



ON Semiconductor®

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PNP / NPN Epitaxial Planar Silicon Transistors

2SA1418 / 2SC3648 — 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	VCBO		(-)180	V
Collector-to-Emitter Voltage	VCEO		(-)160	V
Emitter-to-Base Voltage	VEBO		(-)6	V
Collector Current	IC		(-)0.7	A
Collector Current (Pulse)	ICP		(-)1.5	A
Collector Dissipation	PC		500	mW
		Mounted on a ceramic board (250mm²×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Marking 2SA1418 : AD

2SC3648 : CD

2SA1418 / 2SC3648

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=(-)120V, I_E=0A$			$(-)0.1$	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4V, I_C=0A$			$(-)0.1$	μA
DC Current Gain	h_{FE1}	$V_{CE}=(-)5V, I_C=(-)100mA$	100*		400*	
	h_{FE2}	$V_{CE}=(-)5V, I_C=(-)10mA$	90			
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		120		MHz
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		(11)8		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		$(-0.2)0.12$	$(-0.5)0.4$	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	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0A$		$(-)180$		V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$		$(-)160$		V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0A$		$(-)6$		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

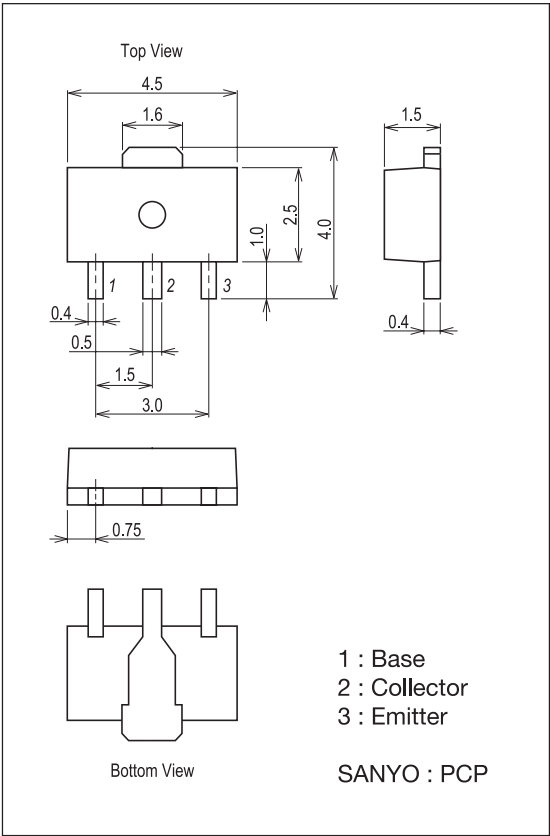
*: The 2SA1418 / 2SC3648 are classified by 100mA h_{FE} as follows:

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

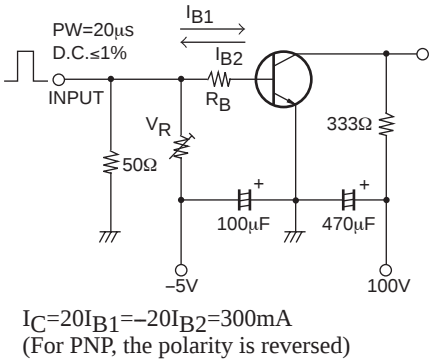
Package Dimensions

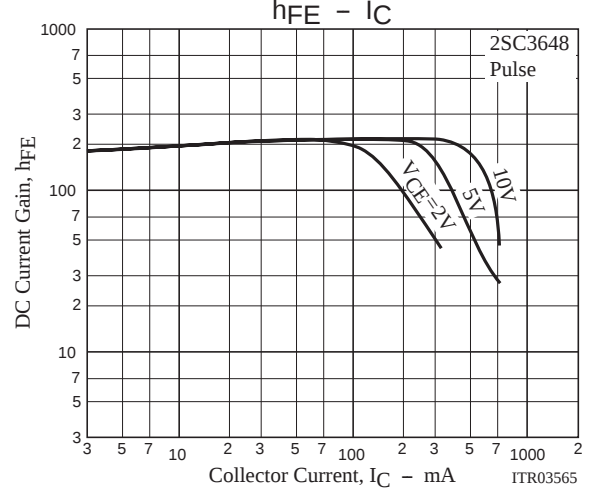
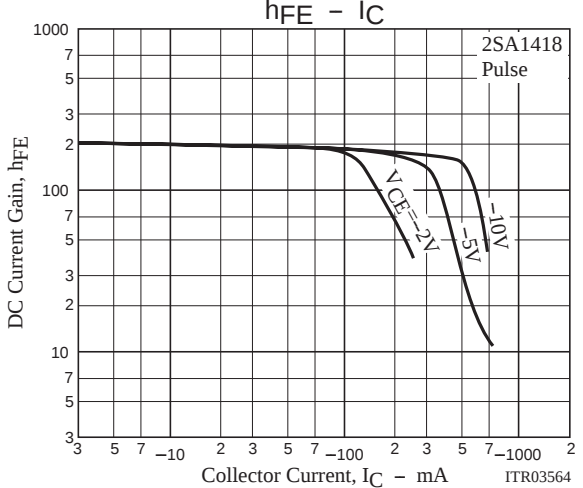
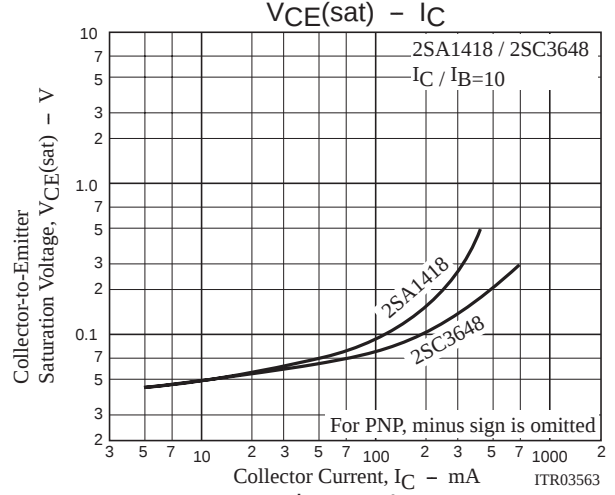
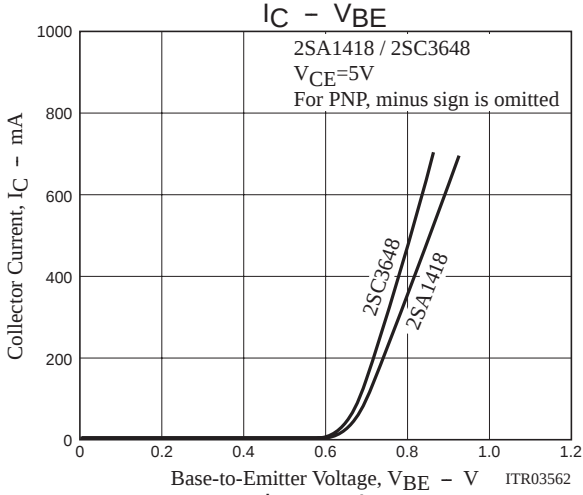
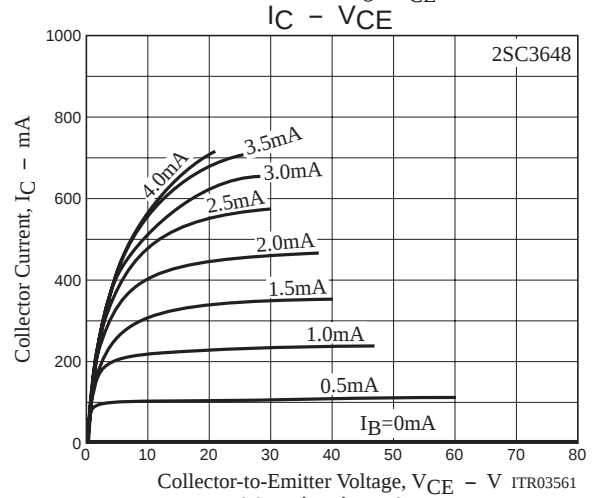
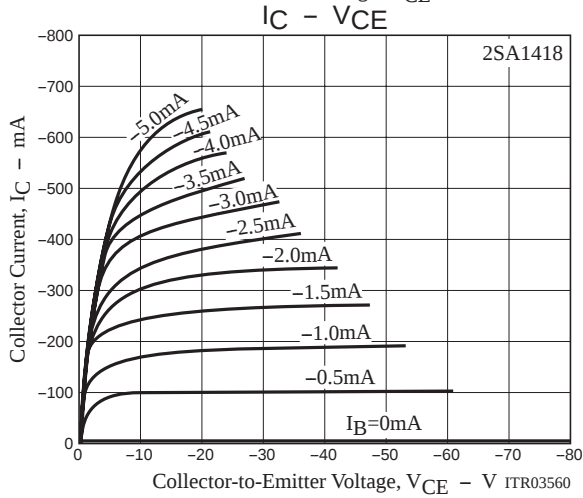
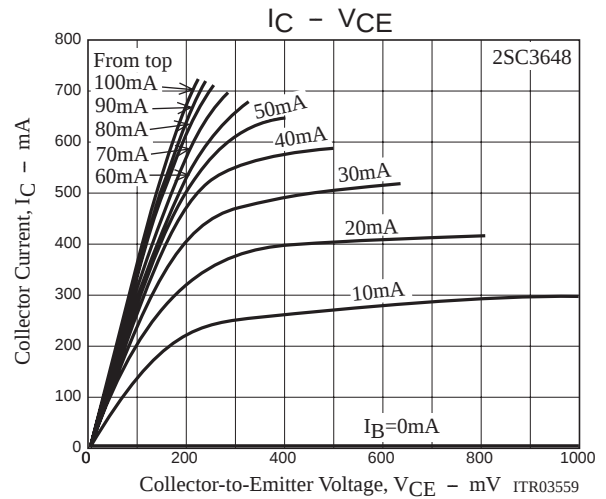
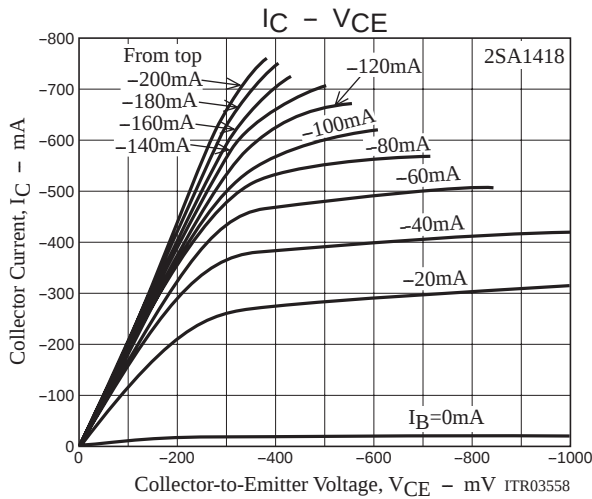
unit : mm (typ)

7007B-004

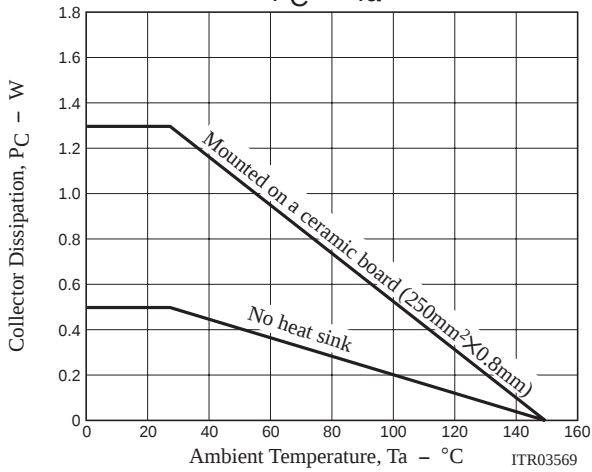
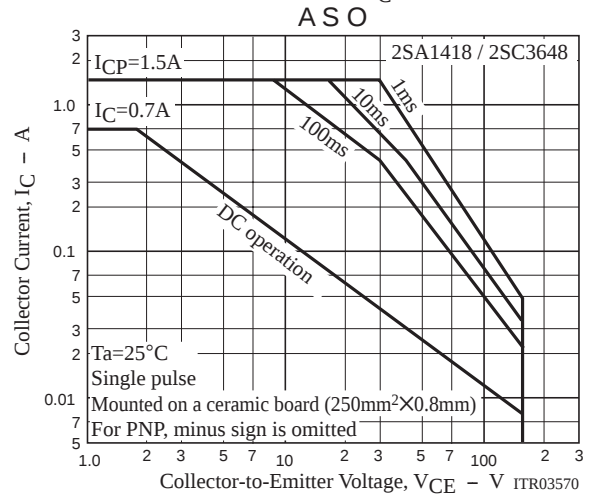
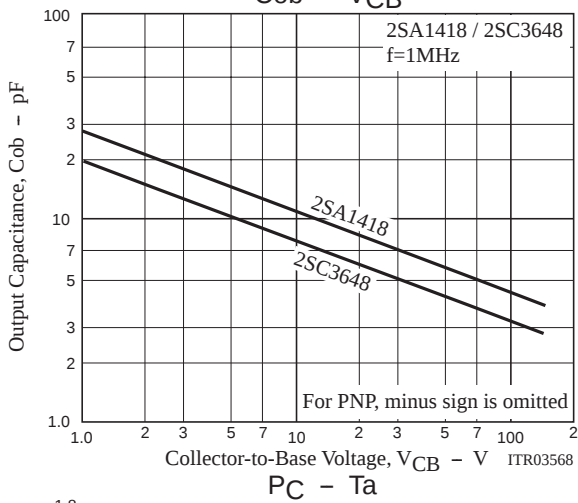
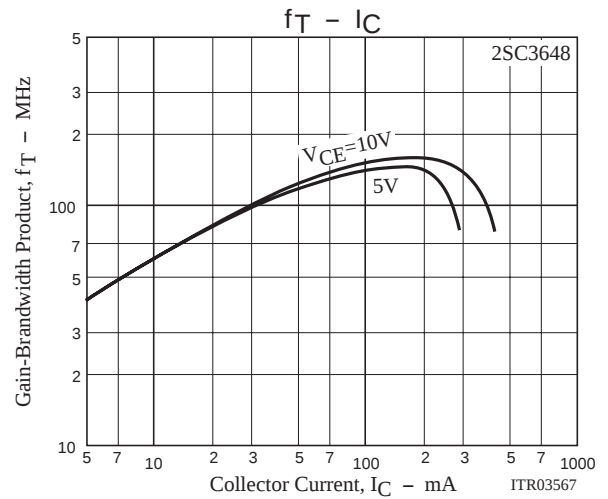
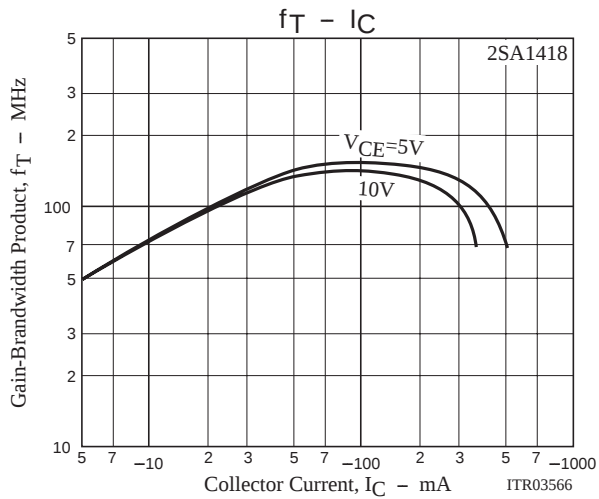


Switching Time Test Circuit





2SA1418 / 2SC3648



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