Ordering number:ENN3025

PNP/~~NPN~~ Epitaxial Planar Silicon Transistors

2SA1705/~~2SC4485~~

Low-Frequency Power Amplifier Applications

An ON Semiconductor Company

Applications

· Voltage regulators, relay drivers, lamp drivers.

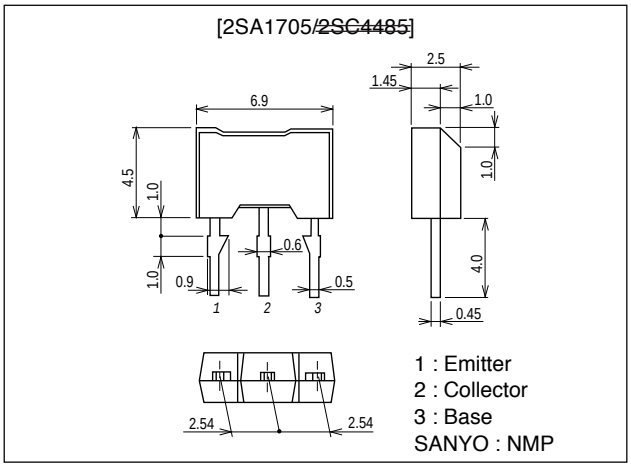
Features

· Adoption of FBET process.
· Fast switching speed.

Package Dimensions

unit:mm

2064A



( ) : 2SA1705

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		(–)1	A
Collector Current (Pulse)	I_{CP}		(–)2	A
Collector Dissipation	P_C		0.9	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	30			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz

Continued on next page.

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■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges,or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

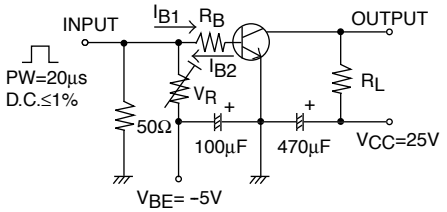
Continued from preceding page.

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)500mA, I_B=(–)50mA		(–180)	(–500)	mV
				~~120~~	~~300~~	~~mV~~
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)500mA, I_B=(–)50mA		(–)0.9	(–)1.2	V
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(12)~~8.5~~		pF
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
Turn-ON TIme	t_{ON}	See specified Test Circuit		40		V
Storage Time	t_{stg}	See specified Test Circuit		(300)		ns
				~~350~~		~~ns~~
Fall Time	t_f	See specified Test Circuit		30		ns

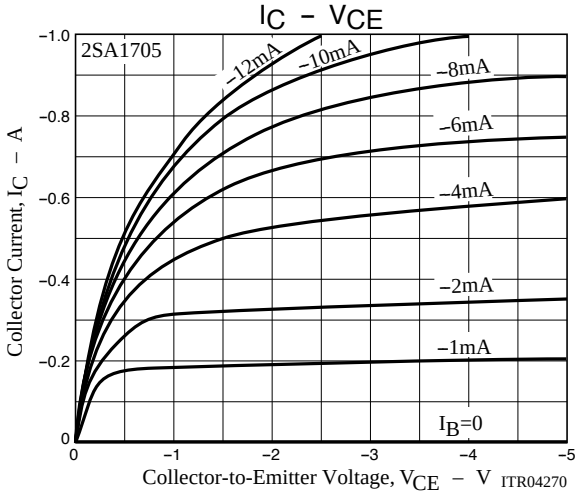
* : The 2SA1705/~~2SC4485~~ are classified by 100mA h_{FE} as follows :

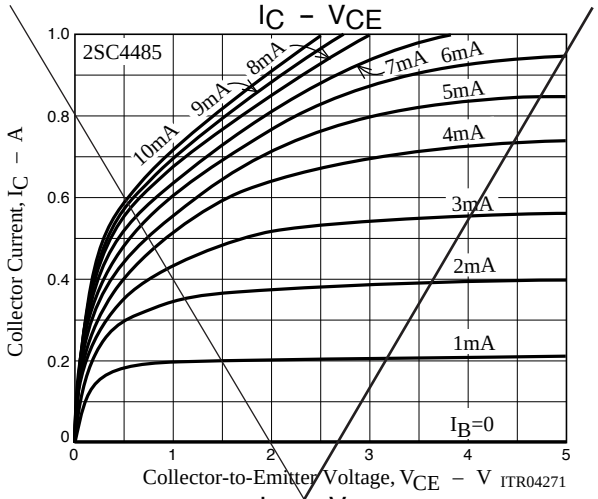
Rank	R	S	T
h_{FE}	100 to 200	140 to 280	200 to 400

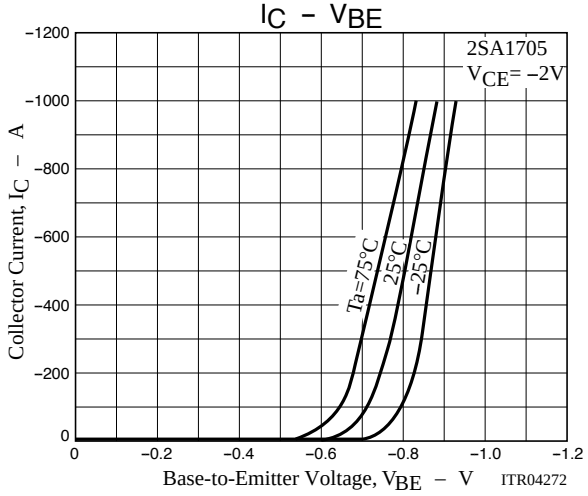
Switching Time Test Circuit

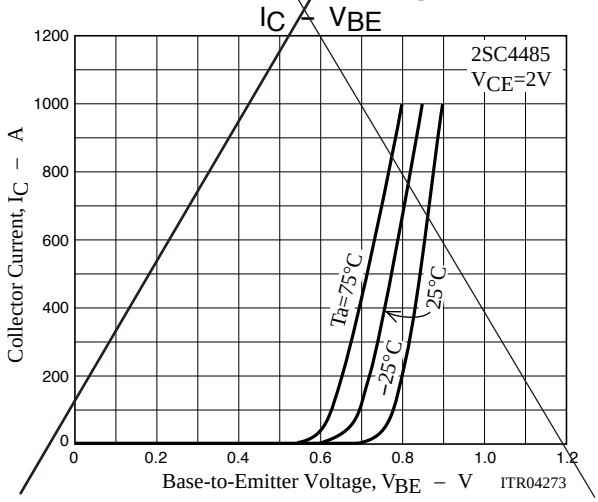


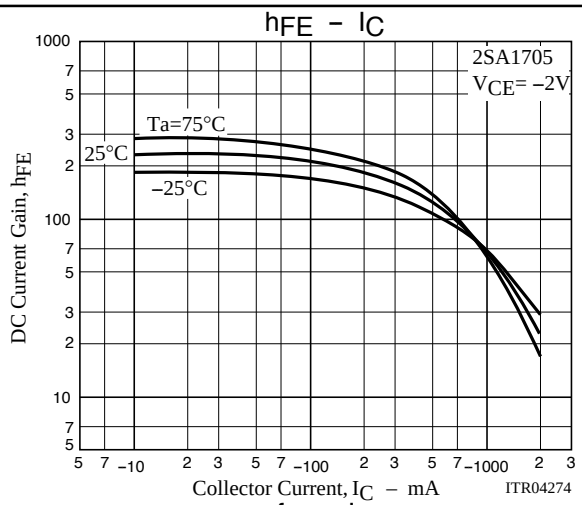
$10I_{B1}$= $-10I_{B2}$= I_C=500mA
(For PNP, the polarity is reversed.)

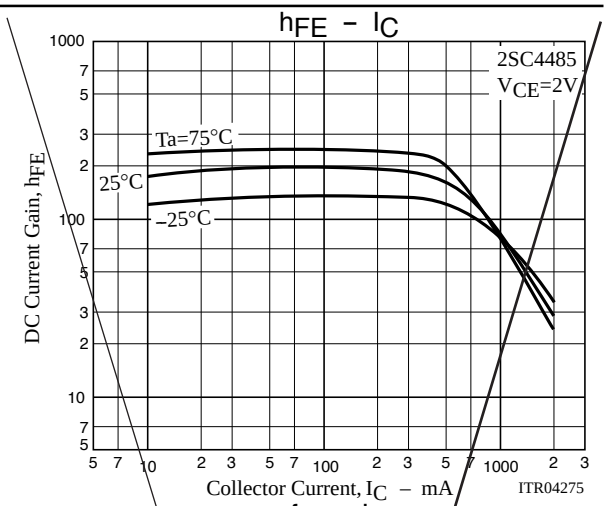


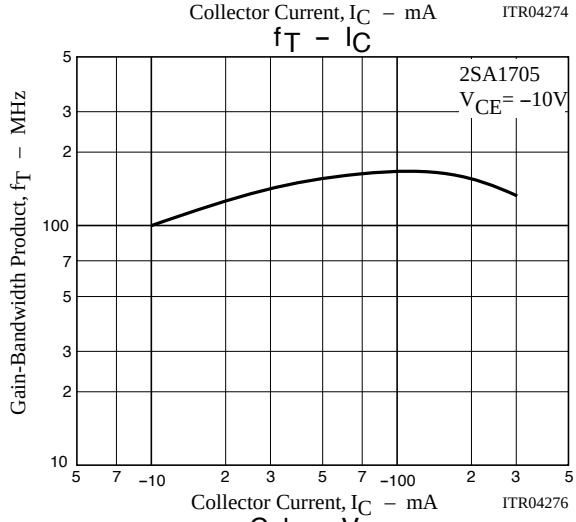


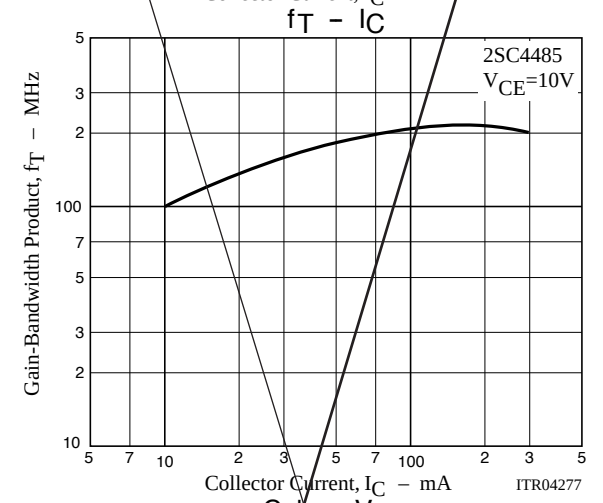


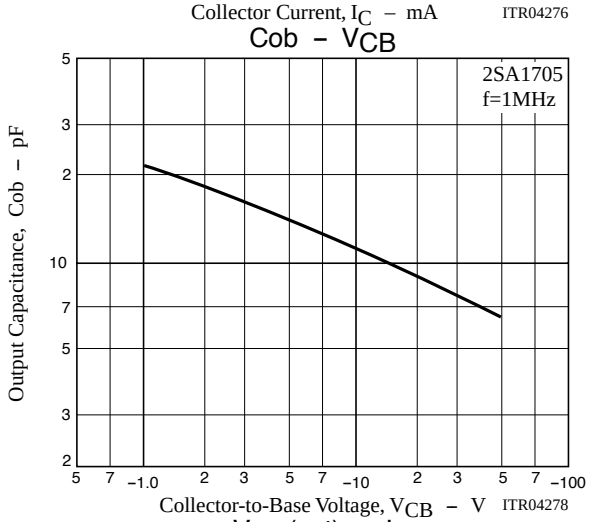


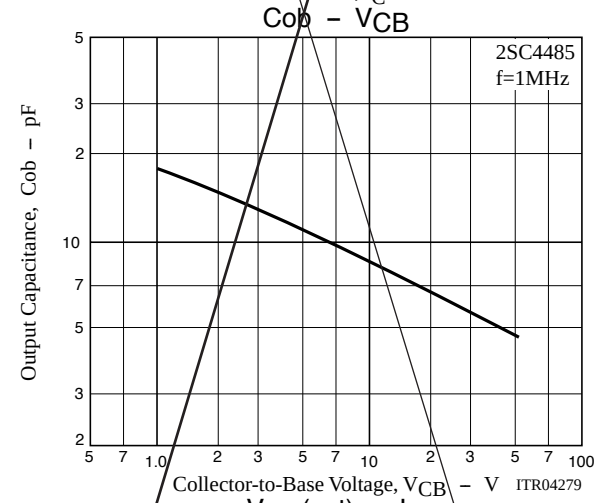

hFE – IC
2SA1705
VCE= –2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR04274

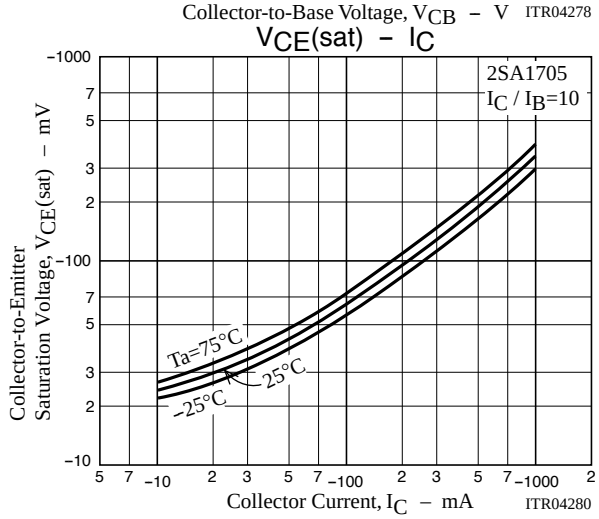

hFE – IC
2SC4485
VCE=2V
Ta=75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA
ITR04275

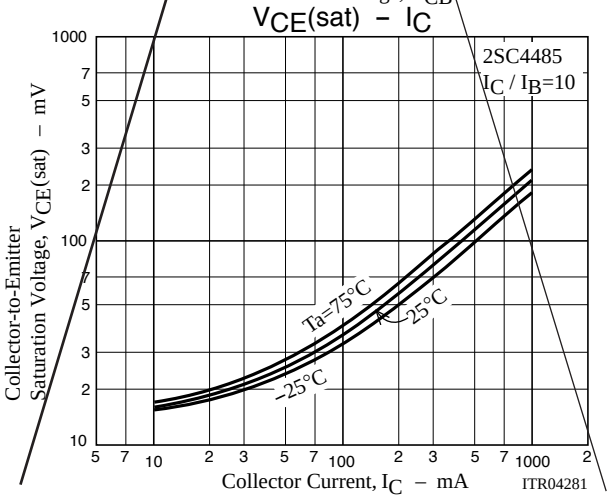

fT – IC
2SA1705
VCE= –10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR04276

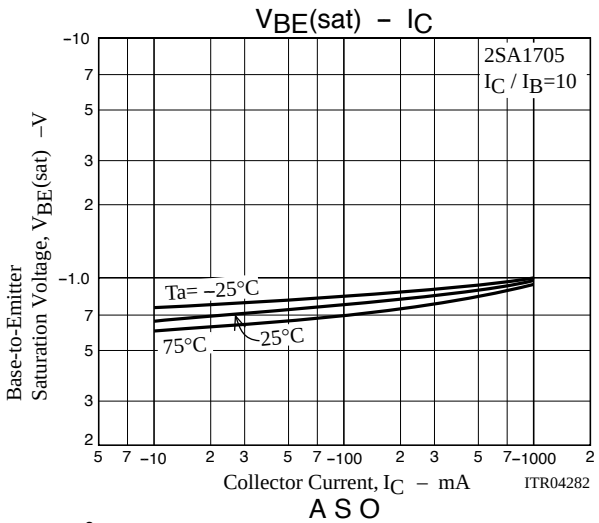

fT – IC
2SC4485
VCE=10V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR04277

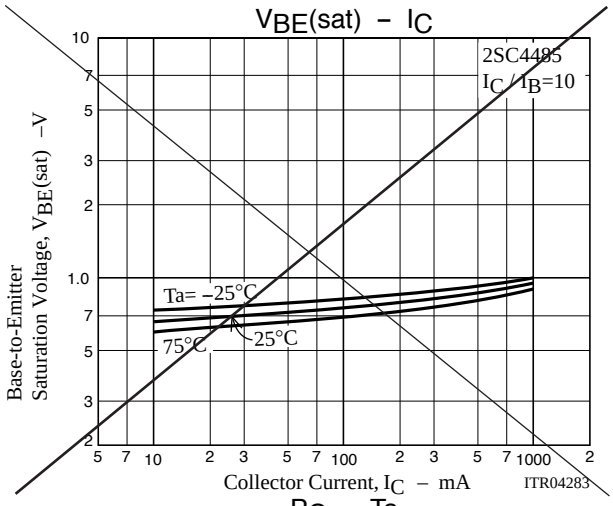

Cob – VCB
2SA1705
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR04278

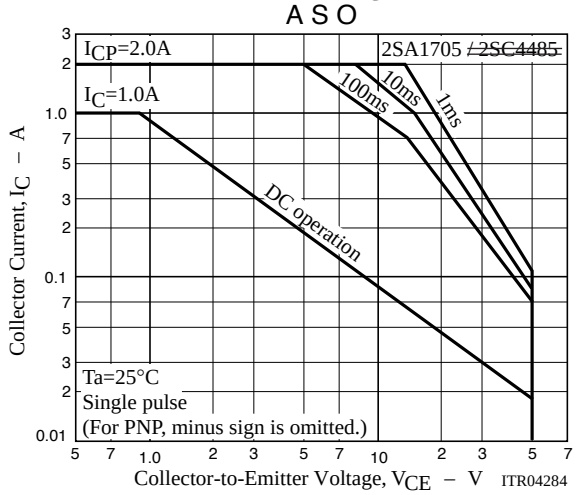

Cob – VCB
2SC4485
f=1MHz
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR04279

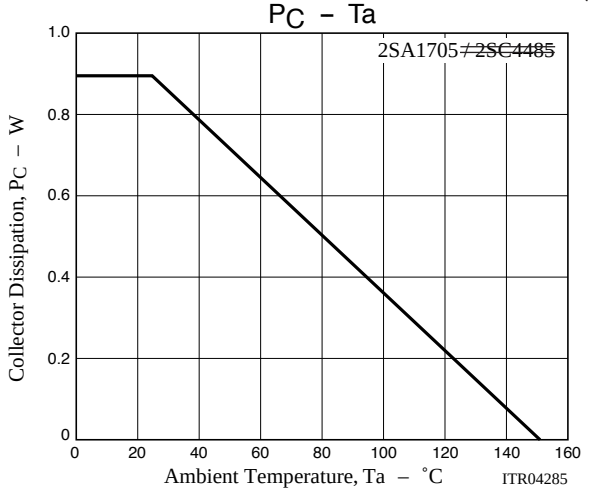

VCE(sat) – IC
2SA1705
IC / IB=10
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
ITR04280


VCE(sat) – IC
2SC4485
IC / IB=10
Ta=75°C
25°C
–25°C
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
Collector Current, IC – mA
ITR04281









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