

SANYO	No.1766C	2SA1407/2SC3601
		PNP/NPN Epitaxial Planar Silicon Transistors Ultrahigh-Definition CRT Display Video Output Applications

Applications

- Ultrahigh-definition CRT display.
- Video output.
- Color TV chroma output.
- Wide-band amp.

Features

- High f_T : f_T typ = 400MHz.
- High breakdown voltage: $V_{CE0} \geq 200V$.
- Small reverse transfer capacitance and excellent high-frequency characteristic: $C_{re} = 2.0pF$ (NPN), $2.5pF$ (PNP).
- Complementary PNP and NPN types.
- Adoption of FBET process.

() : 2SA1407

Absolute Maximum Ratings at $T_a = 25^\circ C$

				unit
Collector-to-Base Voltage	V_{CB0}	(-)	200	V
Collector-to-Emitter Voltage	V_{CE0}	(-)	200	V
Emitter-to-Base Voltage	V_{EB0}	(-)	4	V
Collector Current	I_C	(-)	150	mA
Collector Current (Pulse)	I_{CP}	(-)	300	mA
Collector Dissipation	P_C		1.2	W
		$T_c = 25^\circ C$	7	W
Junction Temperature	T_j		150	$^\circ C$
Storage Temperature	T_{stg}		-55 to +150	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

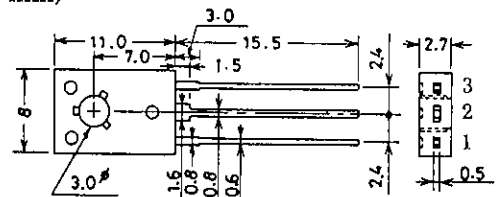
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)150V, I_E = 0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)2V, I_C = 0$			(-)1.0	μA
DC Current Gain	$h_{FE}(1)$	$V_{CE} = (-)10V, I_C = (-)10mA$	40※		320※	
	$h_{FE}(2)$	$V_{CE} = (-)10V, I_C = (-)100mA$	20			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)30V, I_C = (-)50mA$		400		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)50mA, I_B = (-)5mA$			0.6	V
					(-0.8)	

Continued on next page.

※ : The 2SA1407/2SC3601 are classified by 10mA h_{FE} as follows.

40	C	80	60	D	120
100	E	200	160	F	320

Package Dimensions 2009B
(unit : mm)



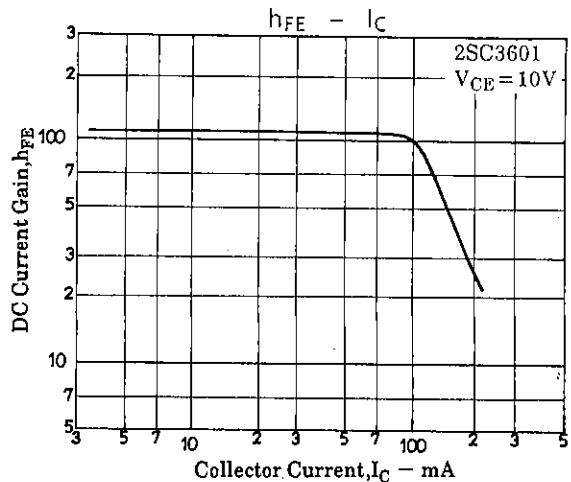
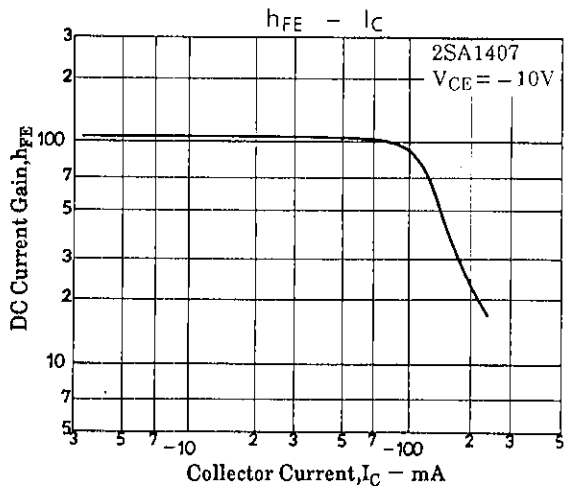
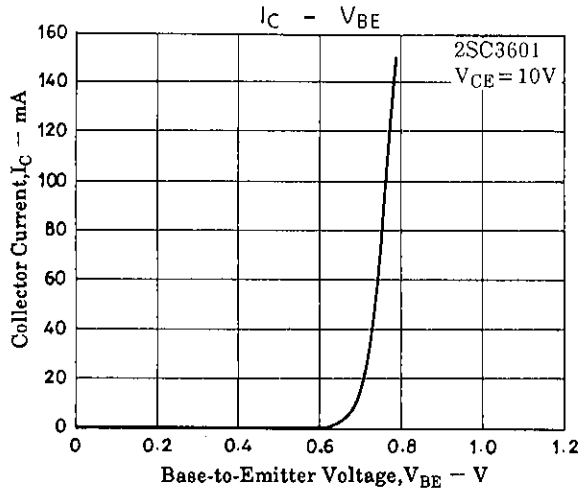
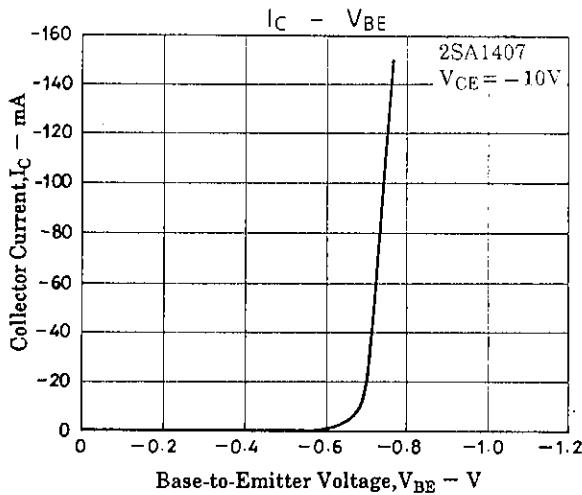
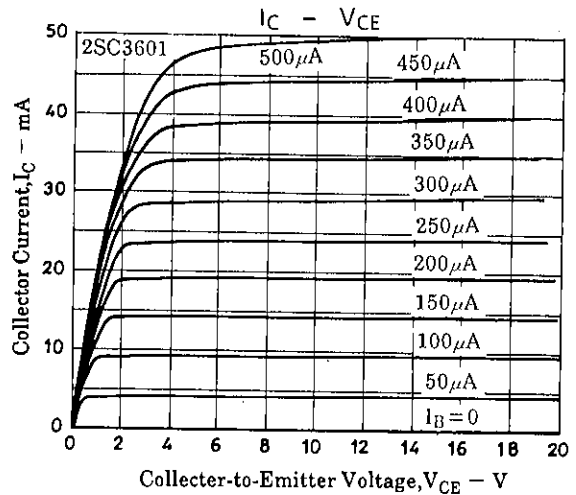
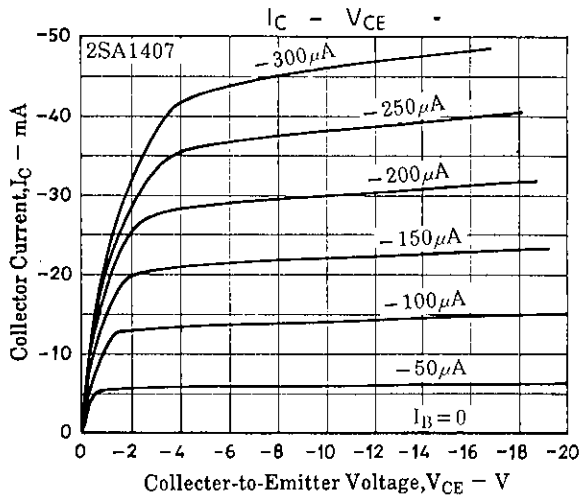
JEDEC: TO-126

- 1: Emitter
- 2: Collector
- 3: Base

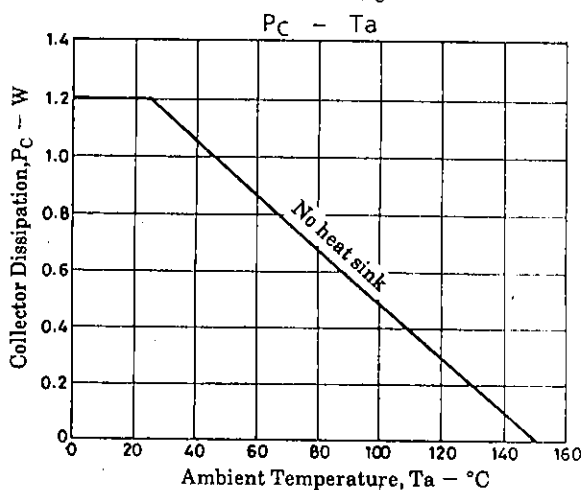
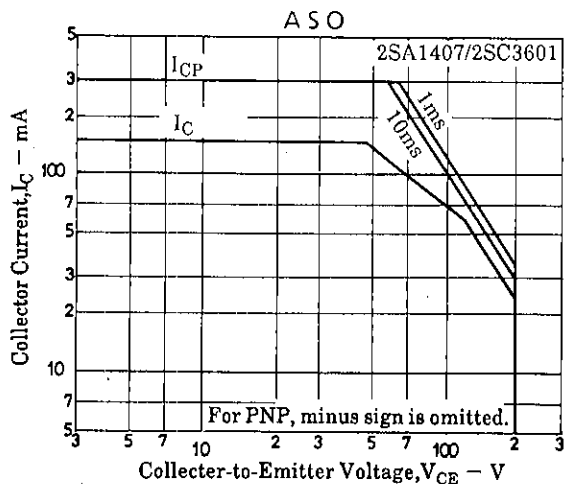
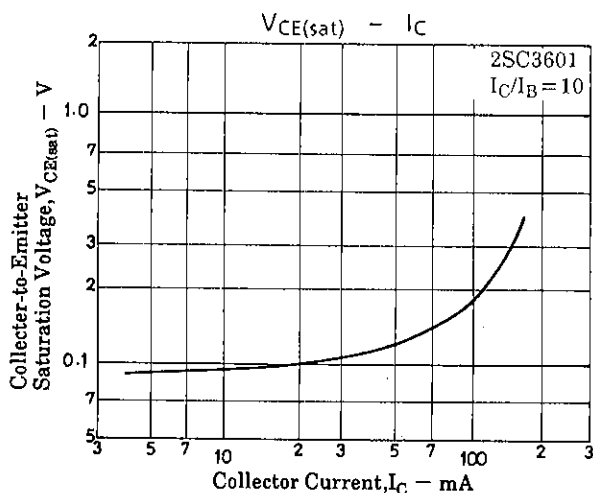
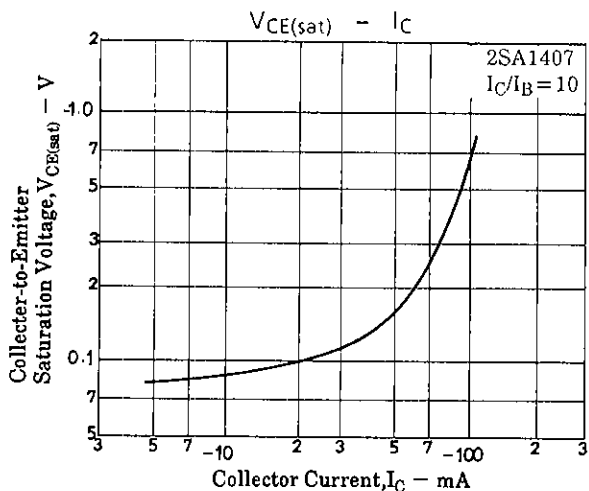
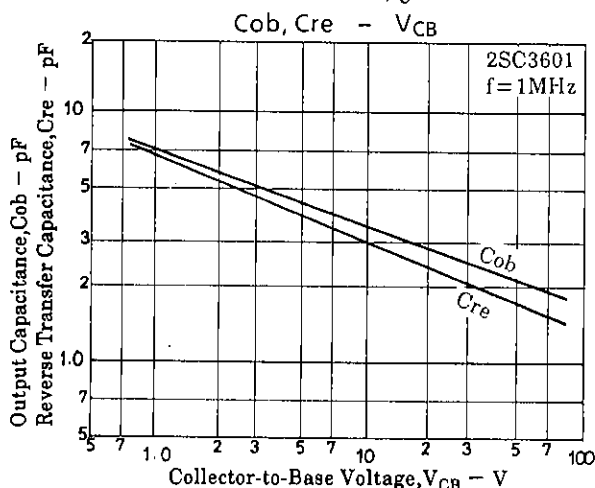
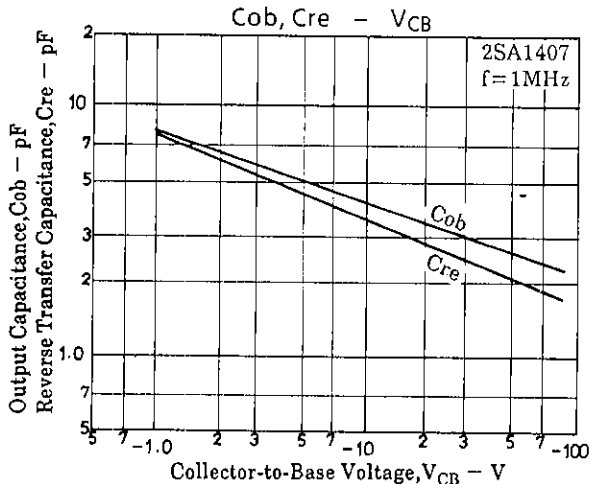
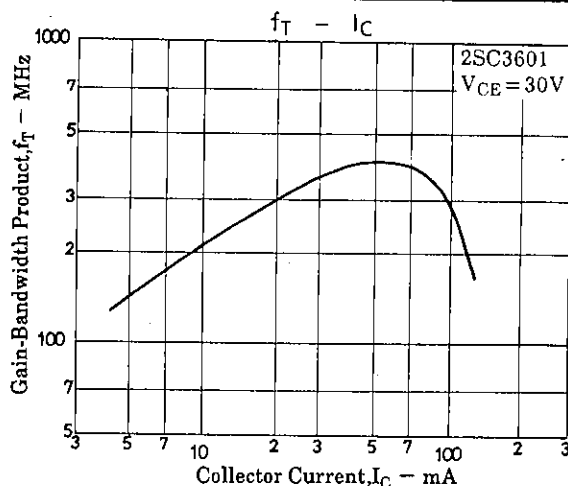
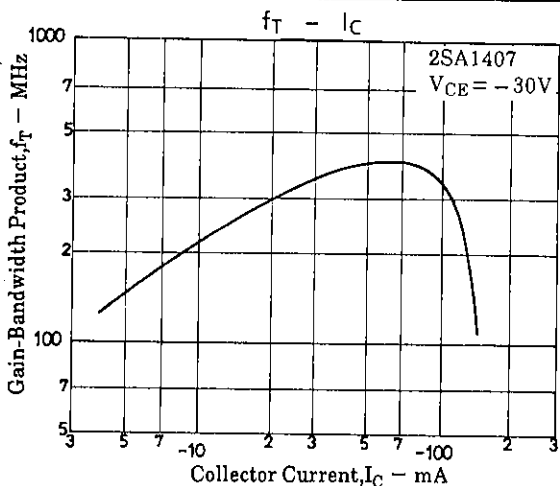
2SA1407/2SC3601

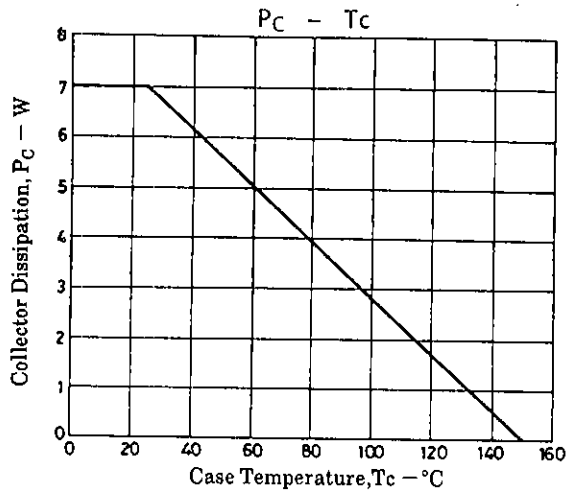
Continued from preceding page.

			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)50\text{mA}, I_B = (-)5\text{mA}$			(-) 1.0	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	(-) 200			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-) 200			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)100\mu\text{A}, I_C = 0$	(-) 4			V
Output Capacitance	C_{ob}	$V_{CB} = (-)30\text{V}, f = 1\text{MHz}$		2.5		pF
				(3.0)		pF
Reverse Transfer Capacitance	C_{re}	$V_{CB} = (-)30\text{V}, f = 1\text{MHz}$		2.0		pF
				(2.5)		pF



2SA1407/2SC3601





- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.

This catalog provides information as of September, 1995. Specifications and information herein are subject to change without notice.

SANYO	No.1973A	2SA1469/2SC3746
		PNP/NPN Epitaxial Planar Silicon Transistors 60V/5A High-Speed Switching Applications

Applications

- Various inductance lamp drivers for electrical equipment.
- Inverters, converters (strobo, flash, fluorescent lamp lighting circuit).
- Power amp (high power car stereo, motor controller).
- High-speed switching (switching regulator, driver).

Features

- Low saturation voltage.
- Excellent current dependence of h_{FE} .
- Short switching time.
- Micaless package facilitating mounting.

() : 2SA1469

Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Collector-to-Base Voltage	V_{CB0}	(-)80	V
Collector-to-Emitter Voltage	V_{CEO}	(-)60	V
Emitter-to-Base Voltage	V_{EBO}	(-)5	V
Collector Current	I_C	(-)5	A
Collector Current (Pulse)	I_{CP}	(-)7	A
Collector Dissipation	P_C	2	W
		20	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

$T_c = 25^\circ\text{C}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)0.1	mA
DC Current Gain	h_{FE}	$V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$	70*		280*	
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$		100		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)2.5\text{A}, I_B = (-)0.125\text{A}$			(-)0.4	V

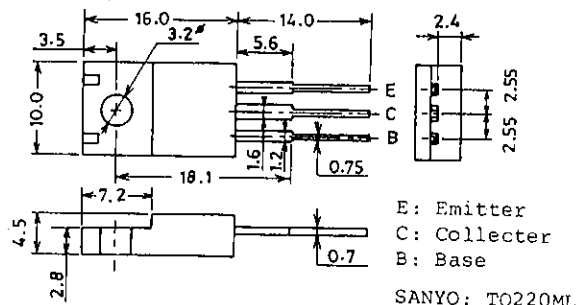
Continued on next page.

* : The 2SA1469/2SC3746 are classified by 1A h_{FE} as follows

70	Q	140	100	R	200	140	S	280
----	---	-----	-----	---	-----	-----	---	-----

Package Dimensions 2041

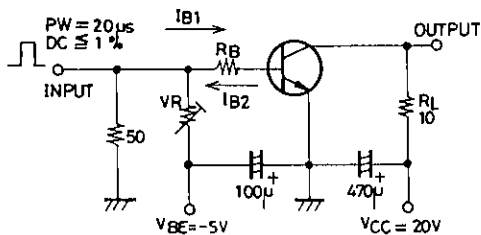
(unit: mm)



Continued from preceding page.

			min	typ	max	unit
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)1mA, I_E = 0$	(-)80			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)60			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)1mA, I_C = 0$	(-)5			V
Turn-on Time	t_{on}	See specified Test Circuit.		0.1		μs
Storage Time	t_{stg}	//		0.5		μs
Fall Time	t_f	//		0.1		μs

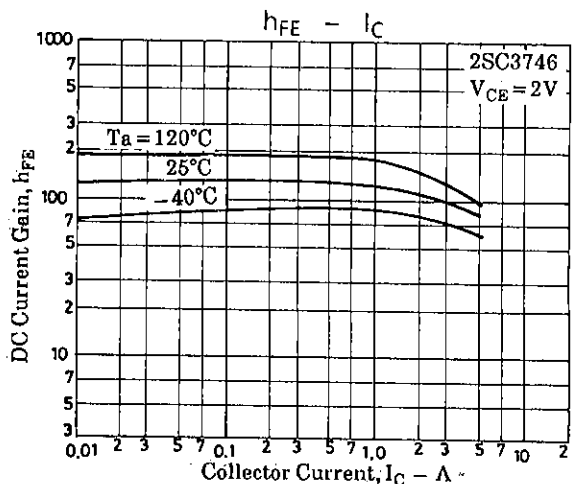
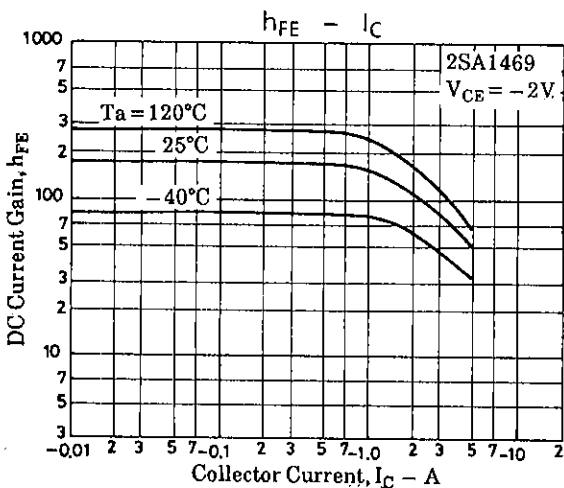
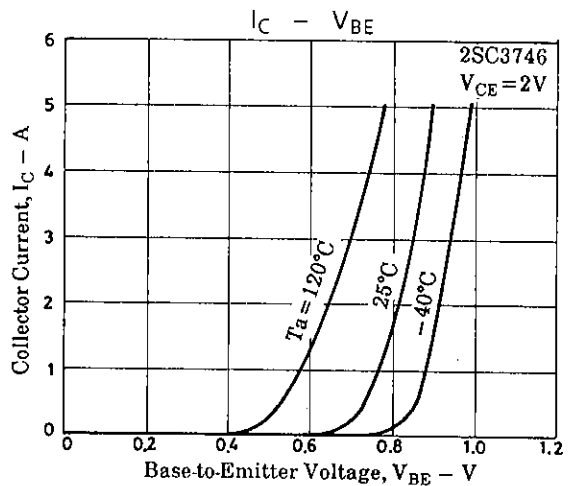
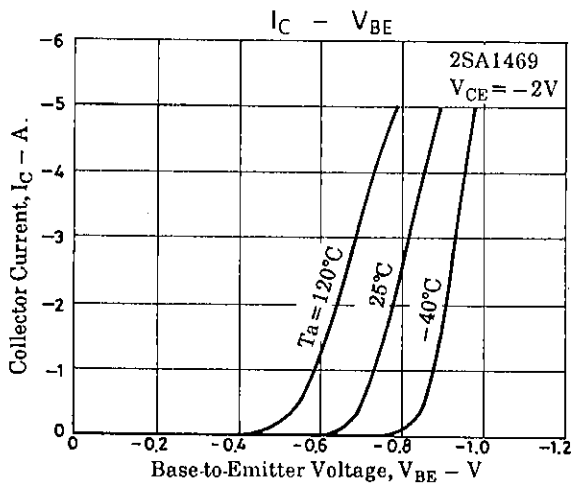
Switching Time Test Circuit



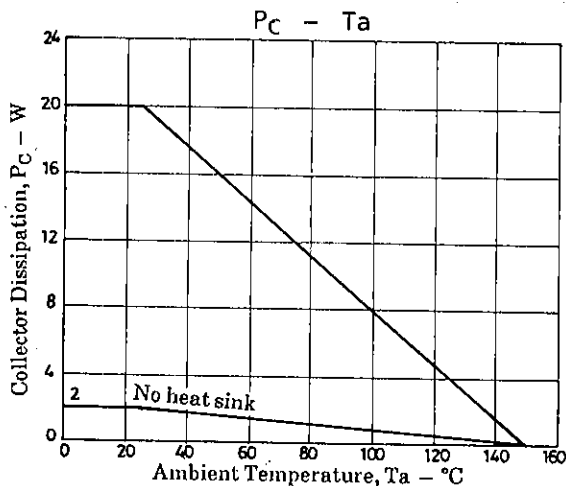
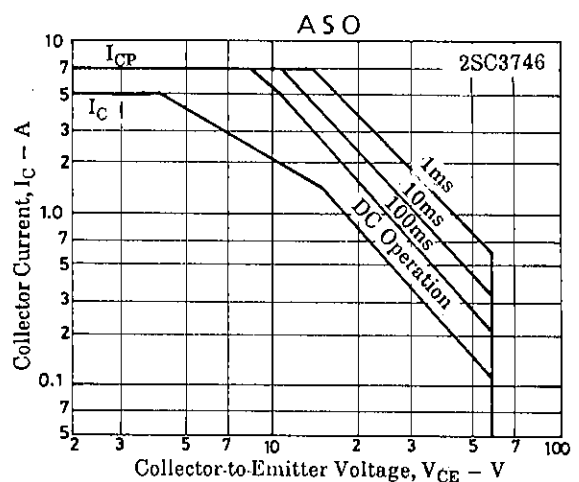
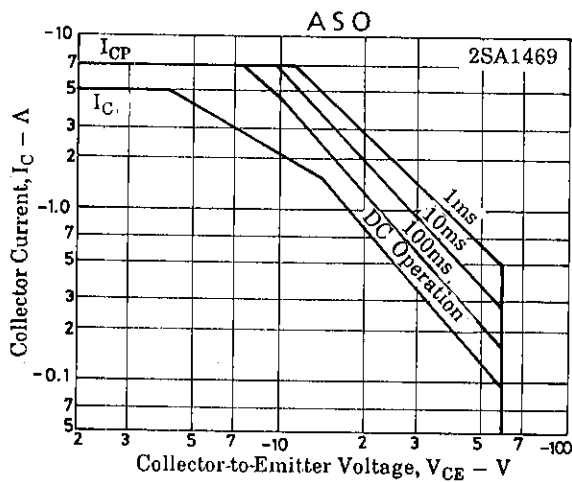
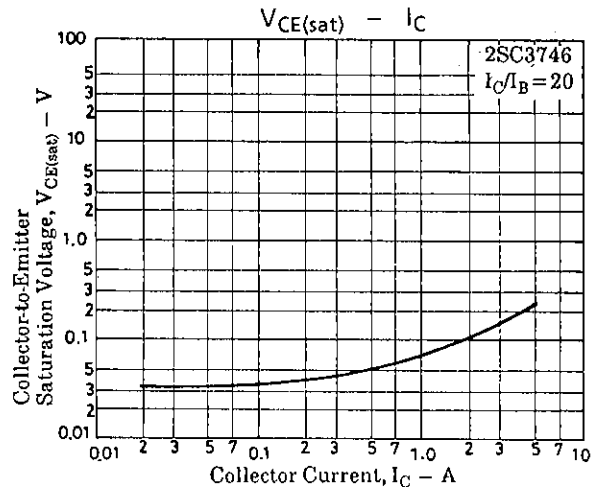
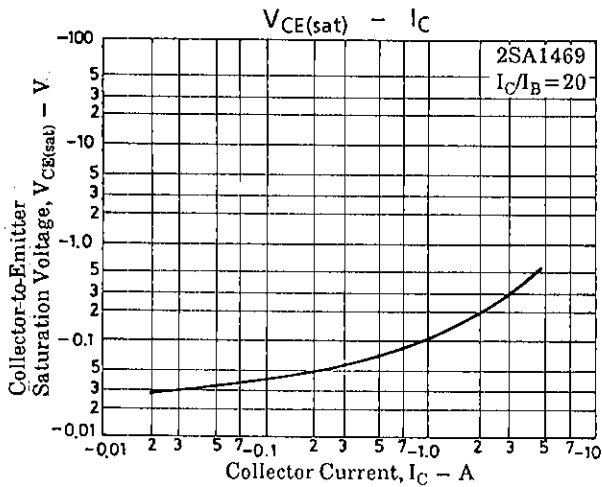
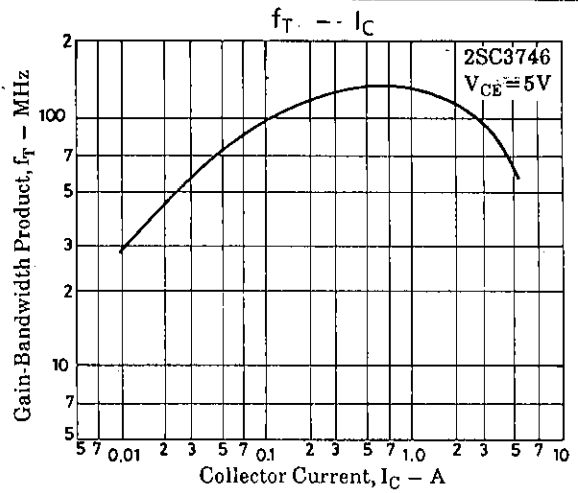
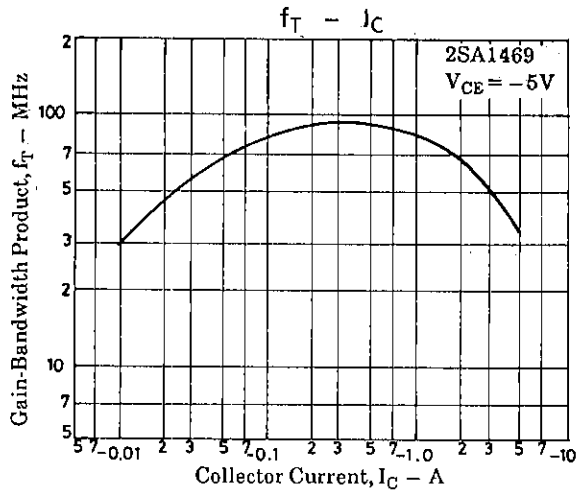
(For PNP, the polarity is reversed).

$$20I_{B1} = -20I_{B2} = I_C = 2A$$

Unit (Resistance : Ω , Capacitance : F)



2SA1469/2SC3746



- No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.
- Anyone purchasing any products described or contained herein for an above-mentioned use shall:
 - ① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use;
 - ② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.