Ordering number:ENN5049

PNP Epitaxial Planar Silicon Transistor

2SA1898

DC/DC Converter Application

Applications

· High-speed switching.

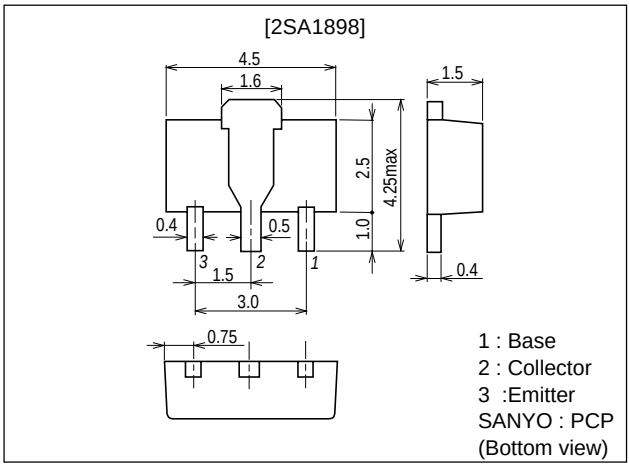
Features

· Adoption of FBET and MBIT processes.
· Large current capacity.
· Low collector-to-emitter saturation voltage.
· Fast switching speed.

Package Dimensions

unit:mm

2038A



Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		–15	V
Collector-to-Emitter Voltage	V_{CEO}		–15	V
Emitter-to-Base Voltage	V_{EBO}		–5	V
Collector Current	I_C		–3	A
Collector Current (Pulse)	I_{CP}		–5	A
Base Current	I_B		–600	mA
Collector Dissipation	P_C	Mounted on ceramic board (250mm^2×0.8mm)	1.3	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}=–12V, I_E=0			–1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–3V, I_C=0			–1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–0.5A	100*		280*	
	$h_{FE}2$	V_{CE}=–2V, I_C=–3A	50			

Marking : AN

Continued on next page.

* : The 2SA1898 is classified by 500A h_{FE} as follows :

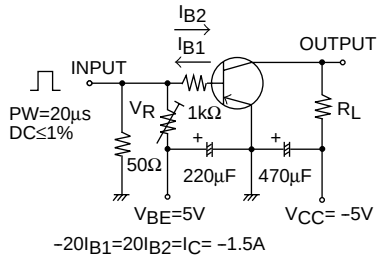
Rank	R	S
h_{FE}	100 to 200	140 to 280

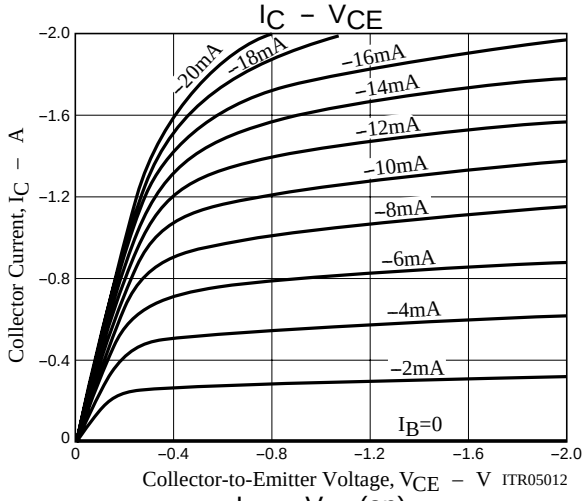
SANYO Electric Co.,Ltd. Semiconductor Company
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

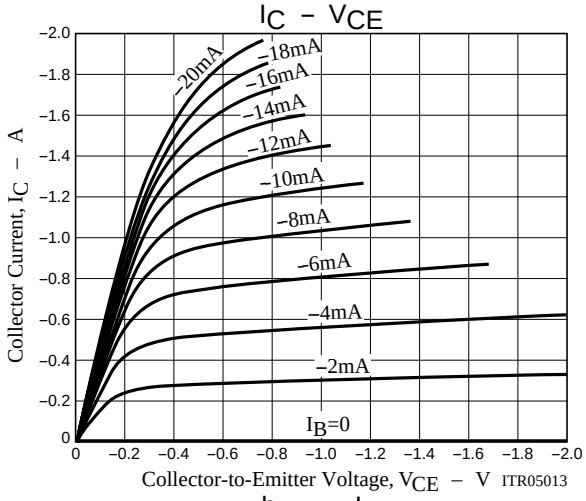
Continued from preceding page.

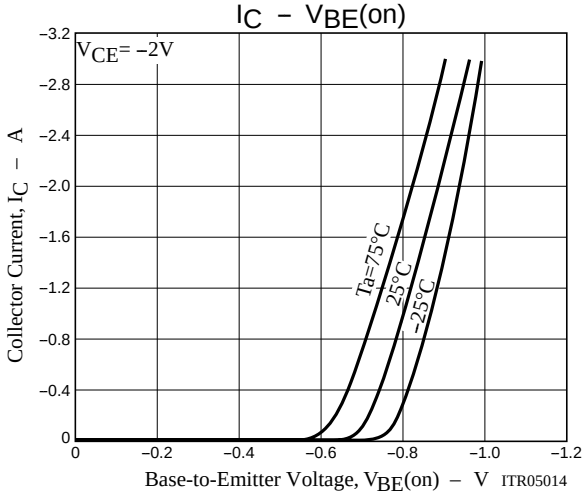
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	V_{CE}=–2V, I_C=–0.3A		300		MHz
Output Capacitance	C_{ob}	V_{CB}=–10V, f=1MHz		28		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=–1.5A, I_B=–75mA		–0.25	–0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=–1.5A, I_B=–75mA		–0.95	–1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–15			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–5			V
Turn-ON Time	t_{on}	See specified Test Circuit.		30	60	ns
Storage Time	t_{stg}	See specified Test Circuit.		100	200	ns
Turn-OFF Time	t_{off}	See specified Test Circuit.		120	220	ns

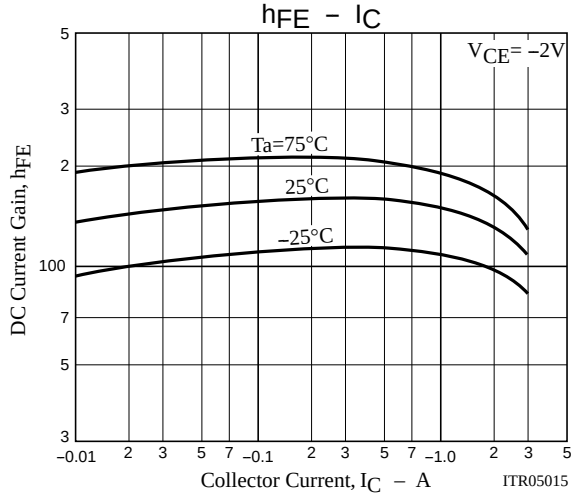
Switching Time Test Circuit

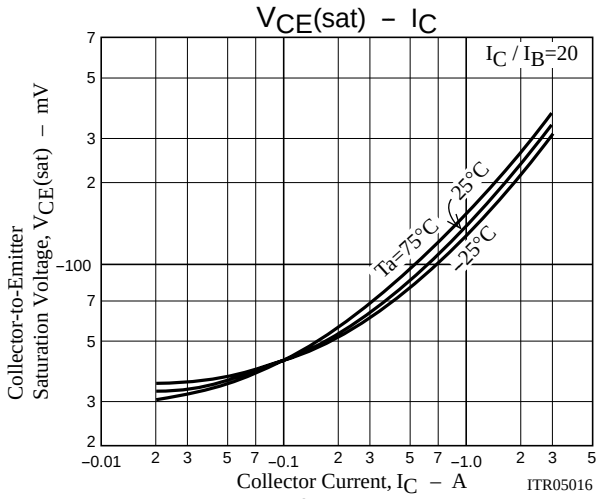


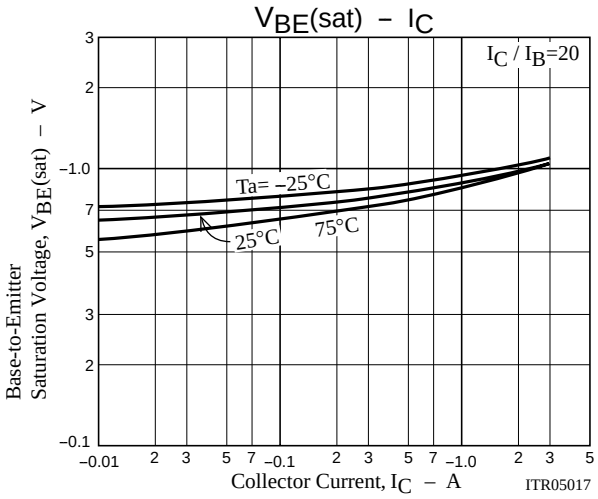


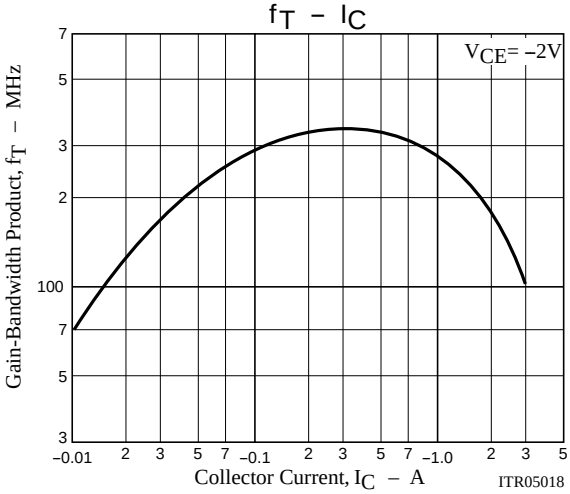


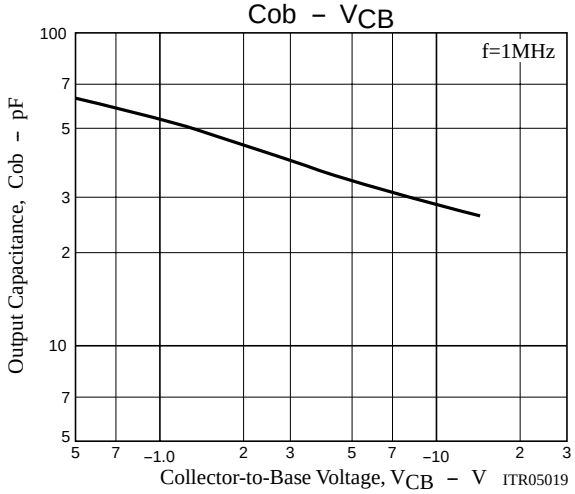


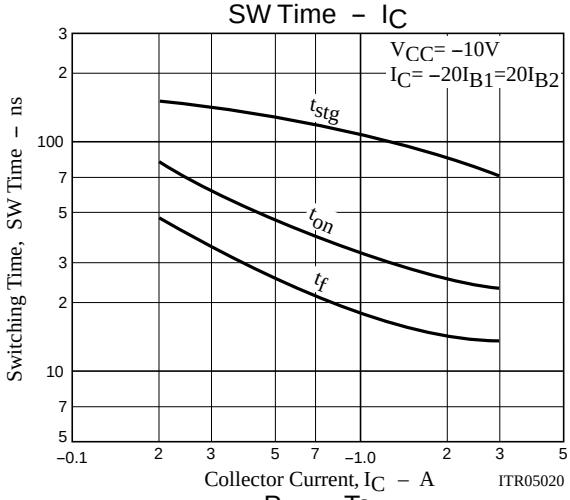


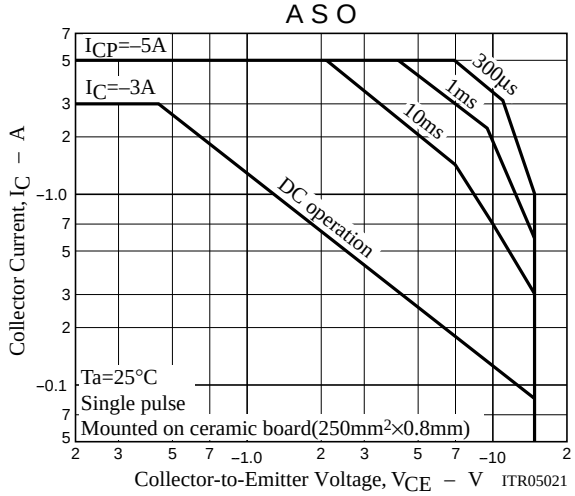

VCE(sat) – IC
IC / IB=20
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – A
ITR05016

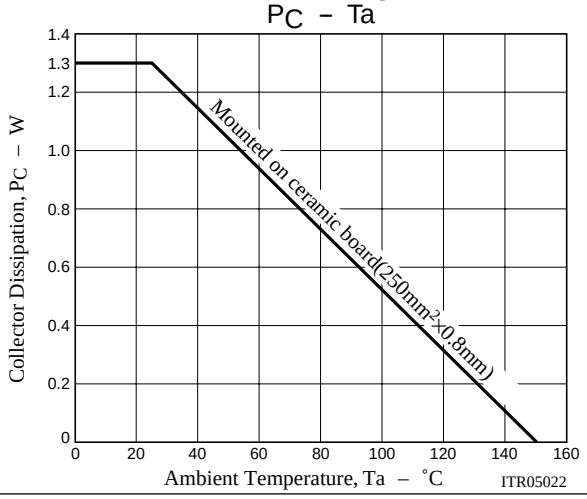

VBE(sat) – IC
IC / IB=20
Ta= –25°C
25°C
75°C
Base-to-Emitter Saturation Voltage, VBE(sat) – V
Collector Current, IC – A
ITR05017


fT – IC
VCE= –2V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – A
ITR05018


Cob – VCB
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR05019


SW Time – IC
VCC= –10V
IC= –20IB1=20IB2
tstg
ton
tf
Switching Time, SW Time – ns
Collector Current, IC – A
ITR05020


A S O
ICP=–5A
IC=–3A
300µs
1ms
10ms
DC operation
Ta=25°C
Single pulse
Mounted on ceramic board(250mm²×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR05021


PC – Ta
Mounted on ceramic board(250mm²×0.8mm)
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
ITR05022