



**FX502**

NPN Epitaxial Planar Silicon Transistor

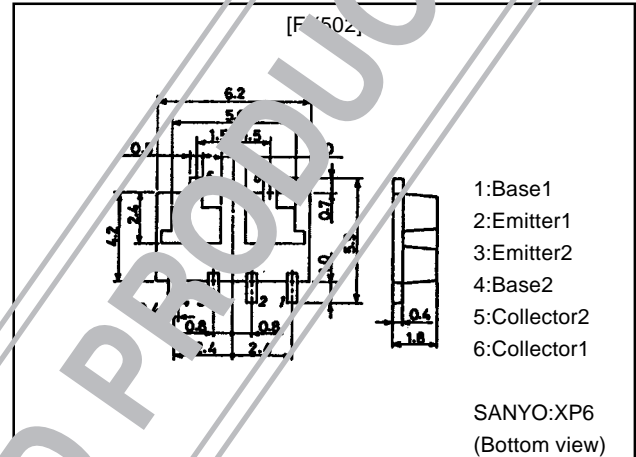
**High-Current Switching Applications**

**Features**

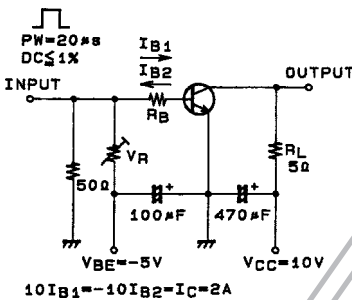
- Composite type with 2 NPN transistors contained in one package, facilitating high-density mounting.
- The FX502 houses two chips, each being equivalent to the 2SD1805, in one package.
- Matched pair characteristics.

**Package Dimensions**

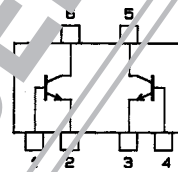
unit:mm  
2118



**Switching Time Test Circuit**



**Electrical Connection**



- 1:Base1
- 2:Emitter1
- 3:Emitter2
- 4:Base2
- 5:Collector2
- 6:Collector1

(Top view)

**Specifications**

Absolute Maximum Ratings (at  $T_c = 25^\circ\text{C}$ )

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		60	V
Collector-to-Emitter Voltage	$V_{CEO}$		20	V
Emitter-to-Base Voltage	$V_{EBO}$		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 <sup>2</sup> ×0.8mm) 1 unit	1.5	W
Total Dissipation	$P_T$	Mounted on ceramic board (750mm <sup>2</sup> ×0.8mm)	2	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

· Marking:502

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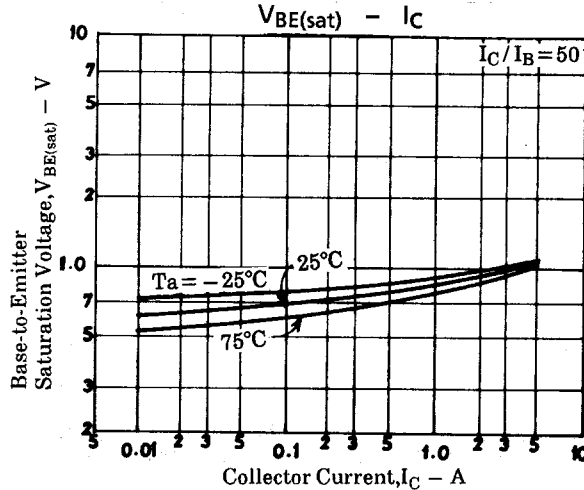
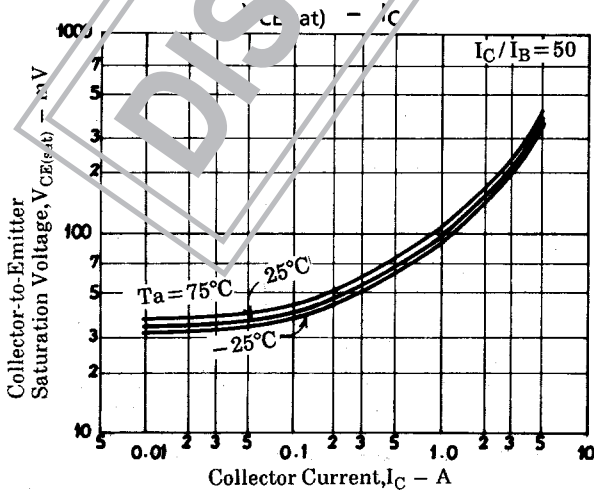
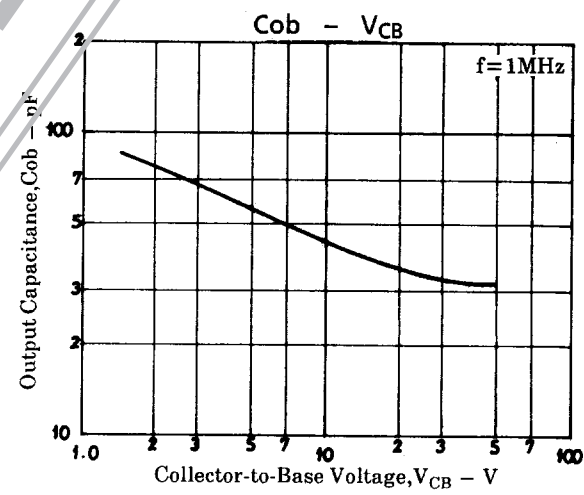
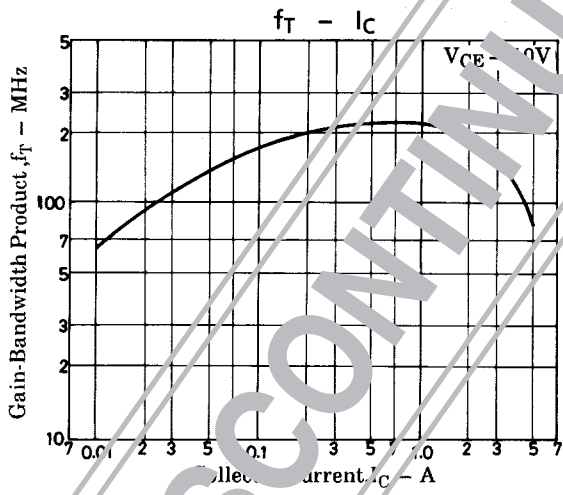
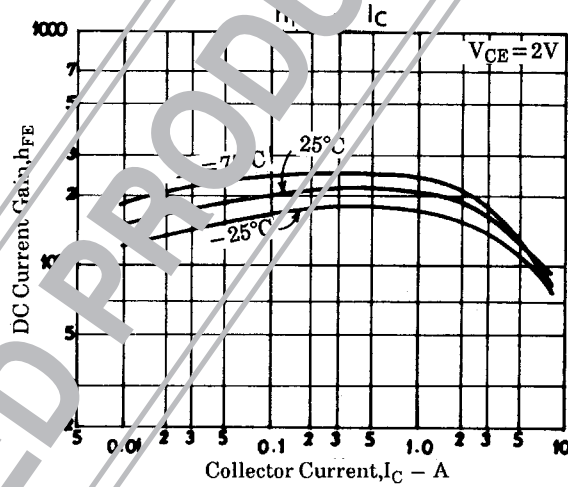
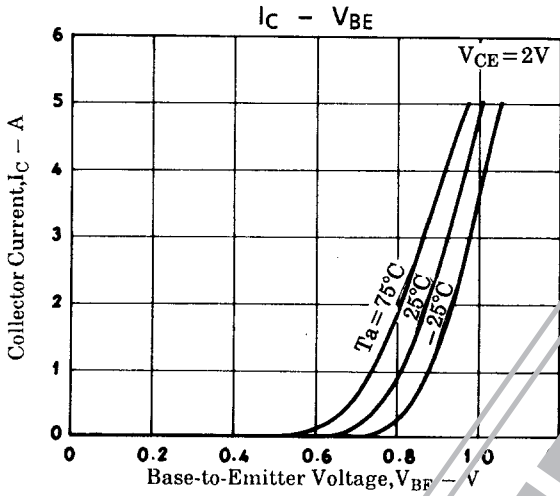
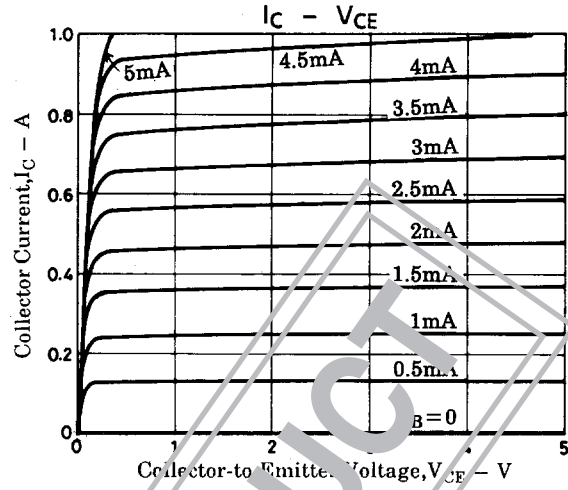
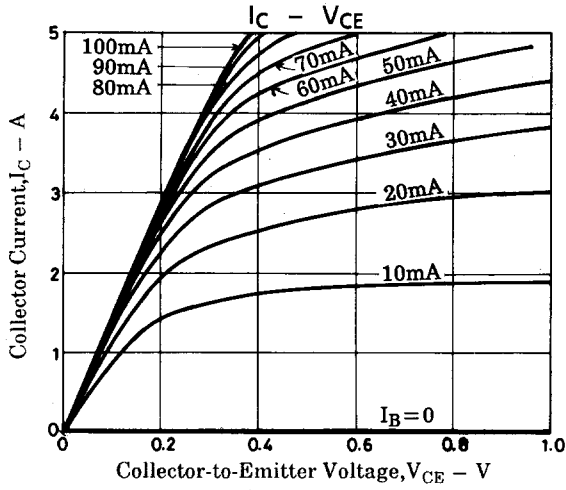
## FX502

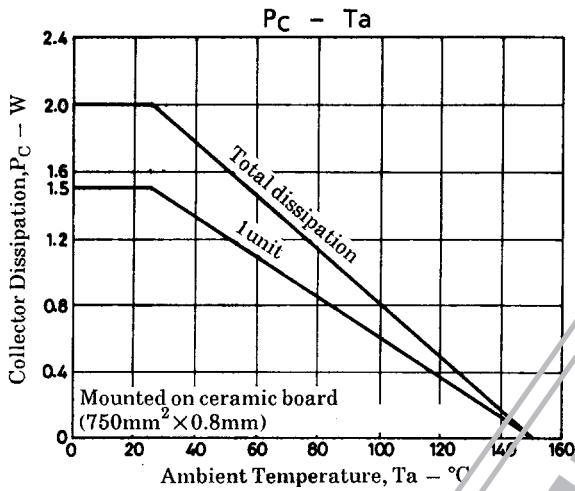
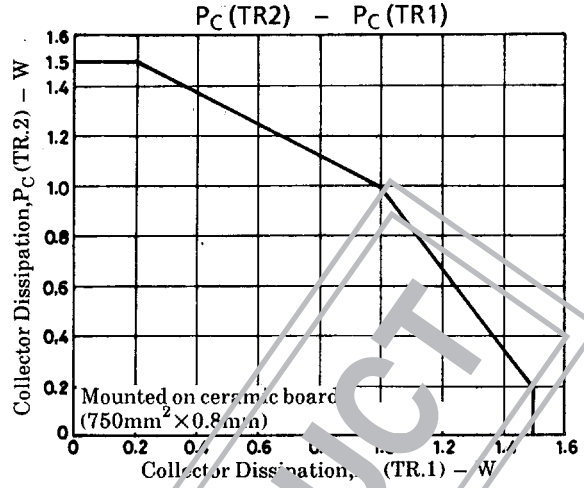
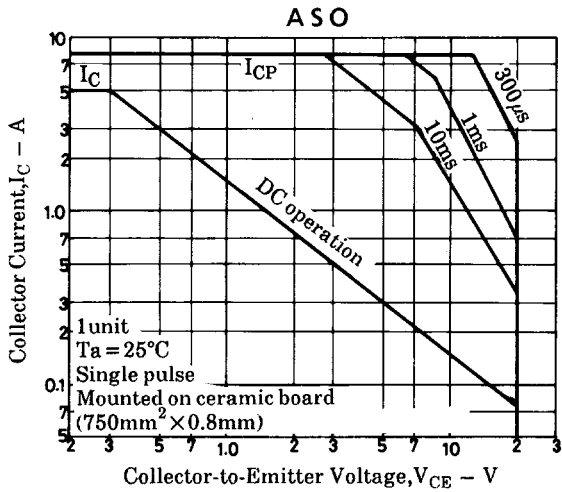
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Electrical Characteristics at  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=50\text{V}, I_E=0$			100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			100	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	160		560	
	$h_{FE2}$	$V_{CE}=2\text{V}, I_C=3\text{A}$	95			
DC Current Gain Ratio	$h_{FE}(\text{small/large})$	$V_{CE}=2\text{V}, I_C=500\text{mA}$	0			
Gain-Bandwidth Product	$f_T$	$V_{CE}=10\text{V}, I_C=500\text{mA}$		10		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10\text{V}, f=1\text{MHz}$		45		pF
C-E Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=3\text{A}, I_B=60\text{mA}$		220	500	mV
B-E Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=3\text{A}, I_B=60\text{mA}$		1.0	1.5	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu\text{A}, I_E=0$	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1\text{mA}, R_{BE}=\infty$	20			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu\text{A}, I_C=0$	6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		30		ns
Storage Time	$t_{stg}$	See specified Test Circuit		300		ns
Fall Time	$t_f$	See specified Test Circuit		40		ns

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