



# 2SA1825/2SC4729

## 50V/8A 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.

( ) : 2SA1825

### Specifications

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{\text{CBO}}$		(-)60	V
Collector-to-Emitter Voltage	$V_{\text{CEO}}$		(-)50	V
Emitter-to-Base Voltage	$V_{\text{EBO}}$		(-)6	V
Collector Current	$I_{\text{C}}$		(-)8	A
Collector Current (Pulse)	$I_{\text{CP}}$		(-)12	A
Base Current	$I_{\text{B}}$		(-)2	A
Collector Dissipation	$P_{\text{C}}$		1.5	W
Junction Temperature	$T_{\text{J}}$		150	$^\circ\text{C}$
Storage Temperature	$T_{\text{stg}}$		-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	$I_{\text{CBO}}$	$V_{\text{CB}} = (-)40\text{V}, I_{\text{E}} = 0$			(-)1	$\mu\text{A}$
Emitter Cutoff Current	$I_{\text{EBO}}$	$V_{\text{EB}} = (-)4\text{V}, I_{\text{C}} = 0$			(-)1	$\mu\text{A}$
DC Current Gain	$h_{\text{FE}1}$	$V_{\text{CE}} = (-)2\text{V}, I_{\text{C}} = (-)0.5\text{A}$	100*		400*	
	$h_{\text{FE}2}$	$V_{\text{CE}} = (-)2\text{V}, I_{\text{C}} = (-)6\text{A}$	35			
Gain-Bandwidth Product	$f_{\text{T}}$	$V_{\text{CE}} = (-)5\text{V}, I_{\text{C}} = (-)1\text{A}$		(130)		MHz
				180		MHz
Output Capacitance	$C_{\text{ob}}$	$V_{\text{CB}} = (-)10\text{V}, f = 1\text{MHz}$		(95)65		pF

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**SANYO Electric Co., Ltd. Semiconductor Company**

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82003TN (KT)/91098HA (KT)/D051MH (KOTO) No.3877-1/4

# 2SA1825/2SC4729

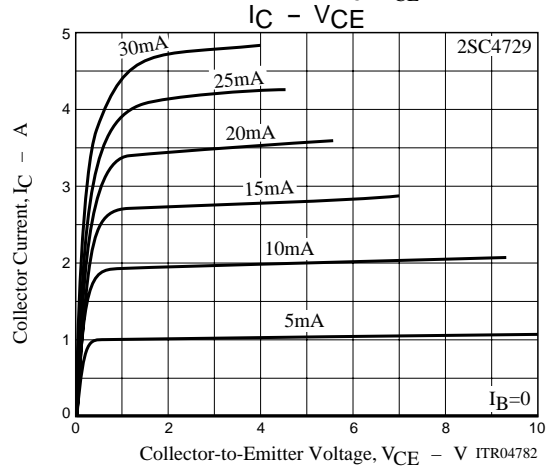
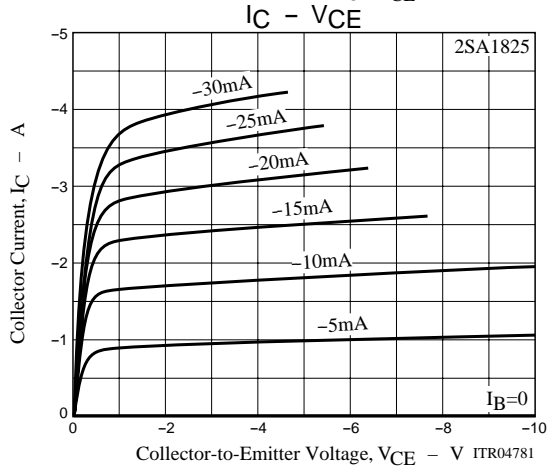
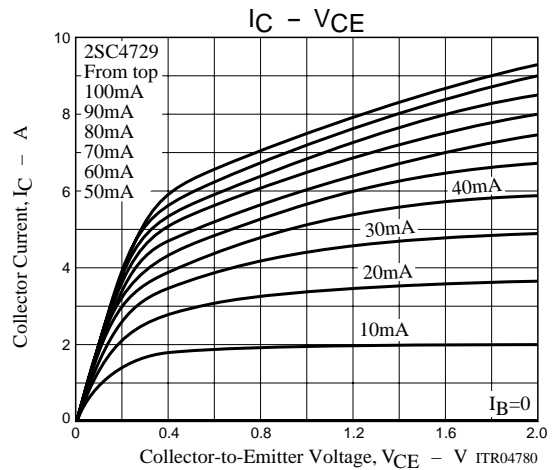
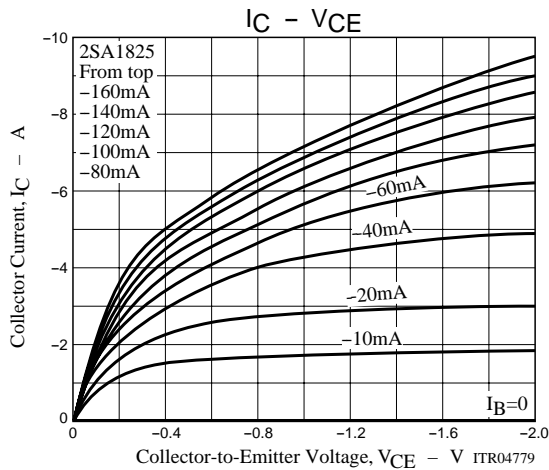
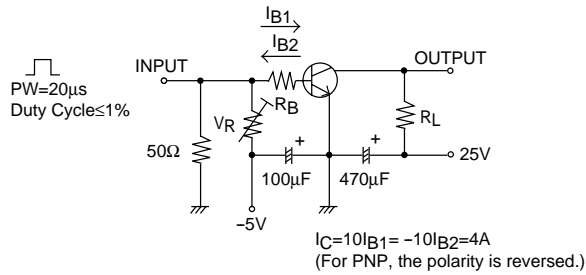
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)4A, I_B=(-)0.2A$		(-250)	(-500)	mV
				200	400	mV
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=(-)4mA, I_B=(-)0.2A$		(-0.95)	(-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

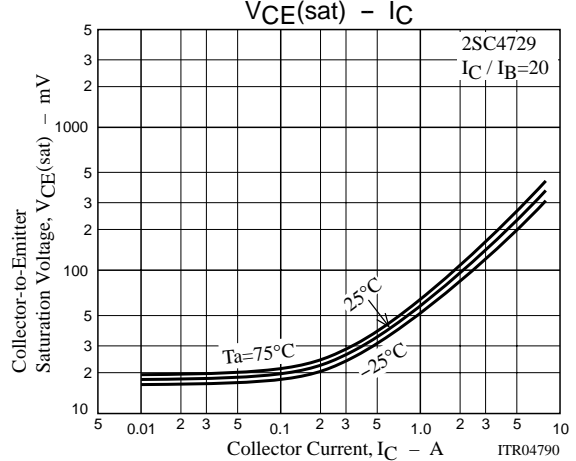
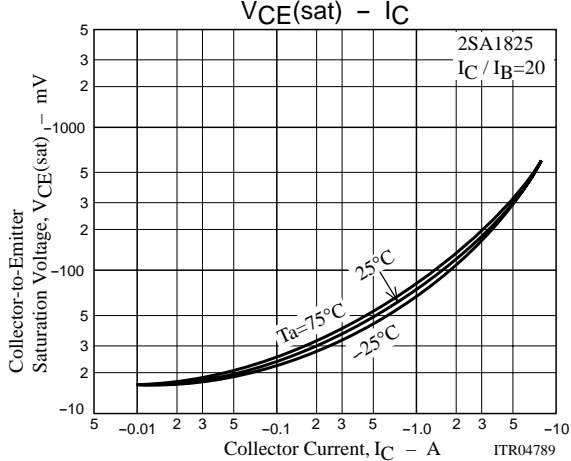
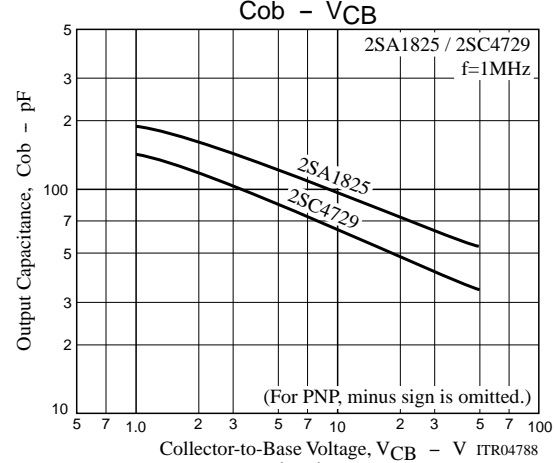
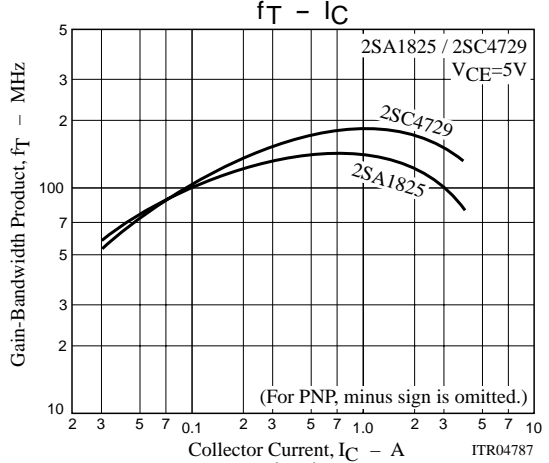
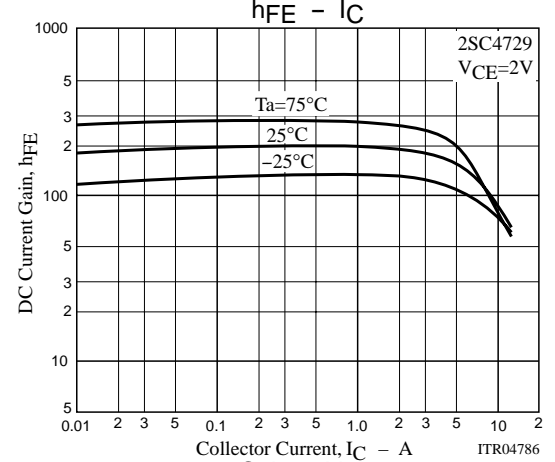
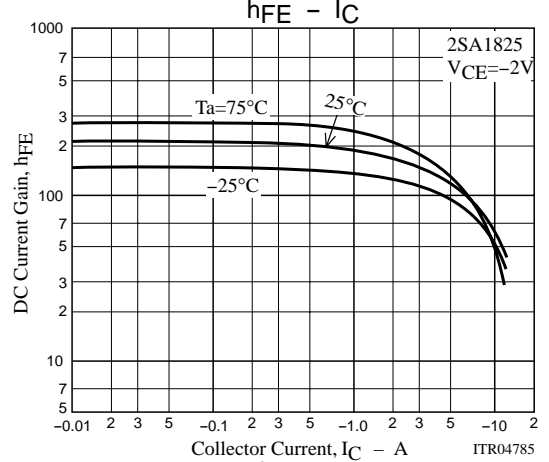
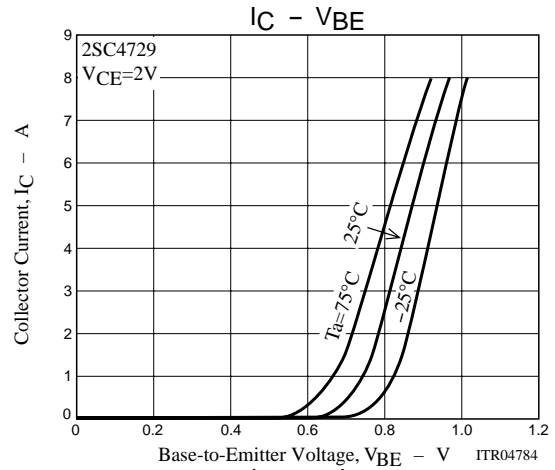
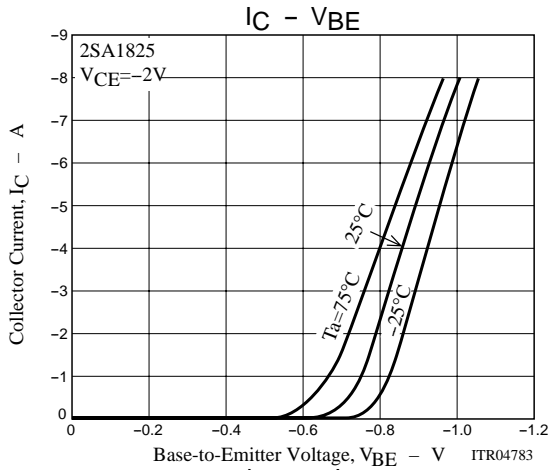
\* ; 2SA1825/2SC4729 are classified by 500mA  $h_{FE}$  as follows :

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

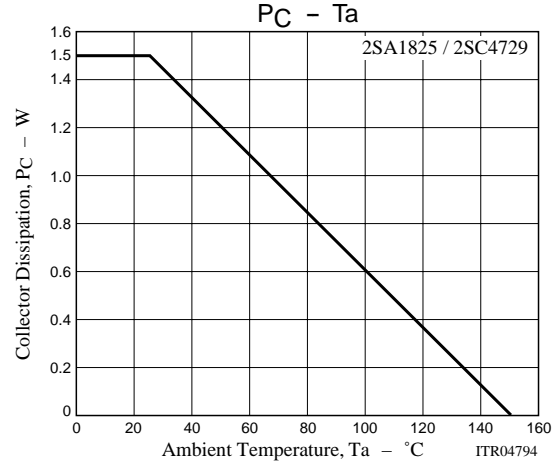
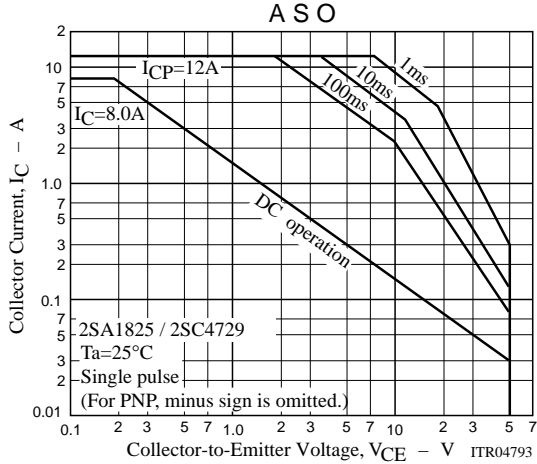
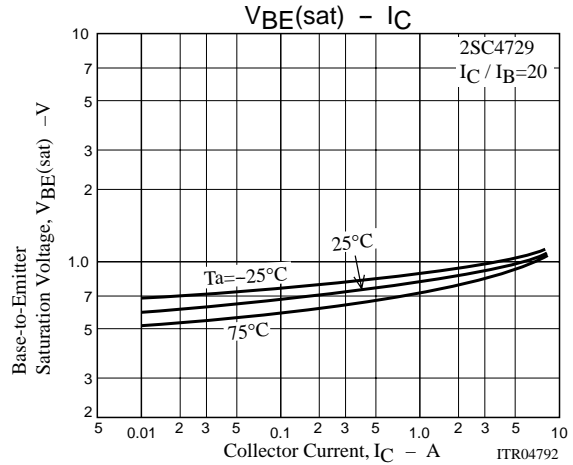
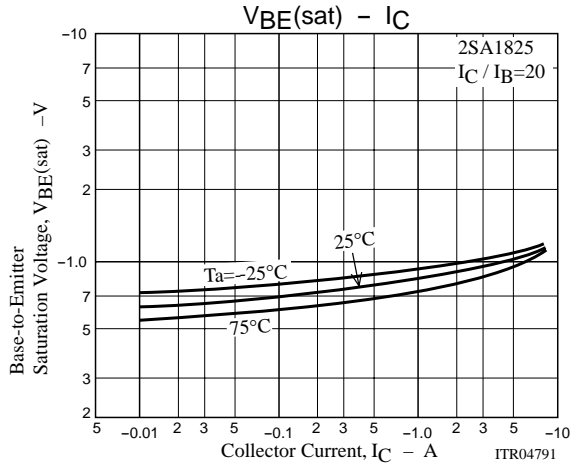
## Switching Time Test Circuit



# 2SA1825/2SC4729



## 2SA1825/2SC4729



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