

<b>SANYO</b>	No.1032A	<b>2SA1248 / 2SC3116</b>
PNP/NPN Epitaxial Planar Silicon Transistors		
160V/700mA Switching Applications		

**Uses**

- Color TV sound output, converters, inverters

**Features**

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

( ) : 2SA1248

**Absolute Maximum Ratings/ $T_a=25^\circ\text{C}$**

			unit
Collector-to-Base Voltage	$V_{CB0}$	(-)180	V
Collector-to-Emitter Voltage	$V_{CE0}$	(-)160	V
Emitter-to-Base Voltage	$V_{EB0}$	(-)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
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

**Electrical Characteristics/ $T_a=25^\circ\text{C}$**

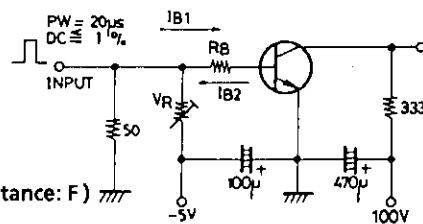
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)120\text{V}, I_E=0$			(-)1.0	$\mu\text{A}$
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4\text{V}, I_C=0$			(-)1.0	$\mu\text{A}$
DC Current Gain	$h_{FE}(1)$	$V_{CE}=(-)5\text{V}, I_C=(-)100\text{mA}$	100*		400*	
	$h_{FE}(2)$	$V_{CE}=(-)5\text{V}, I_C=(-)10\text{mA}$	90			
Gain-bandwidth product	$f_T$	$V_{CE}=(-)10\text{V}, I_C=(-)50\text{mA}$		120		MHz
Common Base Output Capacitance	$C_{ob}$	$V_{CB}=(-)10\text{V}, f=1\text{MHz}$		8		pF
				(11)		
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)	
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		(-)0.85	(-)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0$	(-)180			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	(-160)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0$	(-)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

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

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

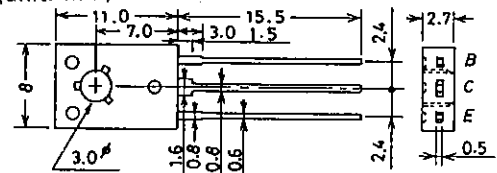
(For PNP, the polarity is reversed.)



$$20I_{B1} = -20I_{B2} = I_C = 300\text{mA}$$

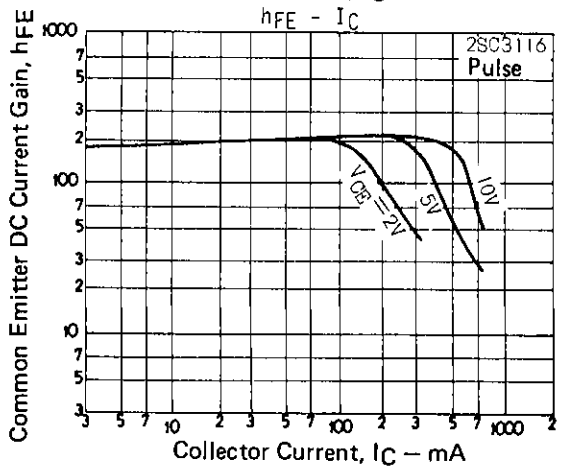
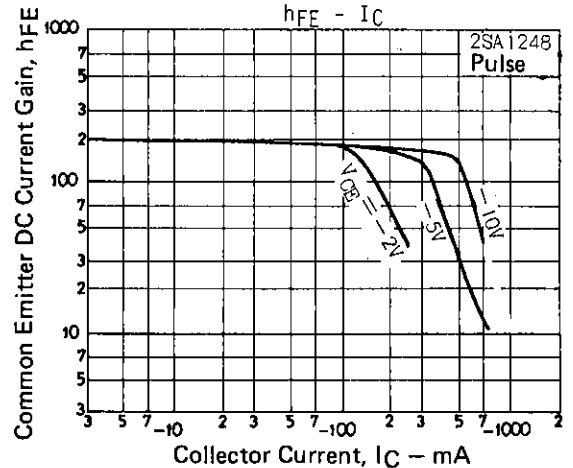
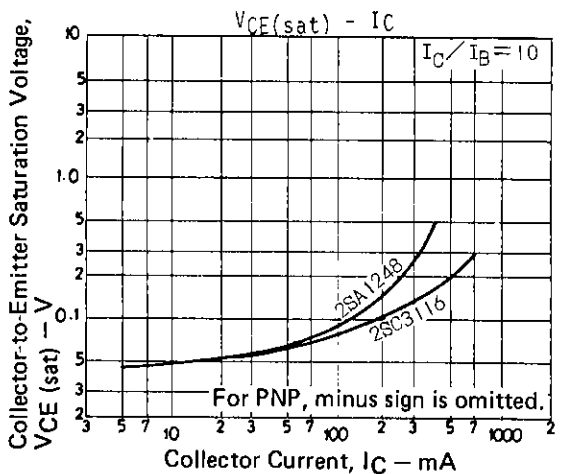
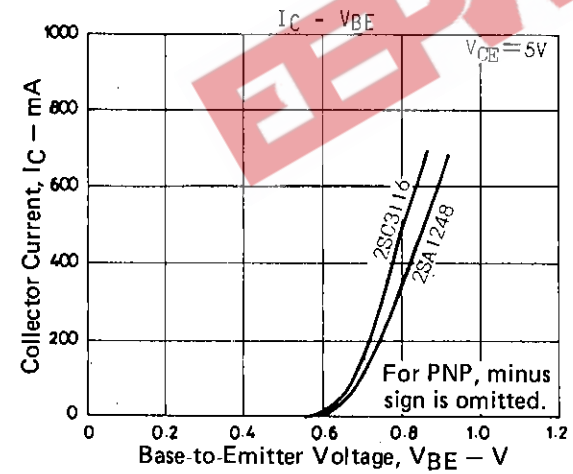
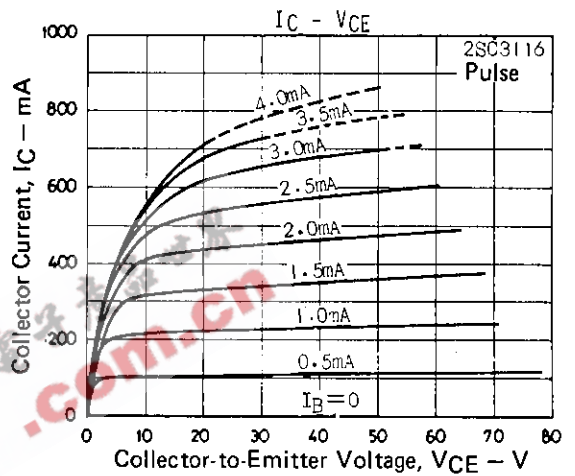
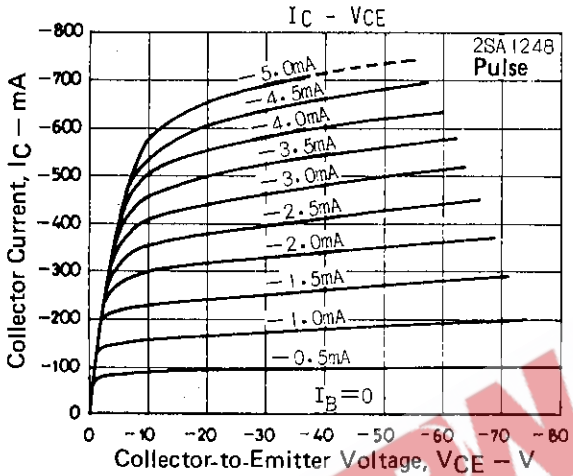
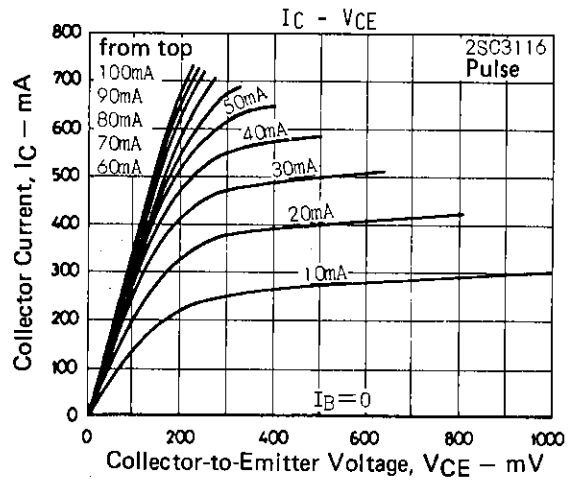
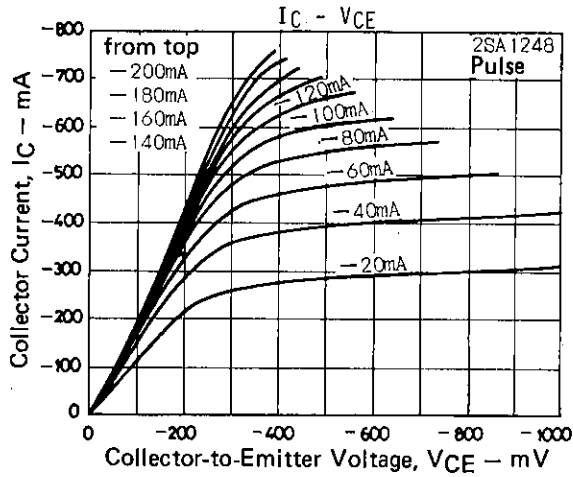
**Package Dimensions 2009A**

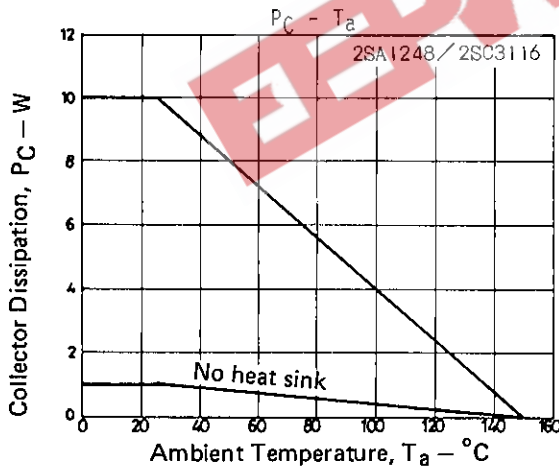
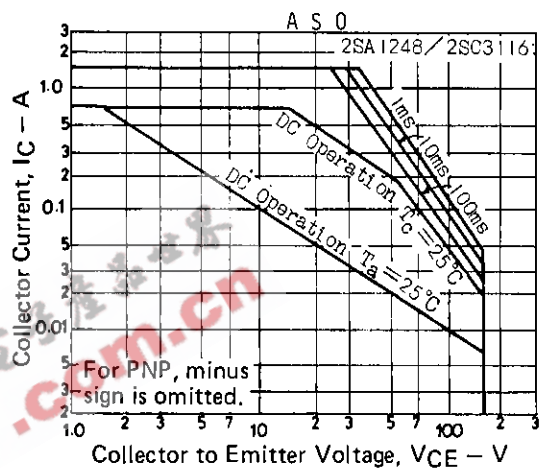
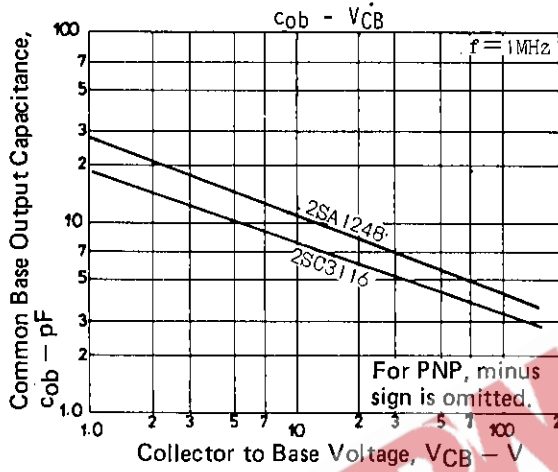
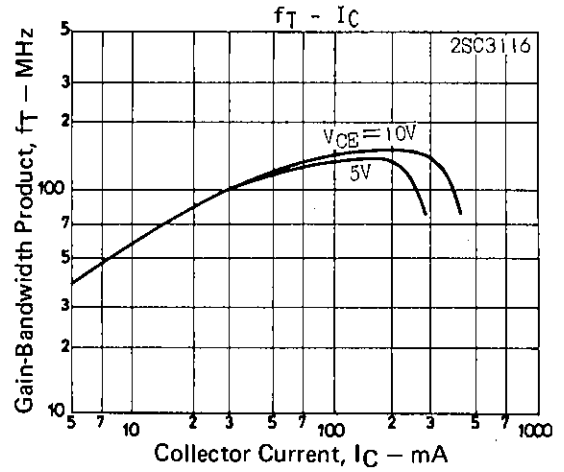
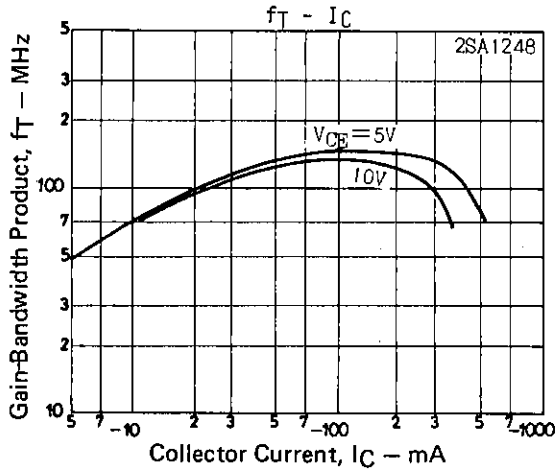
(unit: mm)



JEDEC: TO-126

B: Base  
C: Collector  
E: Emitter





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