

**2SA1769/2SC4613****160V/700mA Switching Applications****Applications**

- Color TV audio output, conveter, inverter.

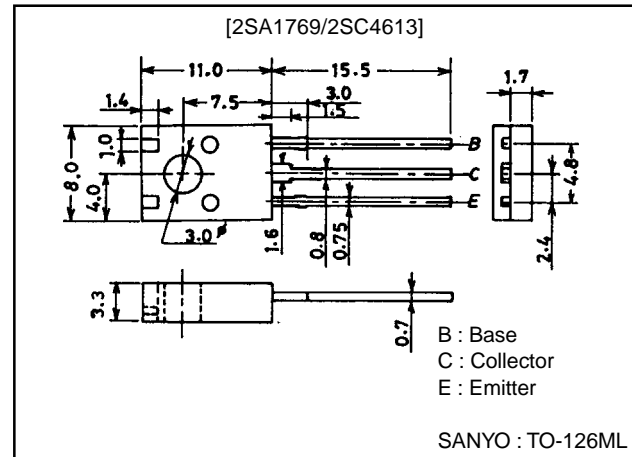
Features

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

Package Dimensions

unit:mm

2042A



() : 2SA1769

Specifications**Absolute Maximum Ratings at Ta = 25°C**

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)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
		$T_c=25^\circ\text{C}$	10	W
Junction Temperature	T_j		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB} = (-)120\text{V}, I_E = 0$			(-)0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)0.1	μA
DC Current Gain	h_{FE1}	$V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$	100*		400*	
	h_{FE2}	$V_{CE} = (-)5\text{V}, I_C = (-)10\text{mA}$	90			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		120		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)250\text{mA}, I_B = (-)25\text{mA}$		0.12	0.4	V
				(-)0.2	(-)0.5	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)250\text{mA}, I_B = (-)25\text{mA}$	(-)0.85		(-)1.2	V

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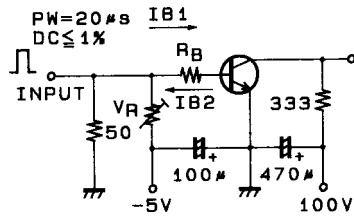
2SA1769/2SC4613

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu A, I_E = 0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu A, I_C = 0$	6			V
Output Capacitance	C_{ob}	$V_{CB} = (-)10V, f = 1MHz$		8		pF
				(11)		pF
Turn-ON Time	t_{on}	See specified Test Circuit		(60)50		ns
Storage Time	t_{stg}	See specified Test Circuit		(900)		ns
				1000		ns
Fall Time	t_f	See specified Test Circuit		(60)60		ns

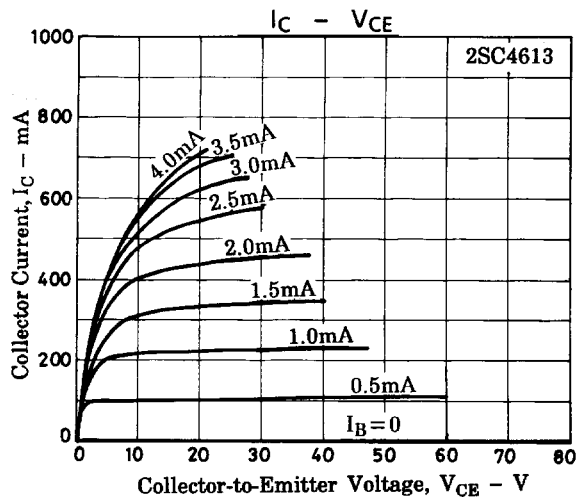
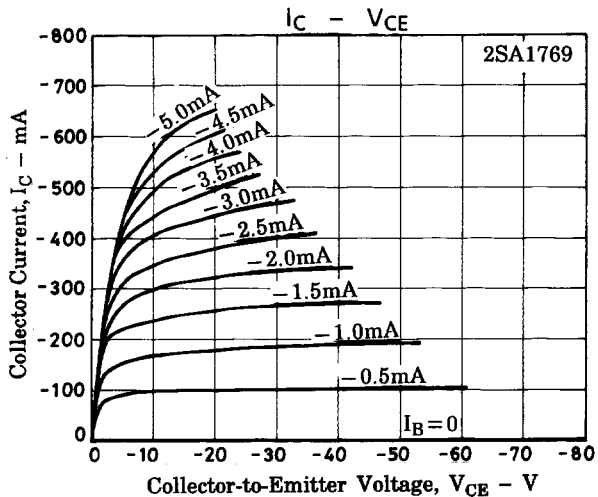
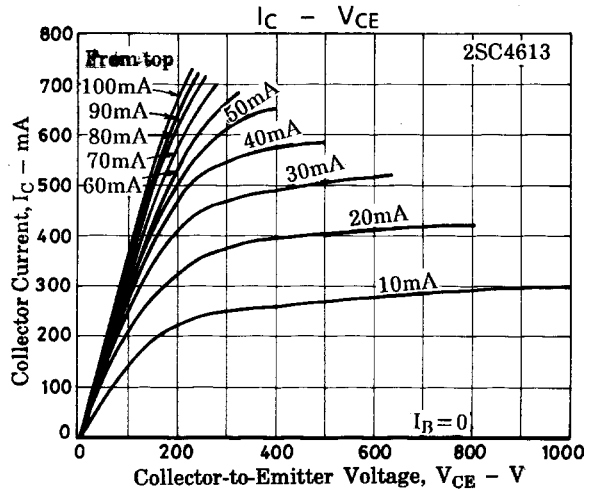
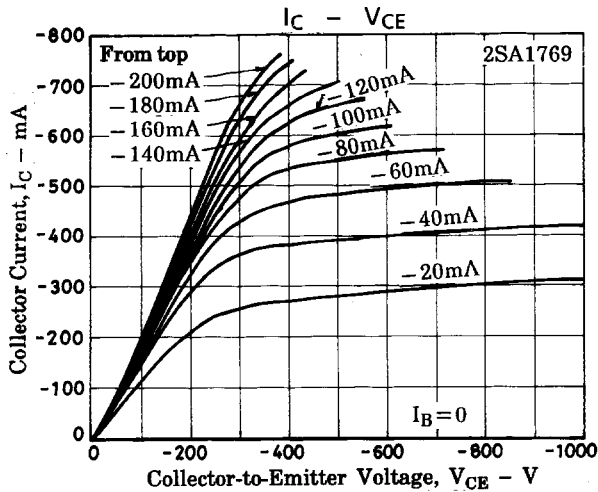
* The 2SA1769/2SC4613 are classified by 100mA h_{FE} as follows :

100 R	200	140 S	280	200 T	400
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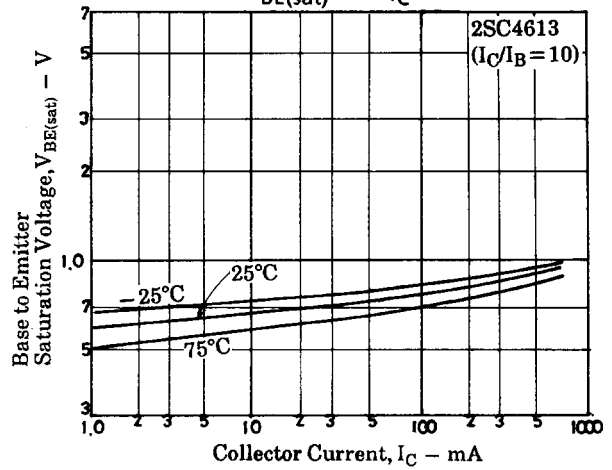
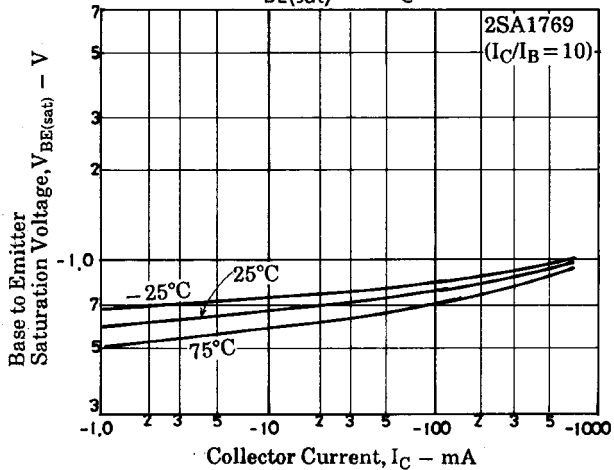
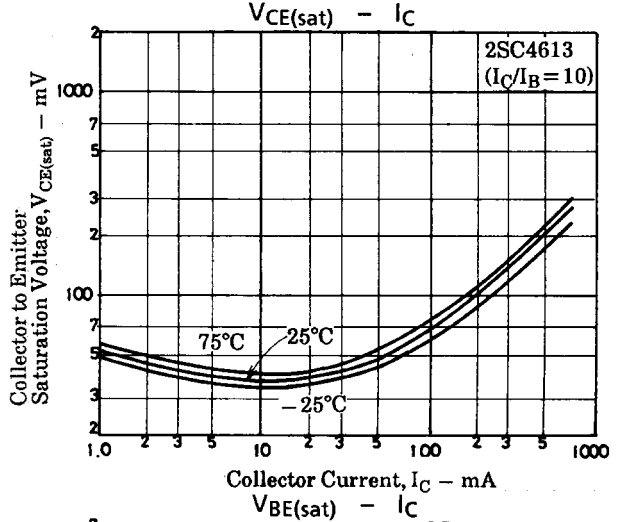
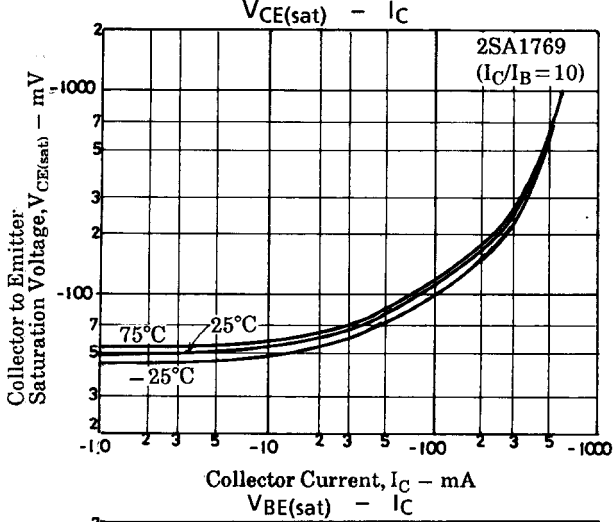
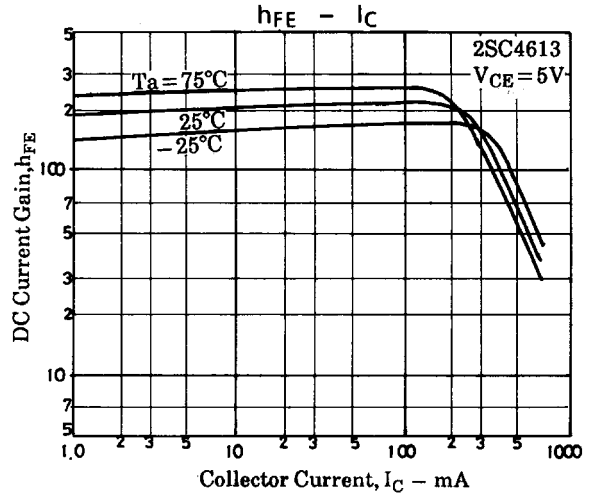
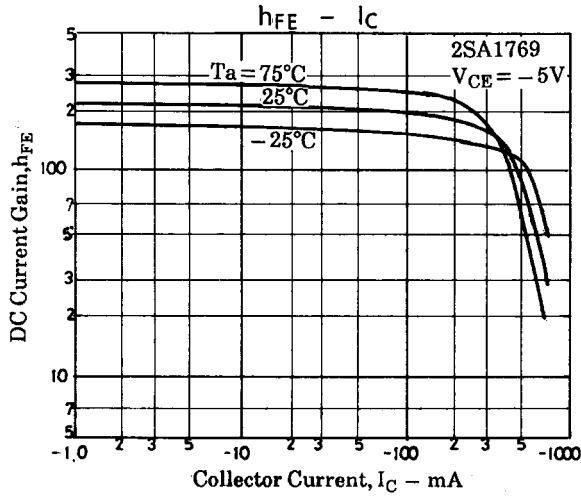
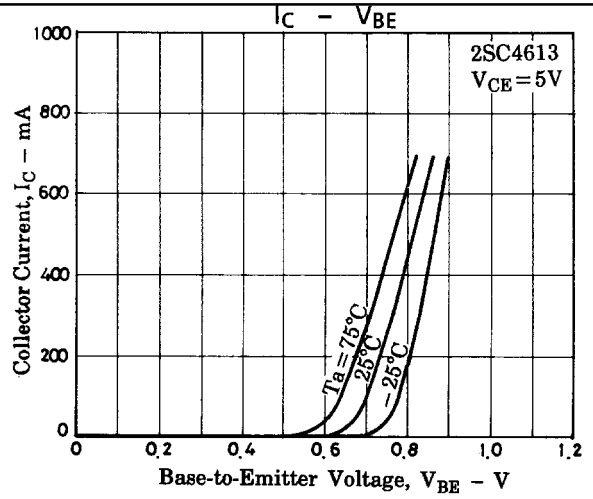
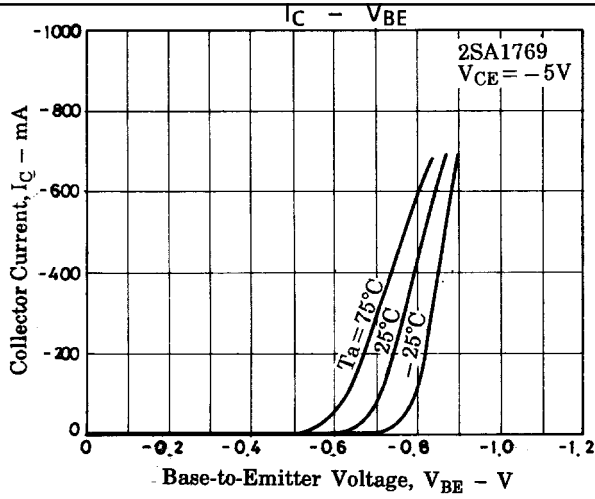
Switching Time Test Circuit



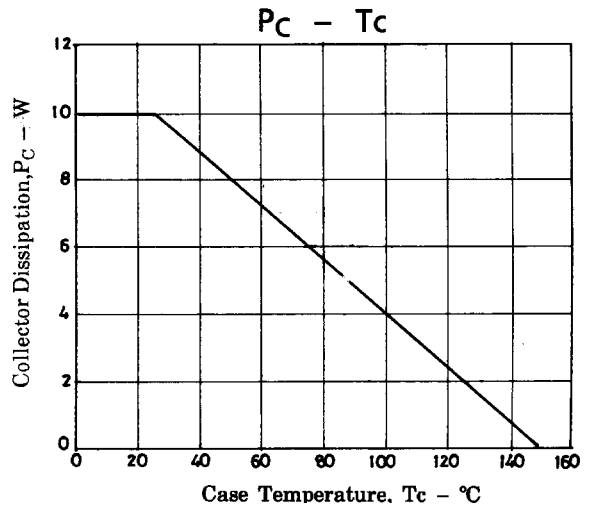
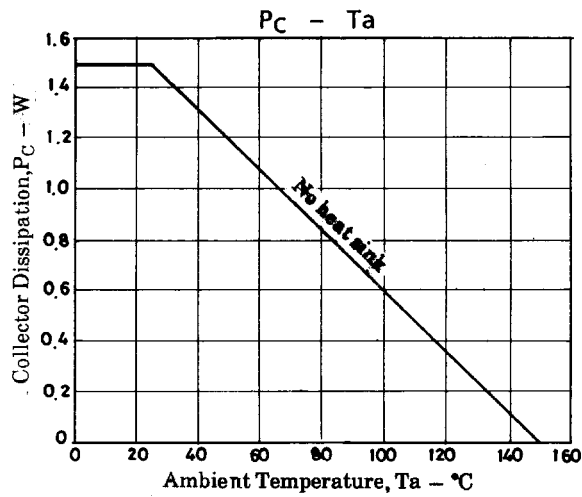
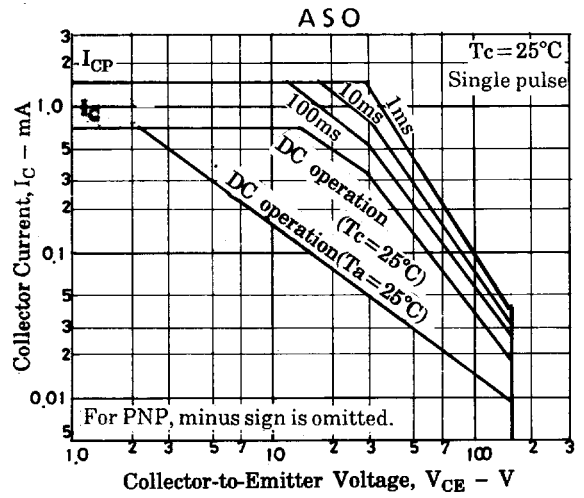
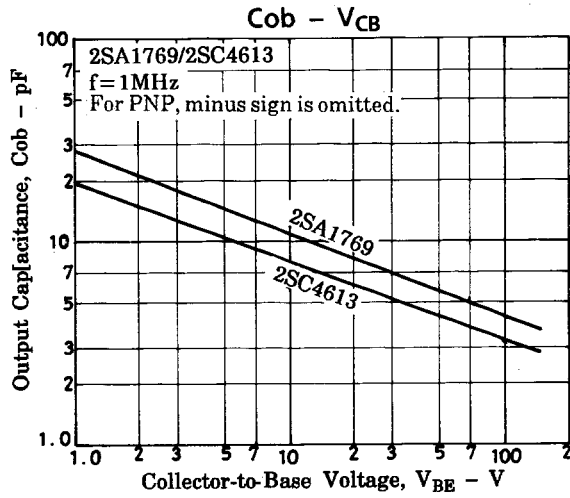
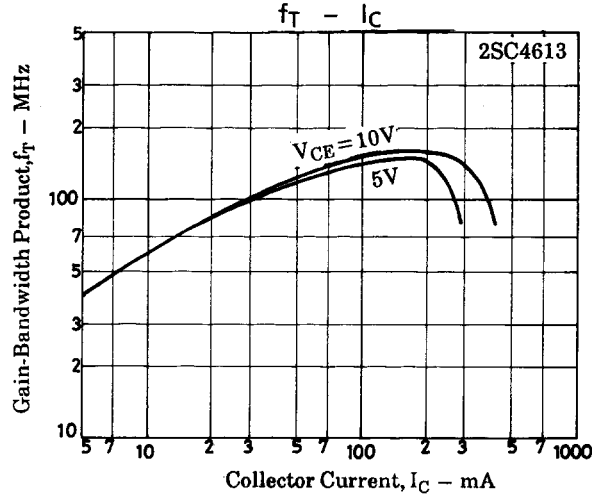
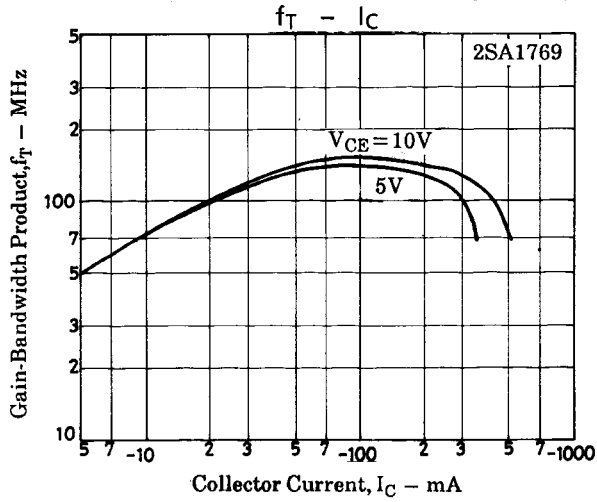
$20I_{B1} = -20I_{B2} = I_C = 300mA$
 (For PNP, the polarity is reversed).
 Unit (resistance : Ω , capacitance : F)



2SA1769/2SC4613



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