

Ordering number:EN5029



# FX509

PNP Epitaxial Planar Silicon Transistor

## High-Current Switching Applications

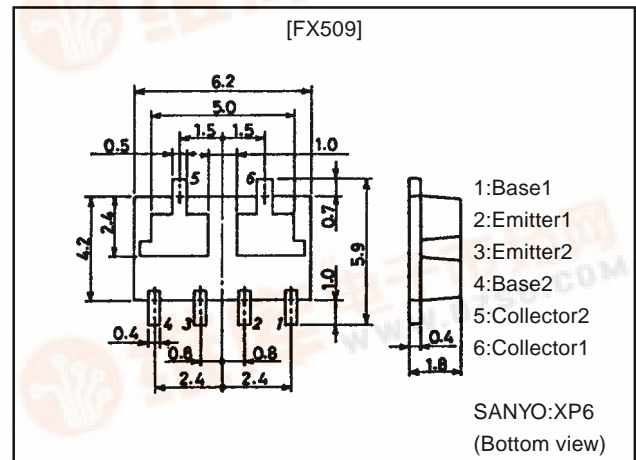
### Features

- Composite type with 2PNP transistors contained in one package, facilitating high-density mounting.
- The FX509 houses two chips, each being equivalent to the 2SB1215, in one package.
- Matched pair characteristics.

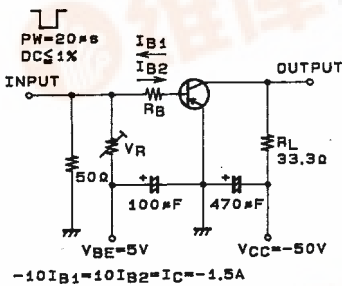
### Package Dimensions

unit:mm

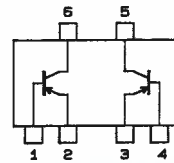
2118



### Switching Time Test Circuit



### Electrical Connection



(Top view)

### Specifications

Absolute Maximum Ratings at  $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		-120	V
Collector-to-Emitter Voltage	$V_{CEO}$		-100	V
Emitter-to-Base Voltage	$V_{EBO}$		-6	V
Collector Current	$I_C$		-3	A
Collector Current (Pulse)	$I_{CP}$		-6	A
Base Current	$I_B$		-0.6	A
Collector Dissipation	$P_C$	Mounted on ceramic board (750mm <sup>2</sup> ×0.8mm) 1unit	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:509

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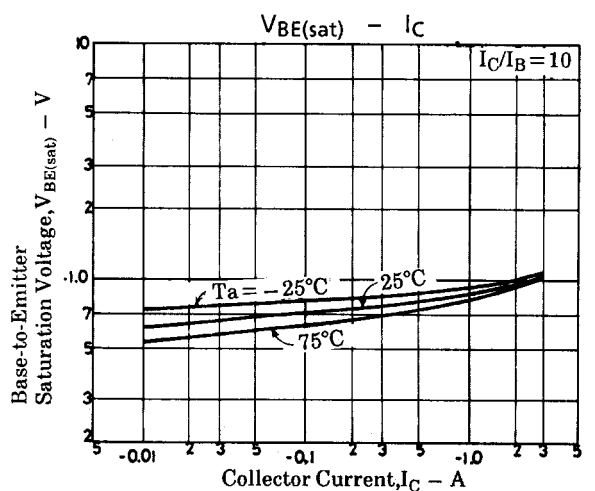
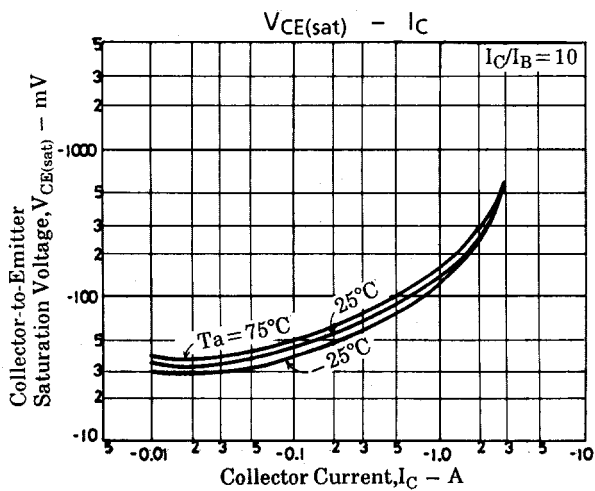
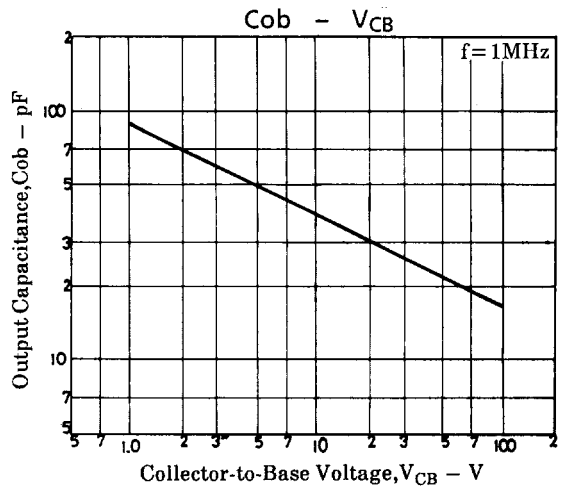
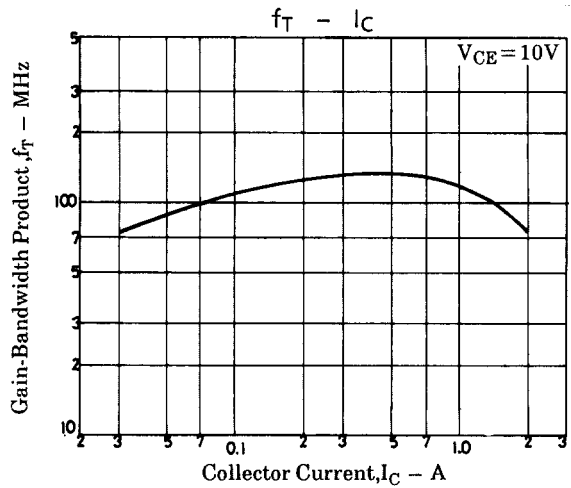
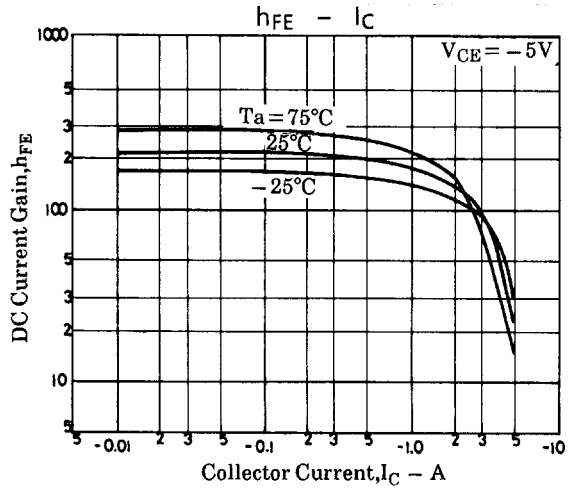
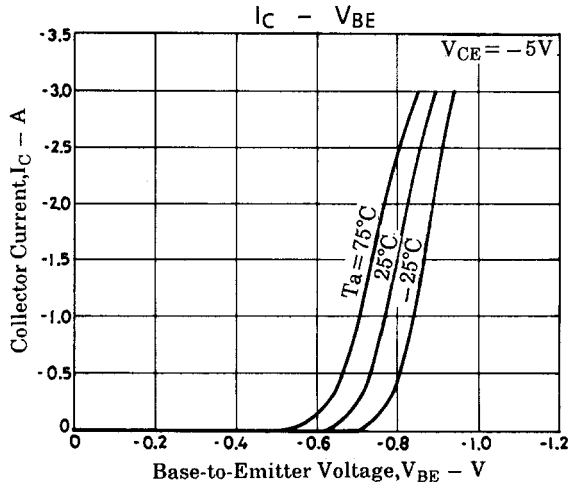
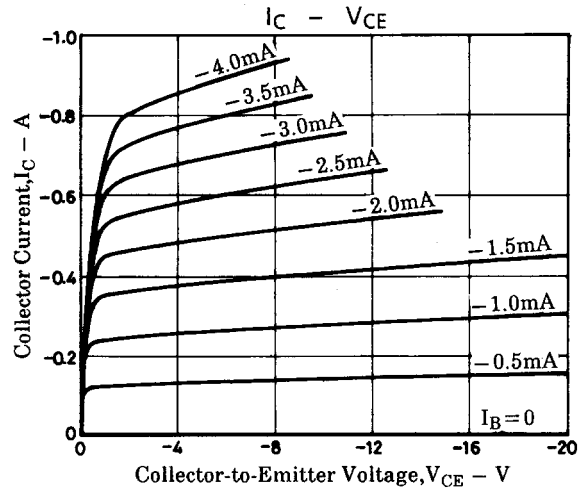
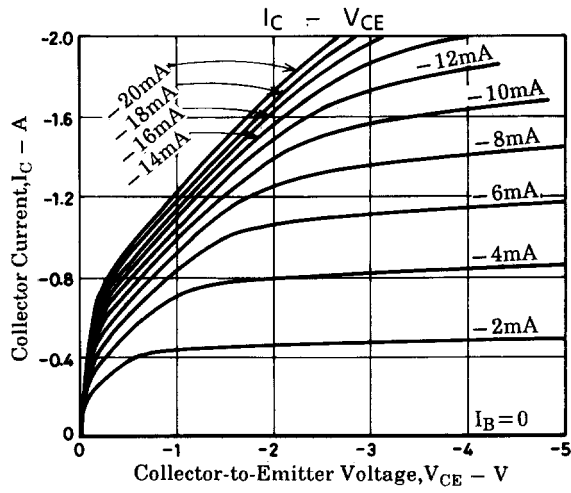
## FX509

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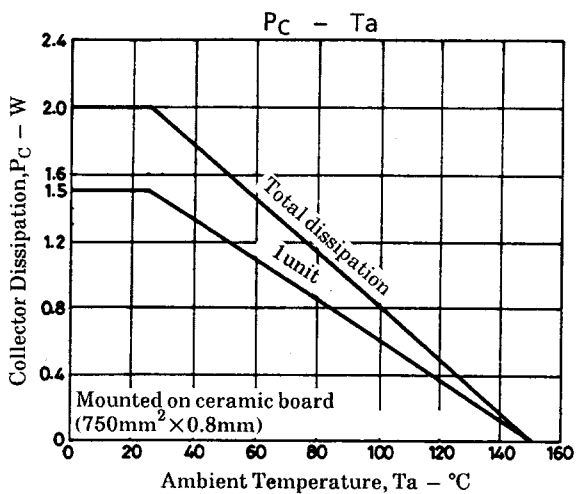
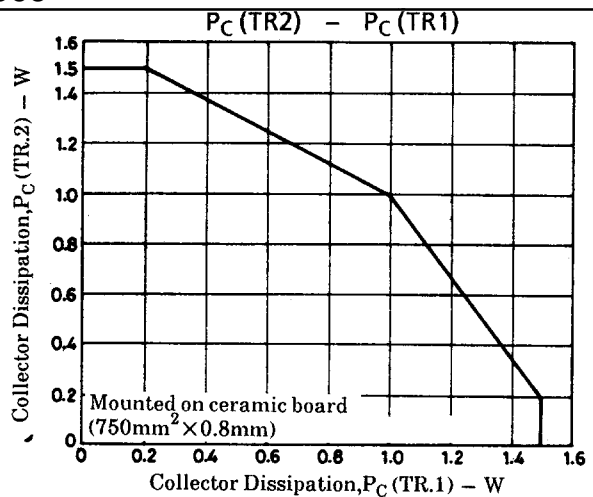
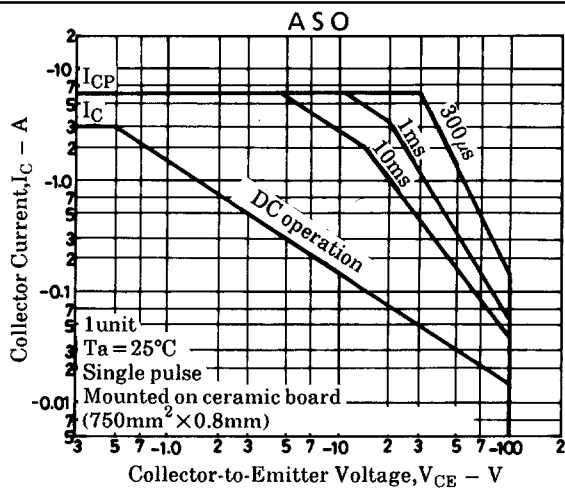
### Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-100V, I_E=0$			-1	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4V, I_C=0$			-1	$\mu\text{A}$
DC Current Gain	$h_{FE1}$	$V_{CE}=-5V, I_C=-500\text{mA}$	140		400	
	$h_{FE2}$	$V_{CE}=-5V, I_C=-2A$	40			
DC Current Gain Ratio	$h_{FE}(\text{small/large})$	$V_{CE}=-5V, I_C=-500\text{mA}$	0.8			
Gain-Bandwidth Product	$f_T$	$V_{CE}=-5V, I_C=-500\text{mA}$		180		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=-10V, f=1\text{MHz}$		40		pF
C-E Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=-1.5A, I_B=-150\text{mA}$		-200	-500	mV
B-E Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=-1.5A, I_B=-150\text{mA}$		-0.9	-1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C=-10\mu\text{A}, I_E=0$	-120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C=-1\text{mA}, R_{BE}=\infty$	-100			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		100		ns
Storage Time	$t_{stg}$	See specified Test Circuit		800		ns
Fall Time	$t_f$	See specified Test Circuit		50		ns

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