Ordering number:EN5029

FX509

PNP Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Features

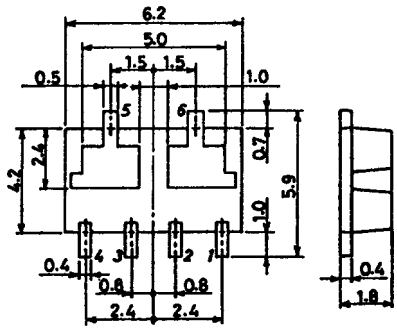
- Composite type with 2PNP transistors contained in one package, facilitating high-density mounting.
- The FX509 houses two chips, each being equivalent to the 2SB1215, in one package.
- Matched pair characteristics.

Package Dimensions

unit:mm

2118

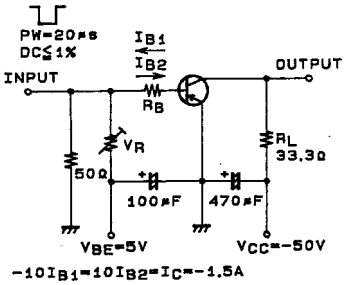
[FX509]



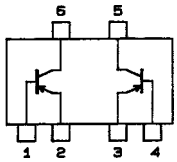
1:Base1
2:Emitter1
3:Emitter2
4:Base2
5:Collector2
6:Collector1

SANYO:XP6
(Bottom view)

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 Ta = 25˚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 (750mm²×0.8mm) 1unit	1.5	W
Total Dissipation	P_T	Mounted on ceramic board (750mm²×0.8mm)	2	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

· Marking:509

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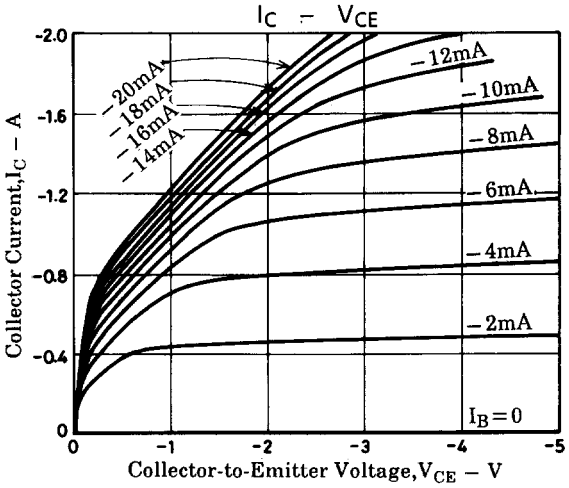
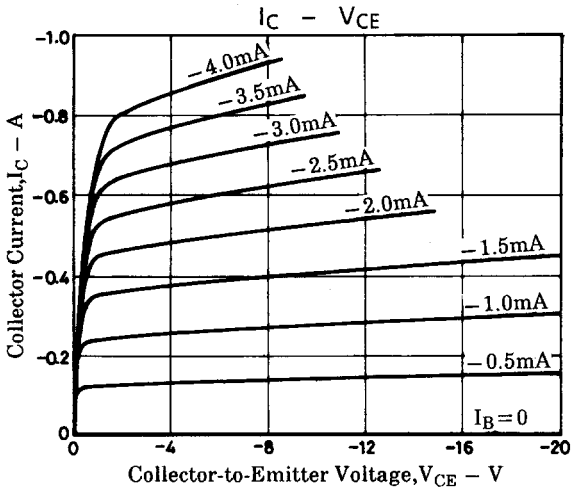
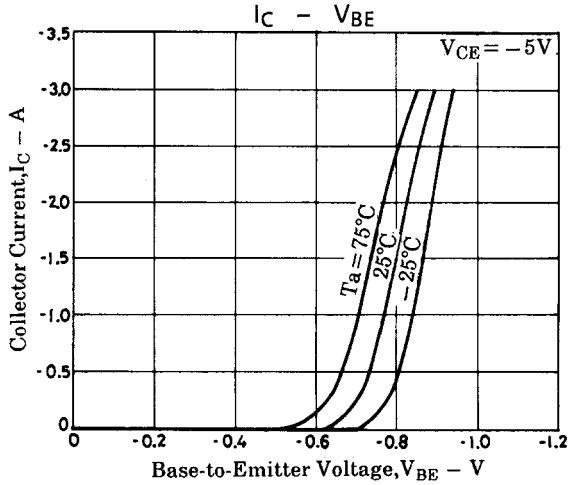
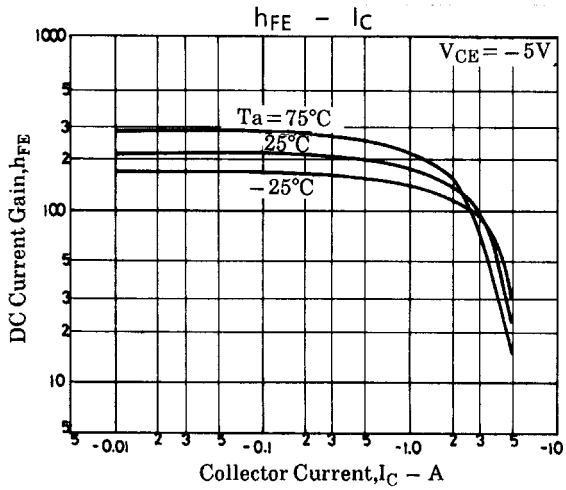
Electrical Characteristics at Ta = 25˚C

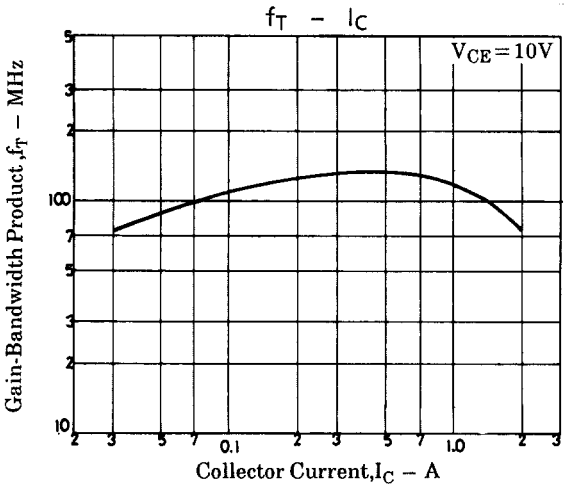
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=–100V, I_E=0			–1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=–4V, I_C=0			–1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=–5V, I_C=—500mA	140		400	
	$h_{FE}2$	V_{CE}=–5V, I_C=–2A	40			
DC Current Gain Ratio	$h_{FE(small/large)}$	V_{CE}=–5V, I_C=–500mA	0.8			
Gain-Bandwidth Product	f_T	V_{CE}=–5V, I_C=–500mA		180		MHz
Output Capacitance	Cob	V_{CB}=–10V, f=1MHz		40		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=–1.5A, I_B=–150mA		–200	–500	mV
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=–1.5A, I_B=–150mA		–0.9	–1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=–10μA, I_E=0	–120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=–1mA, R_{BE}=∞	–100			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=–10μA, I_C=0	–6			V
Turn-ON Time	t_{on}	See sepcified Test Circuit		100		ns
Storage Time	t_{stg}	See sepcified Test Circuit		800		ns
Fall Time	t_f	See sepcified Test Circuit		50		ns

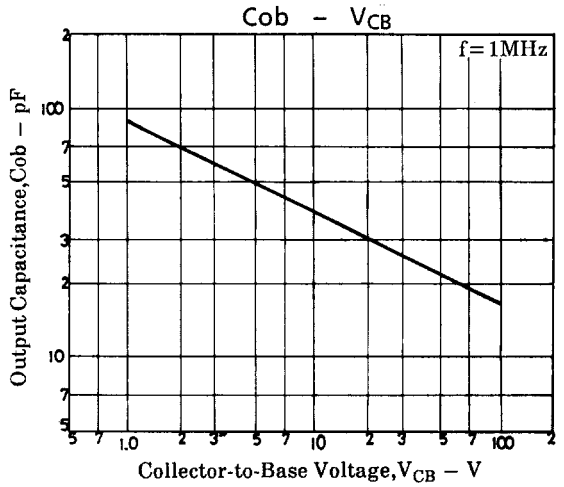

IC – VCE
Collector Current,IC – A
Collector-to-Emitter Voltage,VCE – V
–20mA
–18mA
–16mA
–14mA
–12mA
–10mA
–8mA
–6mA
–4mA
–2mA
IB=0

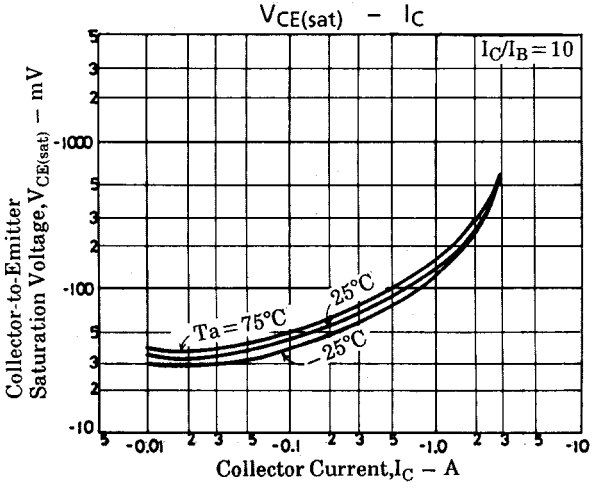

IC – VCE
Collector Current,IC – A
Collector-to-Emitter Voltage,VCE – V
–4.0mA
–3.5mA
–3.0mA
–2.5mA
–2.0mA
–1.5mA
–1.0mA
–0.5mA
IB=0

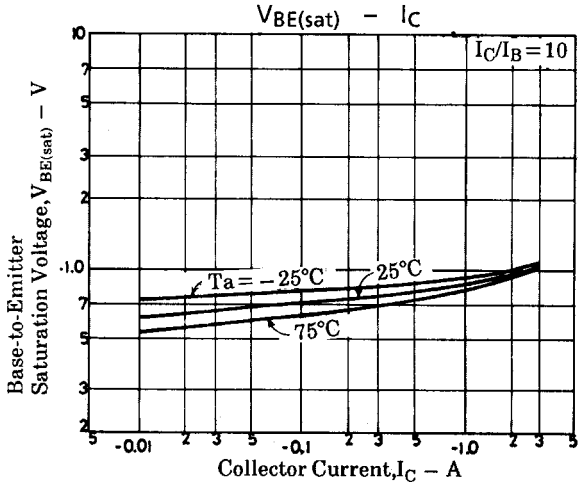

IC – VBE
Collector Current,IC – A
Base-to-Emitter Voltage,VBE – V
VCE=–5V
Ta=75°C
25°C
–25°C


hFE – IC
DC Current Gain,hFE
Collector Current,IC – A
VCE=–5V
Ta=75°C
25°C
–25°C


fT – IC
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – A
VCE=10V


Cob – VCB
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V
f=1MHz


VCE(sat) – IC
Collector-to-Emitter
Saturation Voltage,VCE(sat) – mV
Collector Current,IC – A
IC/IB=10
Ta=75°C
25°C
–25°C


VBE(sat) – IC
Base-to-Emitter
Saturation Voltage,VBE(sat) – V
Collector Current,IC – A
IC/IB=10
Ta=–25°C
25°C
75°C