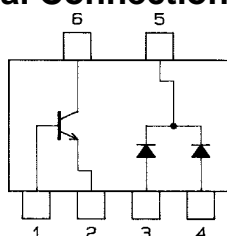


**FX803**

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**

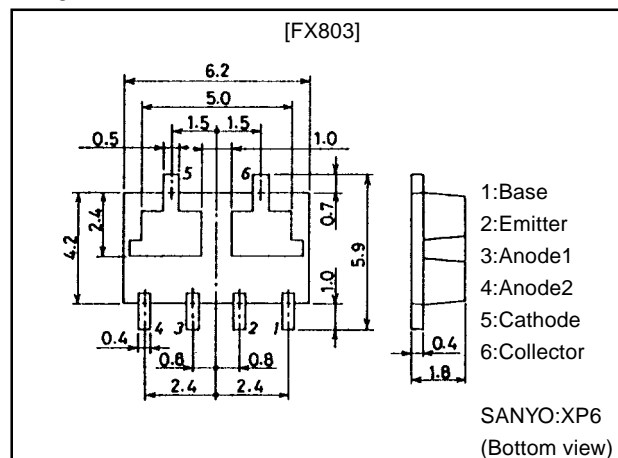
- 1:Base  
2:Emitter  
3:Anode1  
4:Anode2  
5:Cathode  
6:Collector

(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 <sub>CB0</sub>		60	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>		20	V
Emitter-to-Base Voltage	V <sub>EB0</sub>		6	V
Collector Current	I <sub>C</sub>		5	A
Collector Current (Pulse)	I <sub>CP</sub>		8	A
Base Current	I <sub>B</sub>		1	A
Collector Dissipation	P <sub>C</sub>	Mounted on ceramic board (750mm <sup>2</sup> ×0.8mm) 1 unit	1.5	W
Junction Temperature	T <sub>J</sub>		150	°C
[SBD] (Value per element)				
Repetitive Peak Reverse Voltage	V <sub>RRM</sub>		30	V
Non-repetitive Peak Reverse Surge Voltage	V <sub>RSM</sub>		35	V
Average Rectified Current	I <sub>O</sub>		2	A
	I <sub>O</sub>	(Total)	4	A
Surge Forward Current	I <sub>FSM</sub>	50Hz sine wave, 1cycle	10	A
Junction Temperature	T <sub>J</sub>		-55 to +125	°C
Storage Temperature	T <sub>stg</sub>		-55 to +125	°C

· Marking:803

Continued on next page.

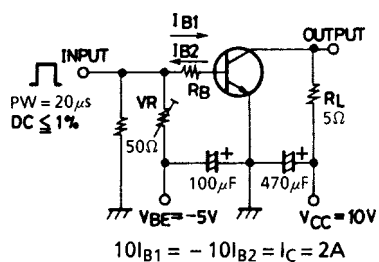
# FX803

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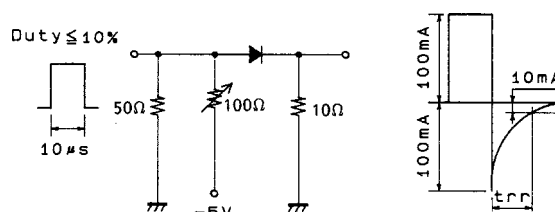
## Electrical Characteristics at Ta = 25°C

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	$\mu A$
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 <sup>2</sup> ×0.8mm)		85		°C/W

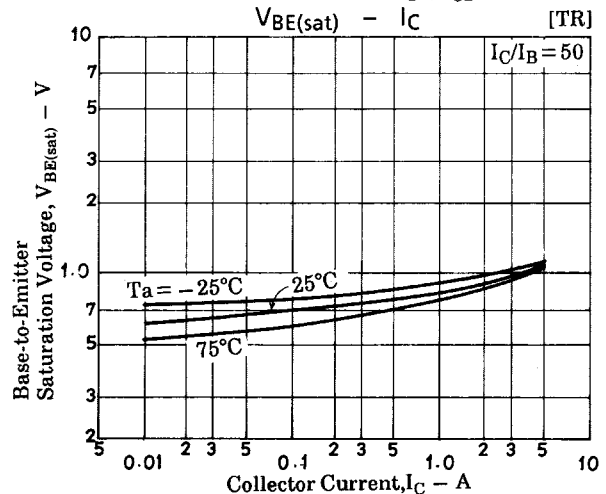
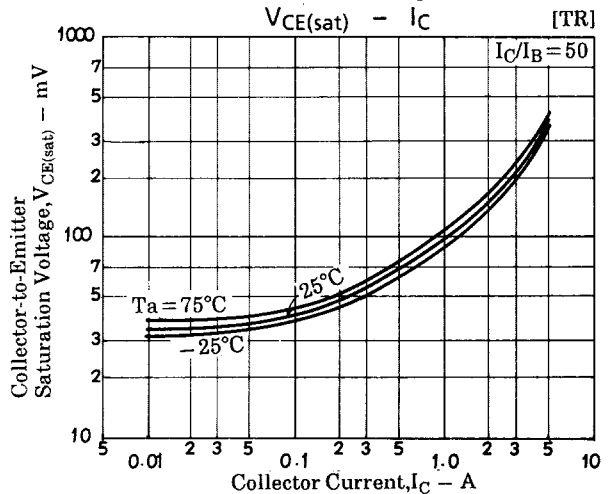
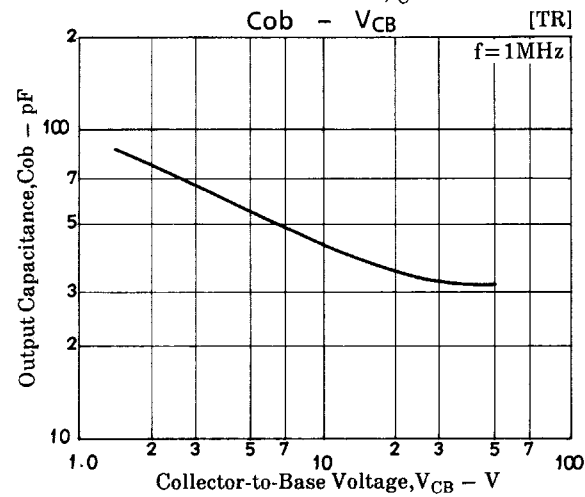
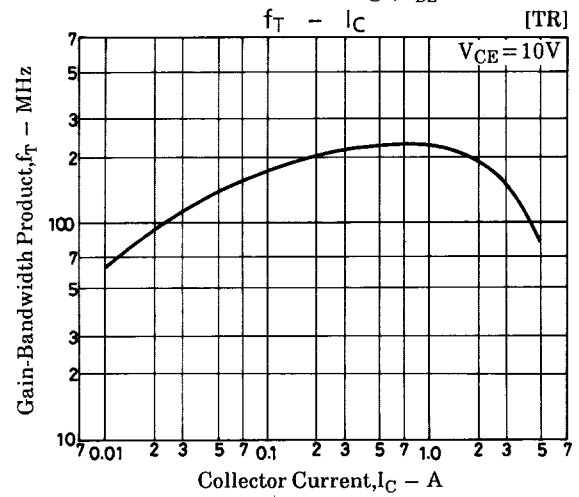
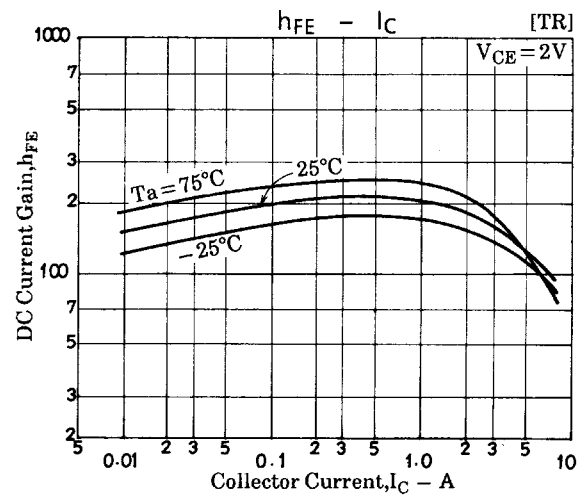
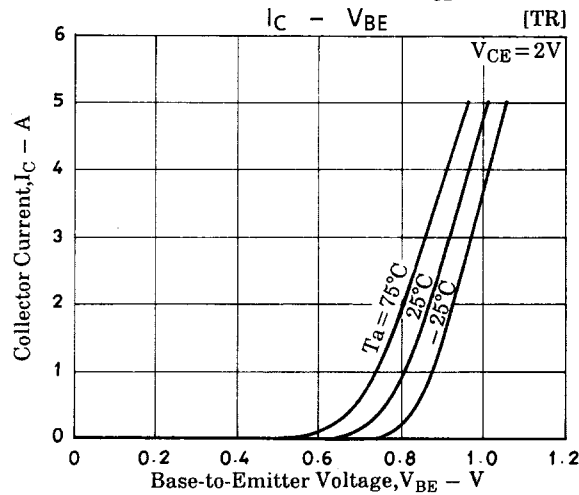
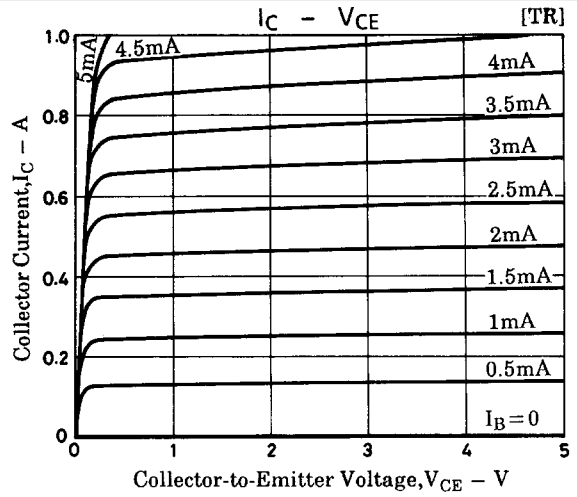
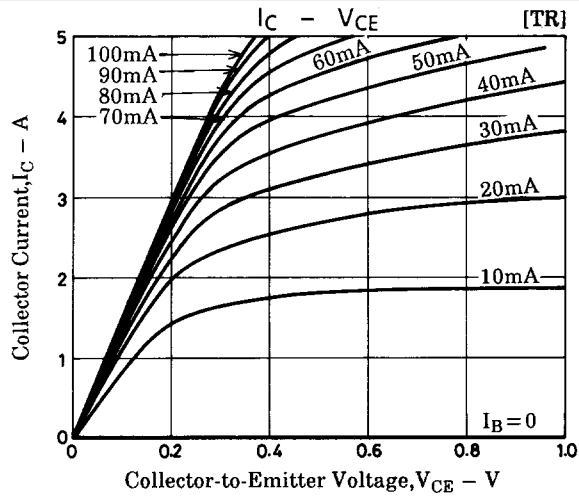
### Switching Time Test Clrcuit [TR]



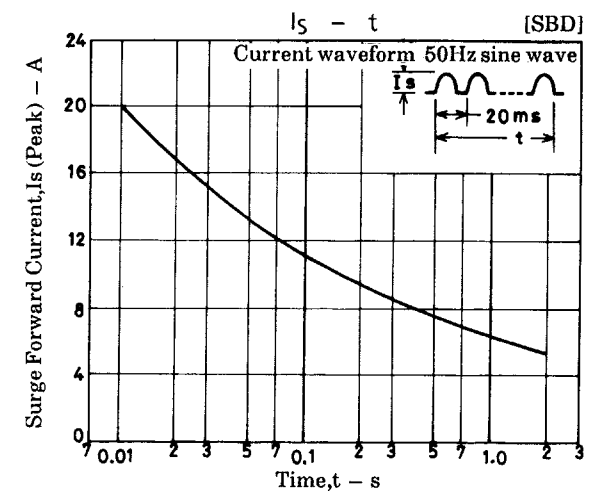
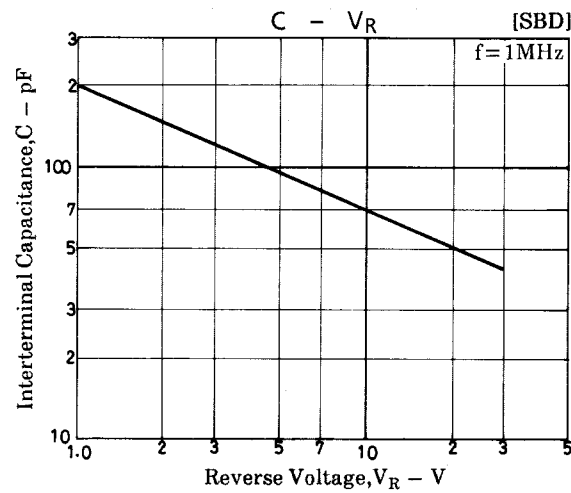
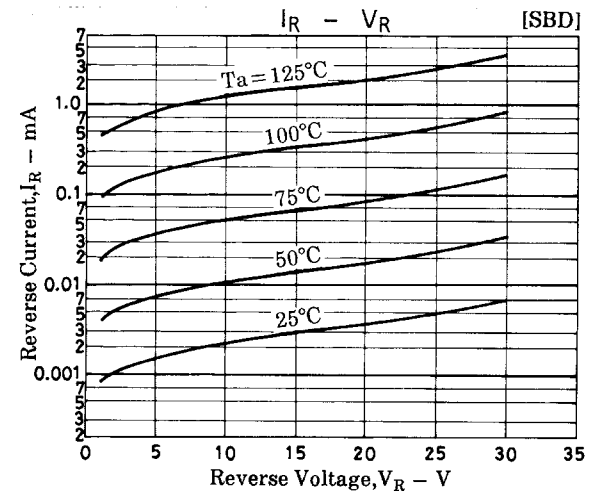
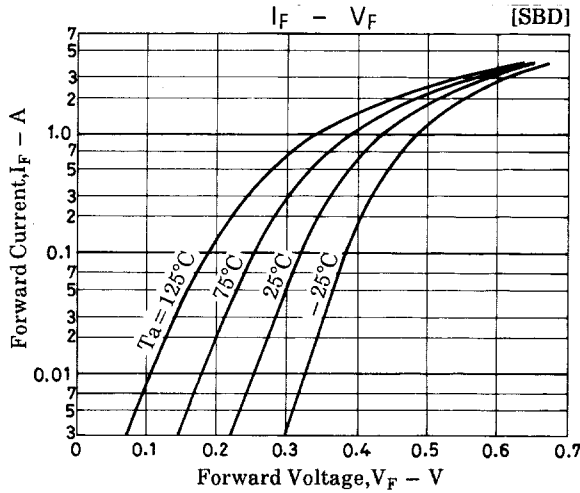
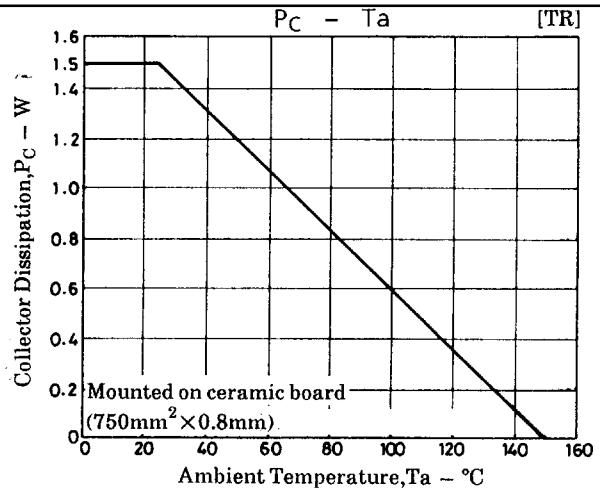
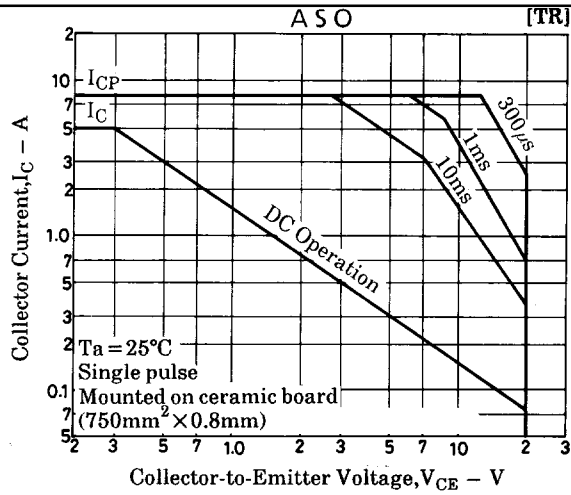
### Trr Test Circuit [SBD]



# FX803



# FX803



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