



FP301

TR:NPN Epitaxial Planar Silicon Transistor
SBD:Schottky Barrier Diode

DC-DC Converter Applications

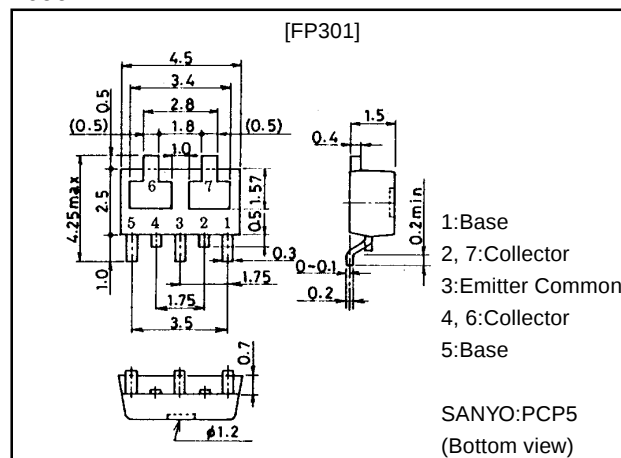
Features

- Composite type with 2 devices (NPN transistor and Schottky barrier diode) contained in one package, facilitating high-density mounting.
- The FP301 is formed with a chip being equivalent to the 2SD1621 and a chip being equivalent to the SB07-03C placed in one package.

Package Dimensions

unit:mm

2099A



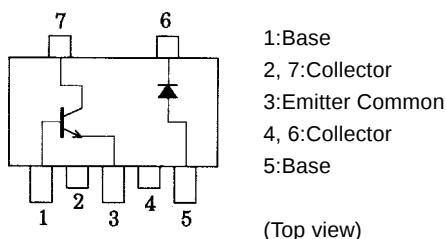
Specifications

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 (250mm ² ×0.8mm)	0.8	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, 1 cycle	5	A
Junction Temperature	T_J		-55 to +125	°C
Storage Temperature	T_{stg}		-55 to +125	°C

Electrical Connection

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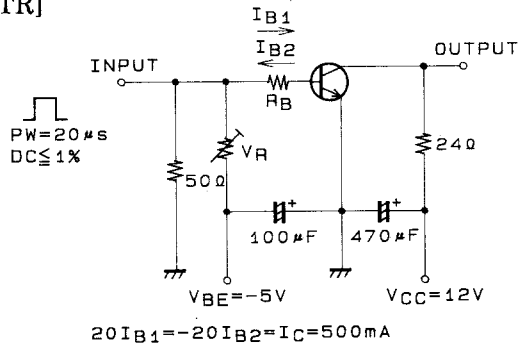
Electrical Characteristics at Ta=25°C

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 _{FE1}	V _{CE} =2V, I _C =100mA	140		560	
	h _{FE2}	V _{CE} =2V, I _C =1.5A	65			
Gain-Bandwidth Product	f _T	V _{CE} =10V, I _C =50mA		150		MHz
Output Capacitance	C _{ob}	V _{CE} =10V, f=1MHz		19		pF
C-E Saturation Voltage	V _{CE(sat)}	I _C =1.5A, I _B =75mA		0.18	0.4	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, I _C =0	6			V
Turn-ON Time	t _{on}	See specified Test Circuit		60		ns
Storage Time	t _{stg}	See specified Test Circuit		500		ns
Fall Time	t _f	See specified Test Circuit		25		ns
[SBD]						
Reverse Voltage	V _R	I _R =300μA	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 cycle		28		pF
Reverse Recovery Time	t _{rr}	I _F =I _R =100mA, See sepcified Test Circuit.			10	ns
Thermal Resistance	R _{thj-a}	Mounted on ceramic board (250mm²×0.8mm)		170		°C/W

Marking:301

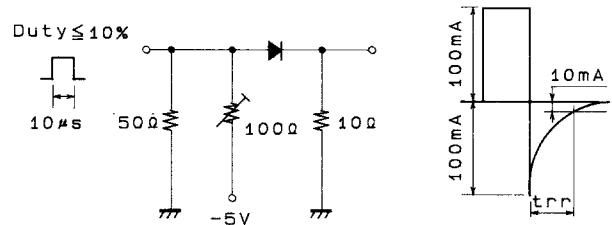
Switching Time Test Circuit

[TR]

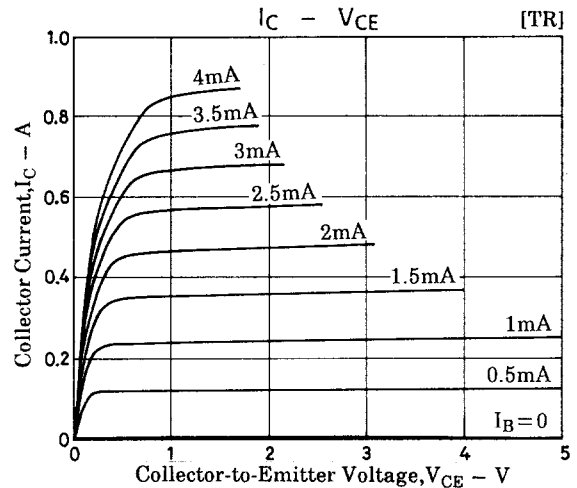
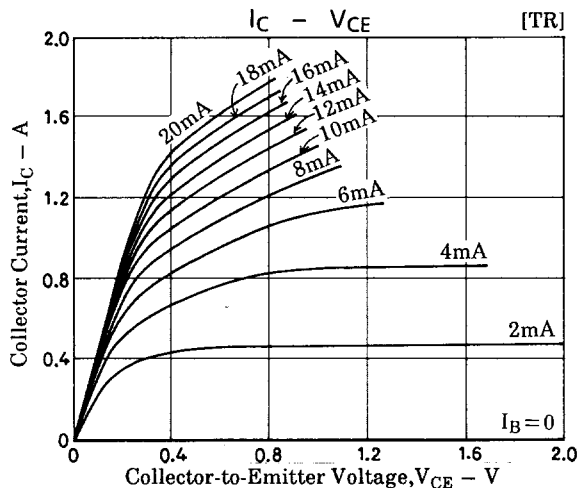


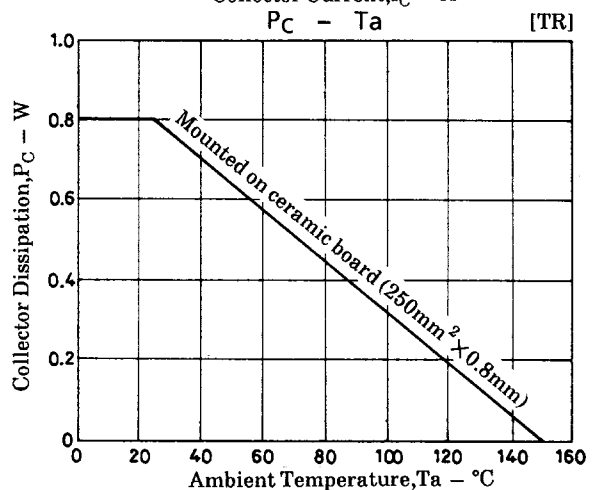
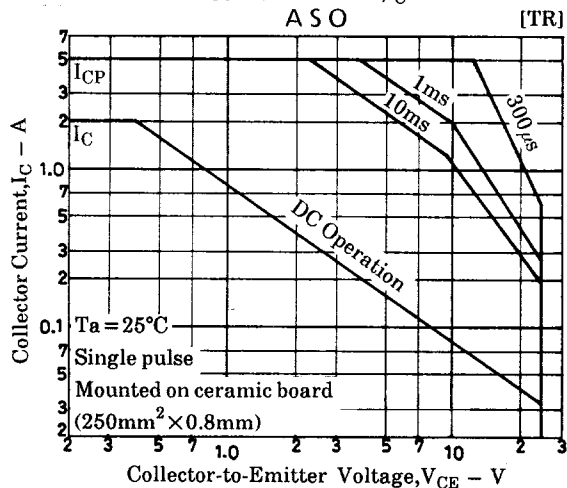
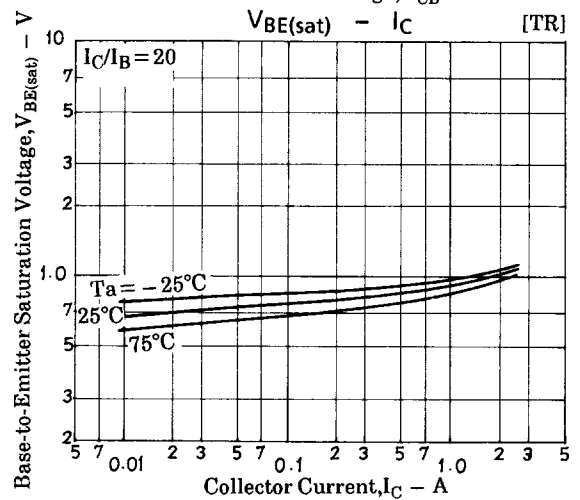
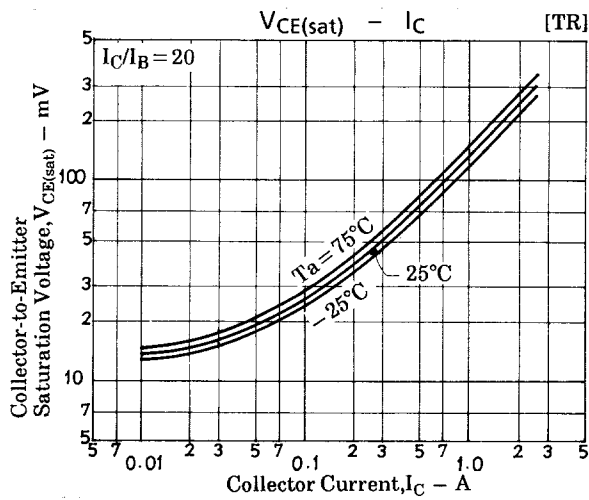
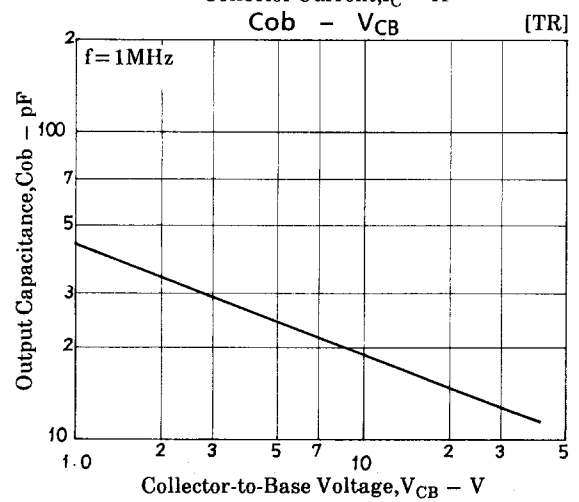
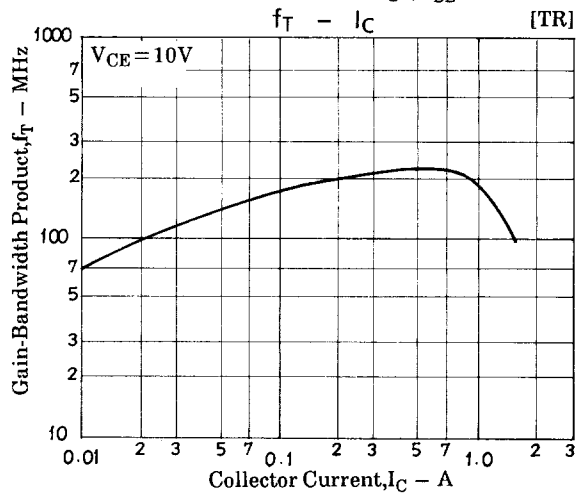
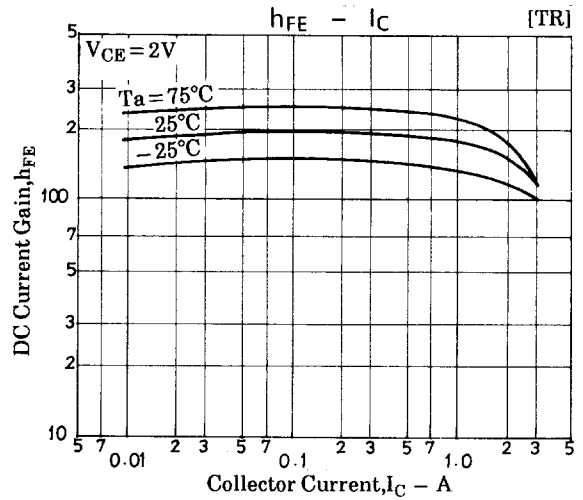
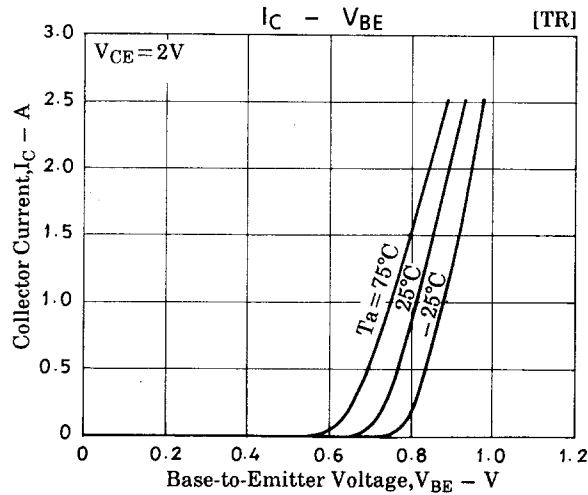
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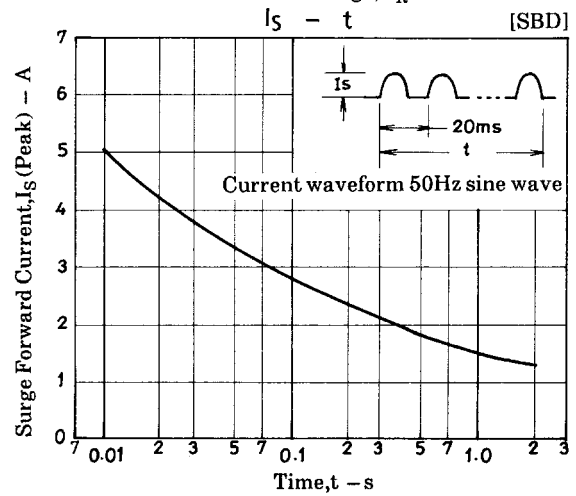
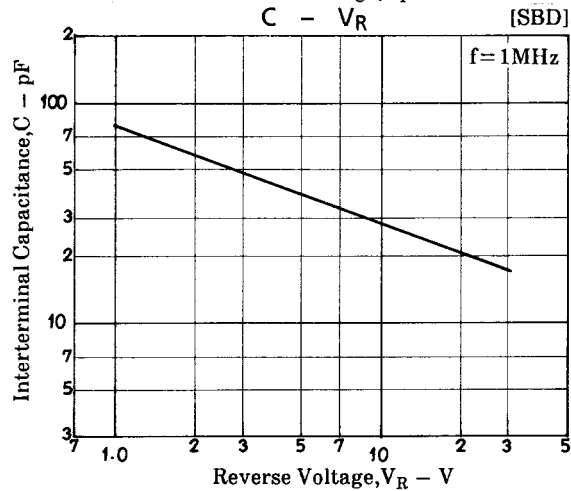
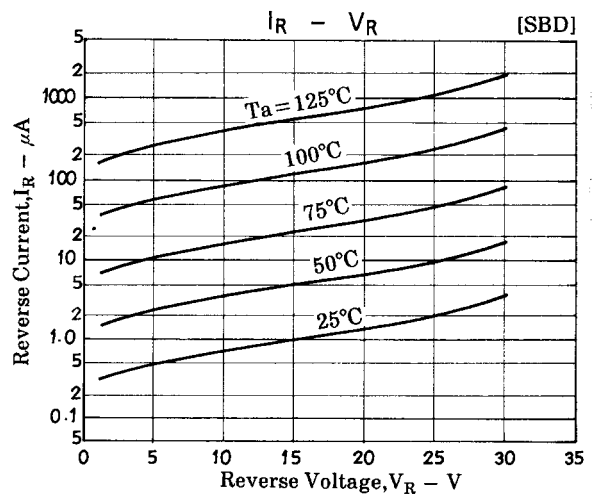
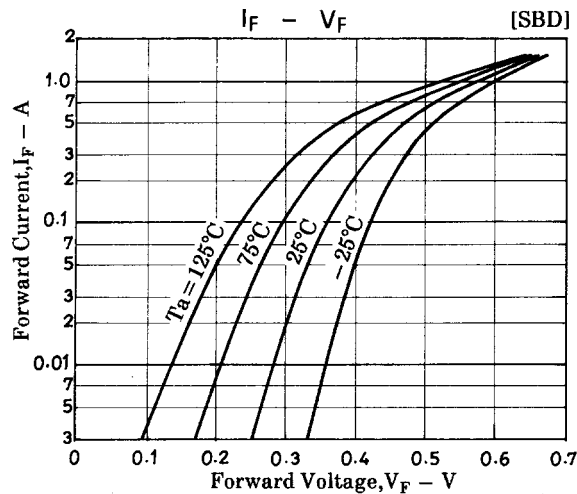
[SBD]



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