

# 2SA1768/2SC4612

# **High-Voltage Switching Applications**

## **Applications**

· Color TV sound output, converter, inverter.

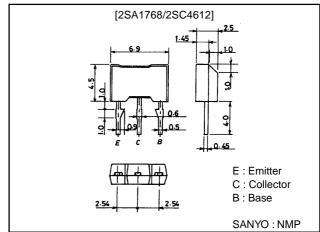
#### **Features**

- · Adoption of MBIT process.
- $\cdot$  High breakdown voltage, large current capacity.
- · Fast switching speed.

## **Package Dimensions**

unit:mm

2064



(): 2SA1768

## **Specifications**

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V <sub>CBO</sub>		(–)180	V
Collector-to-Emitter Voltage	V <sub>CEO</sub>		(-)160	V
Emitter-to-Base Voltage	V <sub>EBO</sub>		(–)6	V
Collector Current	IC		(-)0.7	mA
Collector Current (Pulse)	I <sub>CP</sub>		(-)1.5	mA
Collector Dissipation	PC		1	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

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

Parameter	Symbol	Conditions		Ratings		
	Symbol		min	typ	max	Unit
Collector Cutoff Current	ICBO	V <sub>CB</sub> =(-)120V, I <sub>E</sub> =0			-0.1	μA
Emitter Cutoff Current	I <sub>EBO</sub>	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0			-0.1	μA
DC Current Gain	h <sub>FE</sub> 1	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)100mA	100*		400*	
	h <sub>FE</sub> 2	V <sub>CE</sub> =(-)5V, I <sub>C</sub> =(-)10mA	90			
Gain-Bandwidth Product	fT	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =-50mA		120		MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =(-)10V, f=1MHz		(11)8		pF
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =250mA, I <sub>B</sub> =(-)25mA		(-0.2)	(-0.5)	V
				0.12	0.4	V
Base-to-Emitter Saturation Voltage	V <sub>BE</sub> (sat)	I <sub>C</sub> =250mA, I <sub>B</sub> =(-)25mA		(-)0.85	(-)1.2	V

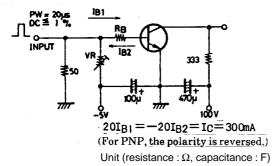
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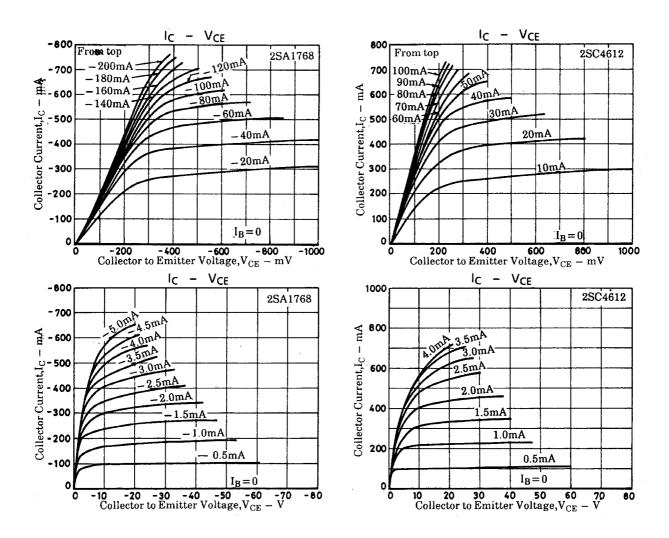
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =10μA, I <sub>E</sub> =0	(–)180			V
Collector-to-Emitter Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =1mA, R <sub>BE</sub> =∞	(–)160			V
Emitter-to-Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =10μA, I <sub>C</sub> =0	6			V
Turn-ON Time	ton	See specified Test Circuit		(60)50		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit		(900)		ns
				1000		ns
Fall Time	t <sub>f</sub>	See specified Test Circuit		(60)60		ns

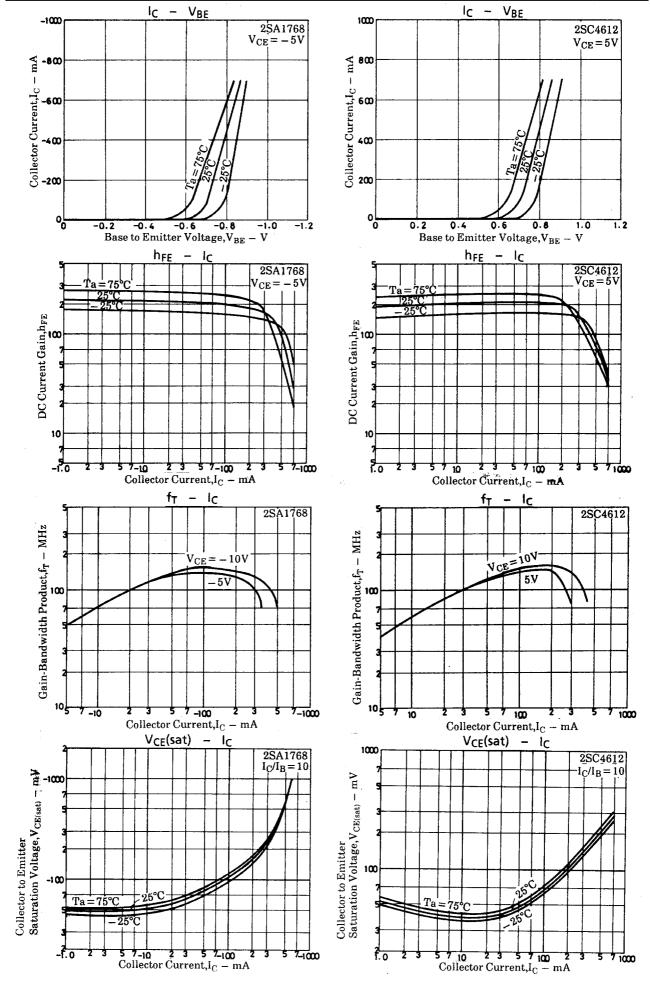
<sup>\* :</sup> The 2SA1768/2SC4612 are classified by 100mA  $h_{FE}$  as follows :

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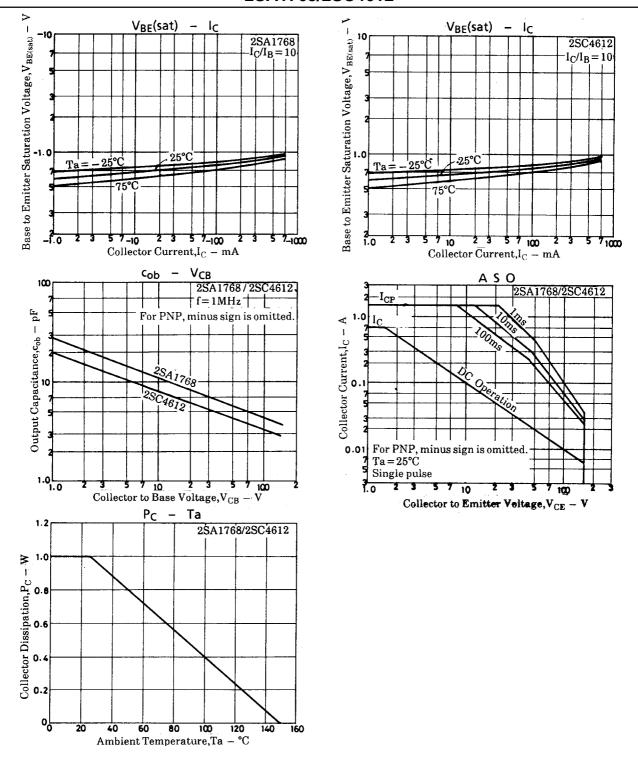
### **Switching Time Test Circuit**







## 2SA1768/2SC4612



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