Ordering number: EN 3578

SANYO

No.3578

2SA1770/2SC4614

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching Applications

Features

- Adoption of MBIT process
- High breakdown voltage and large current capacity

( ): 2SA1770

Absolute Maximum Ratings at Ta=25°C

			unit
Collector to Base Voltage	V_{CBO}	(−)180	V
Collector to Emitter Voltage	V_{CEO}	(−)160	V
Emitter to Base Voltage	V_{EBO}	(−)6	V
Collector Current	I_C	(−)1.5	A
Collector Current(Pulse)	I_{CP}	(−)2.5	A
Collector Dissipation	P_C	1	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	−55 to +150	°C

Electrical Characteristics at Ta=25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB}=(−)120V, 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=(−)100mA	100*		400*	
	$h_{FE}(2)$	V_{CE}=(−)5V, I_C=(−)10mA	80			
Gain-Bandwidth Product	f_T	V_{CE}=(−)10V, I_C=(−)50mA		120		MHz
Output Capacitance	C_{ob}	V_{CB}=(−)10V, f=1MHz		(22)		pF
				14		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C=(−)500mA, I_B=(−)50mA		(−200)	(−500)	mV
				130	450	mV
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(−)500mA, I_B=(−)50mA		(−)0.85	(−)1.2	V
C-B Breakdown Votage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0	(−)180			V
C-E Breakdown Voltaage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)160			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0	(−)6			V

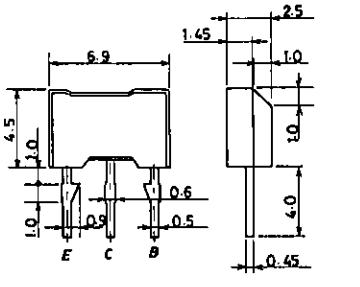
Continued on next page.

* : The 2SA1770/2SC4614 are classified by 100mA h_{FE} as follows :

100 R 200	140 S 280	200 T 400

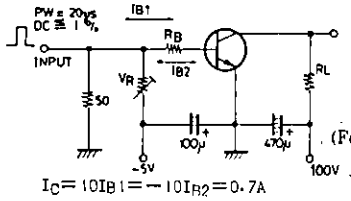
h_{FE} rank : R, S, T

Package Dimensions 2064
(unit: mm)



E: Emitter
C: Collector
B: Base
SANYO: NMP

Switching Time Test Circuit



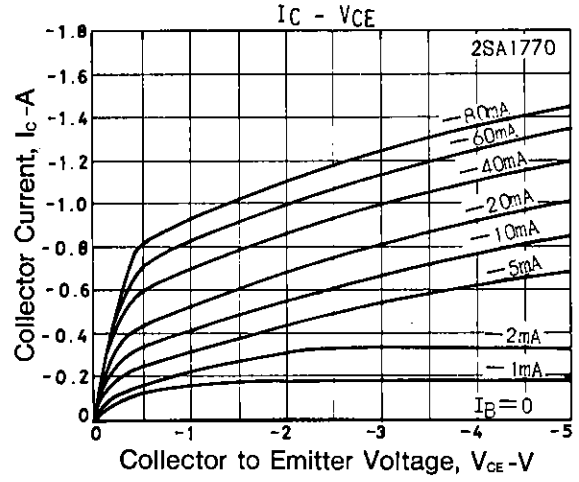
I_C=10I_{B1}=−10I_{B2}=0.7A

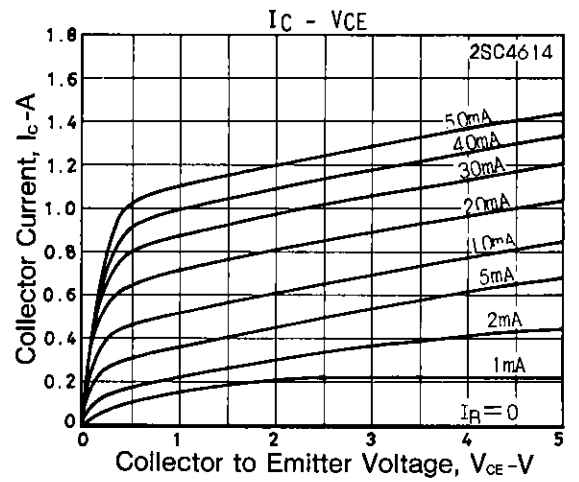
(For PNP, the polarity is reversed.)

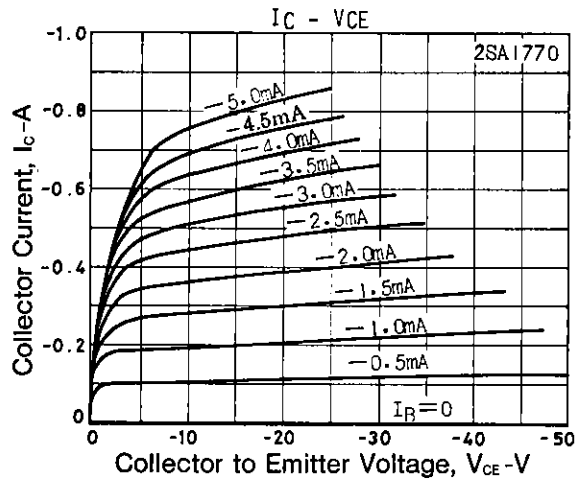
Unit(Resistance : Ω , Capacitance : F)

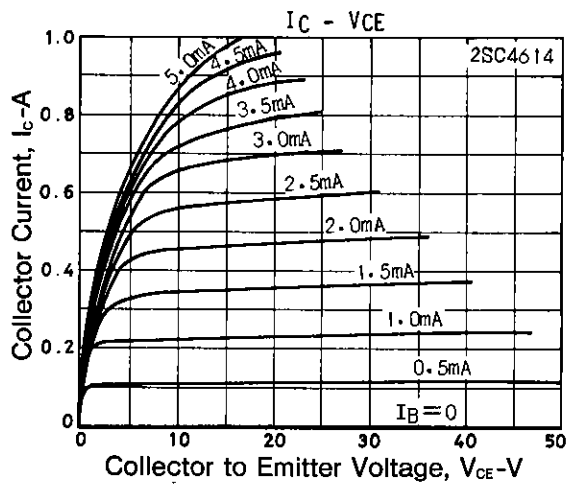
Continued from preceding page.

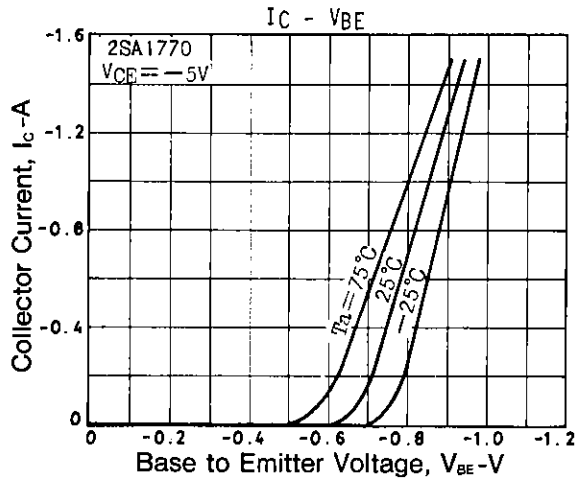
			min	typ	max	unit
Turn-on Time	t_{on}	See specified Test Circuit.		(40)		ns
		〃		40		ns
Storage Time	t_{stg}	〃		(0.7)		μs
		〃		1.2		μs
Fall time	t_f	〃		(40)		ns
		〃		80		ns

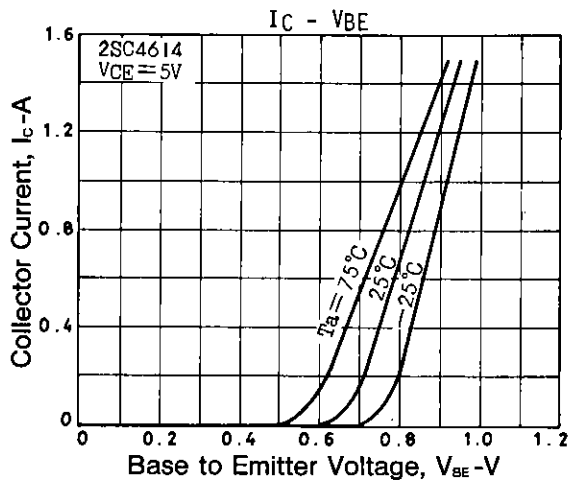


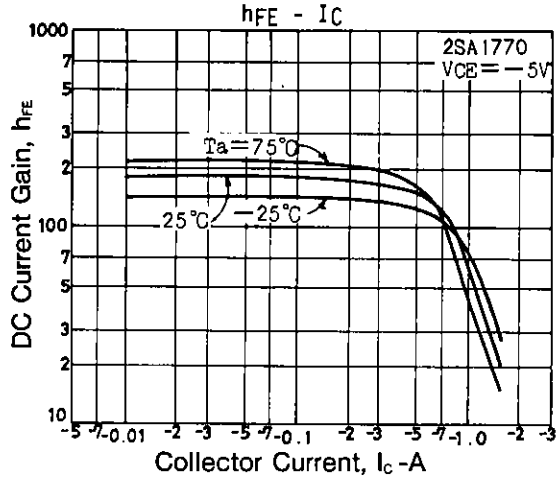


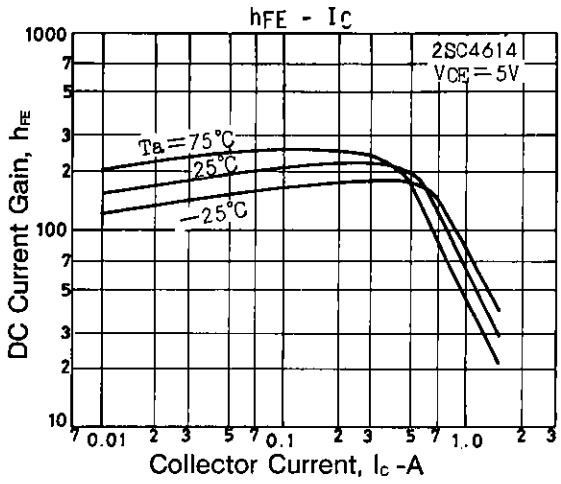


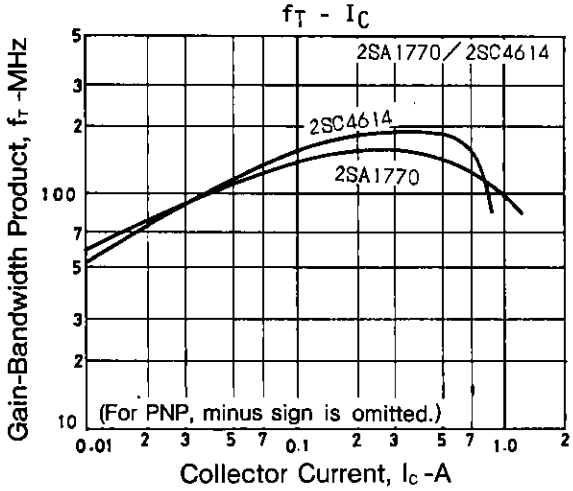


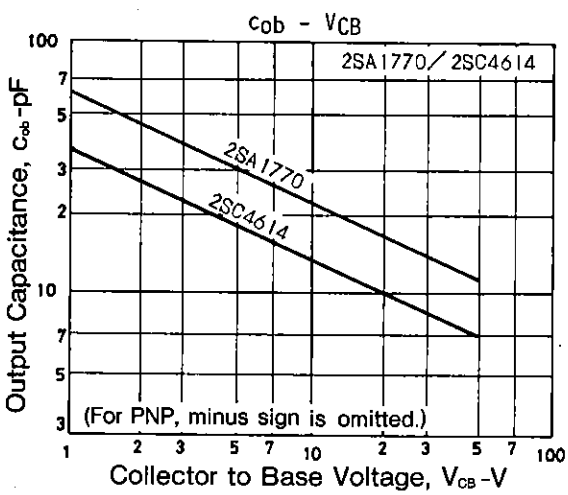


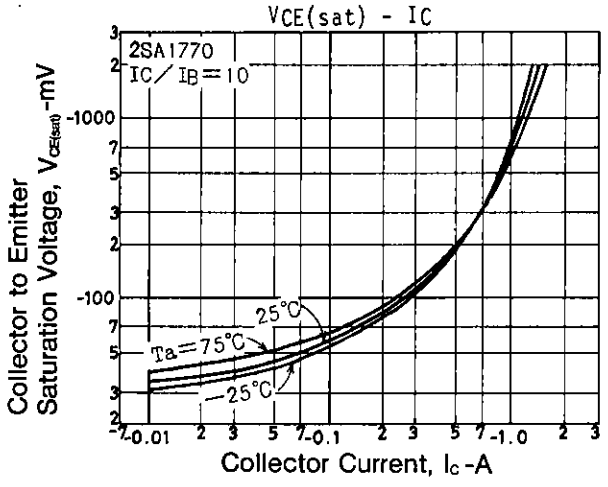


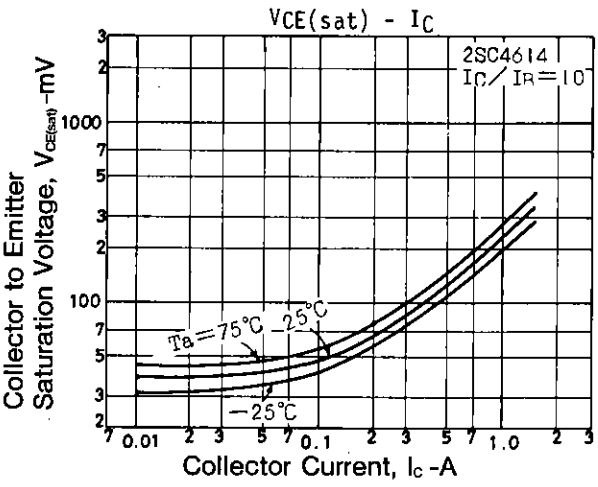

hFE - IC
2SA1770
VCE=−5V
Ta=75°C
25°C
−25°C
DC Current Gain, hFE
Collector Current, IC -A

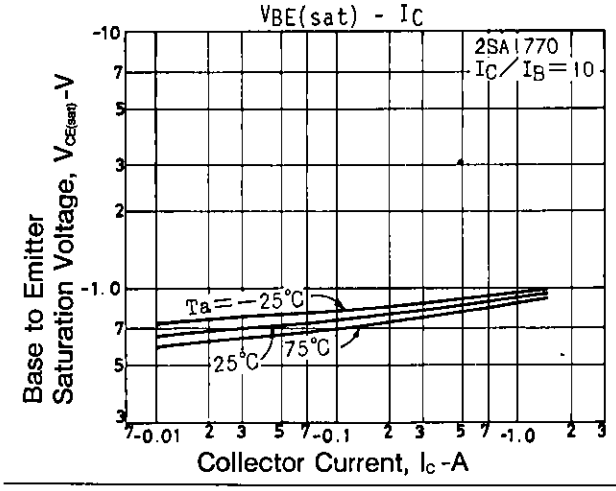

hFE - IC
2SC4614
VCE=5V
Ta=75°C
25°C
−25°C
DC Current Gain, hFE
Collector Current, IC -A

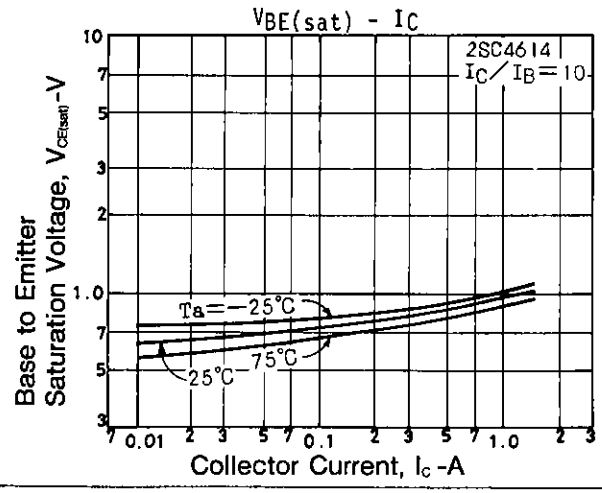

fT - IC
2SA1770/2SC4614
2SC4614
2SA1770
(For PNP, minus sign is omitted.)
Gain-Bandwidth Product, fT -MHz
Collector Current, IC -A


Cob - VCB
2SA1770/2SC4614
2SA1770
2SC4614
(For PNP, minus sign is omitted.)
Output Capacitance, Cob -pF
Collector to Base Voltage, VCB -V


VCE(sat) - IC
2SA1770
IC/IB=10
Ta=75°C
25°C
−25°C
Collector to Emitter Saturation Voltage, VCE(sat) -mV
Collector Current, IC -A


VCE(sat) - IC
2SC4614
IC/IB=10
Ta=75°C
25°C
−25°C
Collector to Emitter Saturation Voltage, VCE(sat) -mV
Collector Current, IC -A


VBE(sat) - IC
2SA1770
IC/IB=10
Ta=−25°C
25°C
75°C
Base to Emitter Saturation Voltage, VCE(sat) -V
Collector Current, IC -A


VBE(sat) - IC
2SC4614
IC/IB=10
Ta=−25°C
25°C
75°C
Base to Emitter Saturation Voltage, VCE(sat) -V
Collector Current, IC -A