



2SA1418/2SC3648

High-Voltage Switching, Predriver Applications

Applications

- Color TV audio output, inverter.

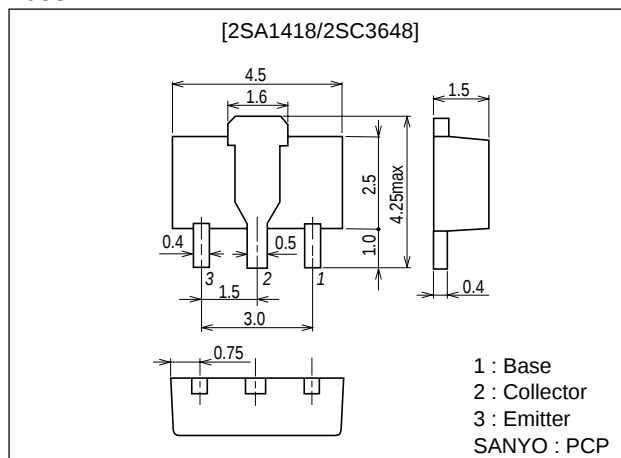
Features

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

Package Dimensions

unit:mm

2038A



() : 2SA1418

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		500	mW
		Mounted on ceramic board (250mm $\times$ 0.8mm)	1.3	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	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=(-)4\text{V}, I_C=0$			(-)-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			

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

Continued on next page.

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

Marking 2SA1418 : AD
2SC3648 : CD

 h_{FE} rank : R, S, T

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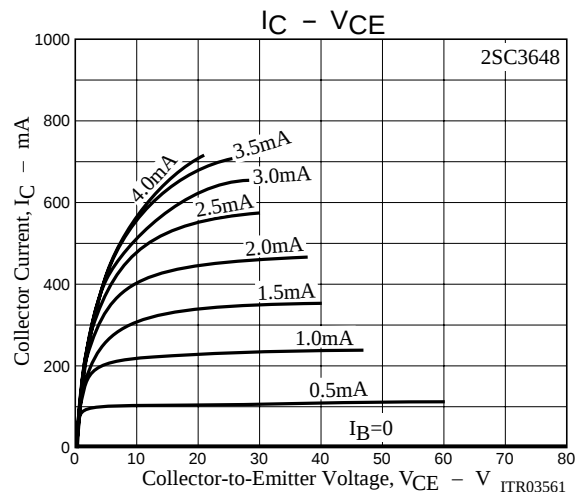
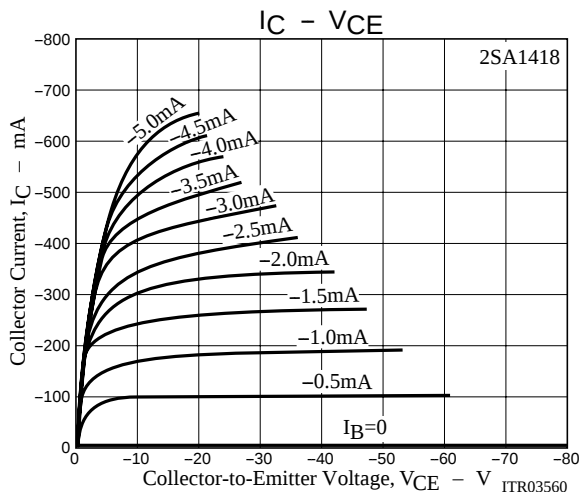
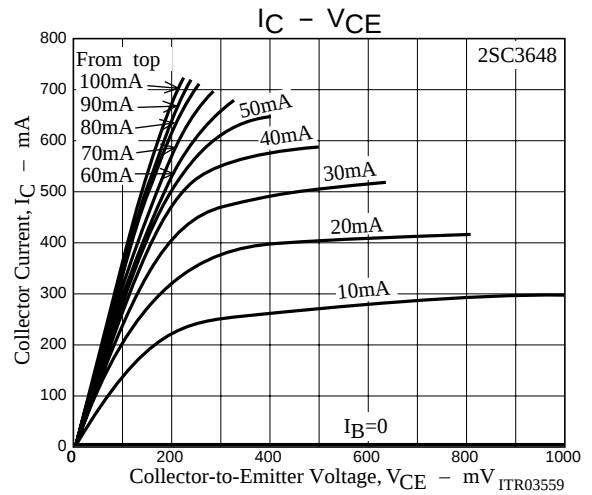
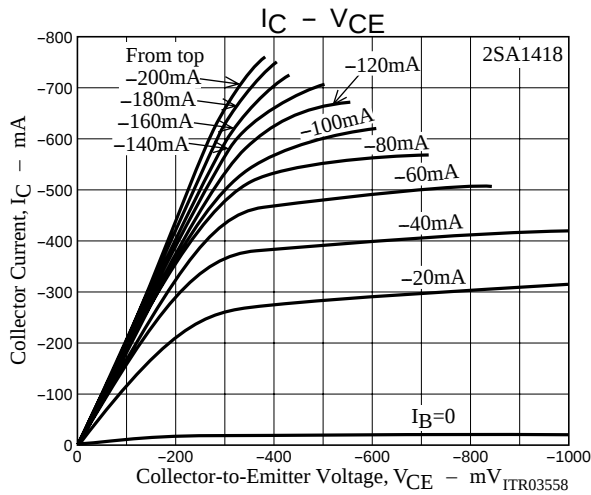
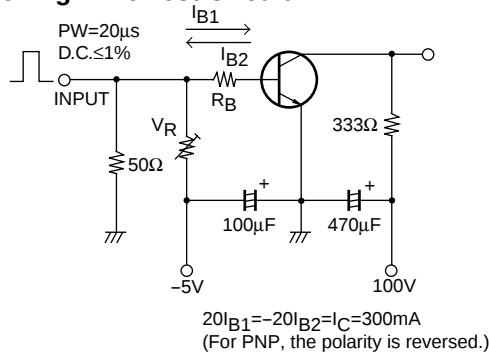
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2SA1418/2SC3648

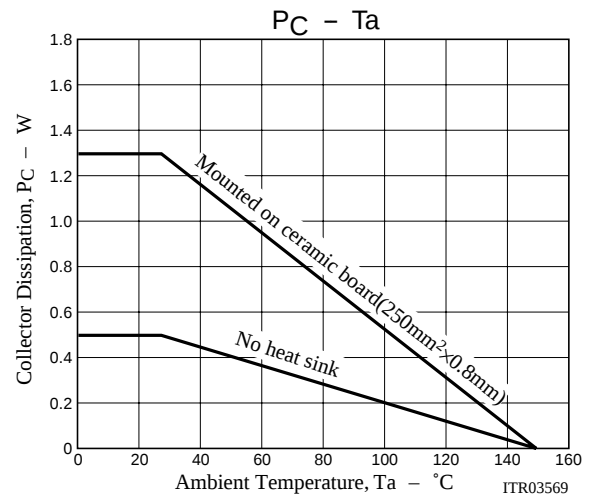
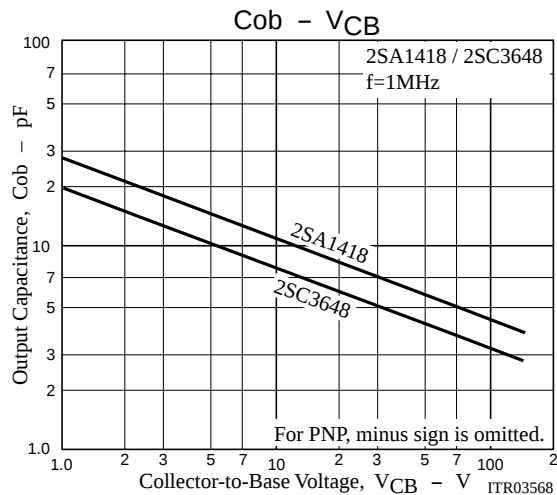
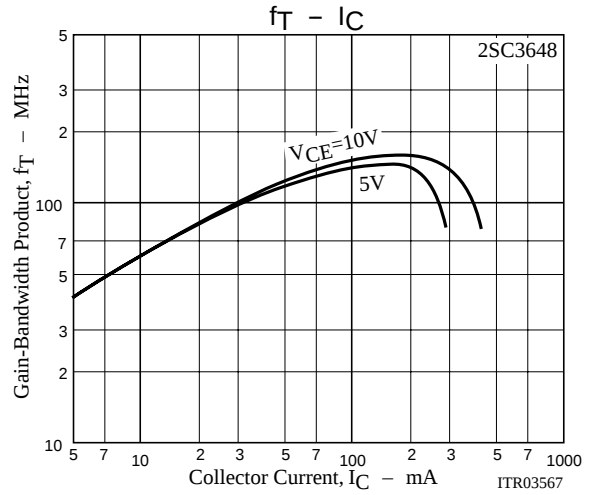
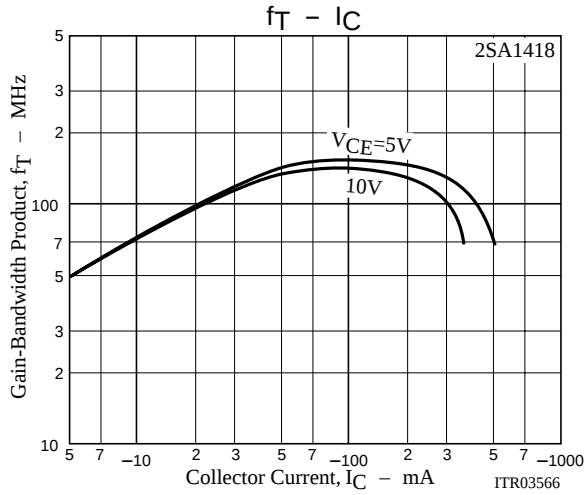
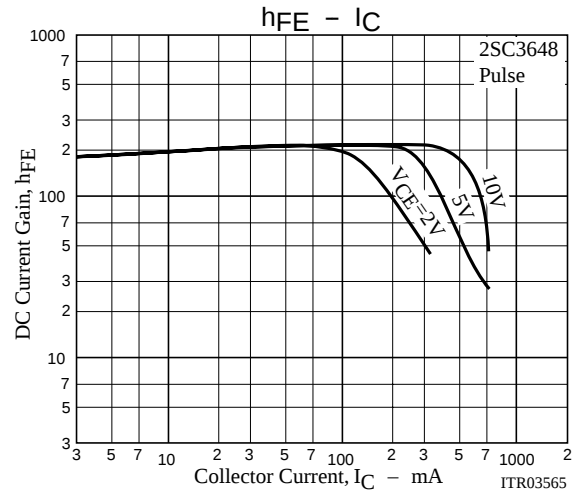
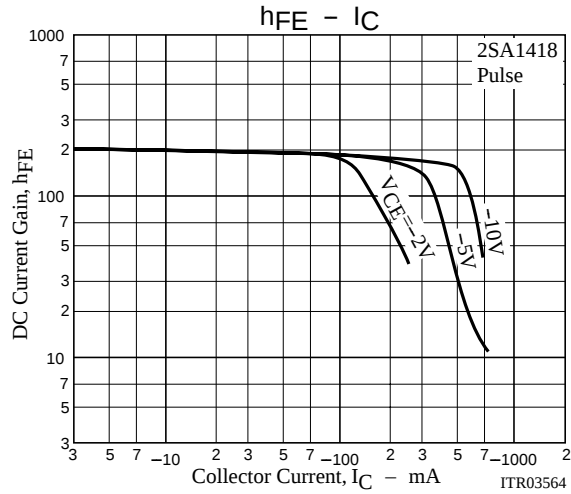
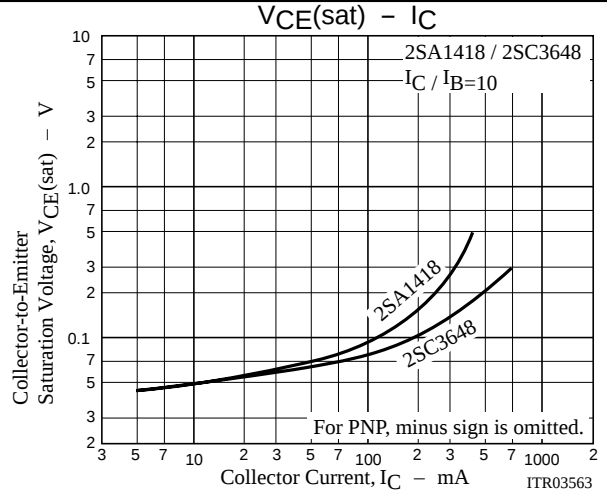
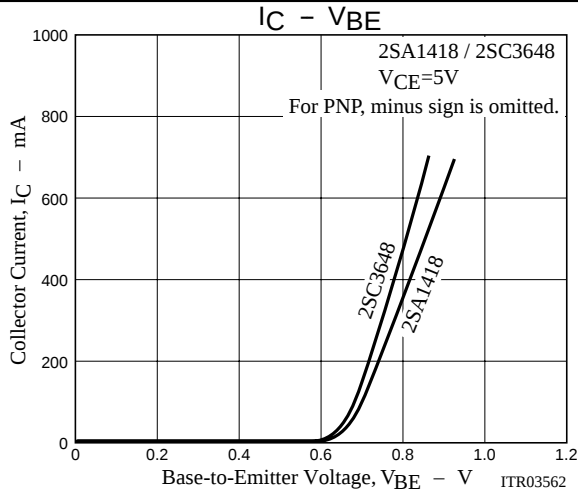
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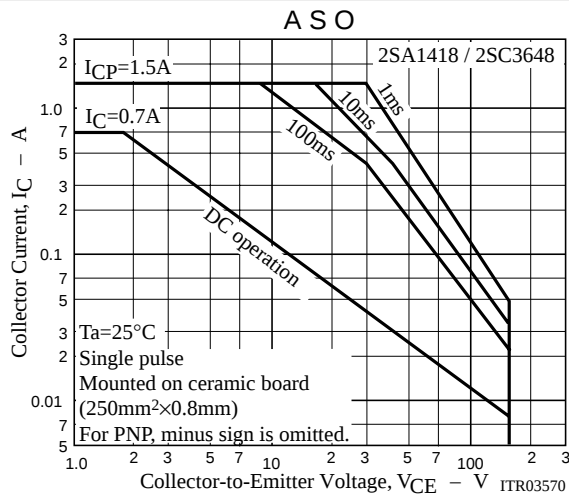
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		120		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		0.12	0.4	V
				(-0.2)	(-0.5)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		(-0.85)	(-1.2)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-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
Output Capacitance	C_{ob}	$V_{CB}=(-)10V, f=1MHz$		8		pF
				(11)		pF
Turn-ON Time	t_{on}	See specified Test Circuit.		50		ns
				(60)		ns
Storage Time	t_{stg}	See specified Test Circuit.		1000		ns
				(900)		ns
Fall Time	t_f	See specified Test Circuit.		60		ns
				(60)		ns

Switching Time Test Circuit



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