Ordering number:EN3960

FP101

PNP Epitaxial Planar Silicon Transistor/ Composite Schottky Barrier Diode

DC-DC Converter Applications

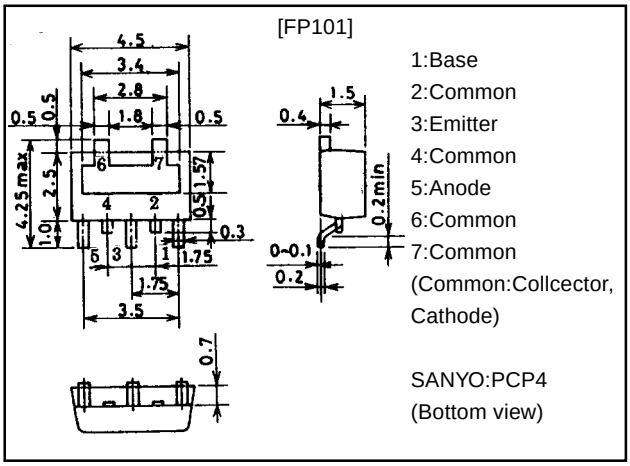
Features

- Composite type with a PNP transistor and a Shottky barrier diode contained in one package, facilitating high-density mounting.
- The FP101 is formed with 2chips, one being equivalent to the 2SB1121 and the other the SB05-05CP, placed in one package.

Package Dimensions

unit:mm

2088A



Specifications

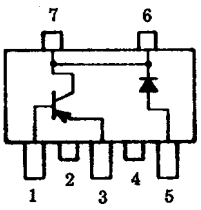
Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V_{CBO}		–30	V
Collector-to-Emitter Voltage	V_{CEO}		–25	V
Emitter-to-Base Voltage	V_{EBO}		–6	V
Collector Current	I_C		–2	A
Collector Current (Pulse)	I_{CP}		–5	A
Base Current	I_B		–400	mA
Collector Dissipation	P_C	Mounted on ceramic board (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	˚C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		50	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		55	V
Average Rectified Current	I_O		500	mA
Surge Forward Current	I_{FSM}	50Hz sine wave, 1cycle	5	A
Junction Temperature	Tj		–55 to +125	˚C
Storage Temperature	Tstg		–55 to +125	˚C

Marking:101

Continued on next page.

Electrical Connection



1:Base
2:Common
3:Emitter
4:Common
5:Anode
6:Common
7:Common
(Common:Collcector, Cathode)
(Top view)

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

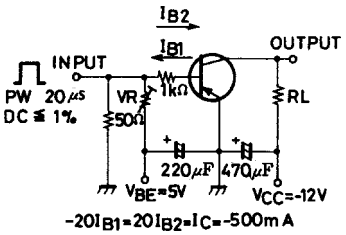
Continued from preceding page.

Electrical Characteristics at Ta=25˚C

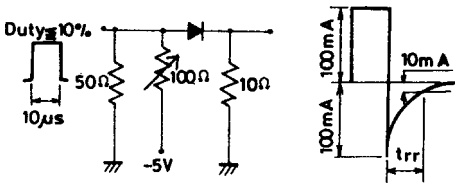
Parameter	Symbol	Conditons	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	V_{CB}=–20V, I_E=0			–0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0			–0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=–2V, I_C=–100mA	140		560	
	$h_{FE}2$	V_{CE}=–2V, I_C=–1.5A	65			
Gain-Bandwidth Product	f_T	V_{CE}=–10V, I_C=–50mA		150		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		32		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=–1.5A, I_B=–75mA		–0.35	–0.6	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=–1.5A, I_B=–75mA		–0.85	–1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–30			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–25			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, IC=0	–6			V
Turn-ON Time	t_{on}	See specified Test Circuit		60		ns
Storage Time	tstg	See specified Test Circuit		350		ns
Fall Time	t_f	See specified Test Circuit		25		ns
[SBD]						
Reverse Voltage	V_R	I_R=200μA	50			V
Forward Voltage	V_F	I_F=500mA			0.55	V
Reverse Current	I_R	V_R=25V			50	μA
Interterminal Capacitance	C	V_R=10V, f=1MHz		22		pF
Reverse Recovery Time	t_{rr}	I_F=I_R=100mA, See specified Test Circuit			10	ns
Thermal Resistance	Rthj-a	Mounted on ceramic board (250mm²×0.8mm)		120		˚C/W

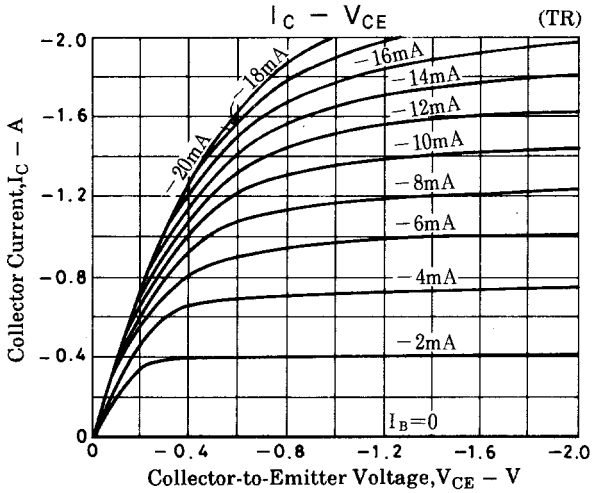
Switching Time Test Circuit

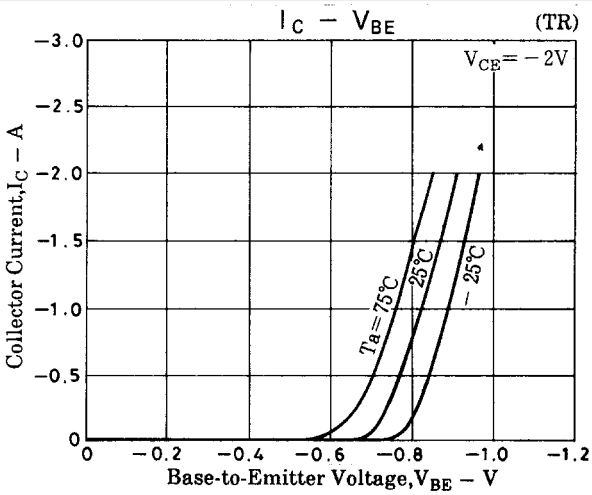
(TR)

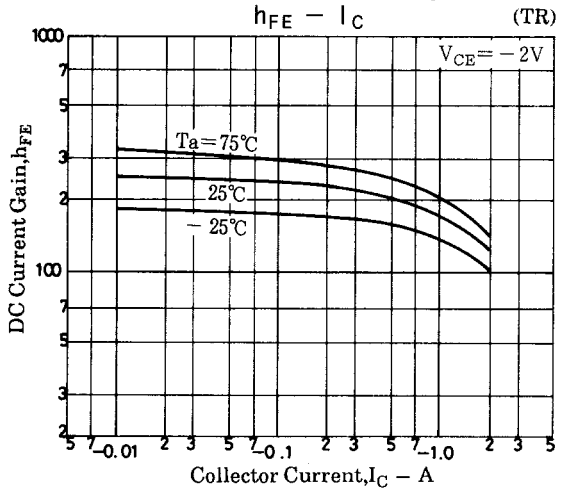


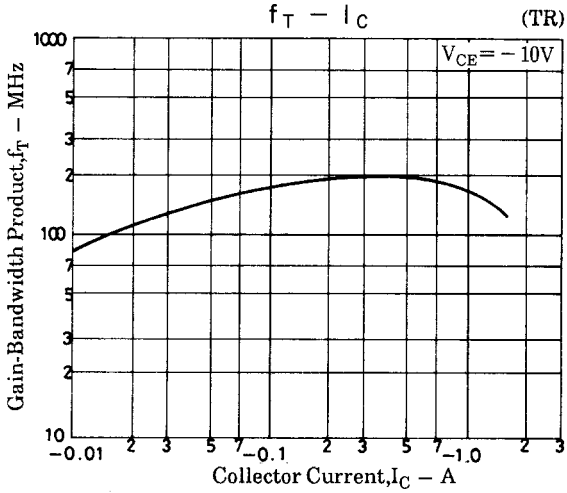
(SBD)

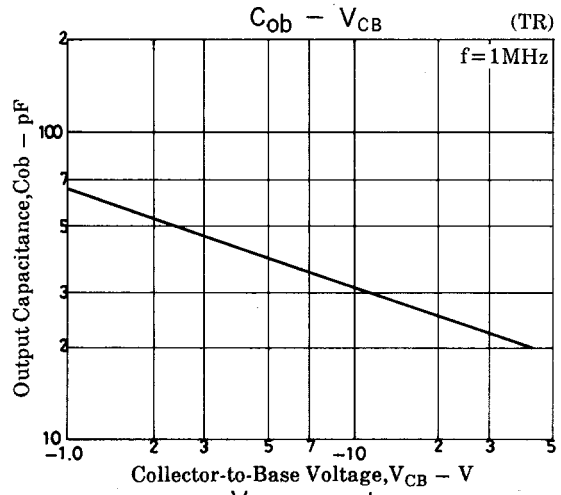


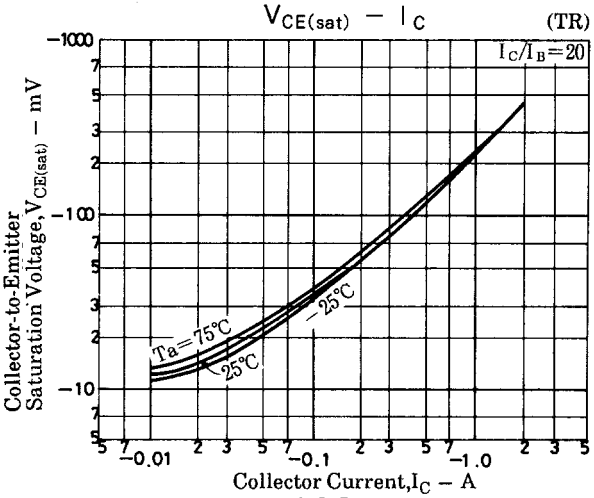

$I_C - V_{CE}$ (TR)
Collector Current, I_C – A
Collector-to-Emitter Voltage, V_{CE} – V
−20mA
−18mA
−16mA
−14mA
−12mA
−10mA
−8mA
−6mA
−4mA
−2mA
I_B=0

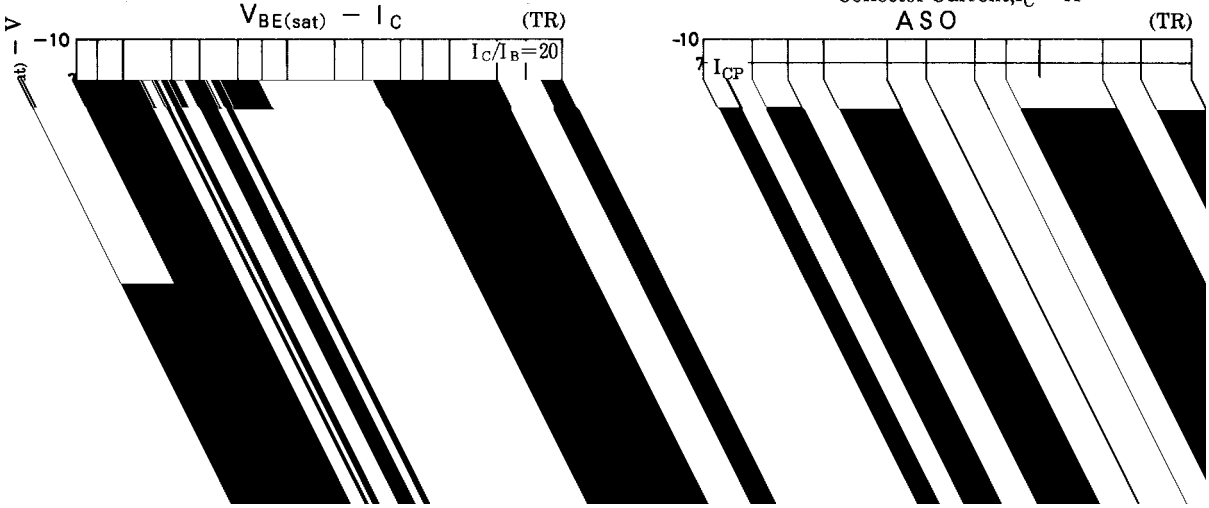

$I_C - V_{BE}$ (TR)
V_{CE}= −2V
Collector Current, I_C – A
Base-to-Emitter Voltage, V_{BE} – V
Ta=75℃
25℃
−25℃


$h_{FE} - I_C$ (TR)
V_{CE}= −2V
DC Current Gain, h_{FE}
Ta=75℃
25℃
−25℃
Collector Current, I_C – A


$f_T - I_C$ (TR)
V_{CE}= −10V
Gain-Bandwidth Product, f_T – MHz
Collector Current, I_C – A


$C_{ob} - V_{CB}$ (TR)
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, V_{CB} – V


$V_{CE(sat)} - I_C$ (TR)
I_C/I_B=20
Collector-to-Emitter Saturation Voltage, $V_{CE(sat)}$ – mV
Collector Current, I_C – A
Ta=75℃
25℃
−25℃


$V_{BE(sat)} - I_C$ (TR)
I_C/I_B=20
ASO (TR)
I_{CP}