



FP102

PNP Epitaxial Planar Silicon Transistor/
Composite Schottky Barrier Diode

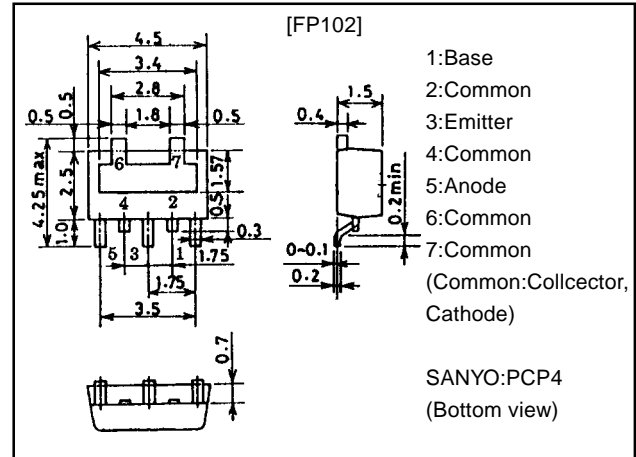
DC-DC Converter Applications

Features

- Composite type with a PNP transistor and a Schottky barrier diode contained in one package, facilitating high-density mounting.
- The FP102 is formed with 2chips, one being equivalent to the 2SB1396 and the other the SB07-03C, placed in one package.

Package Dimensions

unit:mm
2088A



Specifications

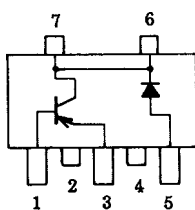
Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V_{CB0}		-15	V
Collector-to-Emitter Voltage	V_{CEO}		-11	V
Emitter-to-Base Voltage	V_{EBO}		-7	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	T_J		150	°C
[SBD]				
Repetitive Peak Reverse Voltage	V_{RRM}		30	V
Non-repetitive Peak Reverse Surge Voltage	V_{RSM}		35	V
Average Rectified Current	I_O		700	mA
Surge Forward Current	I_{FSM}	50Hz sine wave, 1cycle	5	A
Junction Temperature	T_J		-55 to +125	°C
Storage Temperature	T_{stg}		-55 to +125	°C

Marking: 102

Continued on next page.

Electrical Connection



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

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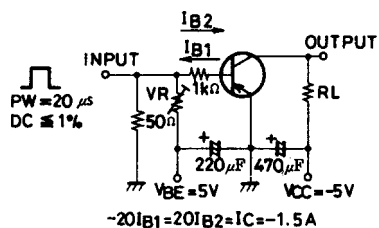
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Electrical Characteristics at Ta=25°C

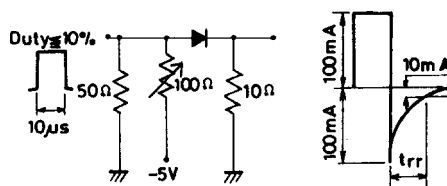
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB}=-12V, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-6V, I_C=0$			-0.1	μA
DC Current Gain	h_{FE1}	$V_{CE}=-2V, I_C=-0.5A$	140		560	
	h_{FE2}	$V_{CE}=-2V, I_C=-3A$	70			
Gain-Bandwidth Product	f_T	$V_{CE}=-2V, I_C=-0.3A$		400		MHz
Output Capacitance	C_{ob}	$V_{CB}=-10V, f=1MHz$		26		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=-1.5A, I_B=-30mA$		-0.22	-0.4	V
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=-1.5A, I_B=-30mA$		-0.9	-1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu A, I_E=0$	-15			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1mA, R_{BE}=\infty$	-11			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	-7			V
Turn-ON Time	t_{on}	See specified Test Circuit		25		ns
Storage Time	t_{stg}	See specified Test Circuit		200		ns
Fall Time	t_f	See specified Test Circuit		10		ns
[SBD]						
Reverse Voltage	V_R	$I_R=300\mu A$	30			V
Forward Voltage	V_F	$I_F=700mA$			0.55	V
Reverse Current	I_R	$V_R=15V$			80	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$		28		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit			10	ns
Thermal Resistance	R_{thj-a}	Mounted on ceramic board (250mm ² ×0.8mm)		120		°C/W

Switching Time Test Circuit

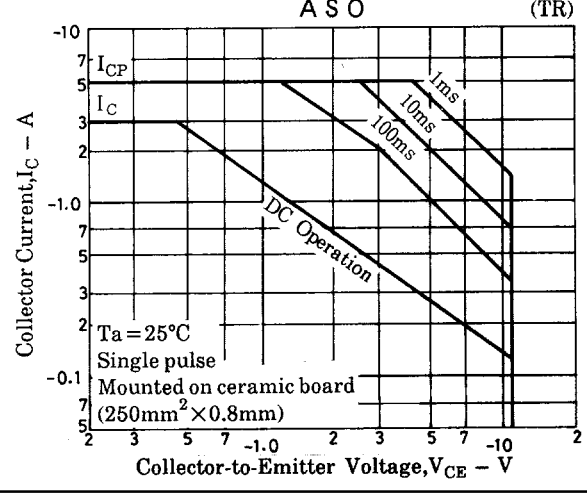
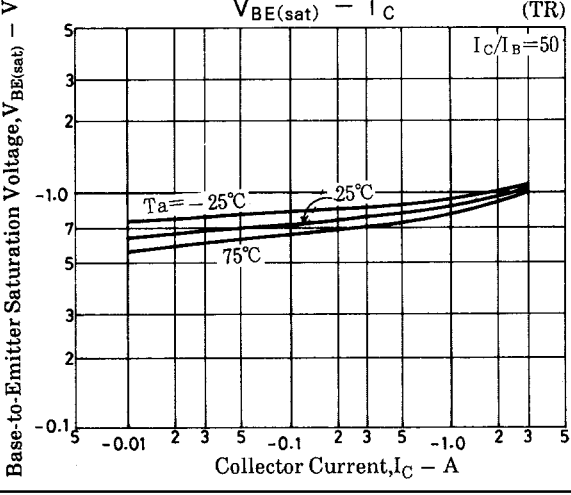
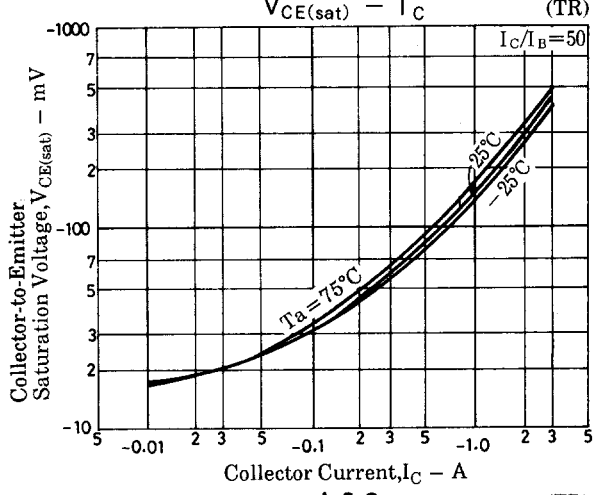
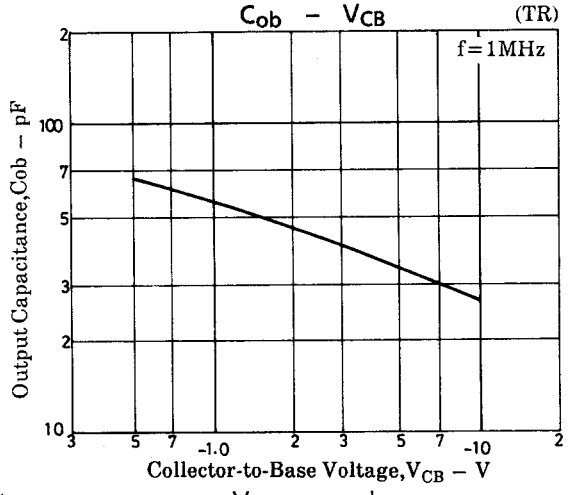
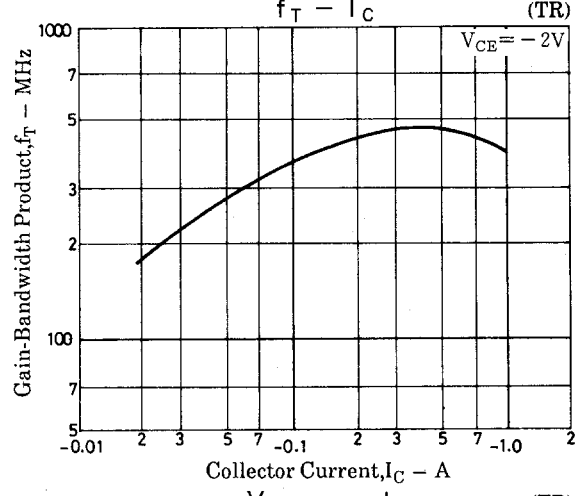
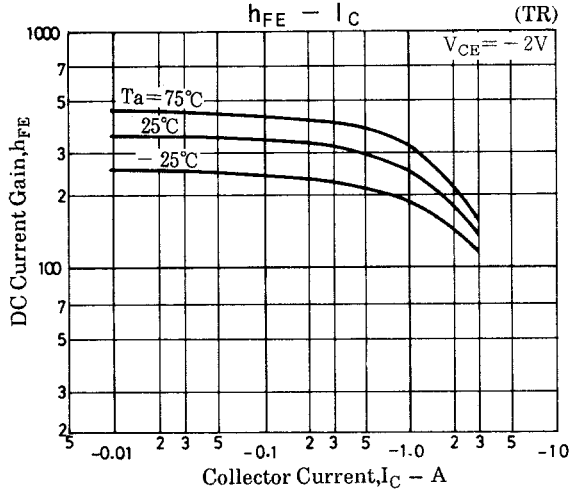
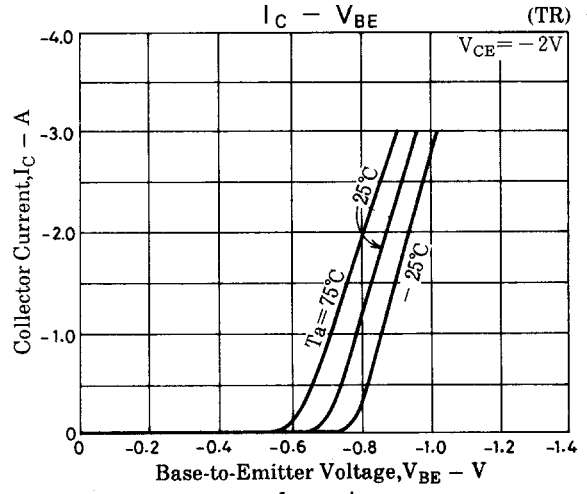
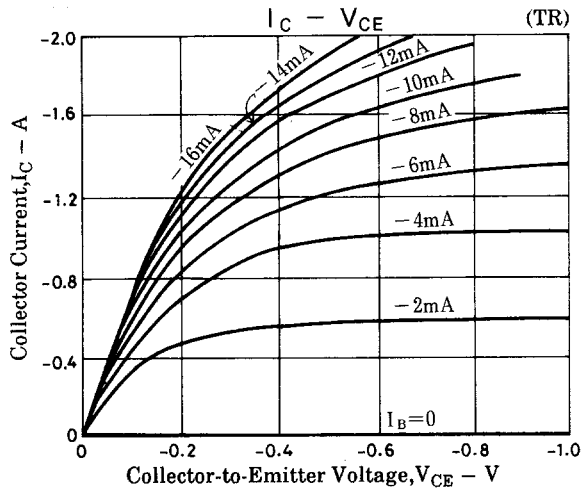
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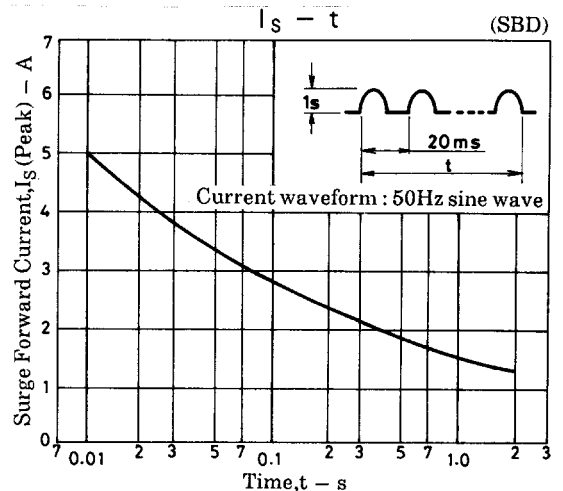
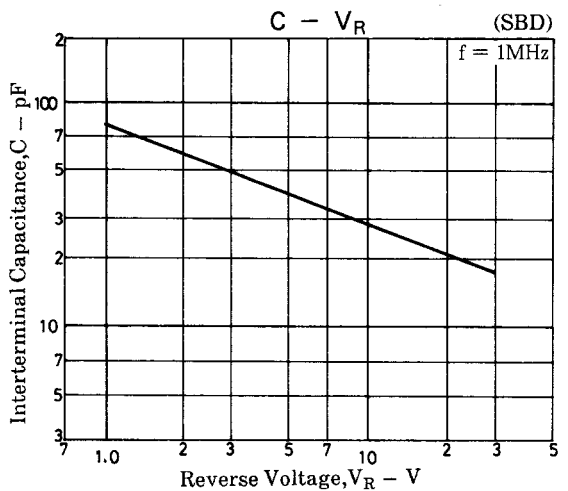
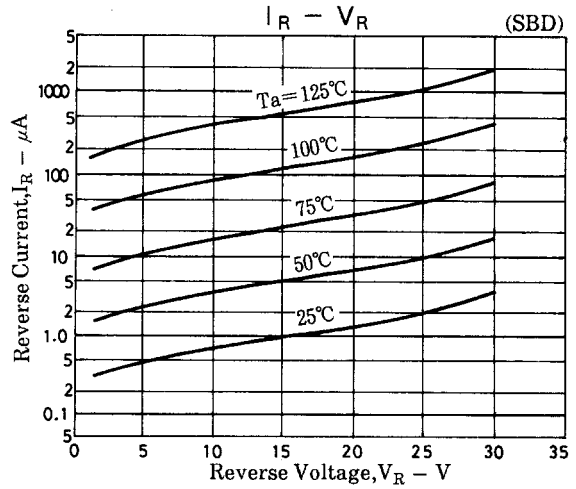
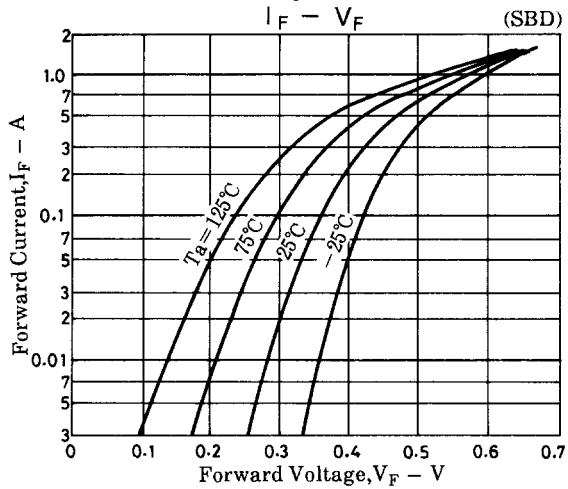
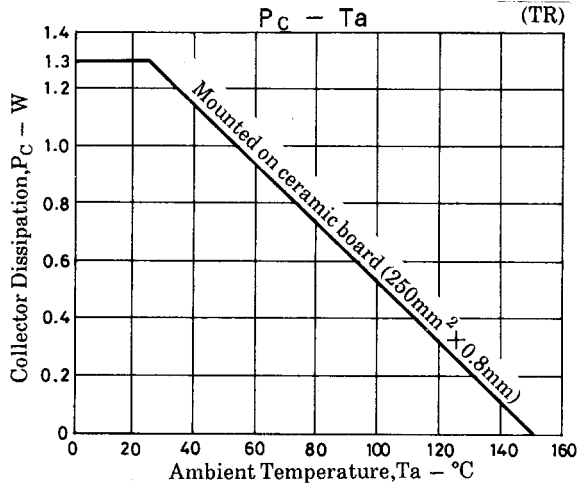
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