

**SANYO**

No.1720A

**2SA1415/2SC3645**

PNP/NPN Epitaxial Planar Silicon Transistors

High-Voltage Switching,  
Predriver Applications

**Features**

- Adoption of FBET process
- High breakdown voltage ( $V_{CEO} = 160V$ )
- Excellent linearity of  $h_{FE}$  and small  $c_{ob}$
- Fast switching speed
- Very small size marking it easy to provide high-density, small-sized hybrid ICs

( ) : 2SA1415

**Absolute Maximum Ratings at  $T_a = 25^\circ C$**

			unit
Collector to Base Voltage	$V_{CBO}$	(-) $180$	V
Collector to Emitter Voltage	$V_{CEO}$	(-) $160$	V
Emitter to Base Voltage	$V_{EBO}$	(-) $5$	V
Collector Current	$I_C$	(-) $140$	mA
Collector Current(Pulse)	$I_{CP}$	(-) $200$	mA
Collector Dissipation	$P_C(1)$	$500$	mW
	$P_C(2)$ Mounted on ceramic board ( $250mm^2 \times 0.8mm$ )	$1.3$	W
Junction Temperature	$T_j$	$150$	$^\circ C$
Storage Temperature	$T_{stg}$	$-55$ to $+150$	$^\circ C$

**Electrical Characteristics at  $T_a = 25^\circ C$**

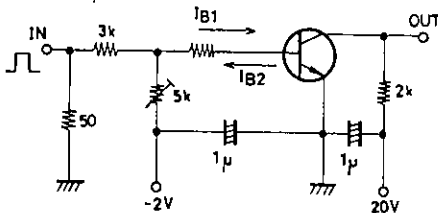
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)80V, I_E = 0$			(-) $100$	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(-) $100$	nA
DC Current Gain	$h_{FE}$	$V_{CE} = (-)5V, I_C = (-)10mA$	$100 \times$		$400 \times$	
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)10V, I_C = (-)10mA$		$150$		MHz
Output Capacitance	$c_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(4.0)		pF
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)50mA, I_B = (-)5mA$		$(-0.14)$	$(-0.4)$	V
Turn-on Time	$t_{on}$	See specified Test Circuit.		$0.1$		$\mu s$
Storage Time	$t_{stg}$	"		$1.5$		$\mu s$
Fall Time	$t_f$	"		$0.1$		$\mu s$

※ : The 2SA1415/2SC3645 are classified by 10mA  $h_{FE}$  as follows :

100	R	200	140	S	280	200	T	400
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Marking 2SA1415 : AA       $h_{FE}$  rank : R,S,T  
2SC3645 : CA

**Switching Time Test Circuit**

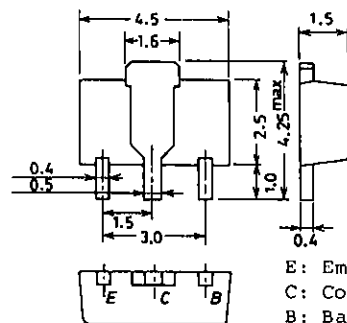


$I_C = 10I_{B1} = 10I_{B2} = 10mA$   
(For PNP, the polarity is reversed.)

Unit (Resistance :  $\Omega$ , Capacitance : F)

**Package Dimensions 2038**

(unit: mm)

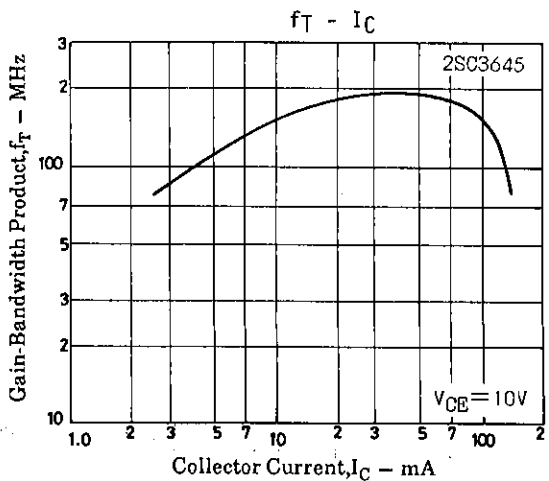
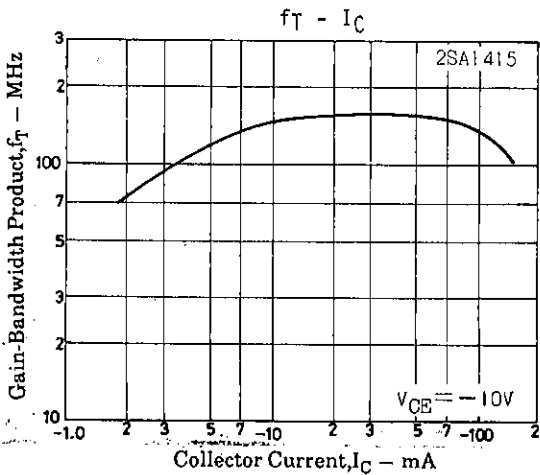
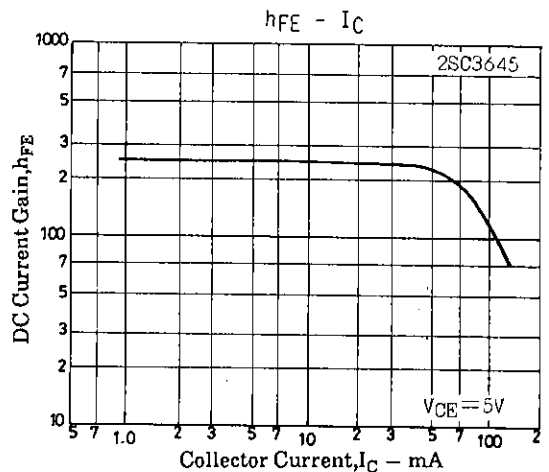
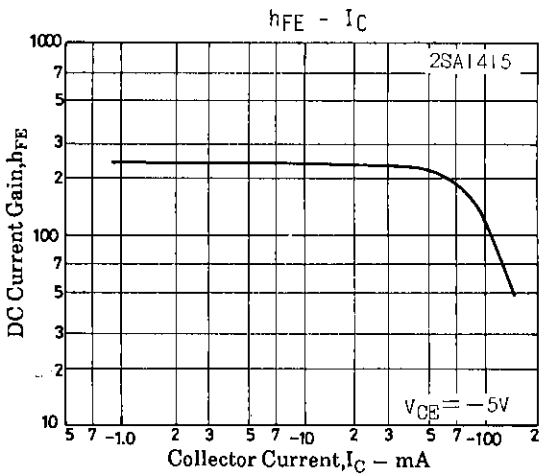
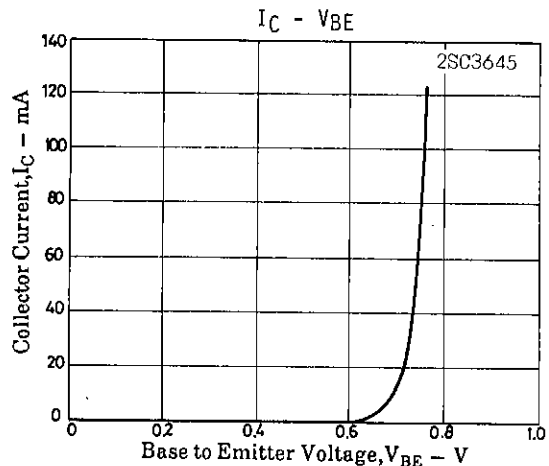
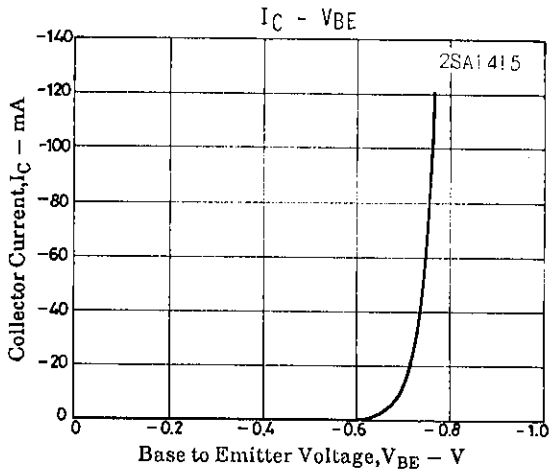
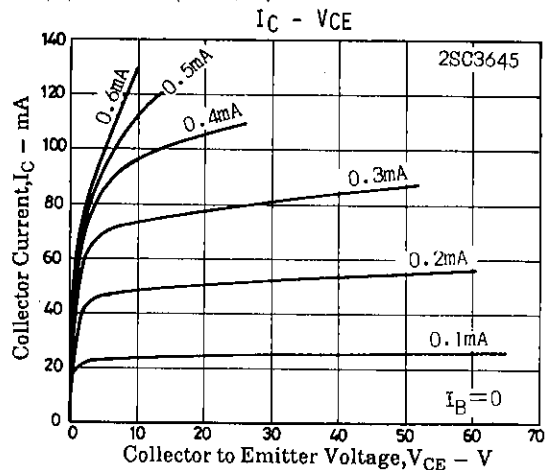
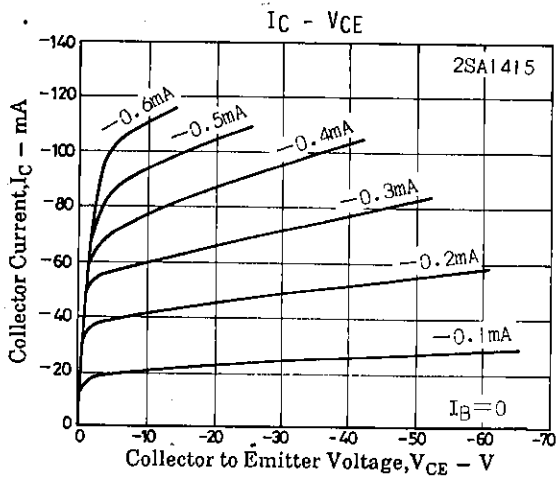


E: Emitter  
C: Collector  
B: Base

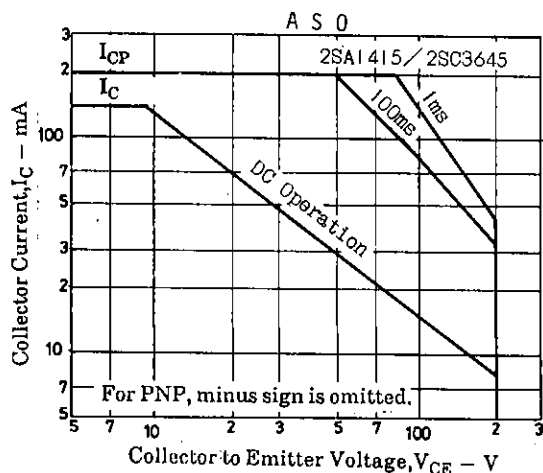
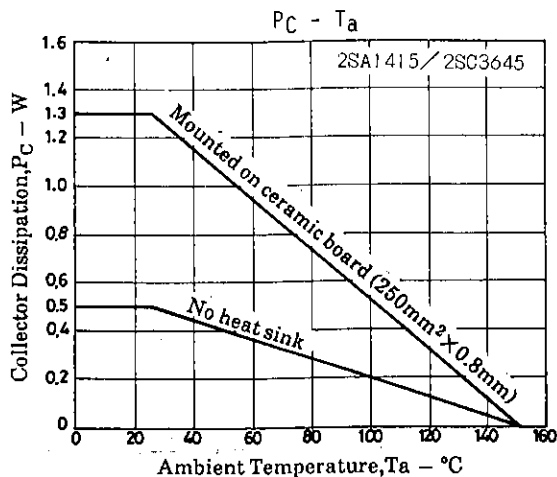
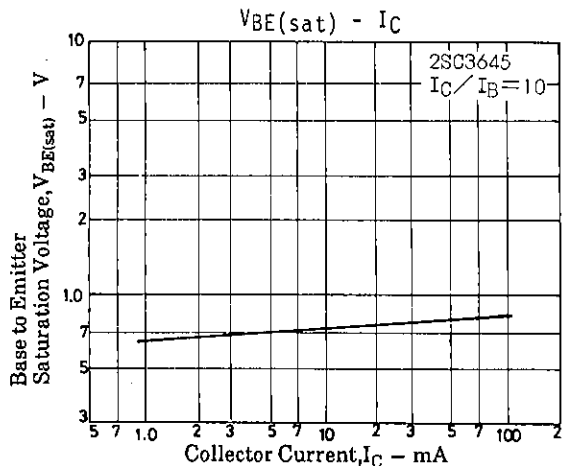
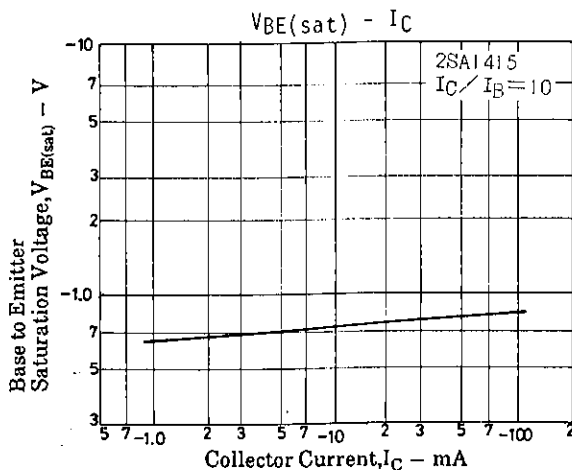
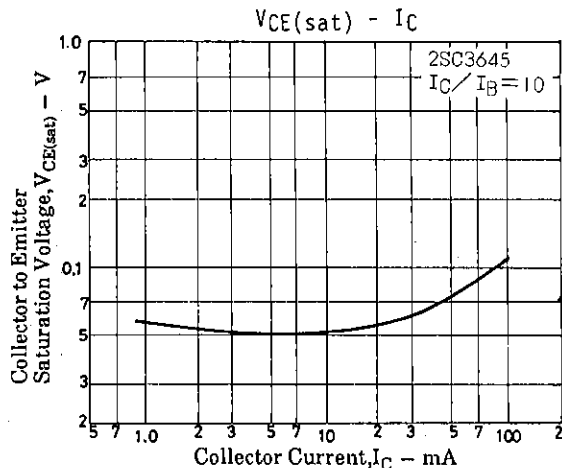
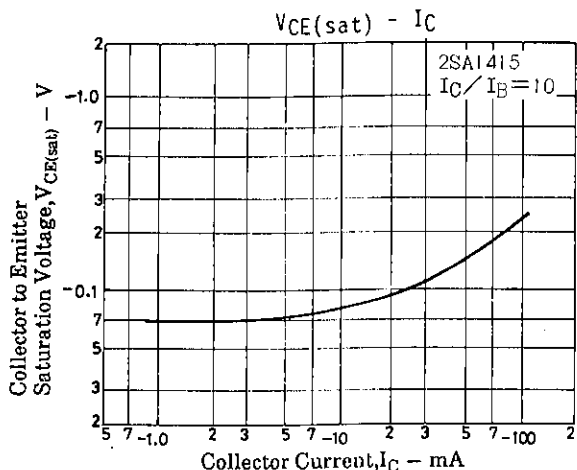
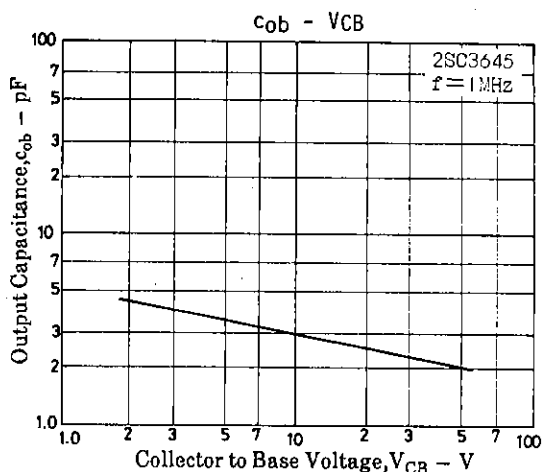
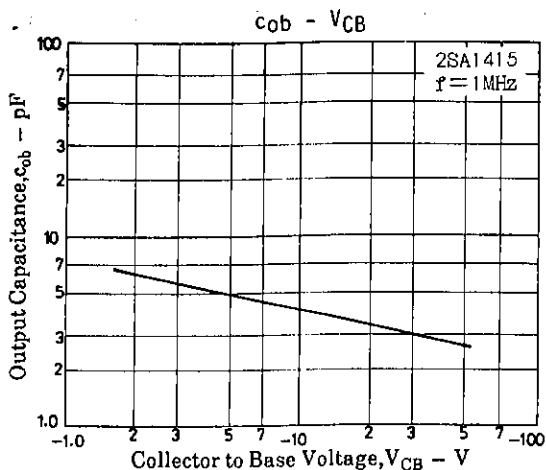
SANYO: PCP  
(Bottom View)

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# 2SA1415/2SC3645



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