

**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
		$T_c = 25^\circ\text{C}$	10 W
Junction Temperature	$T_j$		150 °C
Storage Temperature	$T_{stg}$		-55 to +150 °C

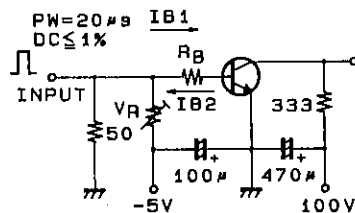
**Electrical Characteristics at Ta = 25°C**

			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)120\text{V}, I_E = 0$			(-)	0.1 $\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{CE} = (-)4\text{V}, I_C = 0$			(-)	0.1 $\mu\text{A}$
DC Current Gain	$h_{FE}(1)$	$V_{CE} = (-)5\text{V}, I_C = (-)100\text{mA}$	100*		400*	
	$h_{FE}(2)$	$V_{CE} = (-)5\text{V}, I_C = (-)10\text{mA}$	90			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10\text{V}, I_C = (-)50\text{mA}$		120		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)250\text{mA}, I_B = (-)25\text{mA}$		0.12	0.4	V
				(-0.2)	(-0.5)	
B-E Saturation Voltage	$V_{BE(sat)}$	$I_C = (-)250\text{mA}, I_B = (-)25\text{mA}$	(-)	0.85	(-)	1.2 V
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)10\mu\text{A}, I_E = 0$	(-)	180		V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-)	160		V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)10\mu\text{A}, I_C = 0$	(-)	6		V

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

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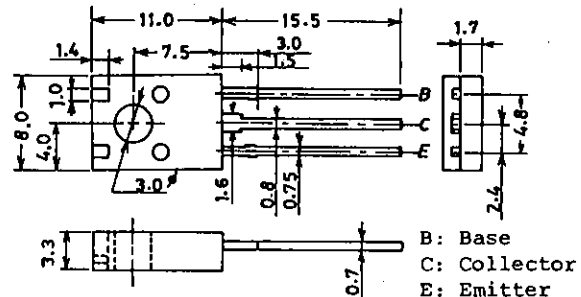
100 R 200	140 S 280	200 T 400
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**Switching Time Test Circuit**

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

Unit (Resistance :  $\Omega$ , Capacitance : F)**Package Dimensions 2042A**

(unit : mm)



B: Base  
 C: Collector  
 E: Emitter

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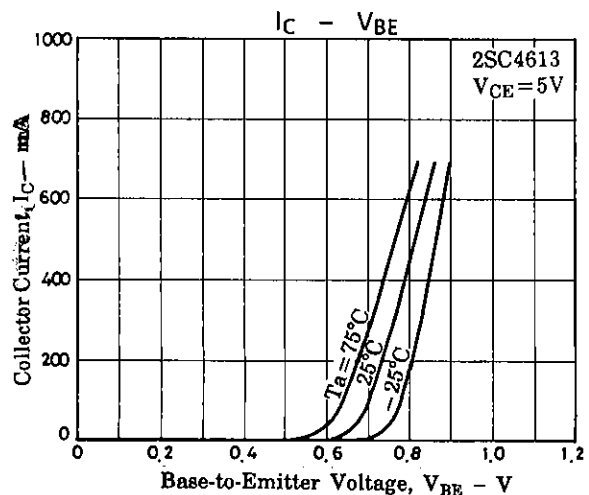
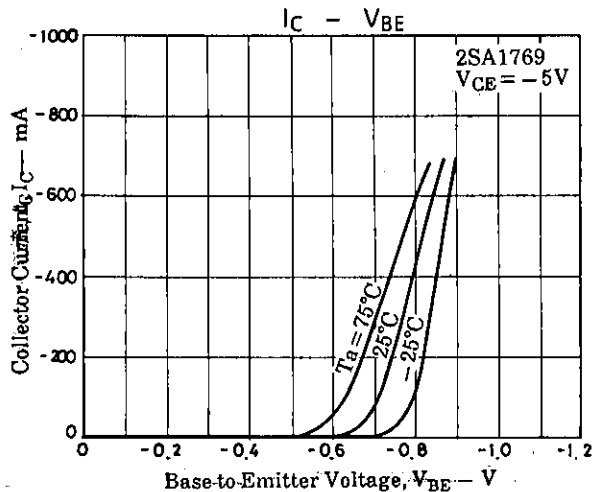
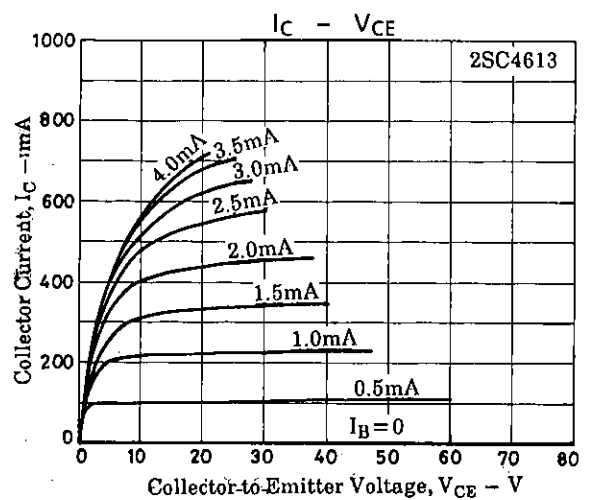
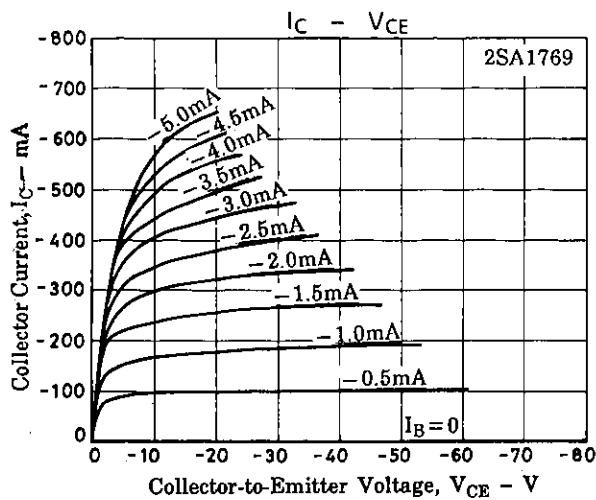
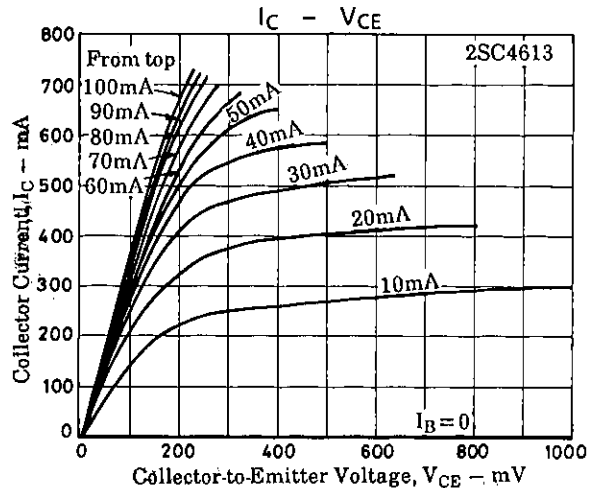
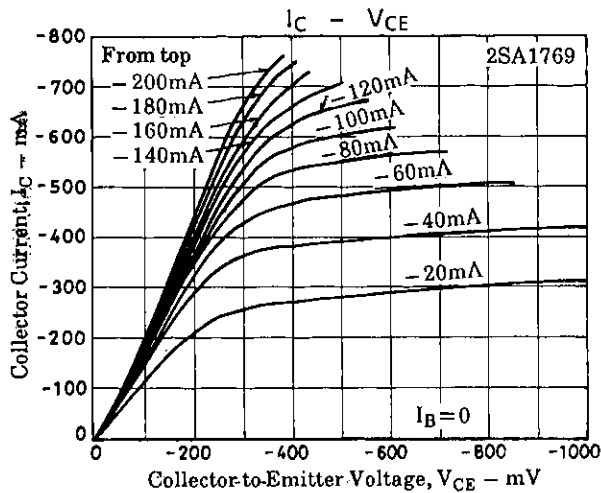
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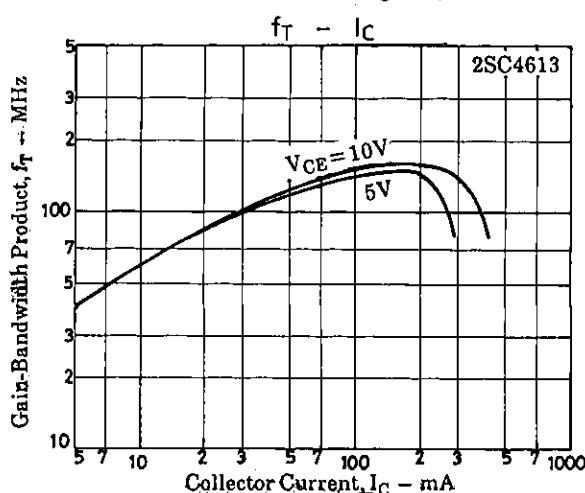
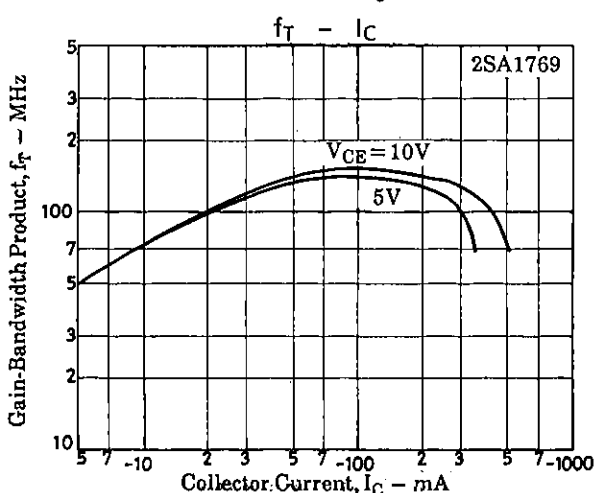
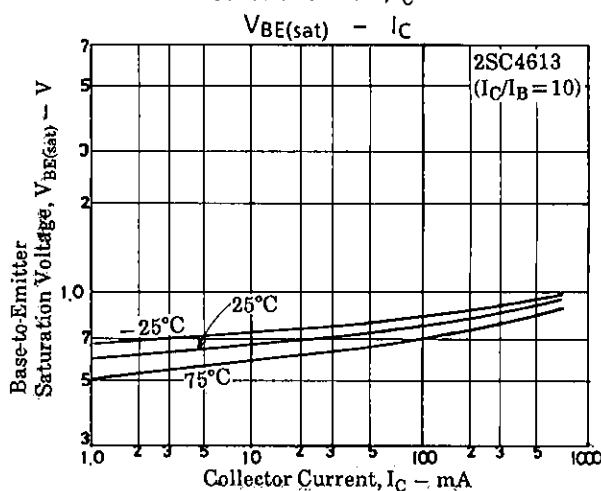
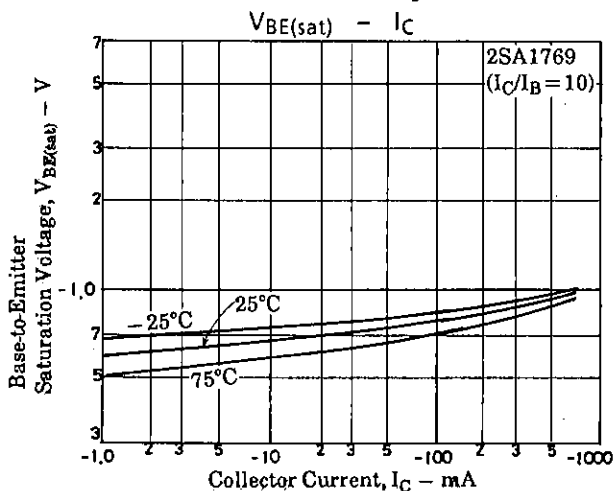
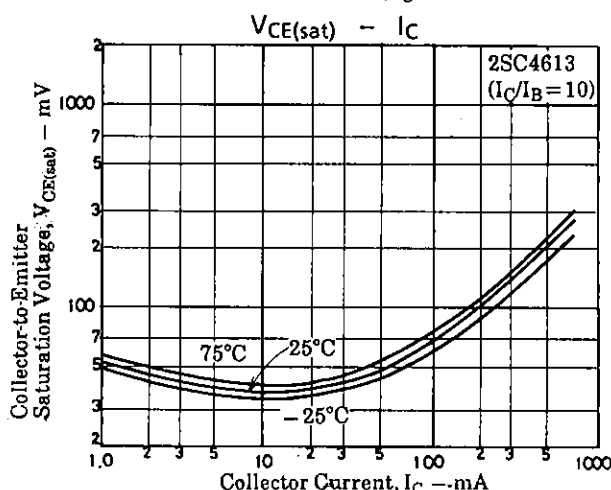
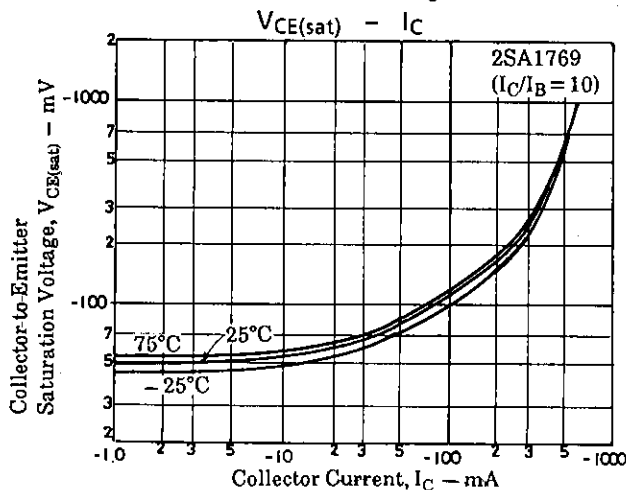
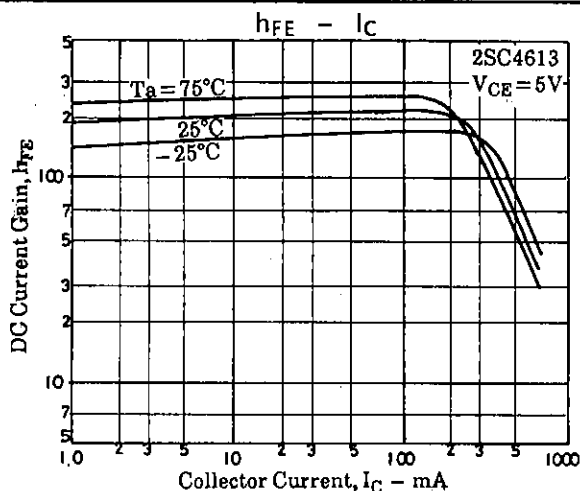
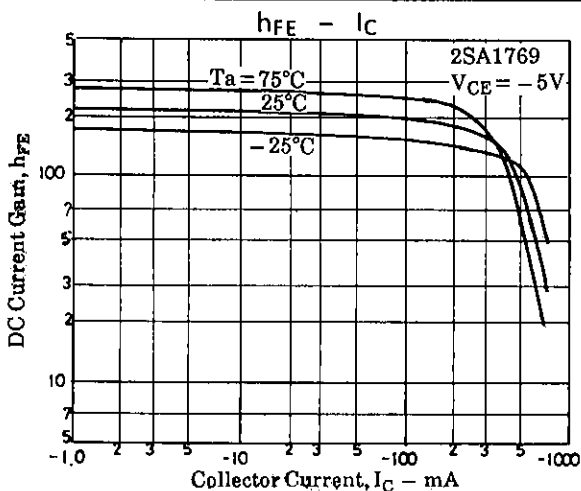
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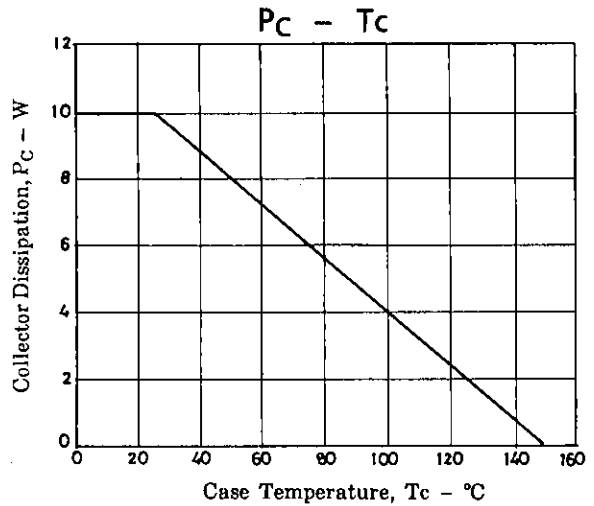
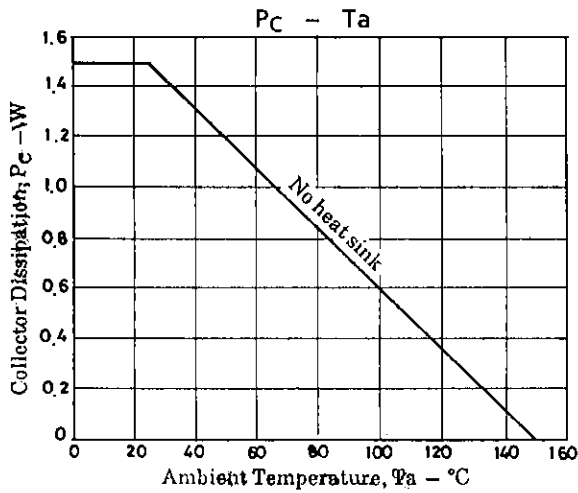
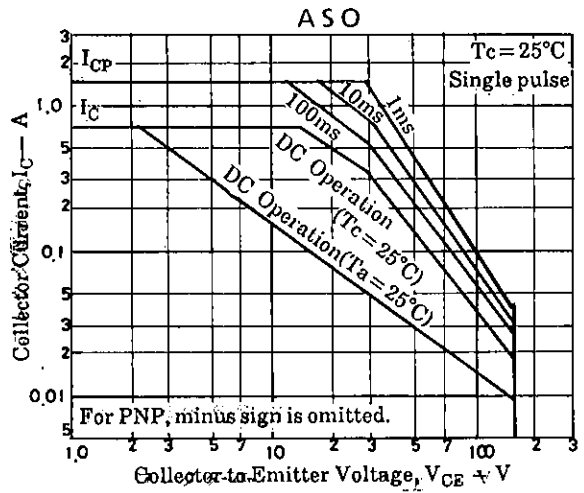
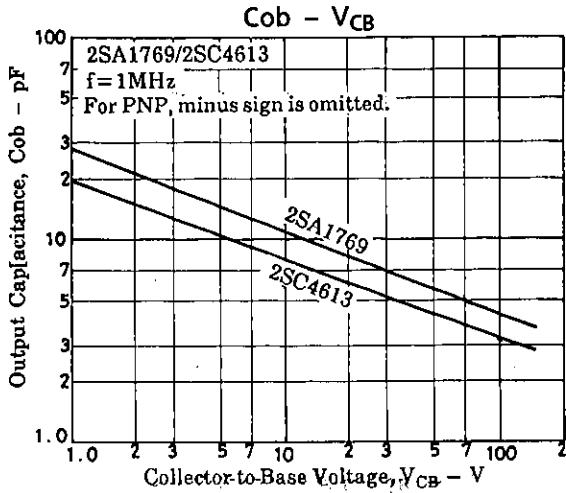
			min	typ	max	unit
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		8		pF
Turn-ON Time	$t_{on}$	See specified Test Circuit.		(11)		pF
Storage Time	$t_{stg}$	◇		50		ns
Fall Time	$t_f$	◇		(60)		ns
				1000		ns
				(900)		ns
				60		ns
				(60)		ns



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