

**FX803**

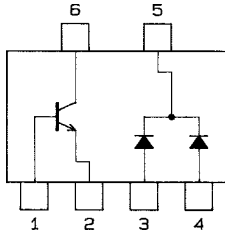
TR:NPN Epitaxial Planar Silicon Transistor
 SBD:Schottky Barrier Diode (Twin type · Cathode Common)

DC-DC Converter

Features

- Complex type of a low saturation voltage, high speed switching and large current NPN transistor and a fast recovery and low forward voltage Schottky barrier diode facilitating high-density mounting.
- The FX803 is composed of 2 chips, one being equivalent to the 2SB1628 and the other the SB20W03P, placed in one package.

Electrical Connection



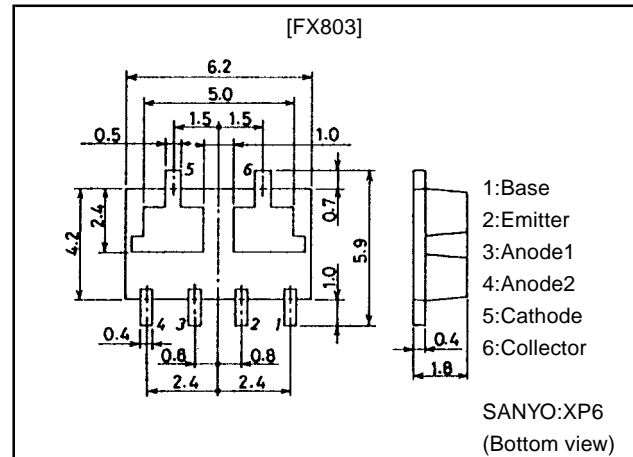
- 1:Base
 2:Emitter
 3:Anode1
 4:Anode2
 5:Cathode
 6:Collector

(Top view)

Package Dimensions

unit:mm

2126



Specifications

Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
[TR]				
Collector-to-Base Voltage	V _{CB0}		60	V
Collector-to-Emitter Voltage	V _{CE0}		20	V
Emitter-to-Base Voltage	V _{EB0}		6	V
Collector Current	I _C		5	A
Collector Current (Pulse)	I _{CP}		8	A
Base Current	I _B		1	A
Collector Dissipation	P _C	Mounted on ceramic board (750mm ² ×0.8mm) 1 unit	1.5	W
Junction Temperature	T _J		150	°C
[SBD] (Value per element)				
Repetitive Peak Reverse Voltage	V _{RRM}		30	V
Non-repetitive Peak Reverse Surge Voltage	V _{RSM}		35	V
Average Rectified Current	I _O		2	A
	I _O	(Total)	4	A
Surge Forward Current	I _{FSM}	50Hz sine wave, 1cycle	10	A
Junction Temperature	T _J		-55 to +125	°C
Storage Temperature	T _{stg}		-55 to +125	°C

· Marking:803

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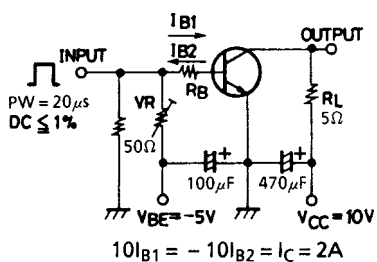
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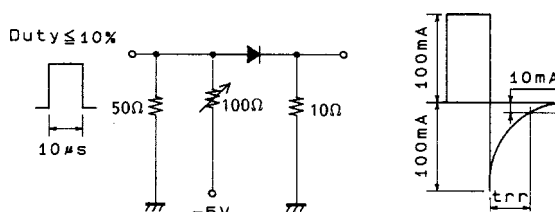
Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[TR]						
Collector Cutoff Current	I_{CBO}	$V_{CB}=50V, I_E=0$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=5V, I_C=0$			100	nA
DC Current Gain	$h_{FE}(1)$	$V_{CE}=2V, I_C=500mA$	160		560	
	$h_{FE}(2)$	$V_{CE}=2V, I_C=3A$	95			
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=500mA$		220		MHz
Output Capacitance	C_{ob}	$V_{CE}=10V, f=1MHz$		45		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C=3A, I_B=60mA$		220	500	mV
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C=3A, I_B=60mA$		1.0	1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_E=-1mA, R_{BE}=\infty$	20			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=-10\mu A, I_C=0$	6			V
Turn-ON Time	t_{on}	See sepcified Test Circuit		30		ns
Storage Time	t_{stg}	See sepcified Test Circuit		300		ns
Fall Time	t_f	See sepcified Test Circuit		40		ns
[SBD] (Value per element)						
Reverse Voltage	V_R	$I_R=500\mu A$	30			V
Forward Voltage	V_F	$I_F=2A$			0.55	V
Reverse Current	I_R	$V_R=15V$			100	μA
Interterminal Capacitance	C	$V_R=10V, f=1MHz$		70		pF
Reverse Recovery Time	t_{rr}	$I_F=I_R=100mA$, See specified Test Circuit			20	ns
Thermal Resistance	R_{thj-a}	Mounted on ceramic board (750mm ² ×0.8mm)		85		°C/W

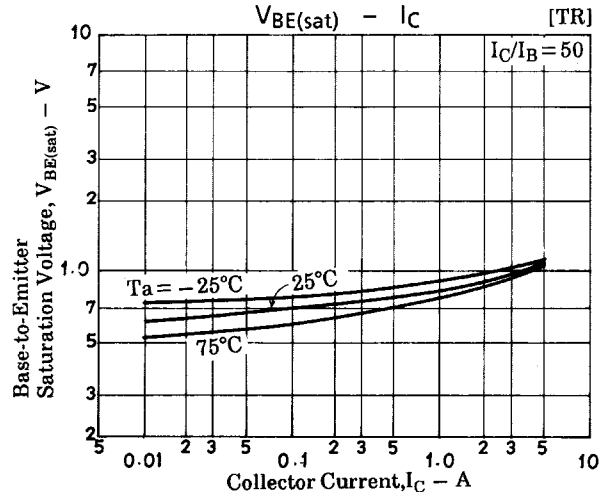
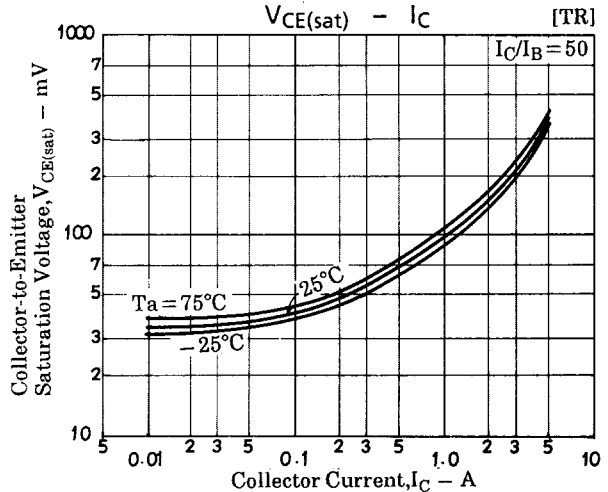
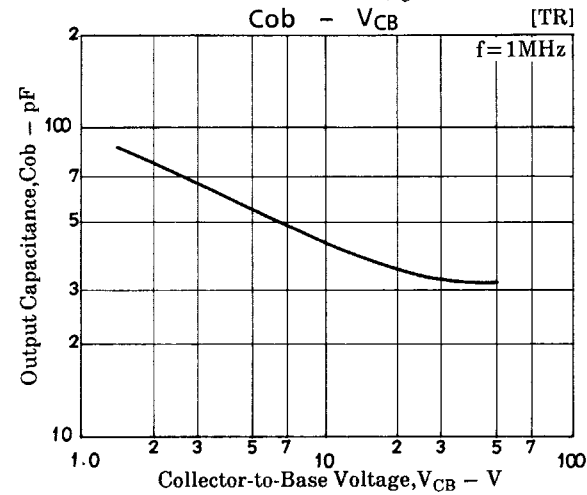
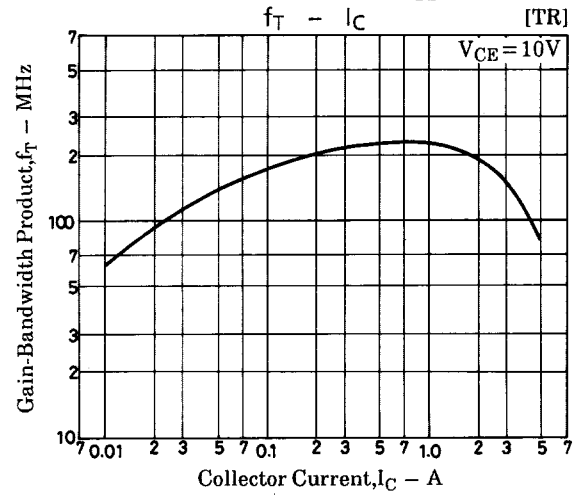
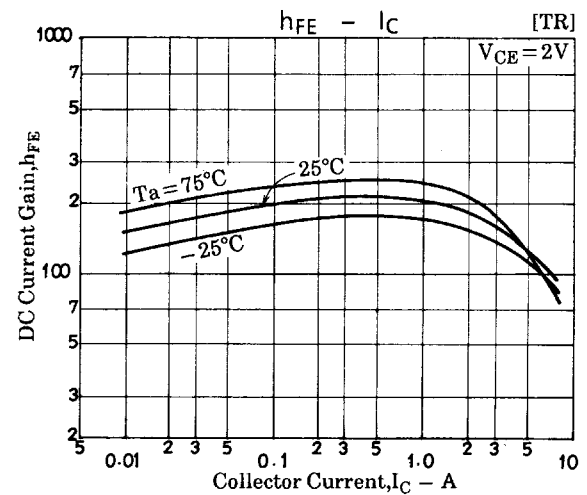
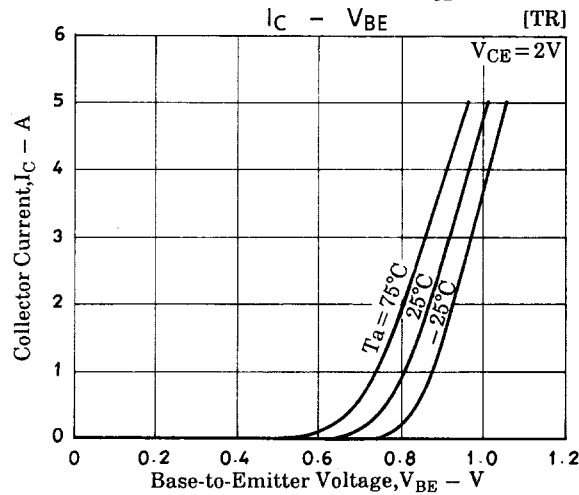
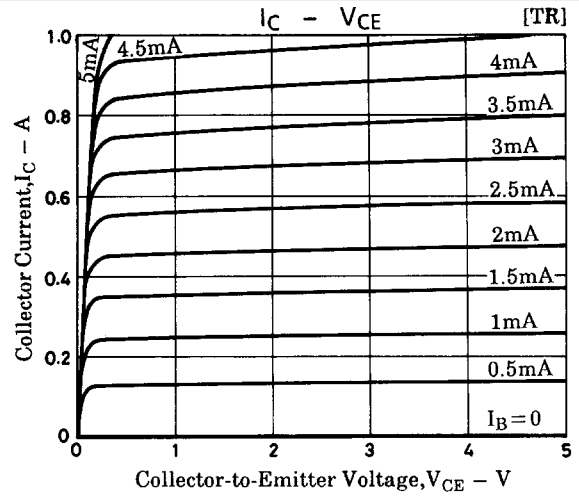
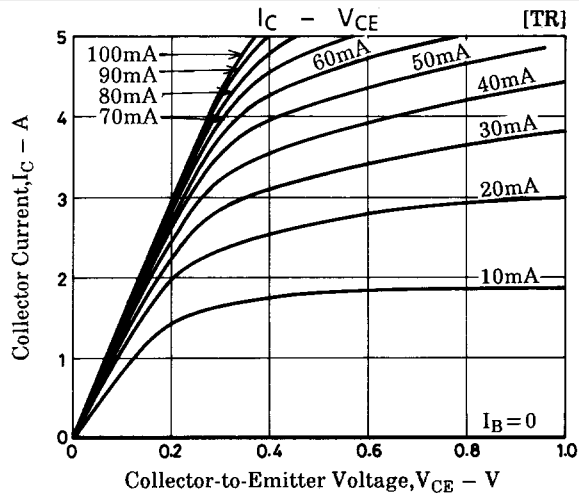
Switching Time Test Clrcuit [TR]



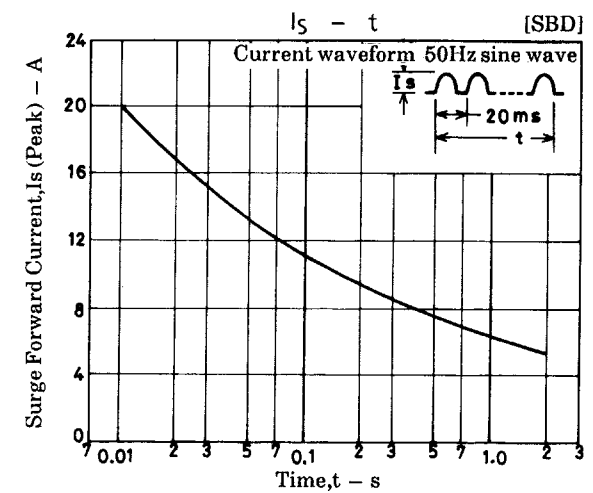
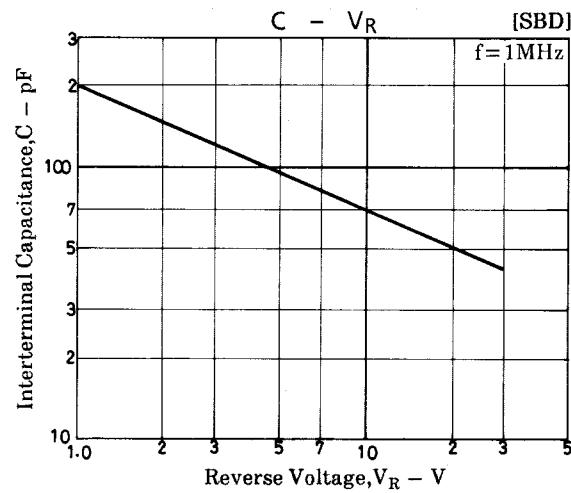
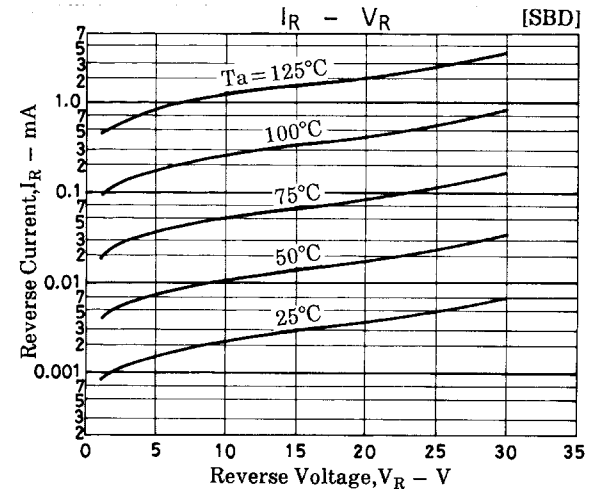
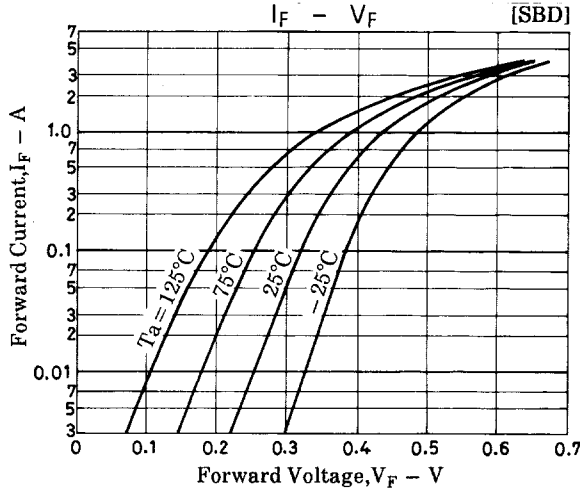
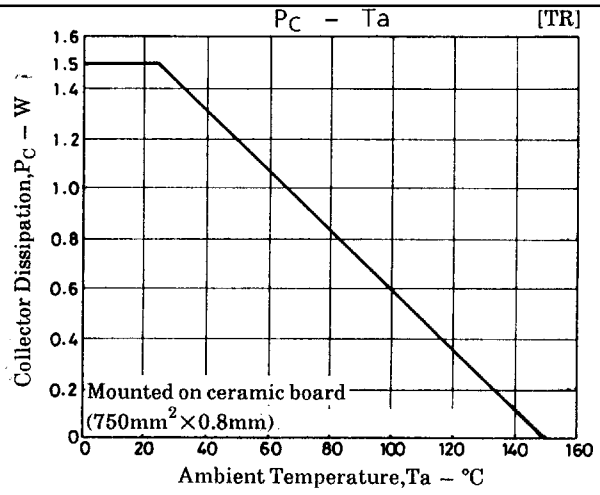
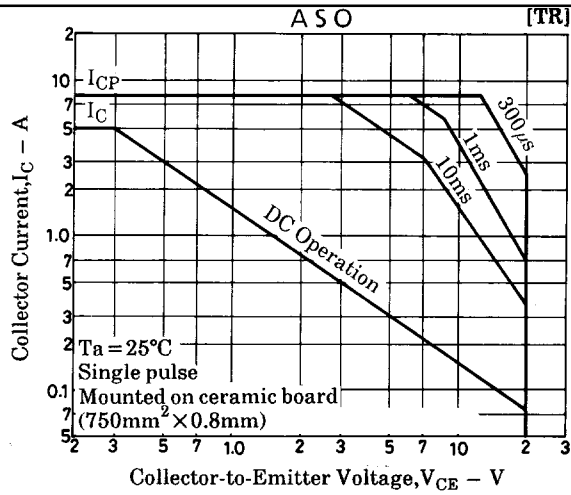
Trr Test Circuit [SBD]



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