Ordering number:EN4904

FX504

NPN Epitaxial Planar Silicon Transistor

High-Current Switching Applications

Features

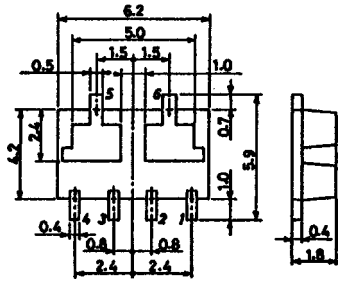
- Composite type with 2 NPN transistors contained in one package, facilitating high-density mounting.
- The FX504 houses two chips, each being equivalent to the 2SD1802, in one package.
- Matched pair characteristics.

Package Dimensions

unit:mm

2118

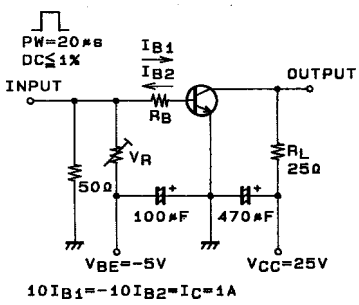
[FX504]



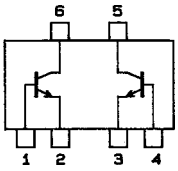
1:Base1
2:Emitter1
3:Emitter2
4:Base2
5:Collector2
6:Collector1

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}		60	V
Collector-to-Emitter Voltage	V_{CEO}		50	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		600	mA
Collector Dissipation	P_C	Mounted on ceramic board (750mm^2×0.8mm) 1 unit	1.5	W
Total Dissipation	P_T	Mounted on ceramic board (750mm^2×0.8mm)	2	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

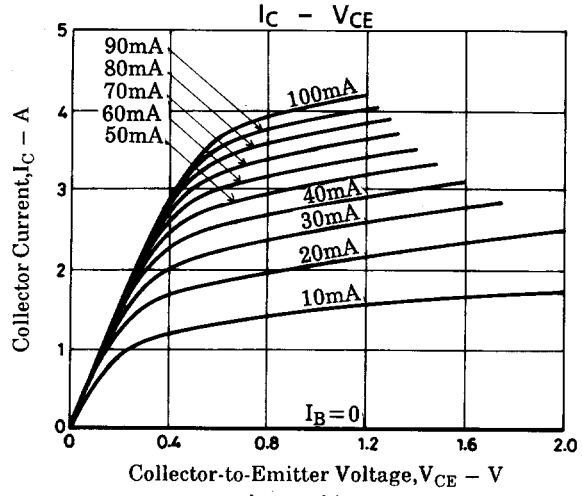
· Marking:504

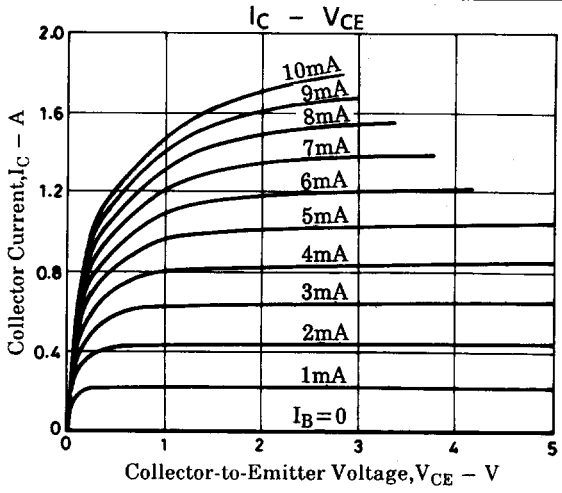
Continued on next page.

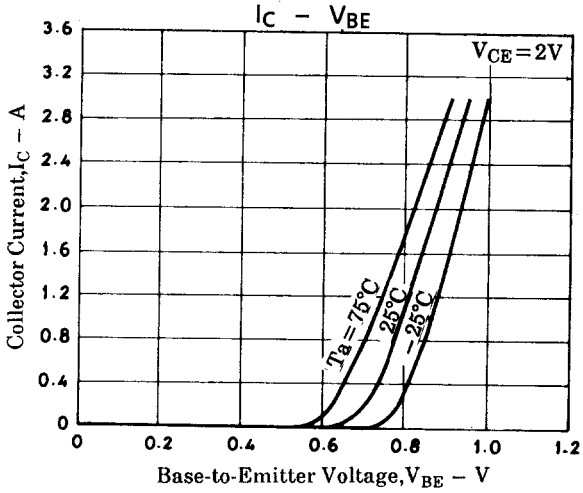
Continued from preceding page.

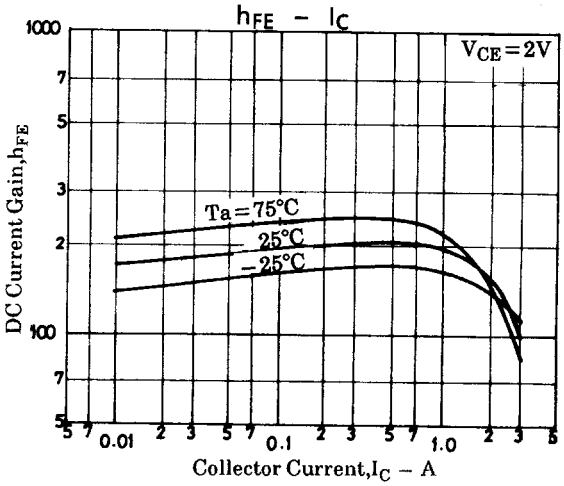
Electrical Characteristics at Ta = 25˚C

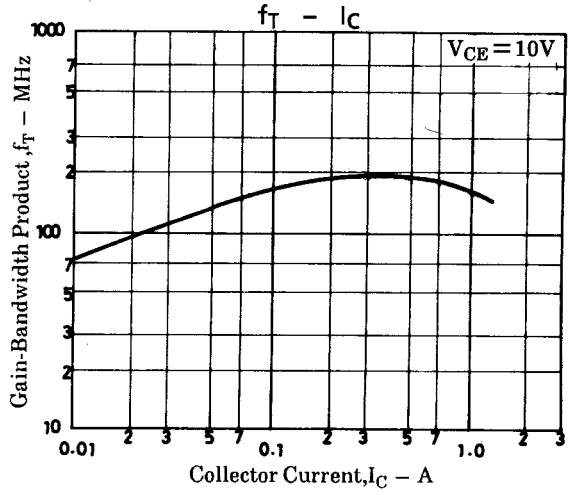
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=40V, I_E=0			1	µA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0			1	µA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=100mA	140		400	
	$h_{FE}2$	V_{CE}=2V, I_C=–3A	35			
DC Current Gain Ratio	$h_{FE(small/large)}$	V_{CE}=2V, I_C=100mA	0.8			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=100mA		170		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		25		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=2A, I_B=100mA		190	500	mV
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=2A, I_B=100mA		0.94	1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=10µA, I_E=0	60			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	50			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		70		ns
Storage Time	tstg	See sepcified Test Circuit		650		ns
Fall Time	t_f	See sepcified Test Circuit		35		ns

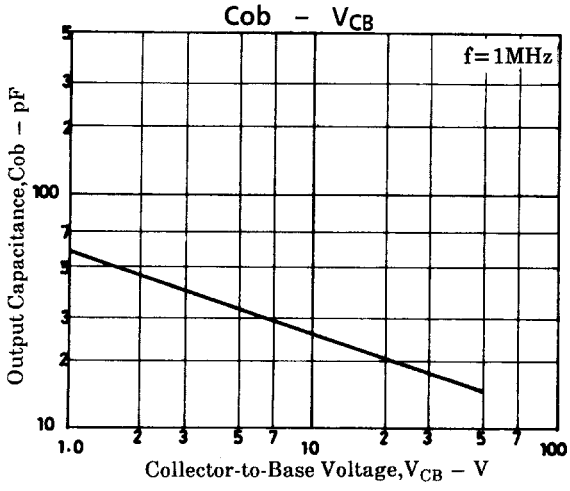

I_C – V_{CE}
90mA
80mA
70mA
60mA
50mA
100mA
40mA
30mA
20mA
10mA
I_B=0
Collector Current,I_C – A
Collector-to-Emitter Voltage,V_{CE} – V

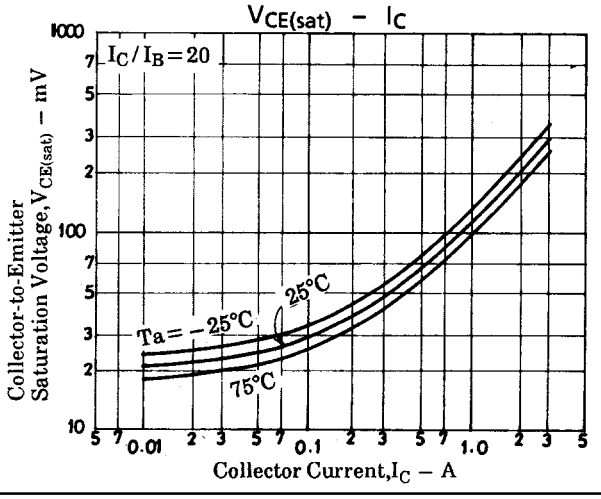

I_C – V_{CE}
10mA
9mA
8mA
7mA
6mA
5mA
4mA
3mA
2mA
1mA
I_B=0
Collector Current,I_C – A
Collector-to-Emitter Voltage,V_{CE} – V

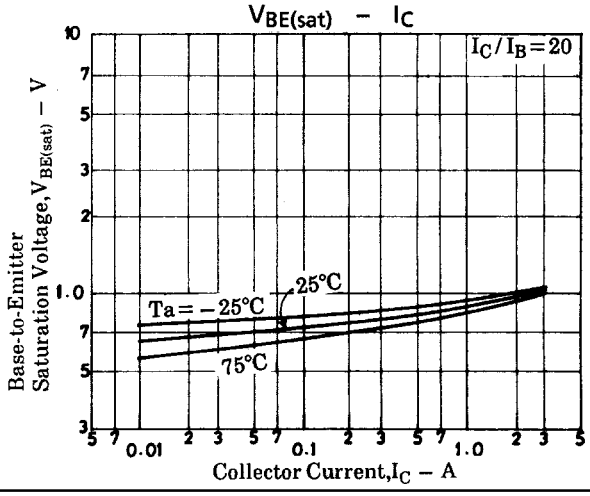

I_C – V_{BE}
V_{CE}=2V
Ta=75°C
25°C
–25°C
Collector Current,I_C – A
Base-to-Emitter Voltage,V_{BE} – V


h_{FE} – I_C
V_{CE}=2V
Ta=75°C
25°C
–25°C
DC Current Gain,h_{FE}
Collector Current,I_C – A


f_T – I_C
V_{CE}=10V
Gain-Bandwidth Product,f_T – MHz
Collector Current,I_C – A


Cob – V_{CB}
f=1MHz
Output Capacitance,Cob – pF
Collector-to-Base Voltage,V_{CB} – V


$V_{CE(sat)}$ – I_C
I_C/I_B=20
Ta=–25°C
25°C
75°C
Collector-to-Emitter Saturation Voltage,$V_{CE(sat)}$ – mV
Collector Current,I_C – A


$V_{BE(sat)}$ – I_C
I_C/I_B=20
Ta=–25°C
25°C
75°C
Base-to-Emitter Saturation Voltage,$V_{BE(sat)}$ – V
Collector Current,I_C – A