



## 2SA1768/2SC4612

### High-Voltage Switching Applications

#### Applications

- Color TV sound output, converter, inverter.

#### Features

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

( ) : 2SA1768

#### Specifications

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

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	$I_C$		(-) $0.7$	mA
Collector Current (Pulse)	$I_{CP}$		(-) $1.5$	mA
Collector Dissipation	$P_C$		$1$	W
Junction Temperature	$T_j$		$150$	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		$-55$ to $+150$	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)120\text{V}$ , $I_E = 0$			$-0.1$	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4\text{V}$ , $I_C = 0$			$-0.1$	$\mu\text{A}$
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
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10\text{V}$ , $f = 1\text{MHz}$		$(11)8$		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}$ , $I_B = (-)25\text{mA}$		$(-0.2)$	$(-0.5)$	V
				$0.12$	$0.4$	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 250\text{mA}$ , $I_B = (-)25\text{mA}$	$(-0.85)$		$(-1.2)$	V

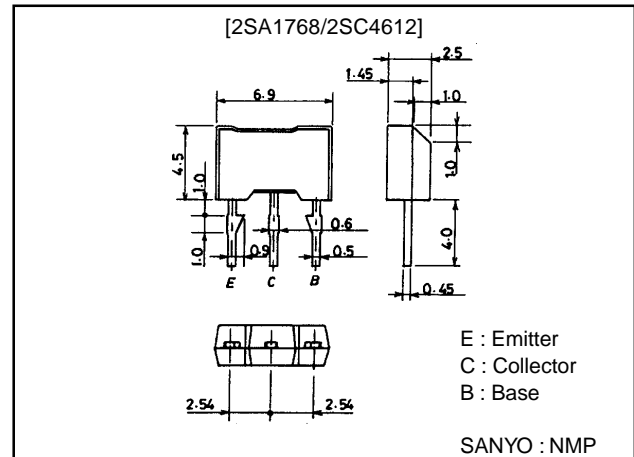
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#### Package Dimensions

unit:mm

2064



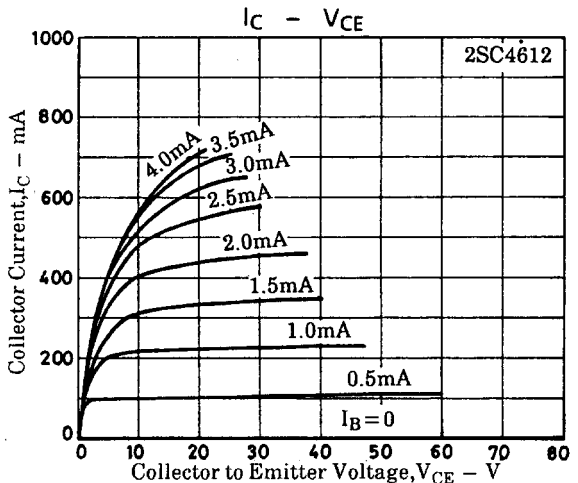
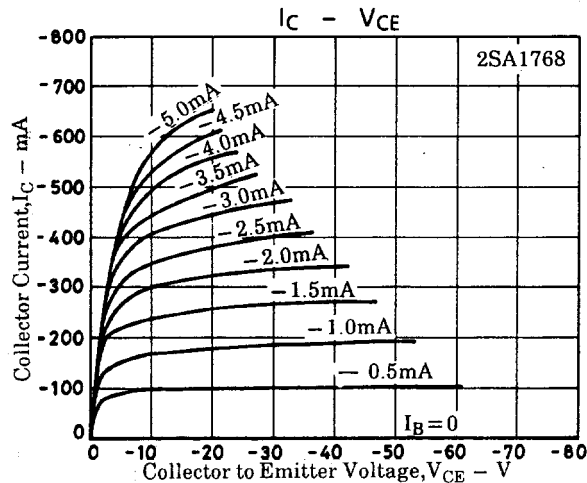
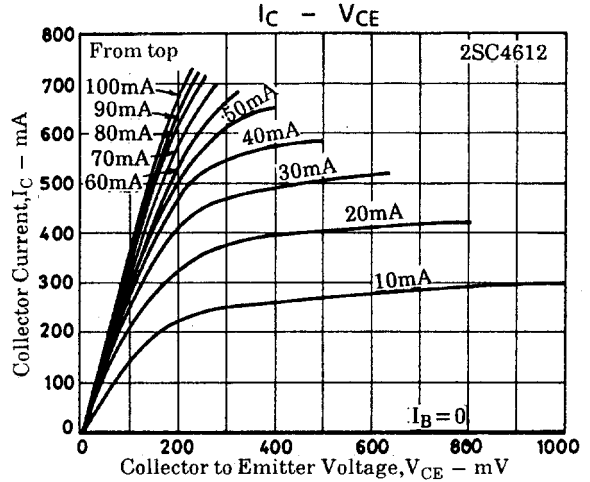
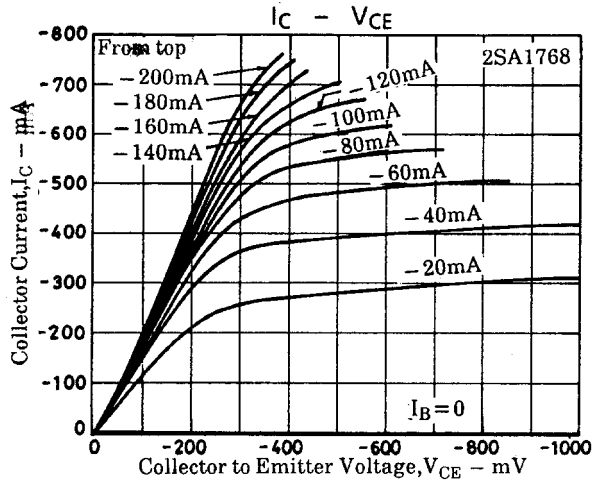
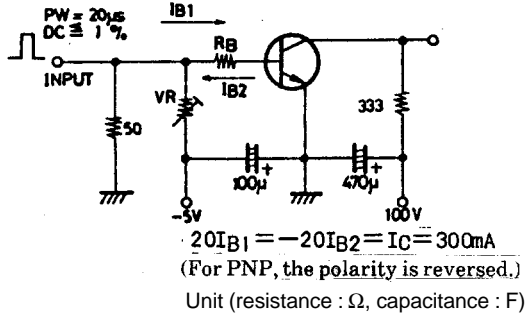
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	(-)160			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0$	6			V
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

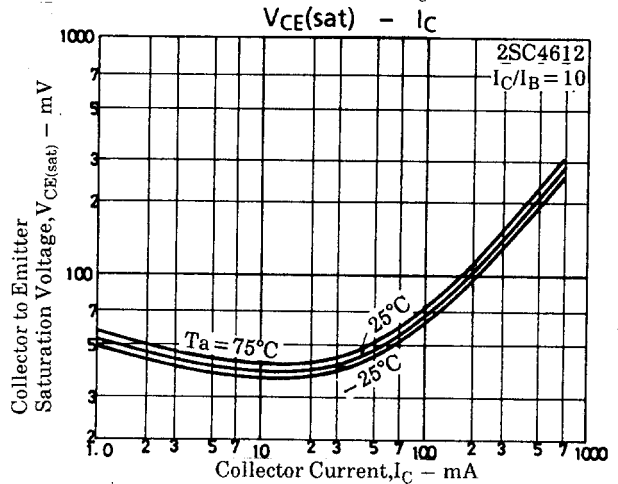
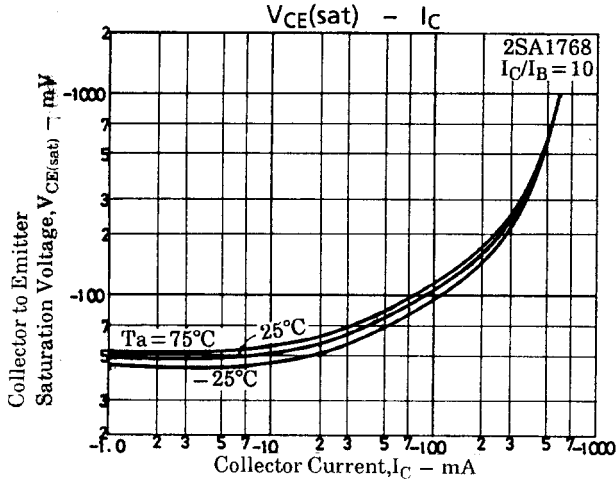
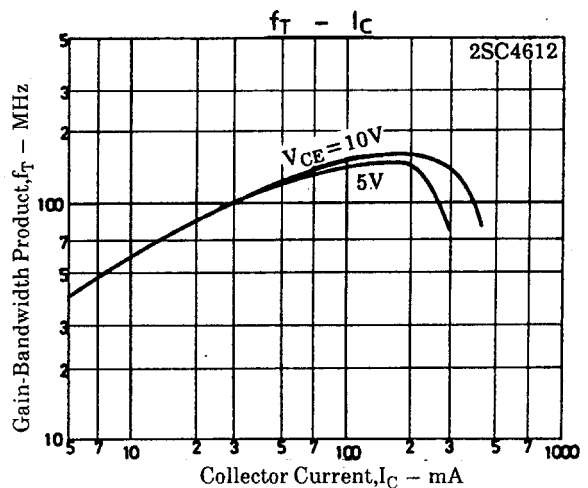
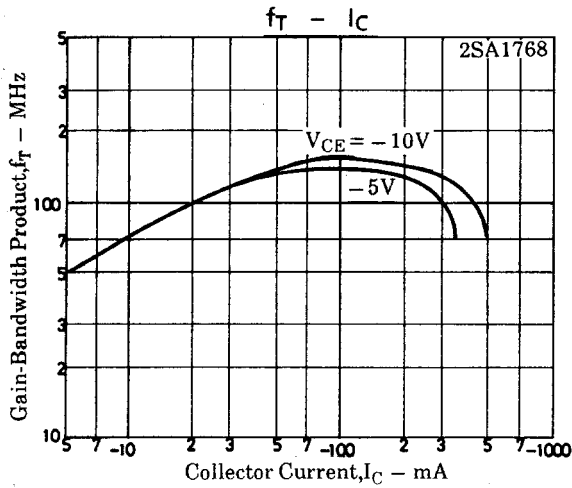
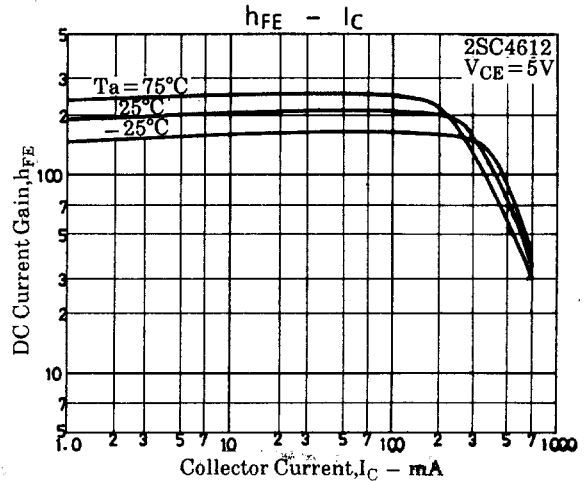
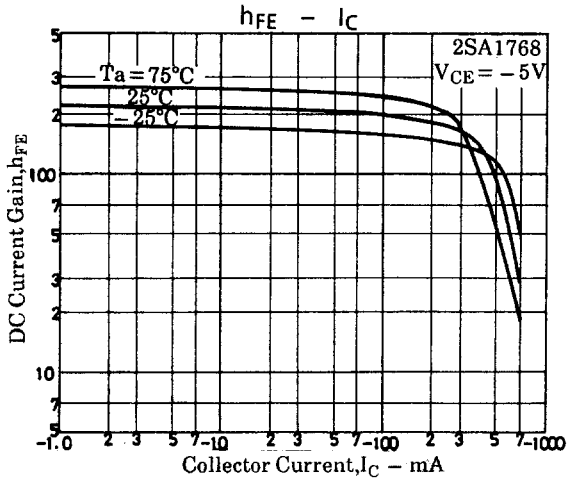
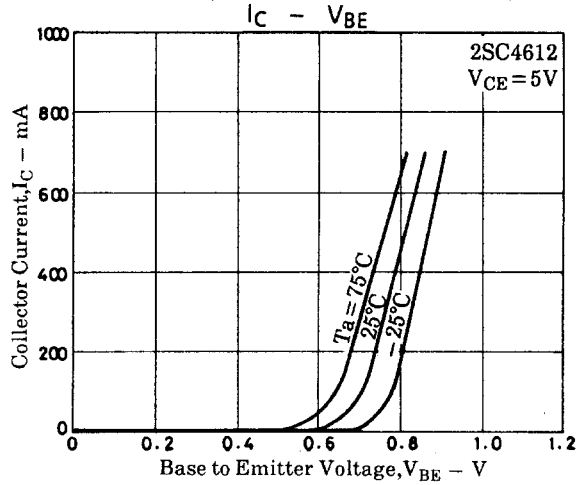
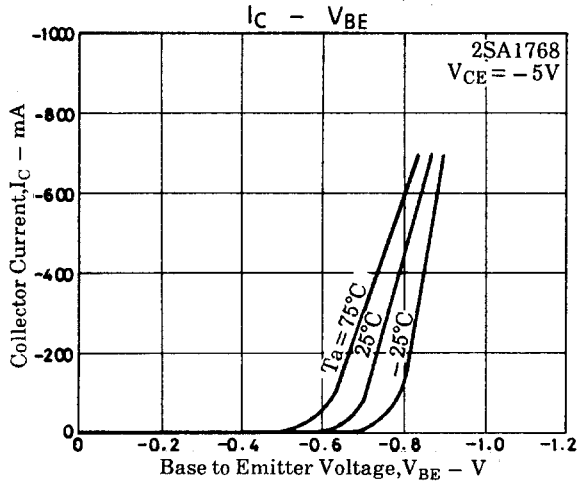
\* : The 2SA1768/2SC4612 are classified by 100mA  $h_{FE}$  as follows :

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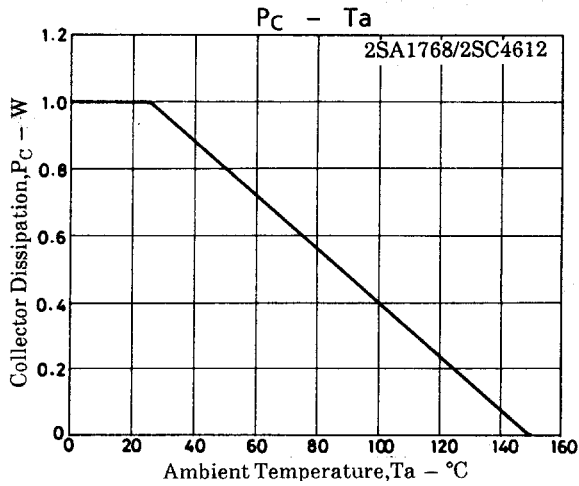
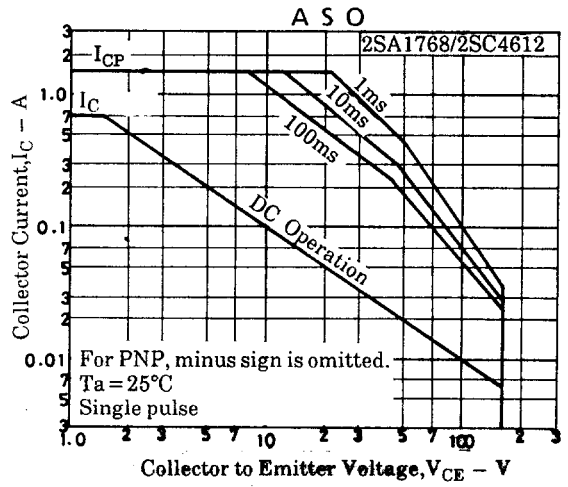
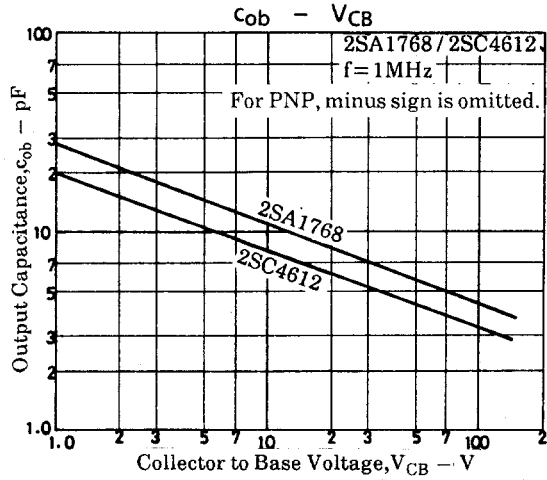
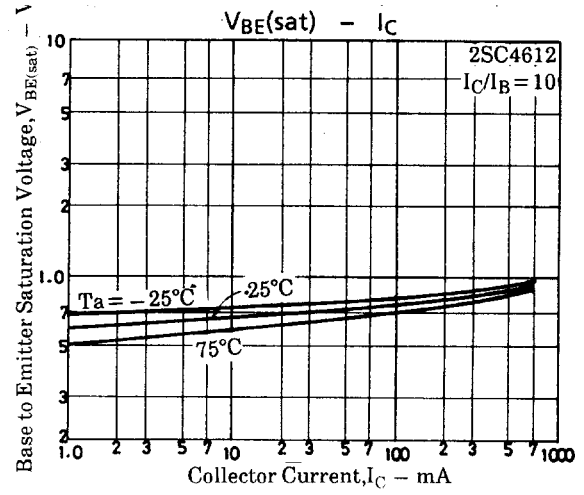
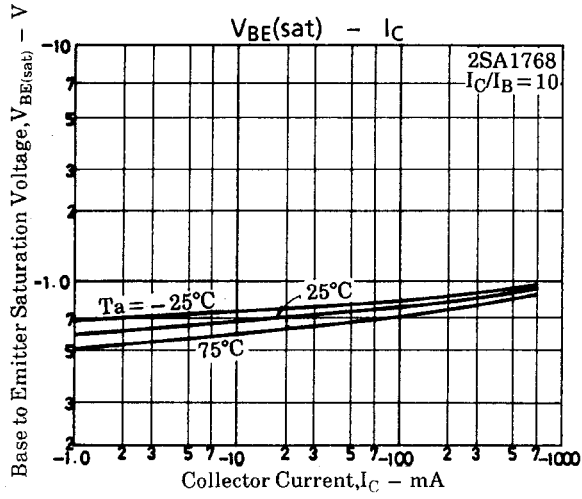
## Switching Time Test Circuit



2SA1768/2SC4612



# 2SA1768/2SC4612



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