



SANYO Semiconductors

DATA SHEET

2SA1418 / 2SC3648 — PNP / NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching, Preriver Applications

Applications

- Color TV audio output, inverter.

Features

- Adoption of FBET, MBIT processes.
- High breakdown voltage and large current capacity.
- Fast switching speed.
- Ultrasmall size making it easy to provide high-density, small-sized hybrid IC's.

Specifications () : 2SA1418

Absolute Maximum Ratings at Ta=25°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 _{EB0}		(-)6	V
Collector Current	I _C		(-)0.7	A
Collector Current (Pulse)	I _{CP}		(-)1.5	A
Collector Dissipation	P _C		500	mW
		Mounted on a ceramic board (250mm ² ×0.8mm)	1.3	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Marking 2SA1418 : AD

2SC3648 : CD

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SANYO Semiconductor Co., Ltd.

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2SA1418 / 2SC3648

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)120\text{V}, I_E=0\text{A}$			$(-)0.1$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0\text{A}$			$(-)0.1$	μA
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	$V_{CE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		$(-0.2)0.12$	$(-0.5)0.4$	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250\text{mA}, I_B=(-)25\text{mA}$		$(-)0.85$	$(-)1.2$	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu\text{A}, I_E=0\text{A}$	$(-)180$			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1\text{mA}, R_{BE}=\infty$	$(-)160$			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu\text{A}, I_C=0\text{A}$	$(-)6$			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

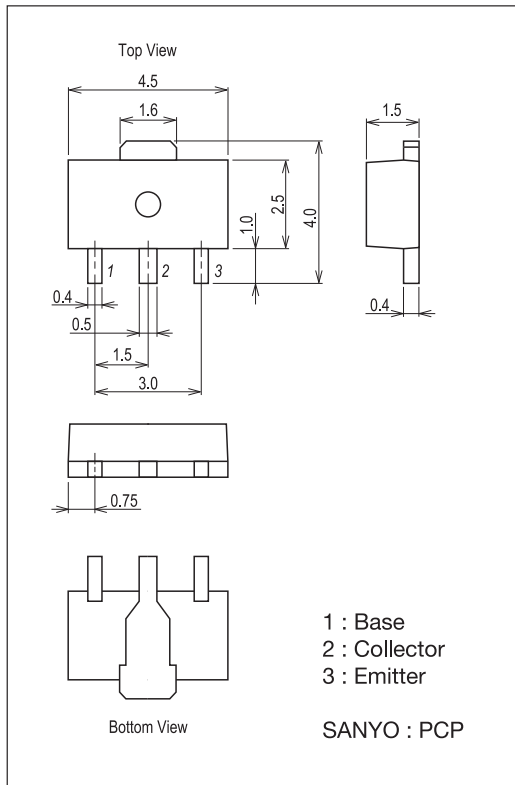
*: The 2SA1418 / 2SC3648 are classified by 100mA h_{FE} as follows:

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

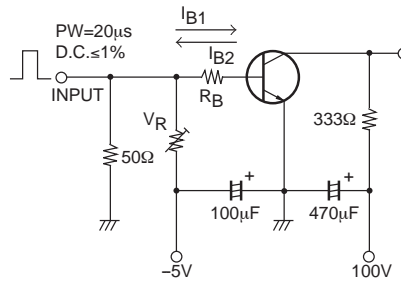
Package Dimensions

unit : mm (typ)

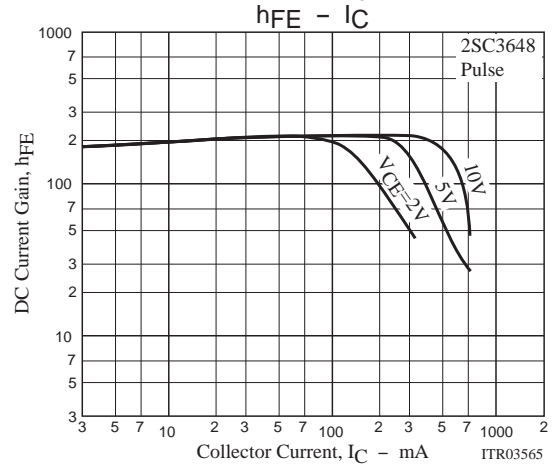
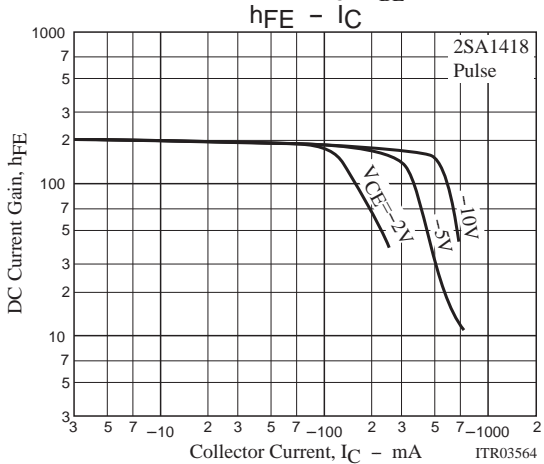
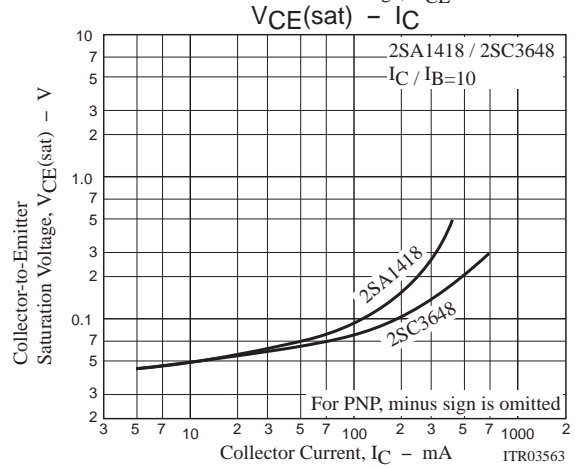
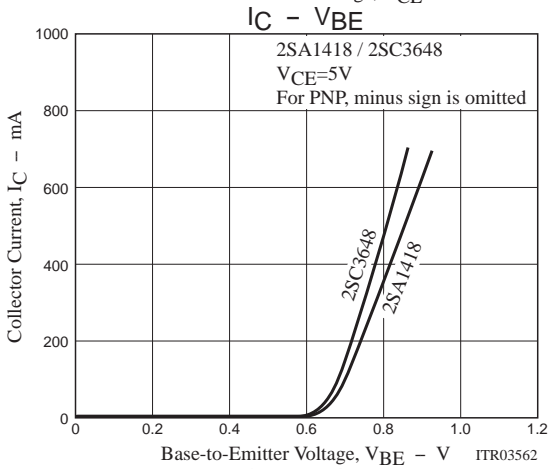
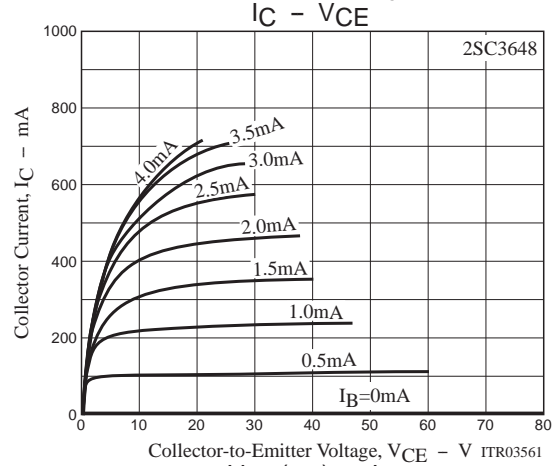
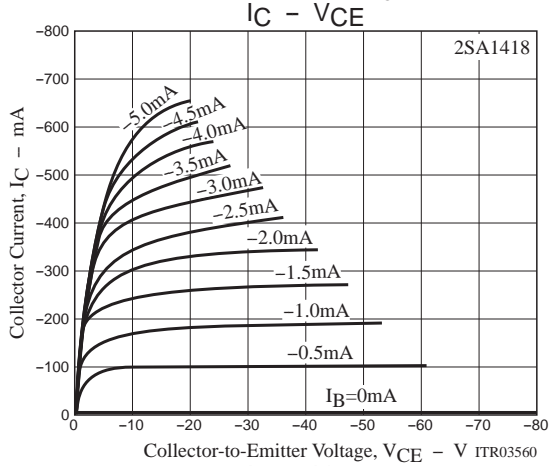
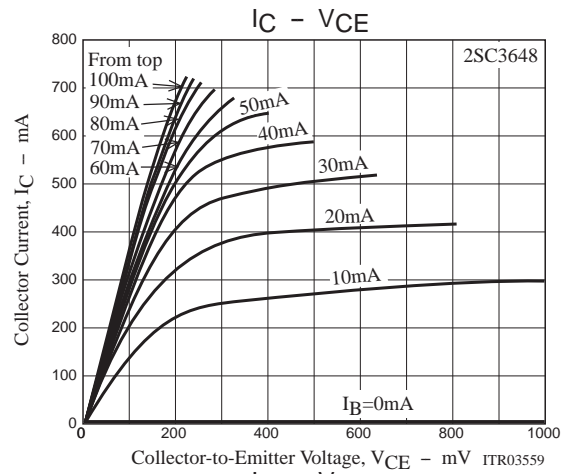
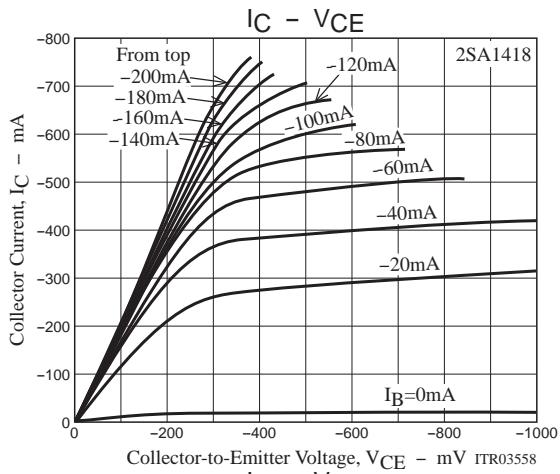
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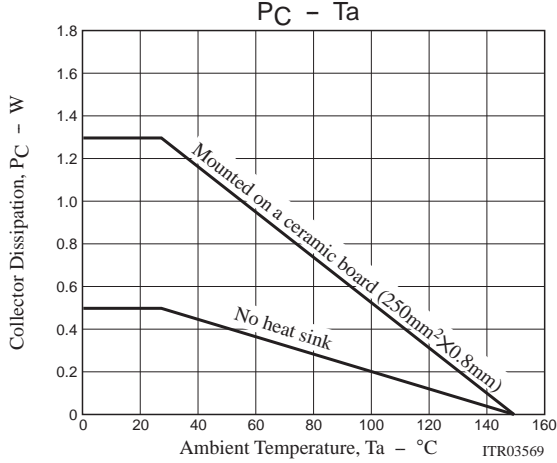
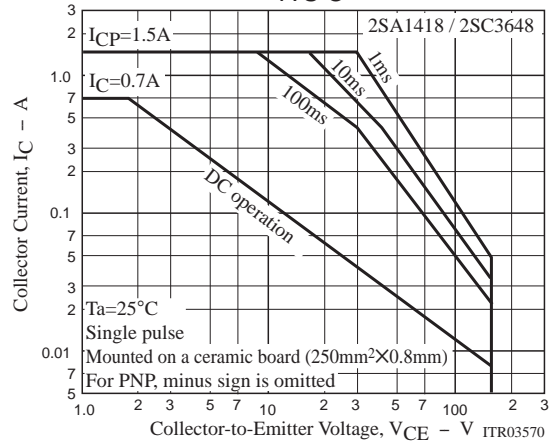
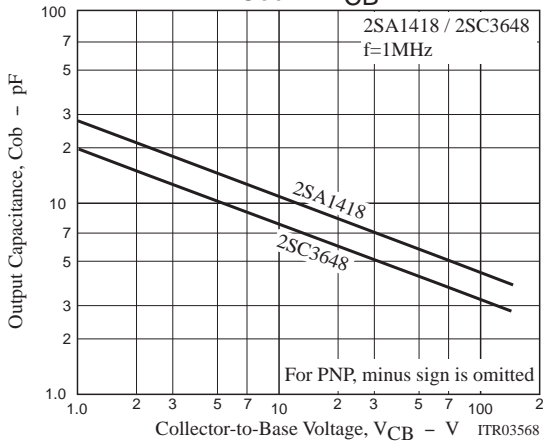
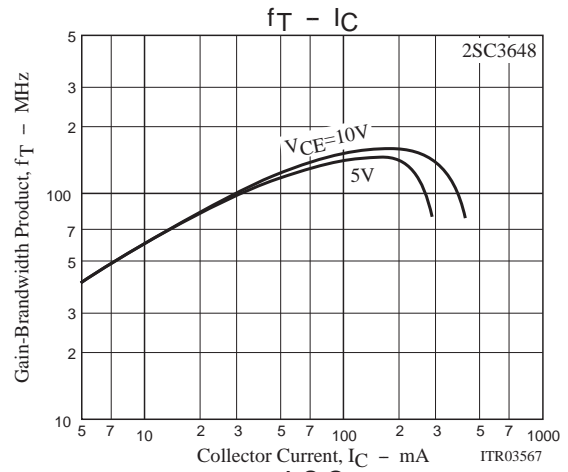
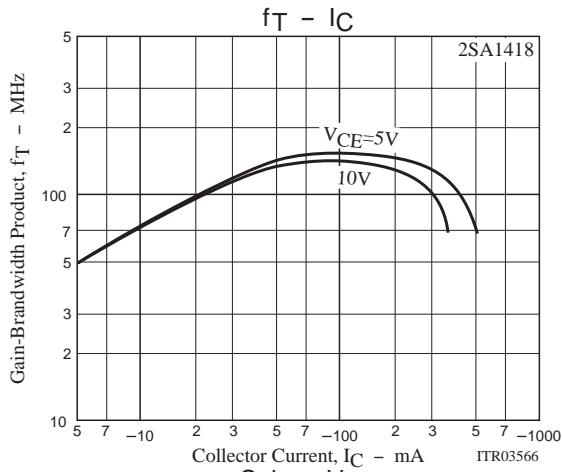
Switching Time Test Circuit



$I_C=20I_B$
 $I_B=-20I_B$
 (For PNP, the polarity is reversed)



2SA1418 / 2SC3648



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