



# 2SA1248/2SC3116

## 160V/700mA Switching Applications

### Uses

- Color TV sound output, converters, inverters.

### Features

- High breakdown voltage.
- Large current capacity.
- Using MBIT process

( ) : 2SA1248

### 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	A
Collector Current (Pulse)	$I_{CP}$		(-)1.5	A
Collector Dissipation	$P_C$		1	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 $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=-120\text{V}, I_E=0$			(-)1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=-4\text{V}, I_C=0$			(-)1.0	$\mu\text{A}$
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

\* : 2SA1248/2SC3116 are classified by follows according to  $h_{FE}$  at 100mA.

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Rank	R	S	T
$h_{FE}$	100 to 200	140 to 280	200 to 400

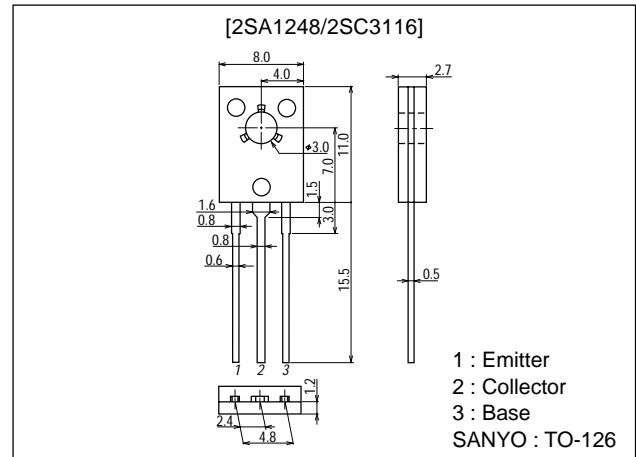
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### Package Dimensions

unit:mm

2009B

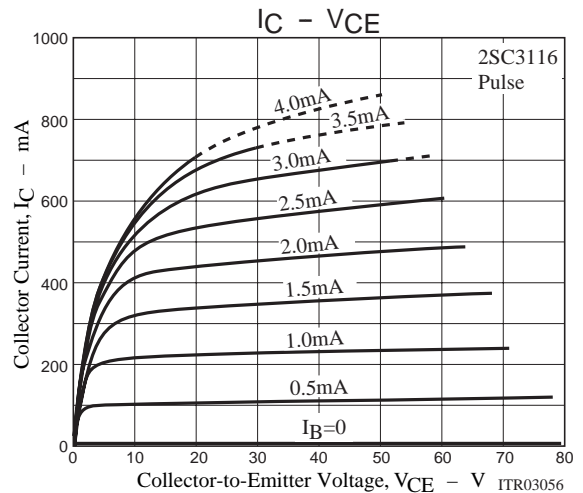
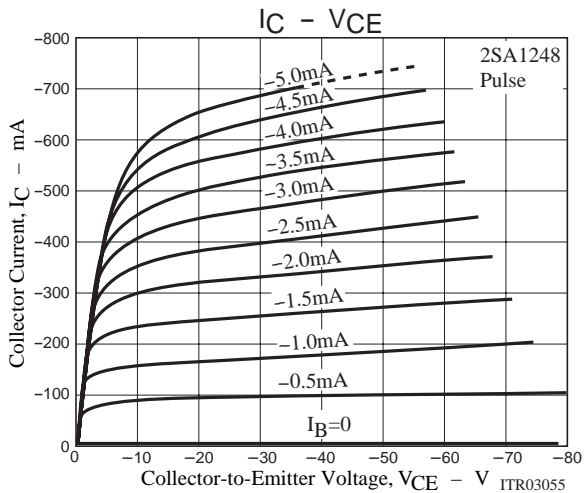
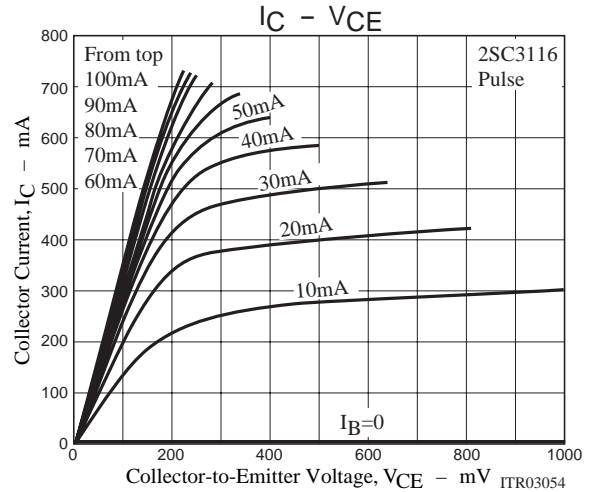
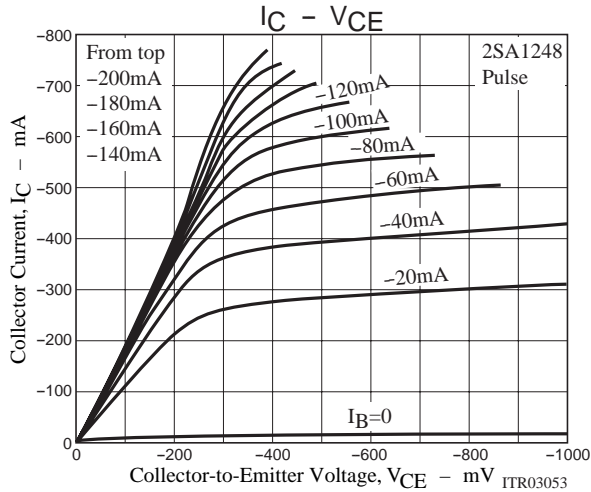
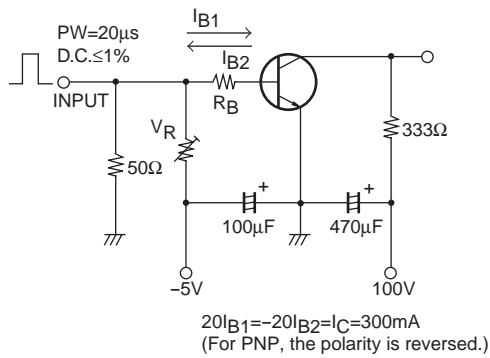


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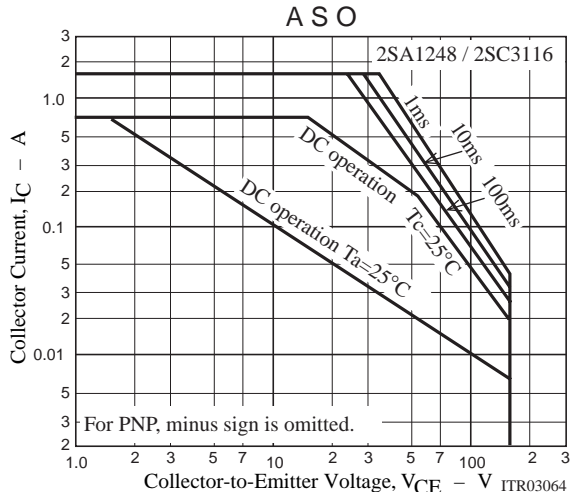
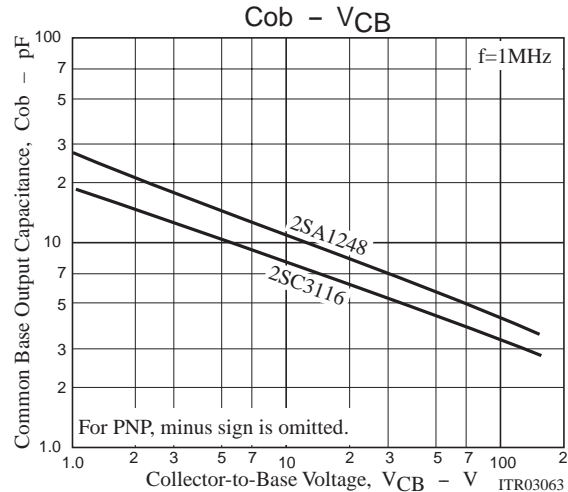
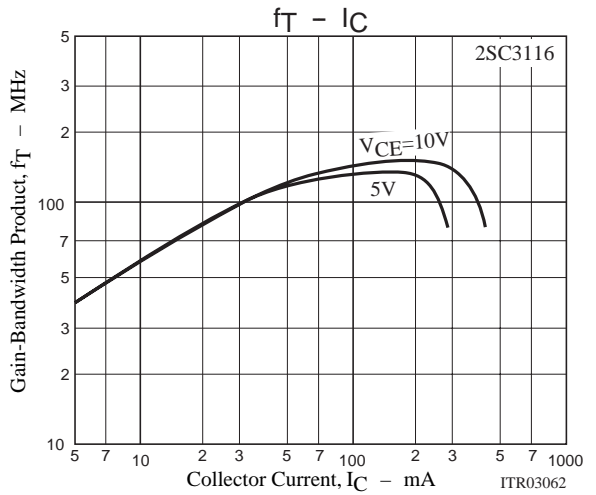
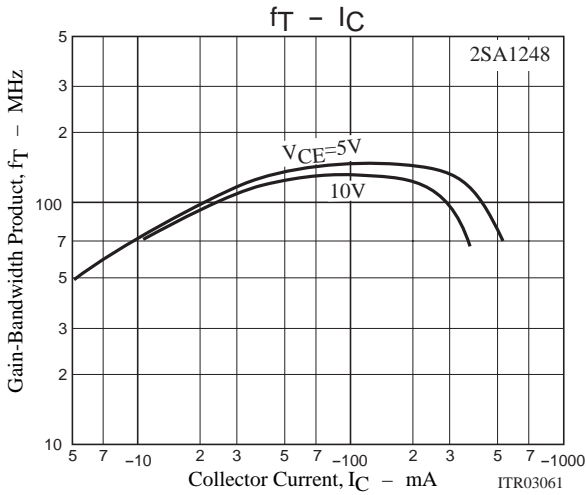
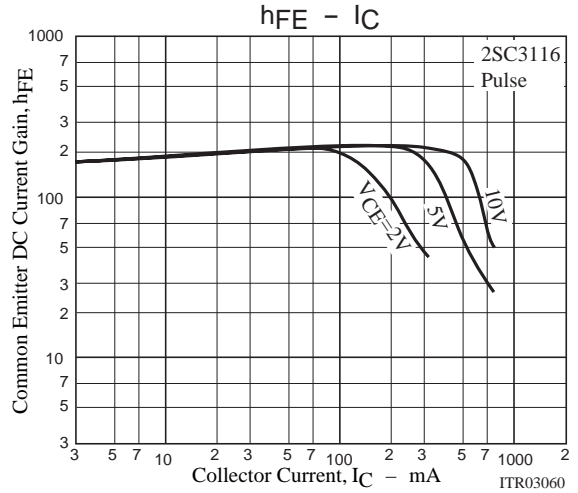
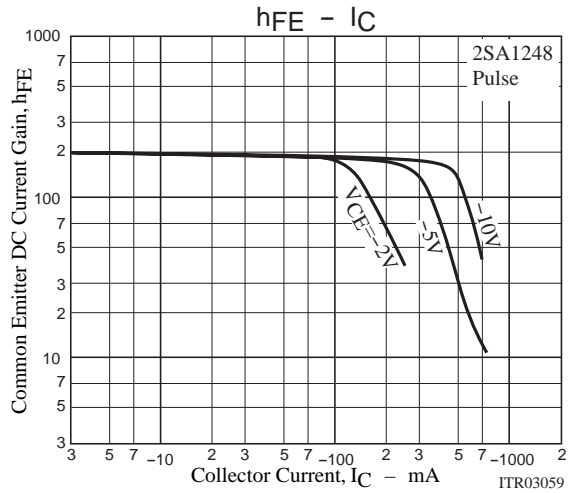
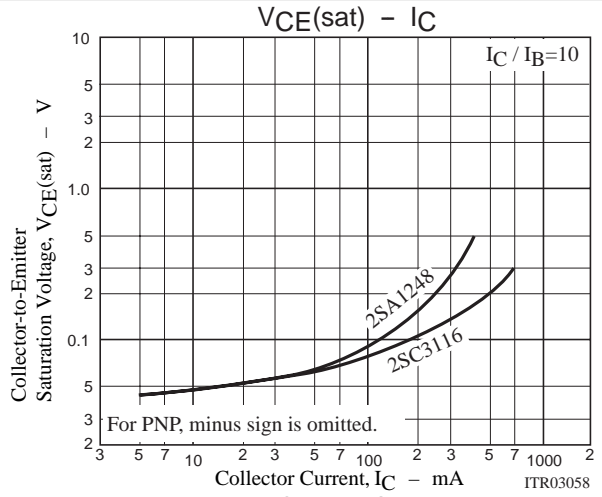
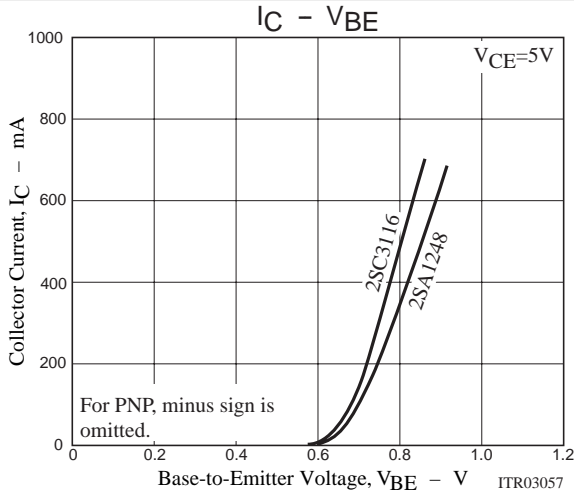
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Common Base Output Capacitance	$C_{ob}$	$V_{CB}=(-)10V, f=1MHz$		8 (11)		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		0.12 (-0.2)	0.4 (-0.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)10\mu A, I_E=0$	(-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) 1000		ns
Fall Time	$t_f$	See Specified Test Circuit		(60)60		ns

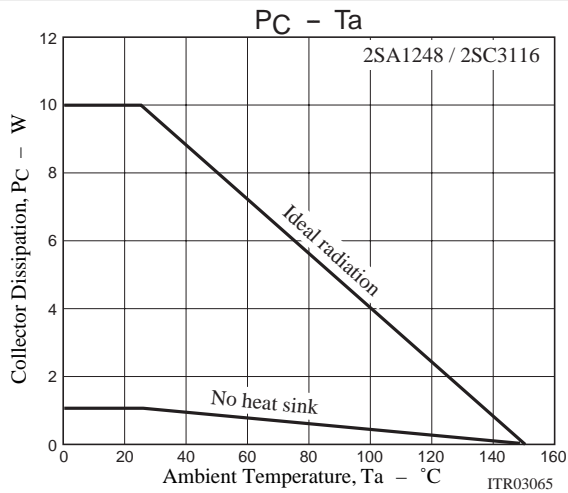
## Switching Time Test Circuit



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## 2SA1248/2SC3116



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