



2SA1418/2SC3648

High-Voltage Switching, Predriver Applications

Applications

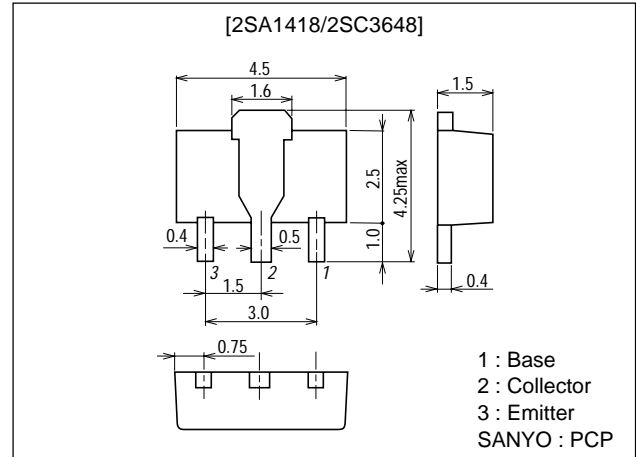
- Color TV audio output, inverter.

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 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 _{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 ² ×0.8mm)	1.3	W
Junction Temperature	T _J		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I _{CBO}	V _{CB} =(-)120V, I _E =0			(-)0.1	μA
Emitter Cutoff Current	I _{EBO}	V _{EB} =(-)4V, I _C =0			(-)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			

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

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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

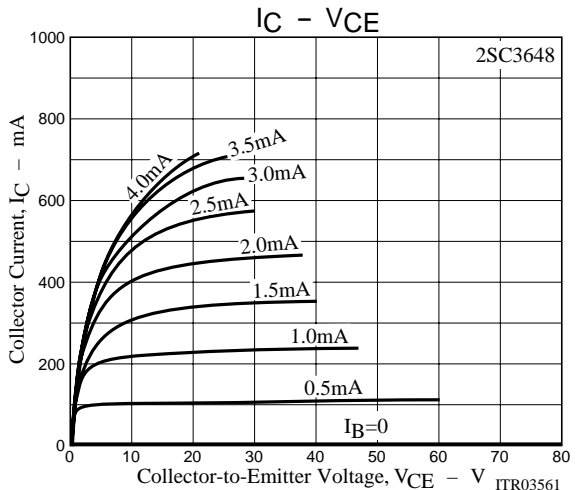
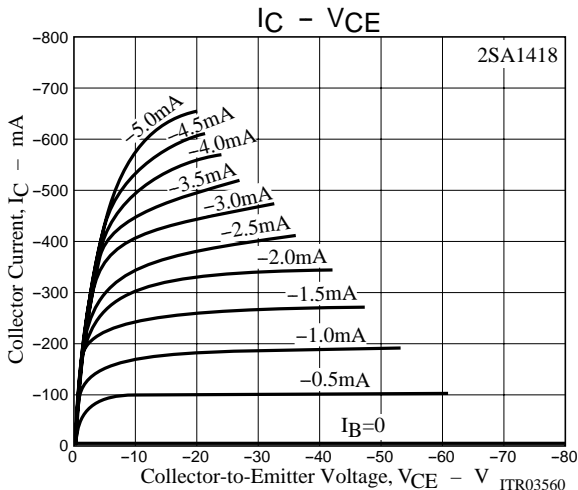
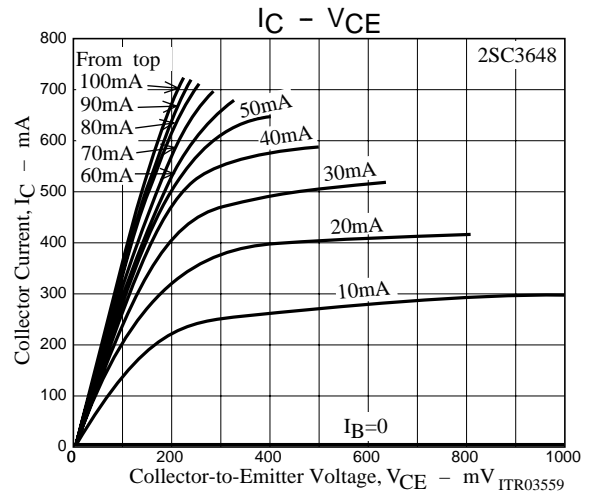
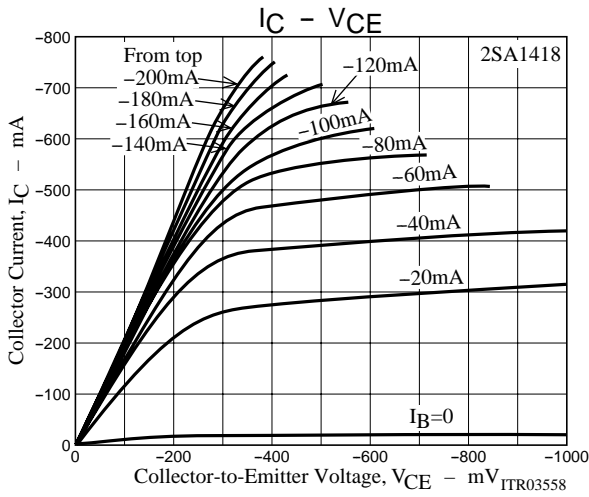
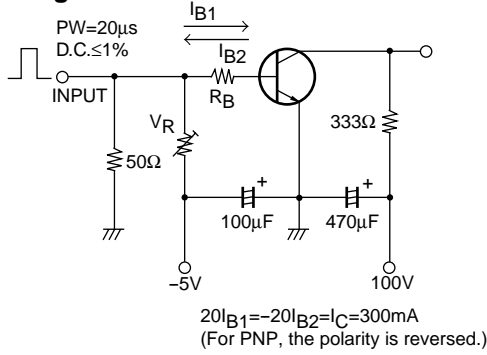
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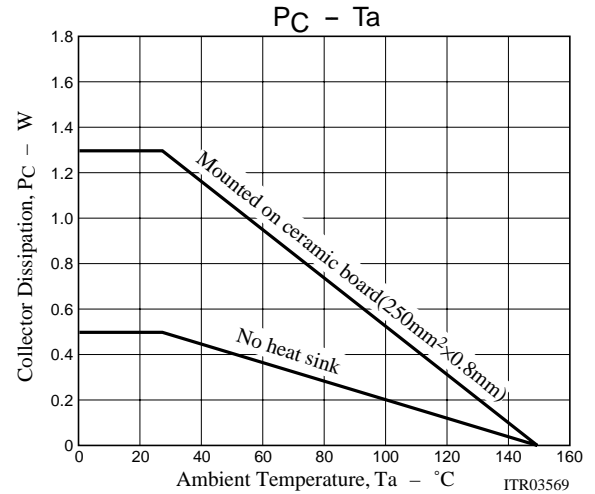
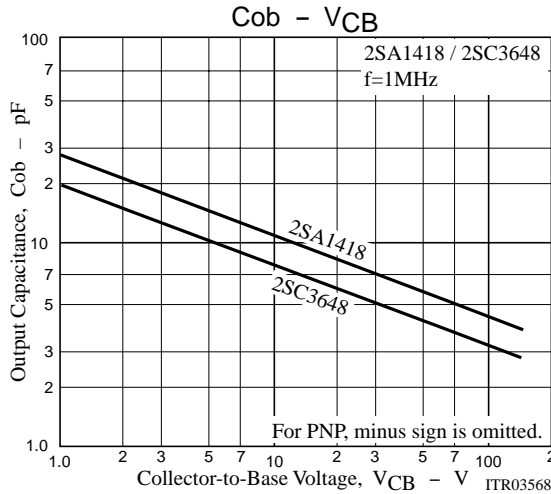
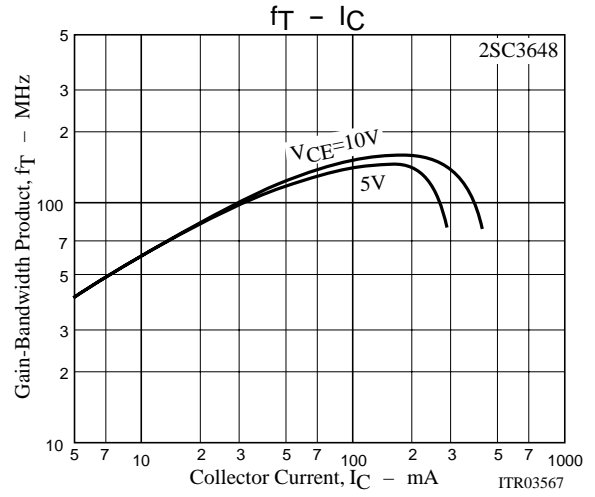
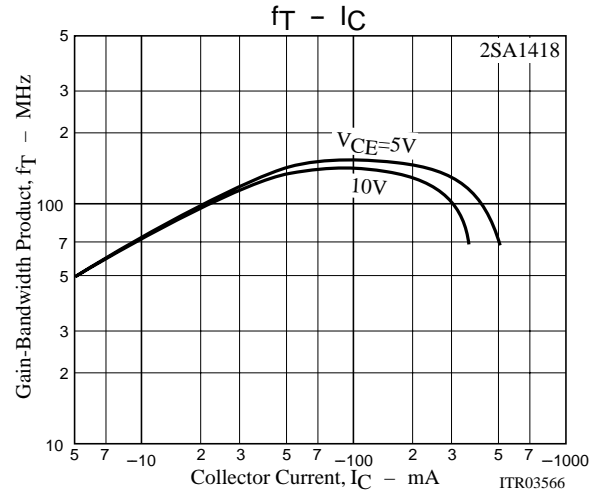
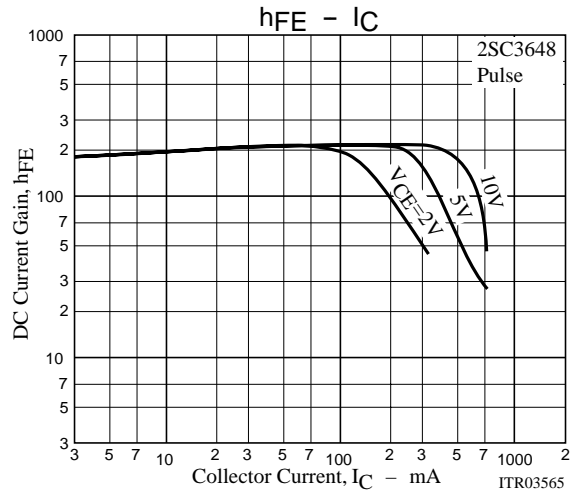
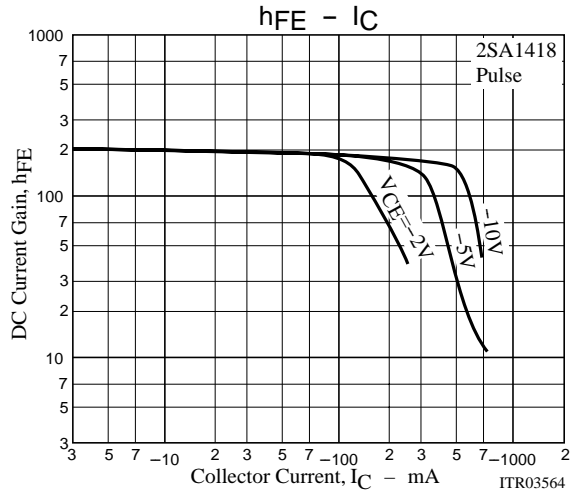
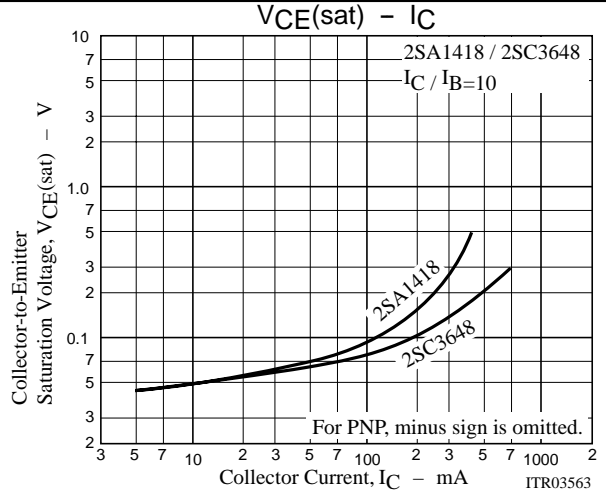
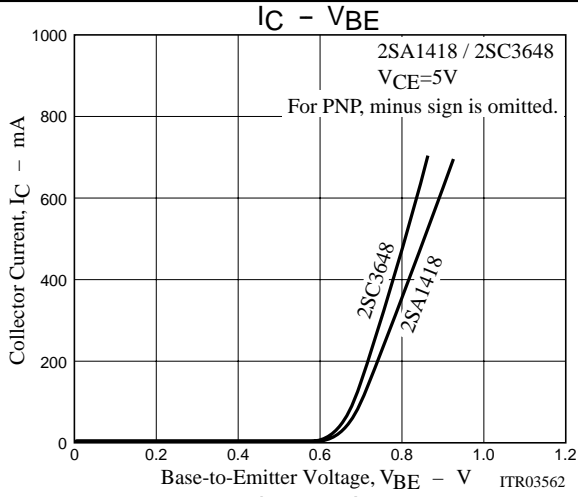
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Gain-Bandwidth Product	f_T	$V_{CE}=(-)10V, I_C=(-)50mA$		120		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		0.12	0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)250mA, I_B=(-)25mA$		(-0.2)	(-0.5)	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

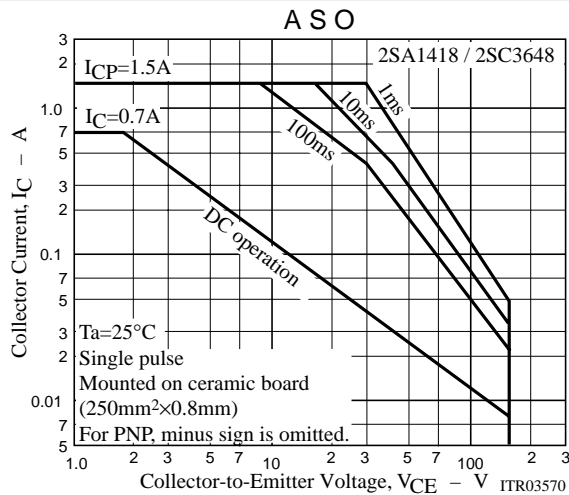
Switching Time Test Circuit



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