Ordering number: EN 3707

SANYO

No.3707

2SA1769/2SC4613

PNP/NPN Epitaxial Planar Silicon Transistors

160V/700mA Switching Applications

Applications

· Color TV audio output, converter, inverter.

Features

· Adoption of MBIT processes.
· High breakdown voltage and large current capacity.
· Fast switching speed.

( ) : 2SA1769

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		(−)0.7	A
Collector Current (Pulse)	I_{CP}		(−)1.5	A
Collector Dissipation	P_C		1.5	W
		Tc = 25°C	10	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

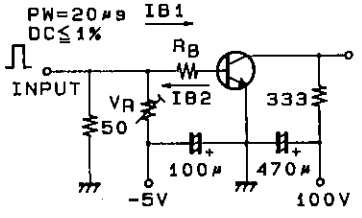
			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)120V, I_E = 0			(−)0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{CE} = (−)4V, I_C = 0			(−)0.1	μA
DC Current Gain	$h_{FE}(1)$	V_{CE} = (−)5V, I_C = (−)100mA	100※		400※	
	$h_{FE}(2)$	V_{CE} = (−)5V, I_C = (−)10mA	90			
Gain-Bandwidth Product	f_T	V_{CE} = (−)10V, I_C = (−)50mA		120		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = (−)250mA, I_B = (−)25mA		0.12 (−0.2)	0.4 (−0.5)	V
B-E Saturation Voltage	$V_{BE(sat)}$	I_C = (−)250mA, I_B = (−)25mA		(−)0.85	(−)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C = (−)10μA, I_E = 0	(−)180			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	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 2SA1769/2SC4613 are classified by 100mA h_{FE} as follows.

100 R 200	140 S 280	200 T 400

Switching Time Test Circuit

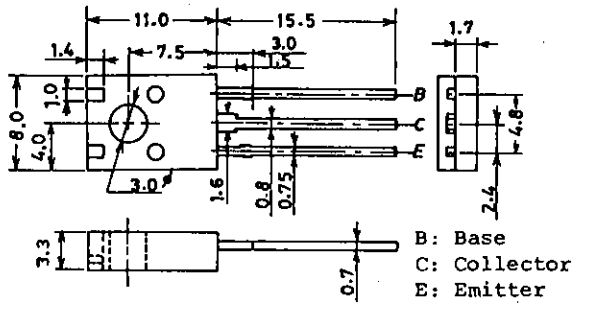


$20I_{B1} = -20I_{B2} = I_C = 300mA$
(For PNP, the polarity is reversed).

Unit (Resistance : Ω, Capacitance : F)

Package Dimensions 2042A

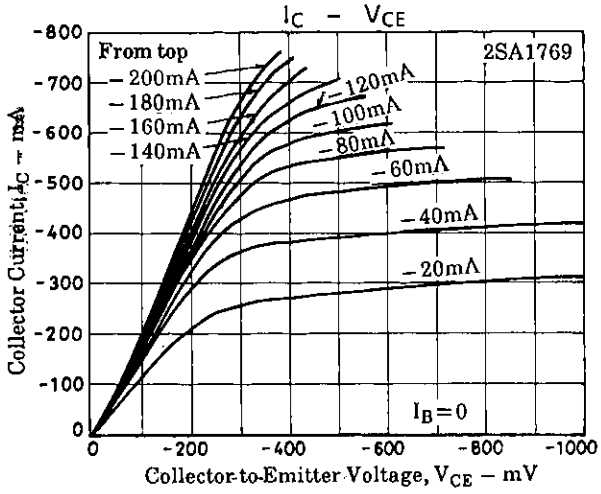
(unit : mm)

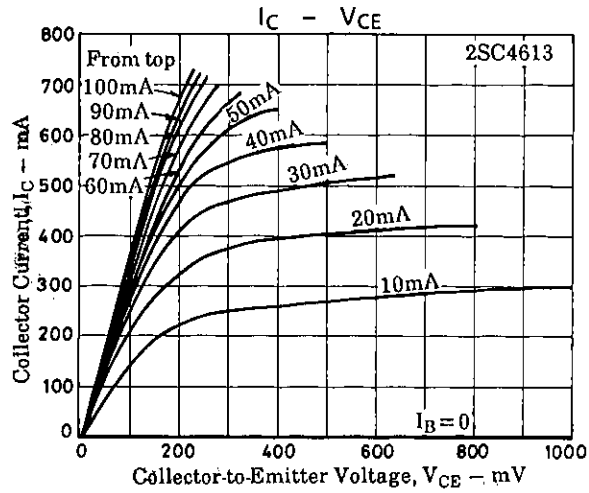


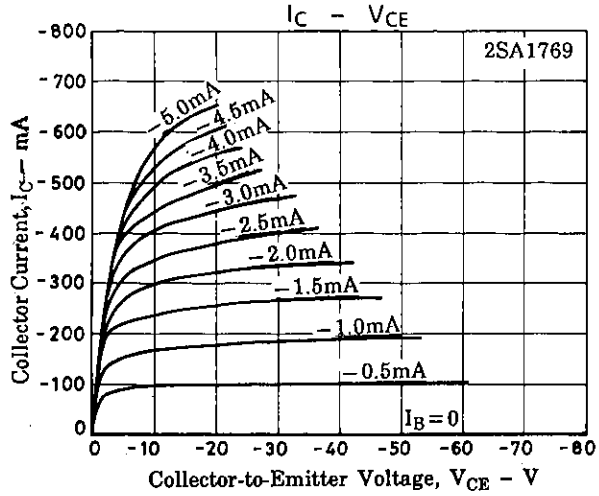
SANYO: TO126ML

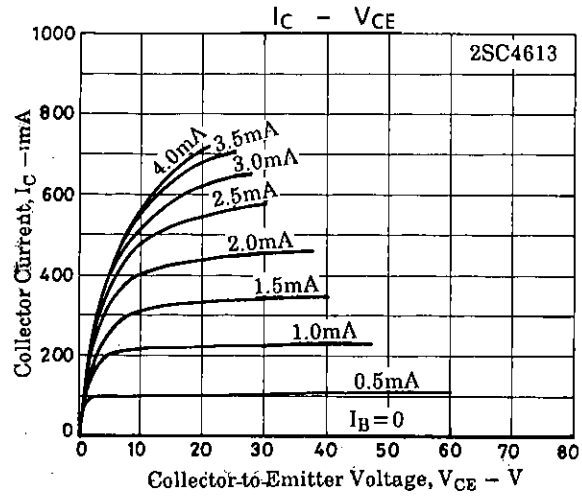
Continued from preceding page.

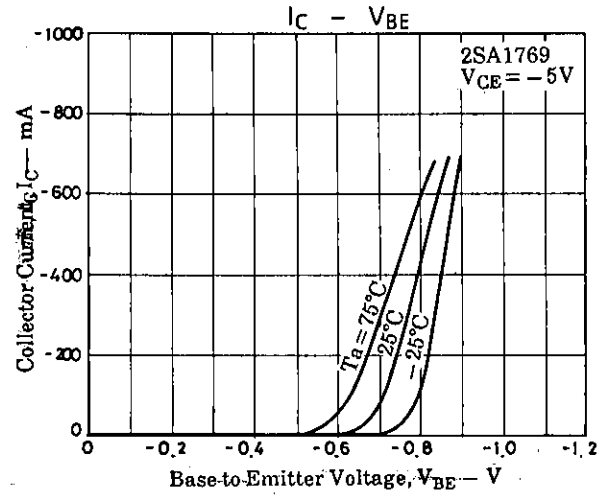
			min	typ	max	unit
Output Capacitance	Cob	$V_{CB}=(-)10V, f=1MHz$		8		pF
				(11)		pF
Turn-ON Time	t_{on}	See specified Test Circuit.		50		ns
				(60)		ns
Storage Time	t_{stg}	〃		1000		ns
				(900)		ns
Fall Time	t_f	〃		60		ns
				(60)		ns

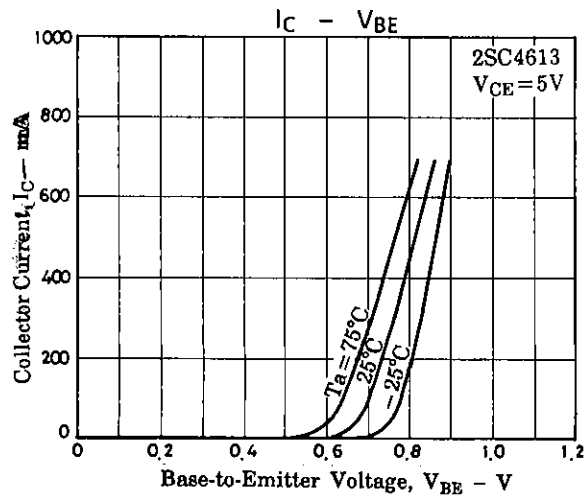


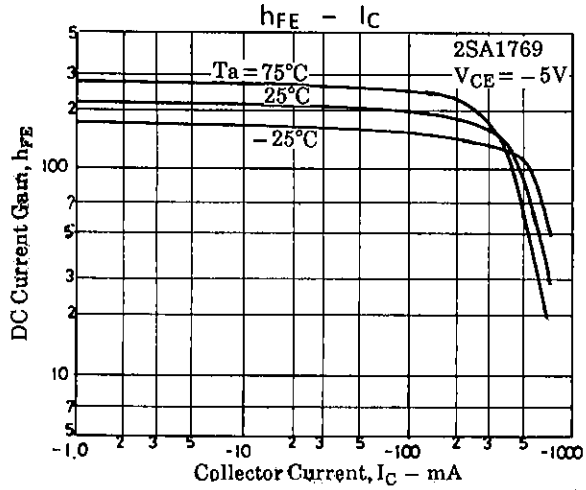


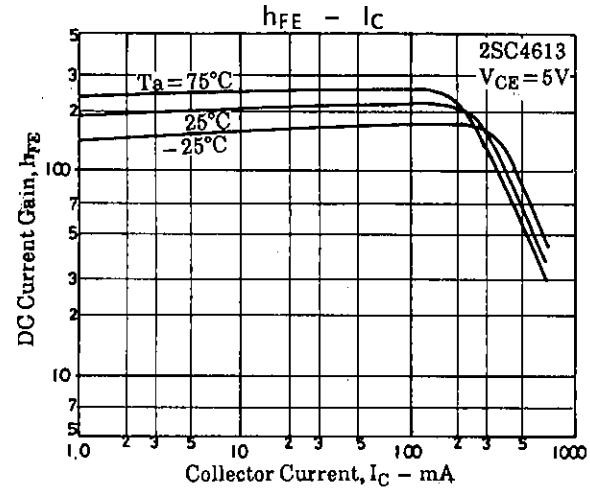


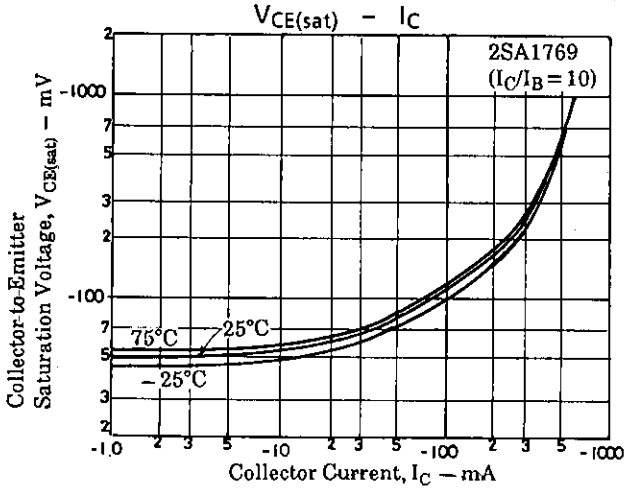


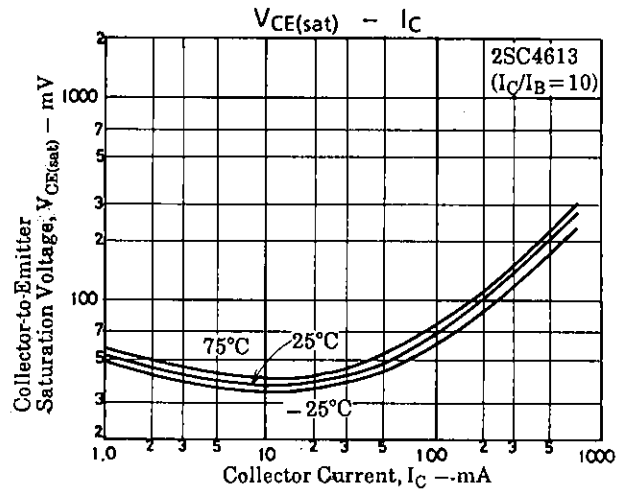


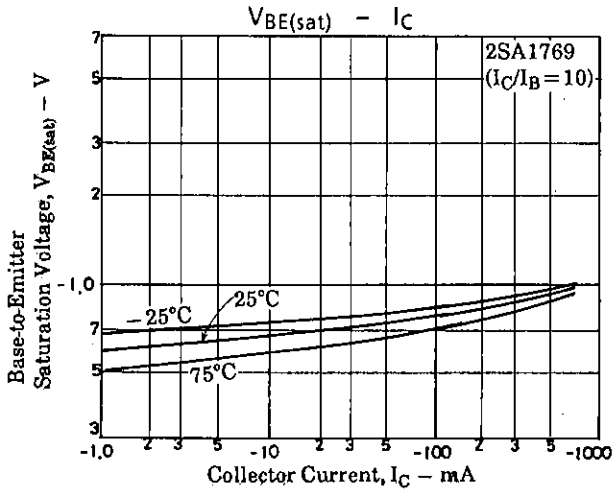


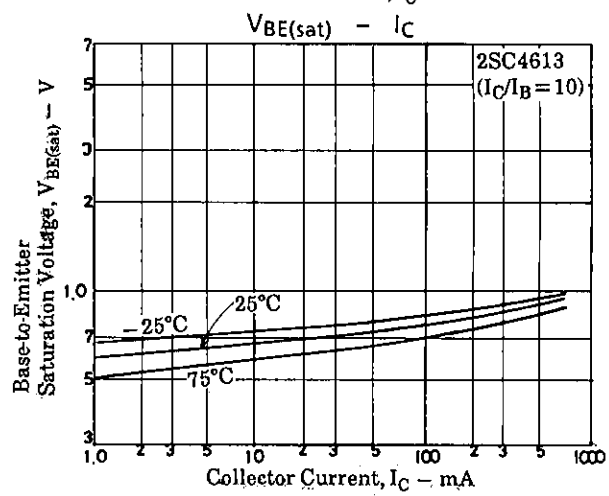

hFE – IC
2SA1769
VCE = –5V
Ta = 75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA

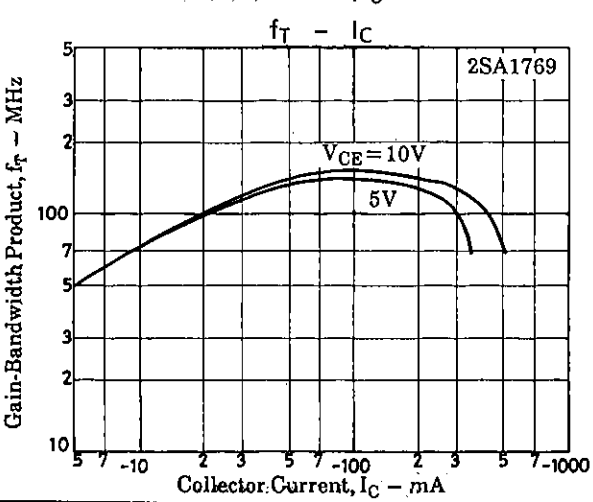

hFE – IC
2SC4613
VCE = 5V
Ta = 75°C
25°C
–25°C
DC Current Gain, hFE
Collector Current, IC – mA

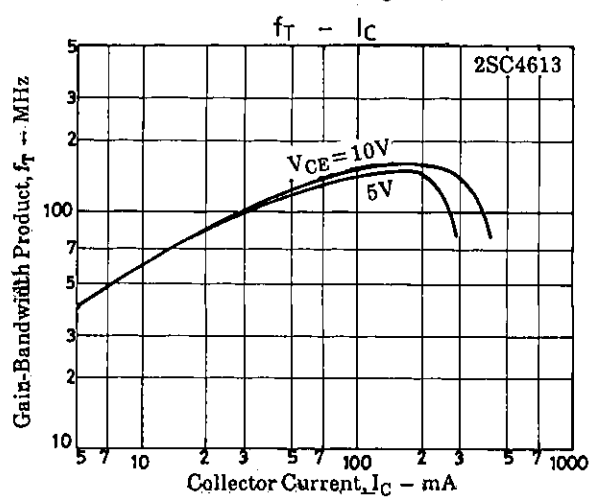

VCE(sat) – IC
2SA1769
(IC/IB = 10)
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
75°C
25°C
–25°C
Collector Current, IC – mA


VCE(sat) – IC
2SC4613
(IC/IB = 10)
Collector-to-Emitter Saturation Voltage, VCE(sat) – mV
75°C
25°C
–25°C
Collector Current, IC – mA


VBE(sat) – IC
2SA1769
(IC/IB = 10)
Base-to-Emitter Saturation Voltage, VBE(sat) – V
–25°C
25°C
75°C
Collector Current, IC – mA


VBE(sat) – IC
2SC4613
(IC/IB = 10)
Base-to-Emitter Saturation Voltage, VBE(sat) – V
–25°C
25°C
75°C
Collector Current, IC – mA


fT – IC
2SA1769
VCE = 10V
5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA


fT – IC
2SC4613
VCE = 10V
5V
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA