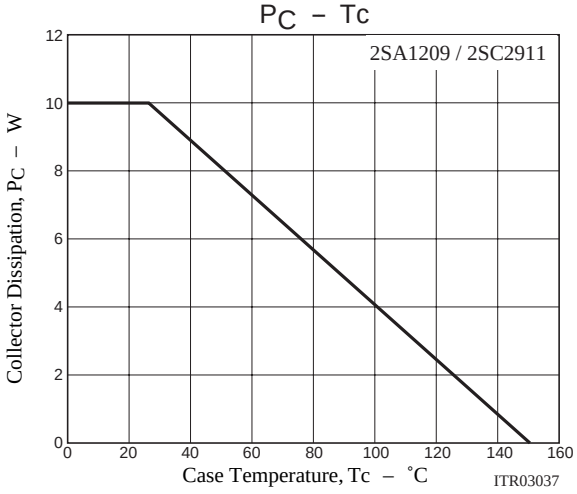
A S O



P_C – Ta



P_C – Tc



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