

Ordering number:EN3872

PNP/NPN Epitaxial Planar Silicon Transistors

# 2SA1824/2SC4728



## 50V/5A Switching Applications

### Applications

- Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

### Features

- Low collector-to-emitter saturation voltage.
- High Gain-Bandwidth Product.
- Excellent linearity of DC Current Gain.
- Fast switching speed.

( ) : 2SA1824

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CB0}$		(-)-60	V
Collector-to-Emitter Voltage	$V_{CE0}$		(-)-50	V
Emitter-to-Base Voltage	$V_{EB0}$		(-)-6	V
Collector Current	$I_C$		(-)-5	A
Collector Current (Pulse)	$I_{CP}$		(-)-8	A
Base Current	$I_B$		(-)-1	A
Collector Dissipation	$P_C$		1.5	W
Junction Temperature	$T_J$		150	°C
Storage Temperature	$T_{stg}$		-55 to +150	°C

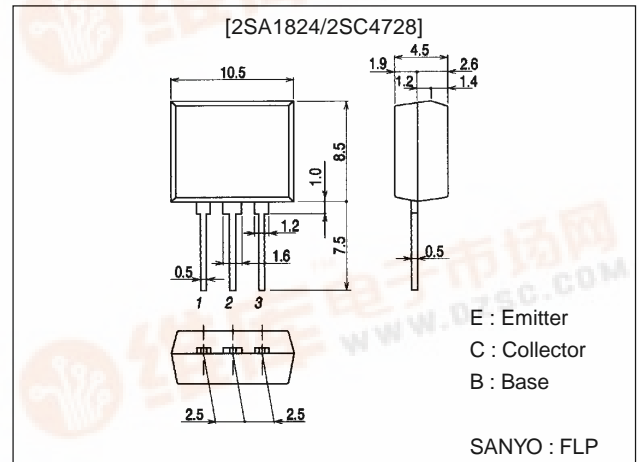
#### Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CB0}$	$V_{CB} = (-)40V, I_E = 0$			(-)-1	μA
Emitter Cutoff Current	$I_{EB0}$	$V_{EB} = (-)4V, I_C = 0$			(-)-1	μA
DC Current Gain	$h_{FE1}$	$V_{CE} = (-)2V, I_C = (-)500mA$	100*		400*	
	$h_{FE2}$	$V_{CE} = (-)2V, I_C = (-)4A$	35			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5V, I_C = (-)1A$		(130)		MHz
				180		MHz
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(60)40		pF

### Package Dimensions

unit:mm

2084



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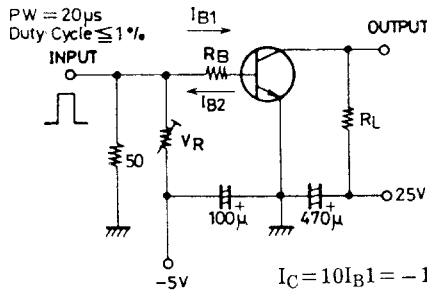
## 2SA1824/2SC4728

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)3A, I_B=(-)0.15A$		(-280)	(-550)	mV
				220	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)3mA, I_B=(-)0.15A$		(-0.95)	(-1.3)	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)10\mu A, I_E=0$	(-60)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-50)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)10\mu A, I_C=0$	(-6)			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		50		ns
Storage Time	$t_{stg}$	See specified Test Circuit		(450)		ns
				500		ns
Fall Time	$t_f$	See specified Test Circuit		20		ns

\* : The 2SA1824/2SC4728 are classified by 500mA  $h_{FE}$  as follows :

100	R	200	140	S	280	200	T	400
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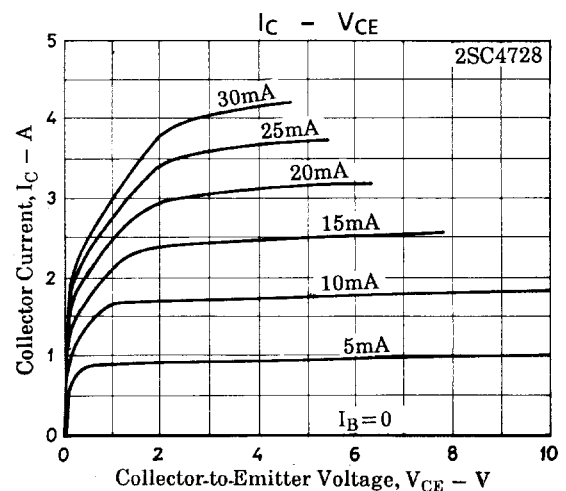
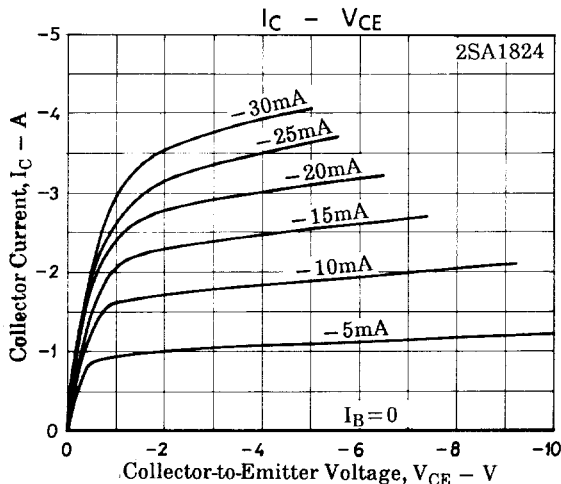
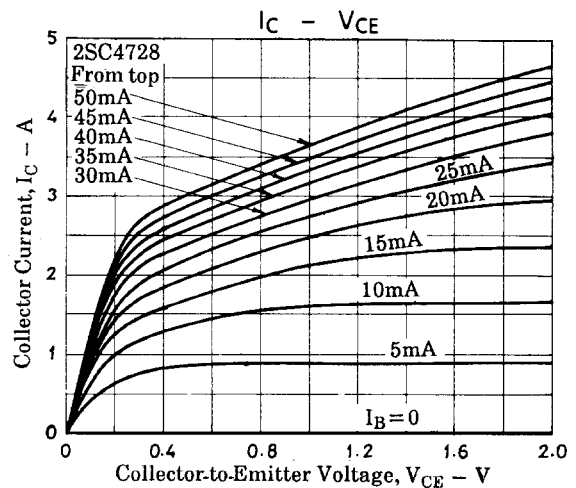
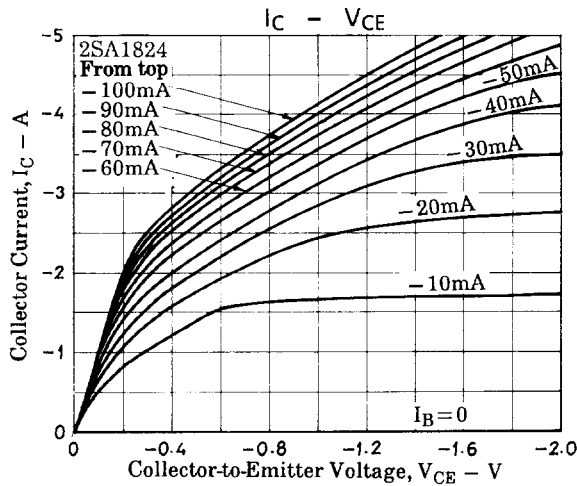
### Switching Time Test Circuit



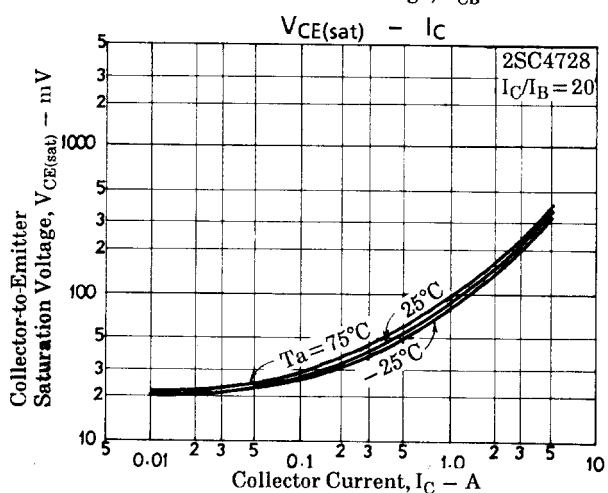
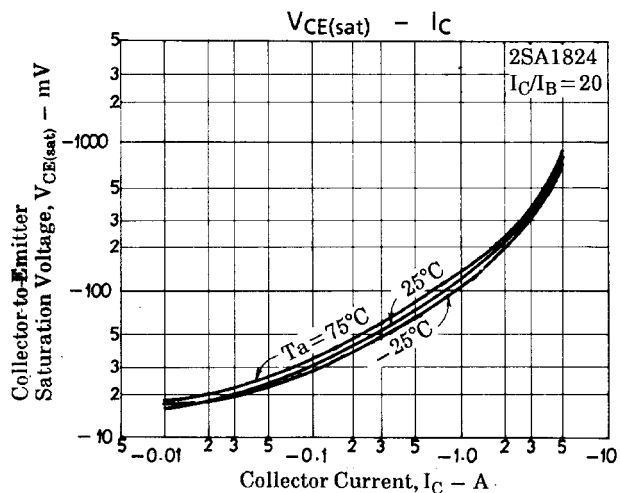
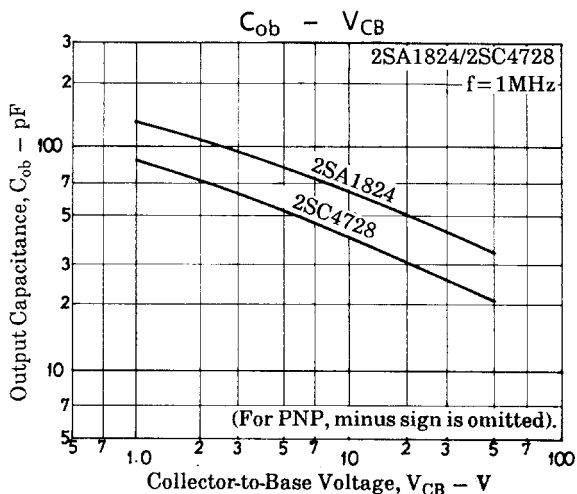
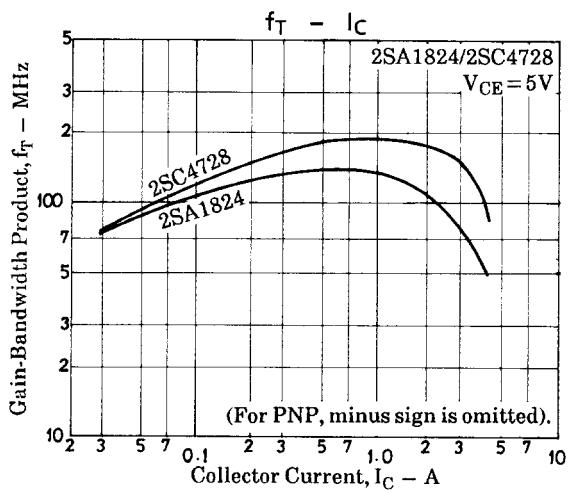
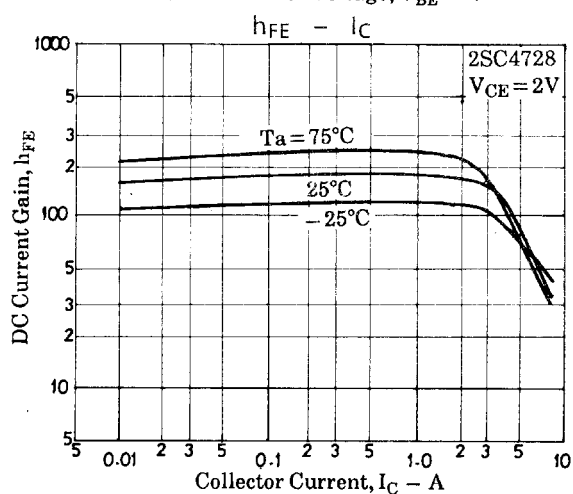
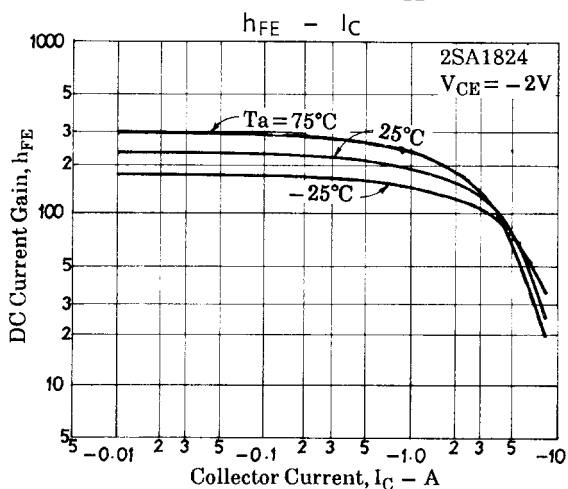
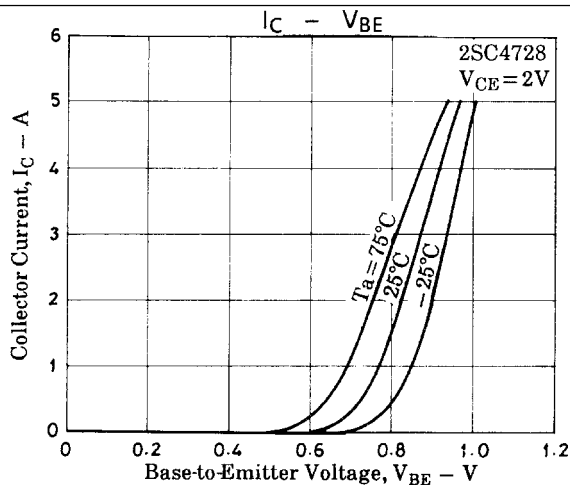
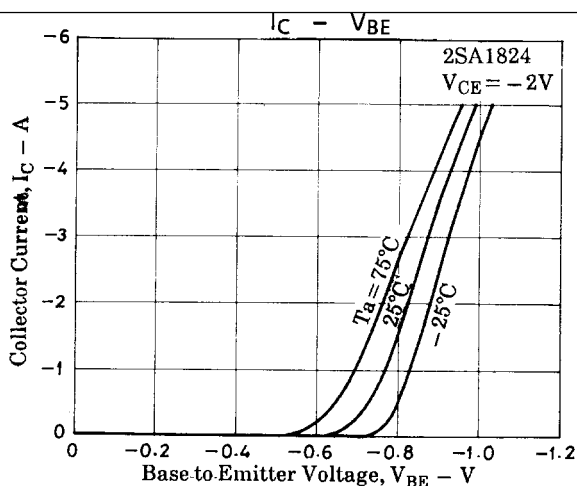
$$I_C = 10I_{B1} = -10I_{B2} = 2A$$

(For PNP, the polarity is reversed).

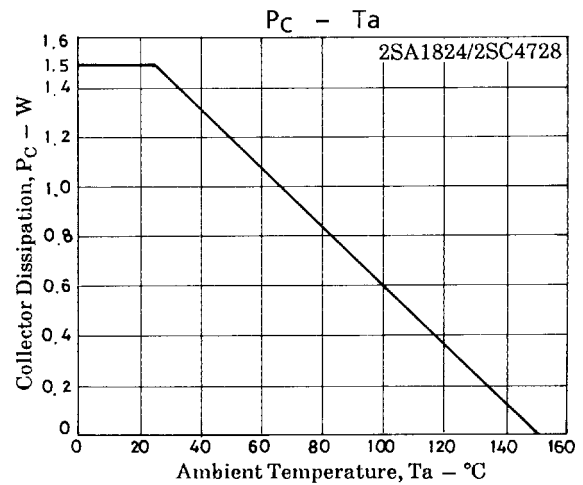
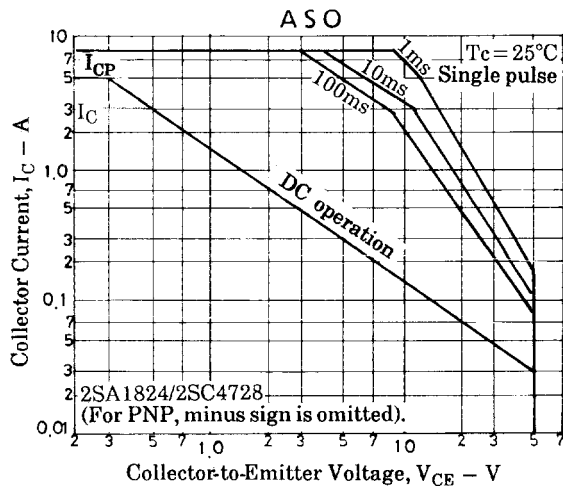
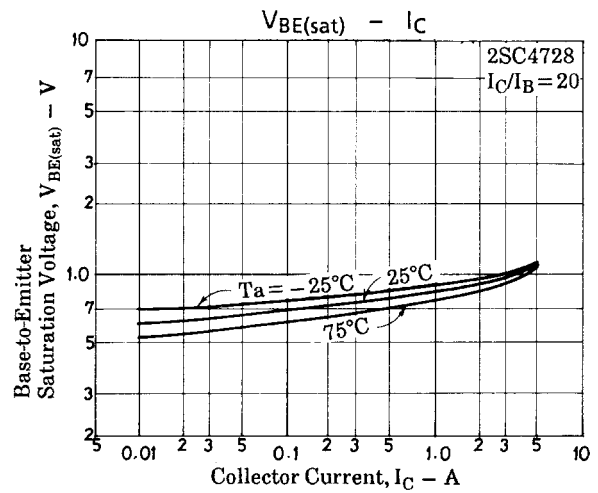
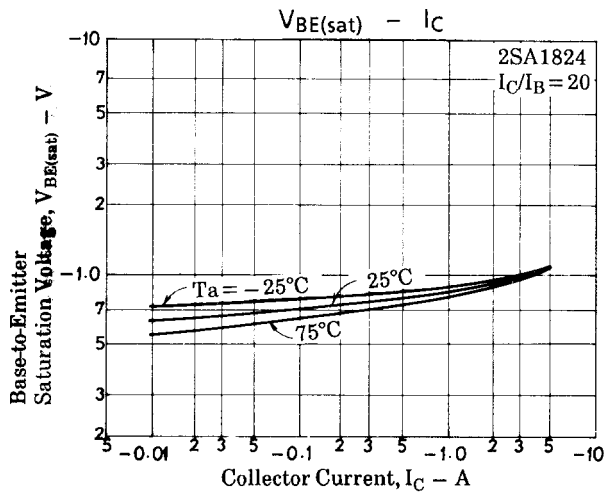
Unit (resistance :  $\Omega$ , capacitance : F)



## 2SA1824/2SC4728



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