Ordering number:EN829H

PNP/NPN Epitaxial Planar Silicon Transistors

2SA1481/2SC2960

High-Speed Switching Applications

Features

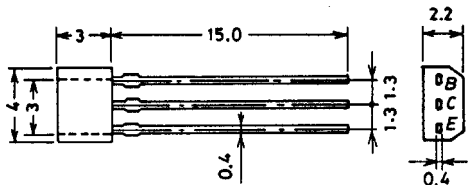
- Fast switching speed.
- High breakdown voltage.

Package Dimensions

unit:mm

2033

[2SA1481/2SC2960]



B : Base
C : Collector
E : Emitter

SANYO : SPA

( ) : 2SA1481

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}		(–)5	V
Collector Current	I_C		(–)150	mA
Peak Collector Current	I_{CP}		(–)400	mA
Collector Dissipation	P_C		250	mW
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristic at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)400V, I_E=0			(–)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)0.1	μA
DC Current Gain	h_{FE}	V_{CE}=(–)6V, I_C=(–)1mA	100*		560*	
Gain-Bandwidth Product	f_T	V_{CE}=(–)6V, I_C=(–)1mA		100		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)6V, f=1MHz		2.7		pF
				(4.0)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)10mA, I_B=(–)1mA		(–)0.1	(–)0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)10mA, I_B=(–)1mA		(–)0.75	(–)1.1	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Votage	$V_{(BR)EBO}$	I_E=(–)10μA, I_C=0	(–)5			V
Delay Time	t_d	See specified Test Circuit		40	60	ns
Rise Time	t_r	See specified Test Circuit		80	130	ns
				(120)	(230)	ns
Storage Time	t_{stg}	See specified Test Circuit		230	450	ns
				(190)	(700)	ns
Fall Time	t_f	See specified Test Circuit		160	250	ns
				(240)	(390)	ns

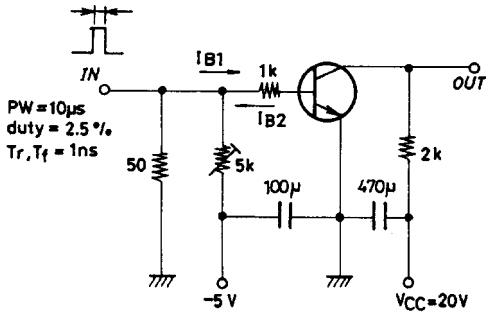
* ; The 2SA1481/2SC2960 are classified by 1mA h_{FE} as follows :

100	E	200	160	F	320	280	G	560

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

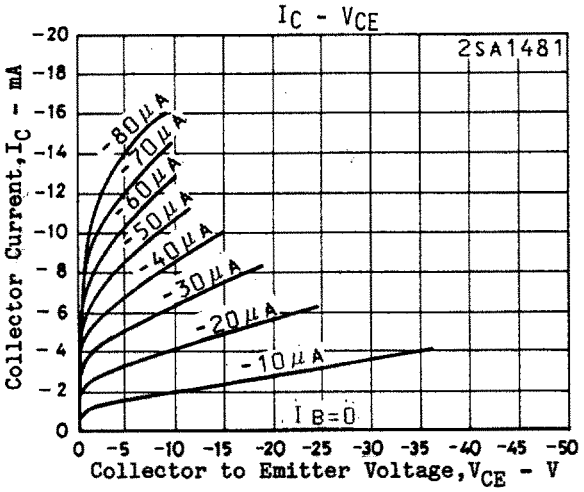
Switching Time Test Circuit

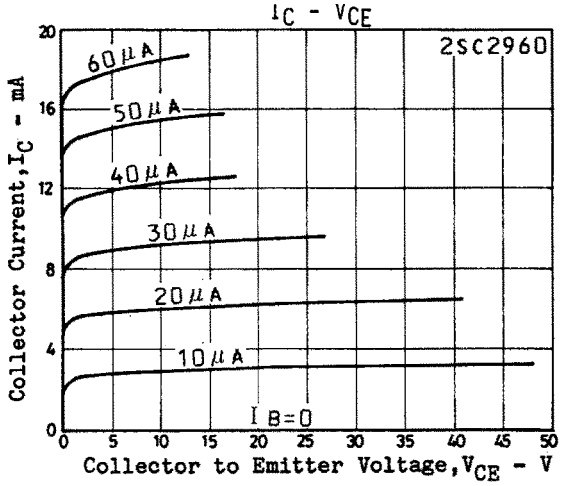
(For PNP, the polarity is reversed.)

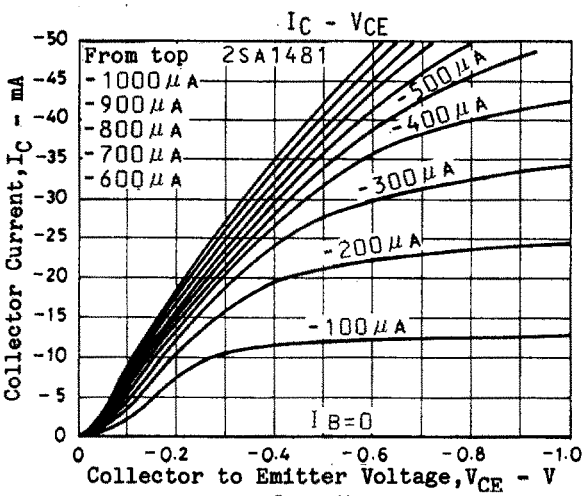


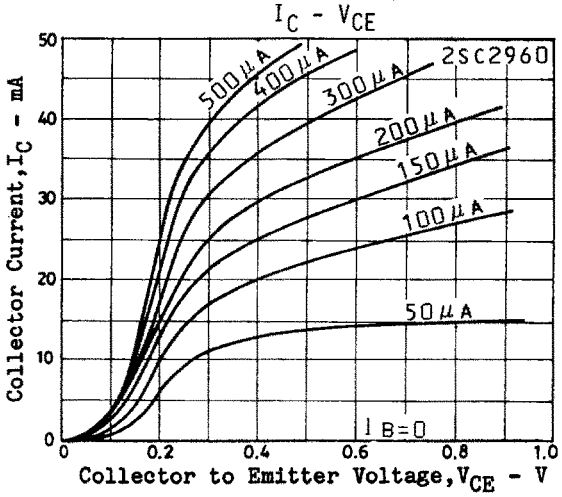
10 I B1=-10 I B2= I C=10mA

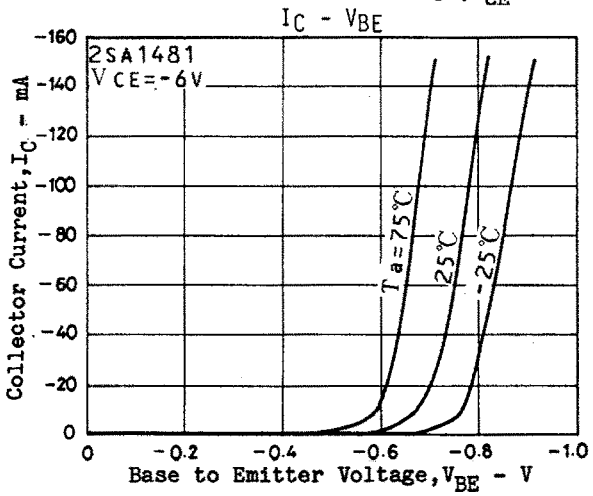
Unit (resistance :Ω, capacitance : F)

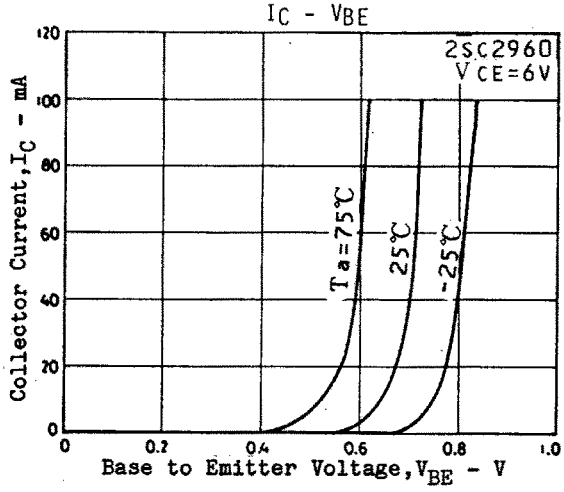


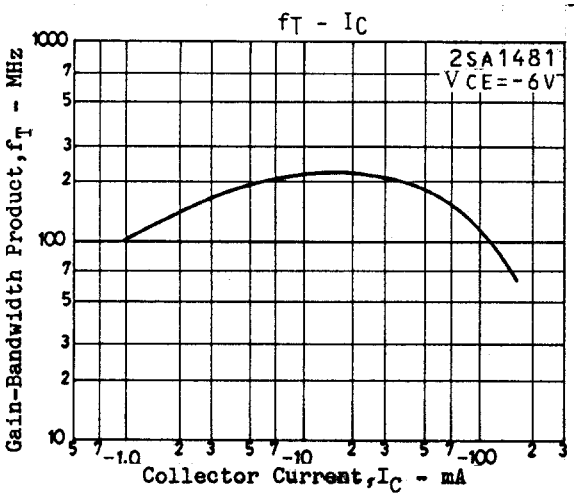


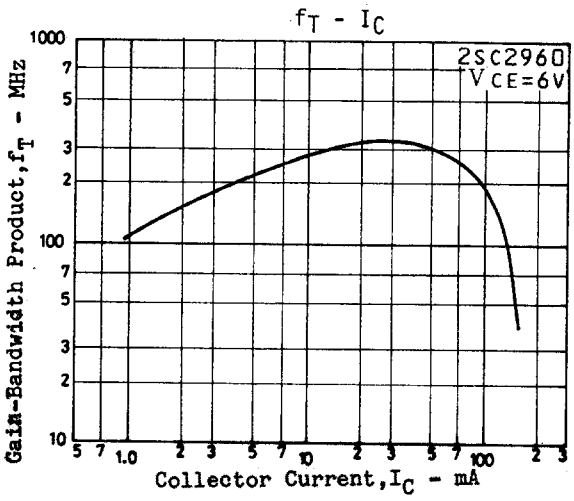


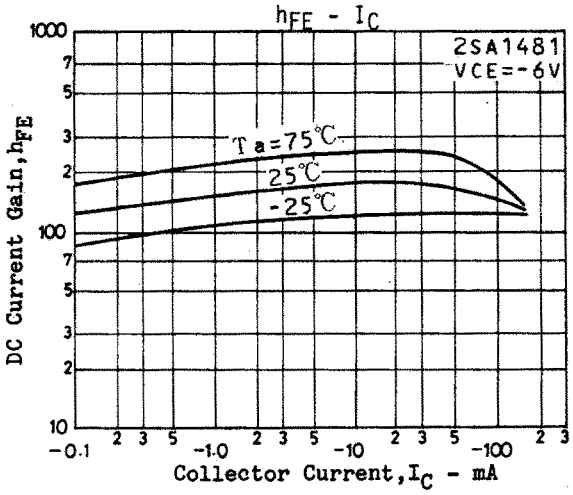


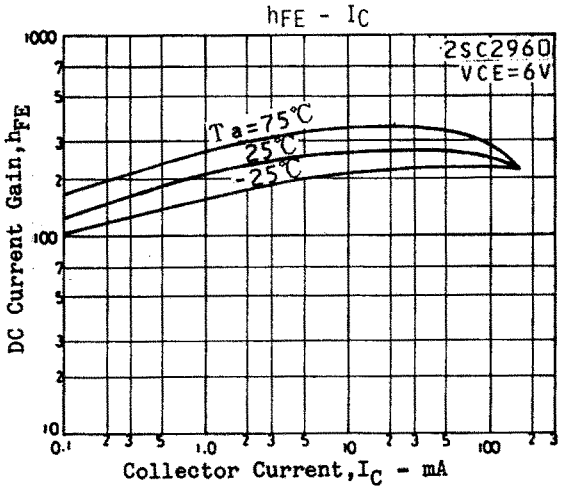


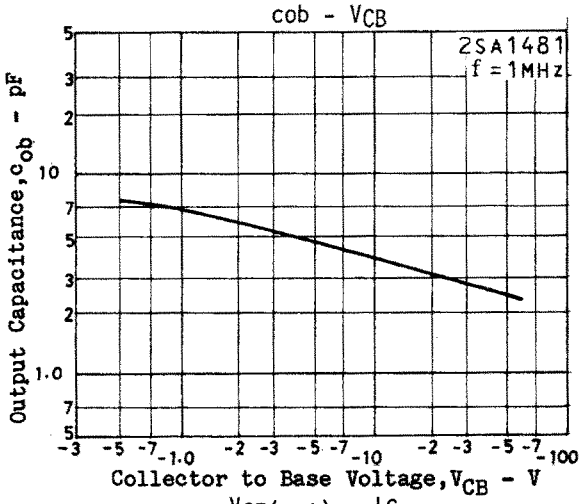


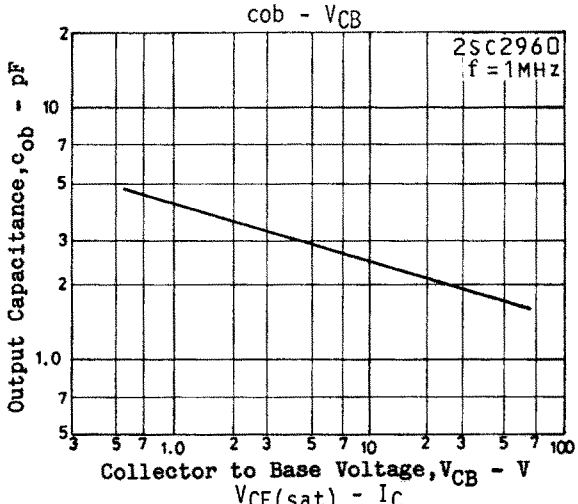

fT - IC
2SA1481
VCE=-6V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA

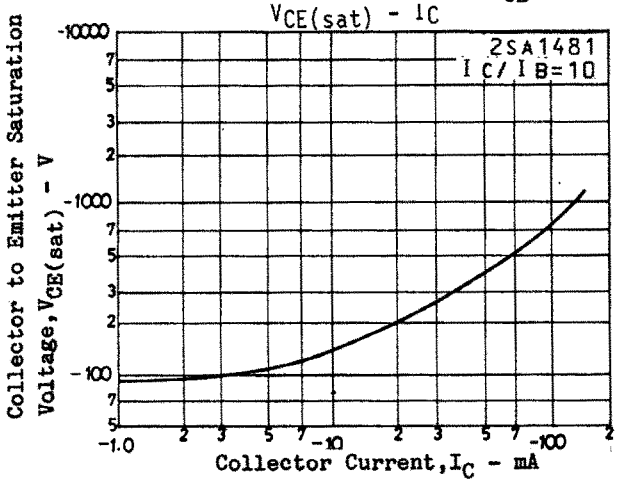

fT - IC
2SC2960
VCE=6V
Gain-Bandwidth Product, fT - MHz
Collector Current, IC - mA

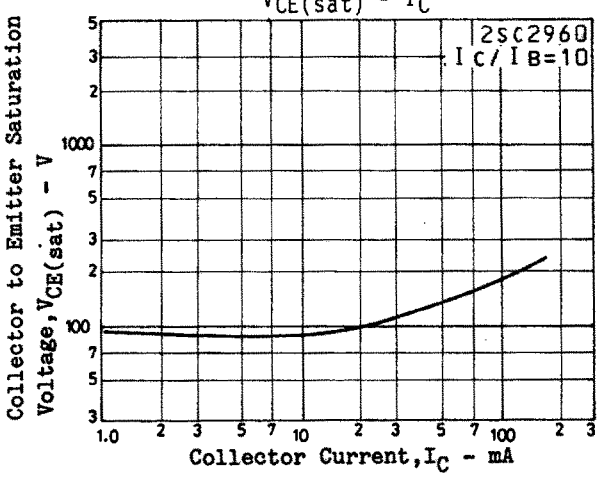

hFE - IC
2SA1481
VCE=-6V
Ta=75°C
25°C
-25°C
DC Current Gain, hFE
Collector Current, IC - mA


hFE - IC
2SC2960
VCE=6V
Ta=75°C
25°C
-25°C
DC Current Gain, hFE
Collector Current, IC - mA


cob - VCB
2SA1481
f=1MHz
Output Capacitance, Cob - pF
Collector to Base Voltage, VCB - V


cob - VCB
2SC2960
f=1MHz
Output Capacitance, Cob - pF
Collector to Base Voltage, VCB - V


VCE(sat) - IC
2SA1481
IC/IB=10
Collector to Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - mA


VCE(sat) - IC
2SC2960
IC/IB=10
Collector to Emitter Saturation Voltage, VCE(sat) - V
Collector Current, IC - mA