Ordering number:EN3024

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1704/2SC4484

High-Current Driver Applications

Applications

· Voltage regulators, relay drivers. lamp drivers.

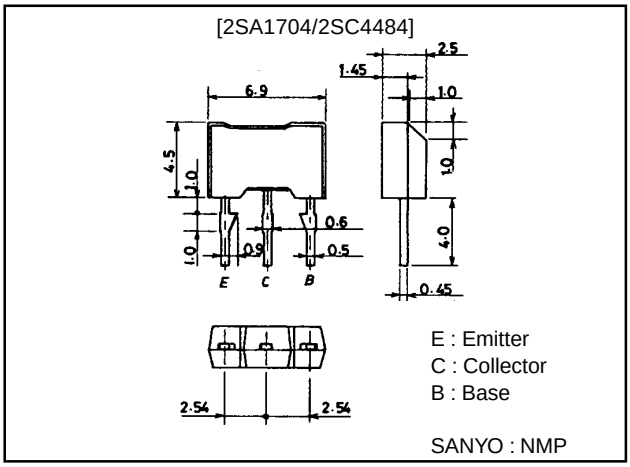
Features

· Adoption of FBET, MBIT processes.
· Low collector-to-emitter voltage.
· Large current capacity and wide ASO.
· Fast switching speed.

Package Dimensions

unit:mm

2064



( ) : 2SA1704

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)30	V
Collector-to-Emitter Voltage	V_{CEO}		(–)25	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)2.5	A
Collector Current (Pulse)	I_{CP}		(–)5	A
Collector Dissipation	P_C		1	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)50V, I_E=0			(–)100	nA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)100	nA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)2V, I_C=(–)100mA	100*		400*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)1A	65			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz

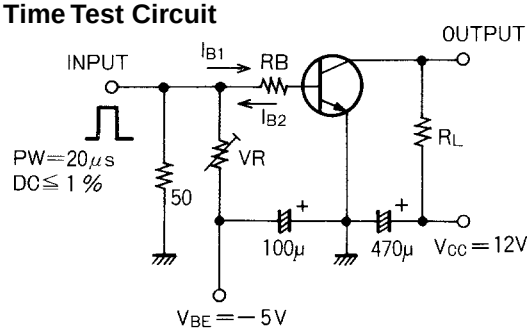
* : The 2SA1704/2SC4484 are classified by 100mA h_{FE} as follows :

100 R 200	140 S 280	200 T 400

SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)1.5A, I_B=(–)75mA		(–0.35)	(–0.6)	V
				0.18	0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)1.5A, I_B=(–)75mA		(–)0.95	(–)1.2	V
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(32)19		pF
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)30			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)25			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)6			V
Turn-ON TIme	t_{on}	See specified Test Circuit		60		ns
Storage Time	t_{stg}	See specified Test Circuit		(350)		ns
				500		ns
Fall Time	t_f	See specified Test Circuit		25		ns

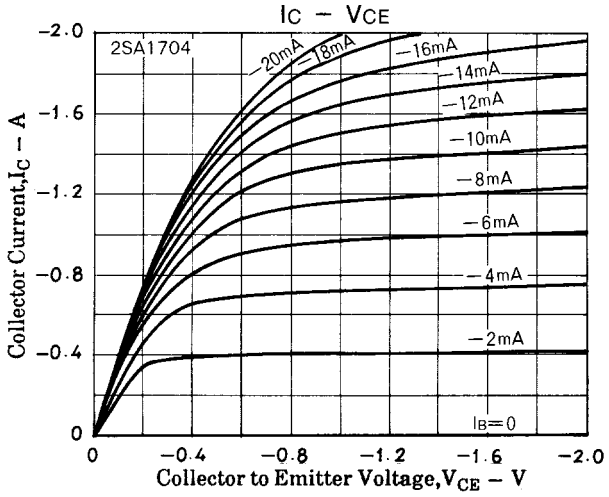
Switching Time Test Circuit

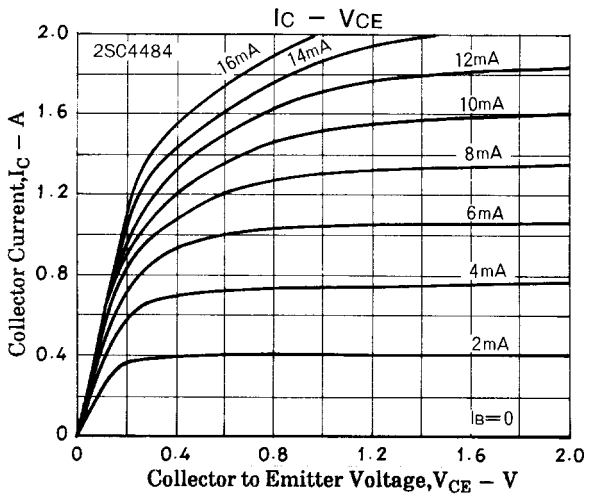


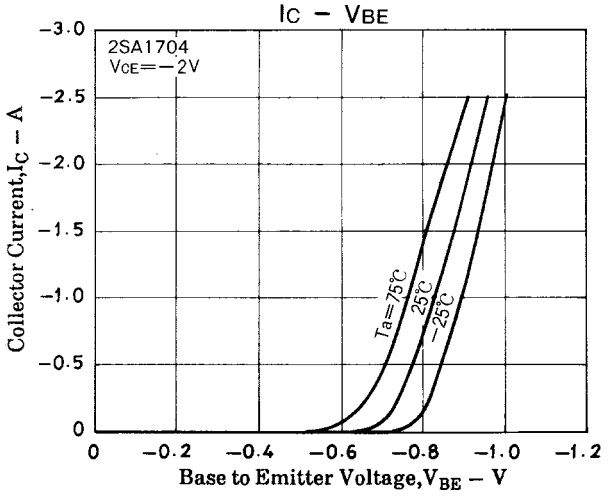
$20I_{B1}=-20I_{B2}=I_C=500mA$

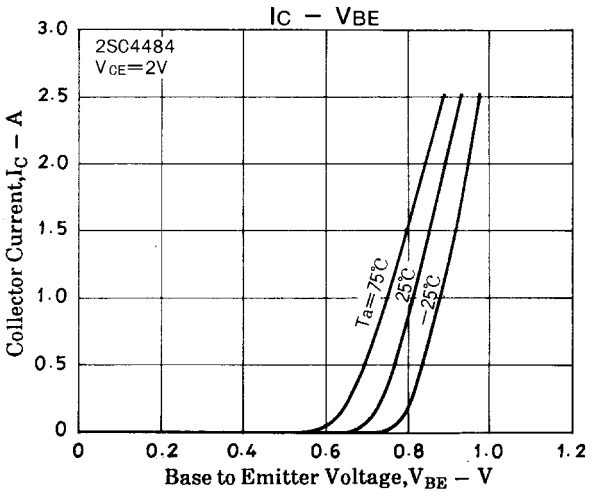
(For PNP, the polarity is reversed.)

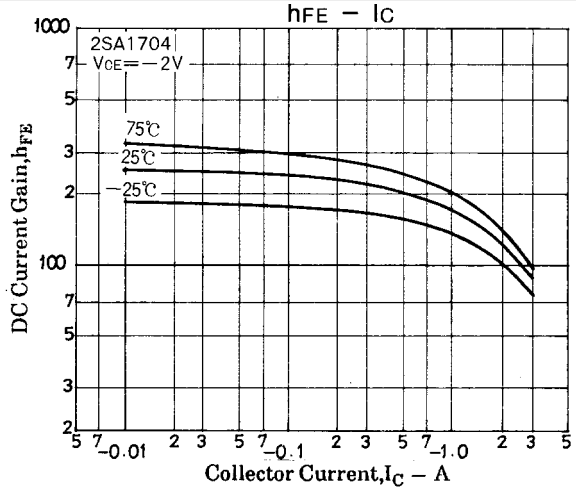
Unit (resistance : Ω, capacitance : F)

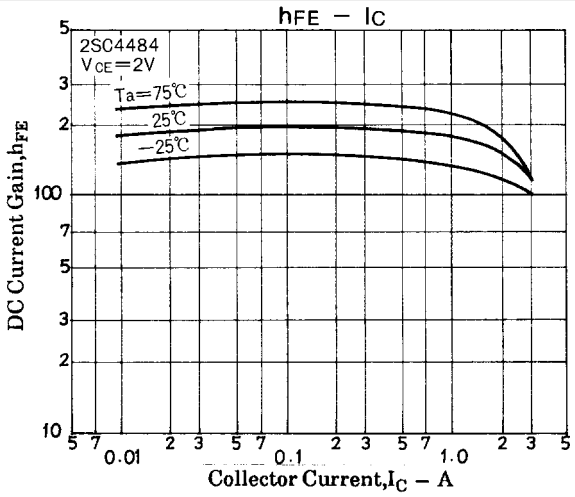


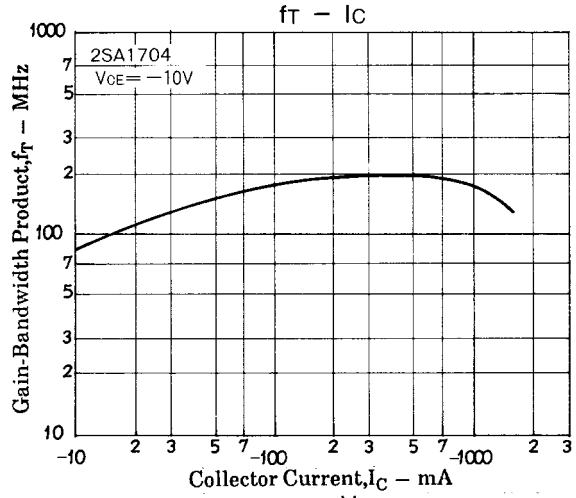


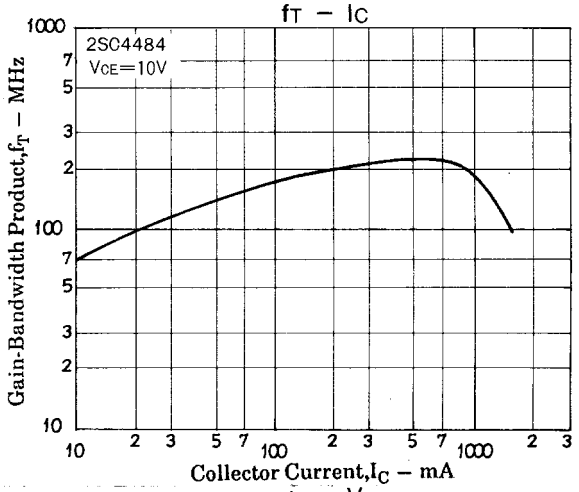


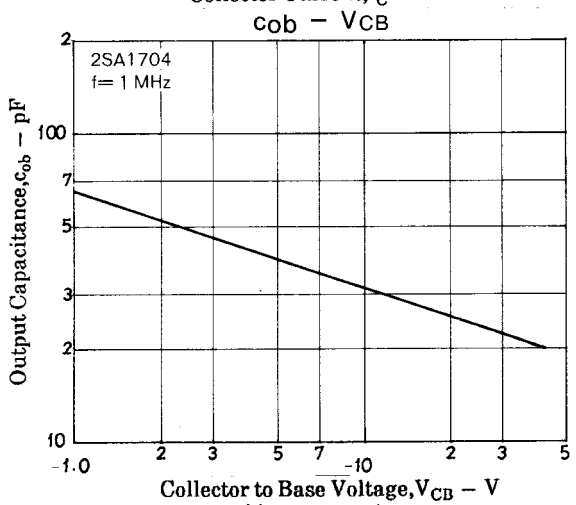


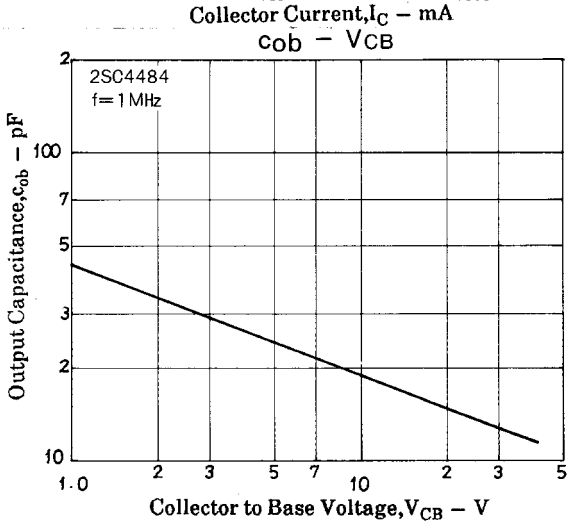

hFE – IC
2SA1704
VCE=–2V
75℃
25℃
–25℃
DC Current Gain,hFE
Collector Current,IC – A

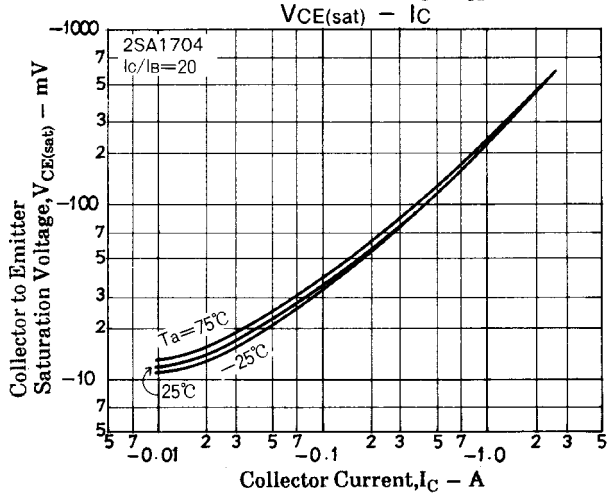

hFE – IC
2SC4484
VCE=2V
Ta=75℃
25℃
–25℃
DC Current Gain,hFE
Collector Current,IC – A

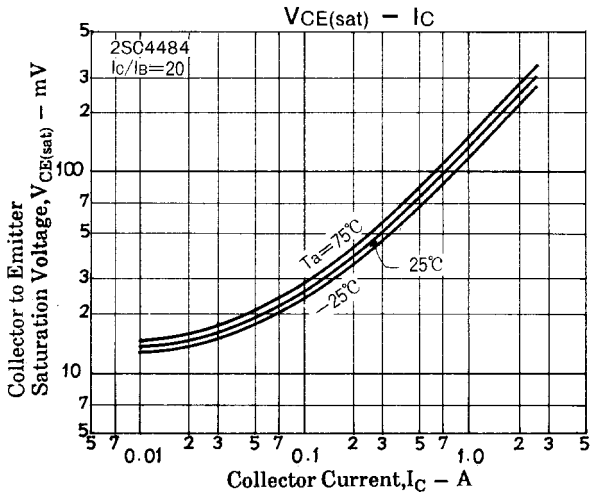

fT – IC
2SA1704
VCE=–10V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA


fT – IC
2SC4484
VCE=10V
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – mA


Cob – VCB
2SA1704
f=1 MHz
Output Capacitance,Cob – pF
Collector to Base Voltage,VCB – V


Cob – VCB
2SC4484
f=1 MHz
Output Capacitance,Cob – pF
Collector to Base Voltage,VCB – V


VCE(sat) – IC
2SA1704
IC/IB=20
Ta=75℃
25℃
–25℃
Collector to Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – A


VCE(sat) – IC
2SC4484
IC/IB=20
Ta=75℃
25℃
–25℃
Collector to Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – A