



## 2SB825/2SD1061

### 50V/7A Switching Applications

#### Applications

- Universal high current switching as solenoid driving, high speed inverter and converter.

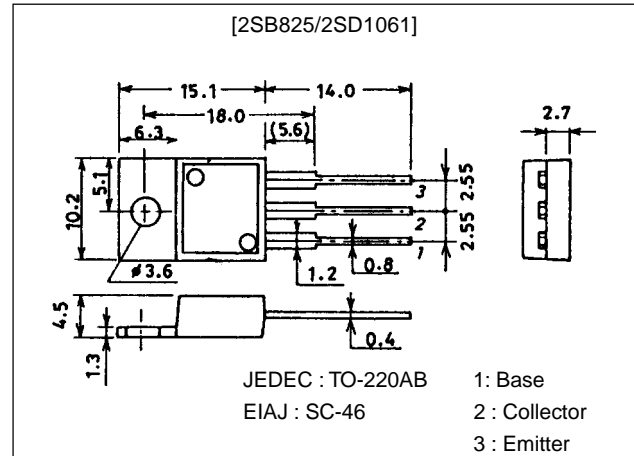
#### Features

- Low saturation voltage :  $V_{CE(sat)}=(-)0.4V$  max.
- Wide ASO

#### Package Dimensions

unit:mm

2010C



() : 2SB825

#### Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)60	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)50	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)7	A
Collector Current (Pulse)	$I_{CP}$		(-)12	A
Collector Dissipation	$P_C$	$T_c=25^\circ C$	40	W
Junction Temperature	$T_J$		150	$^\circ C$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ C$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=(-)40V, I_E=0$			(-)0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=(-)4V, I_C=0$			(-)0.1	mA
DC Current Gain	$h_{FE1}$	$V_{CE}=(-)2V, I_C=(-)1A$	70*		280*	
	$h_{FE2}$	$V_{CE}=(-)2V, I_C=(-)5A$	30			
Gain-Bandwidth Product	$f_T$	$V_{CE}=(-)5V, I_C=(-)1A$		10		MHz

\* : The 2SB825/2SD1061 are classified by 1A  $h_{FE}$  as follows :

70	Q	140	100	R	200	140	S	280
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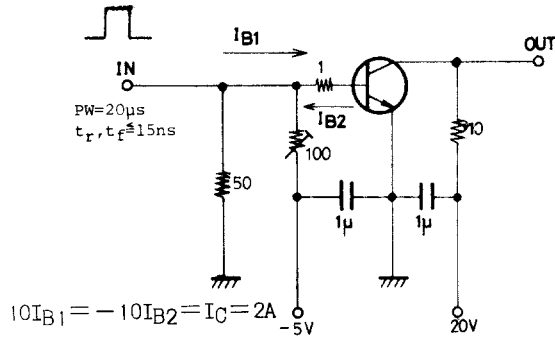
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# 2SB825/2SD1061

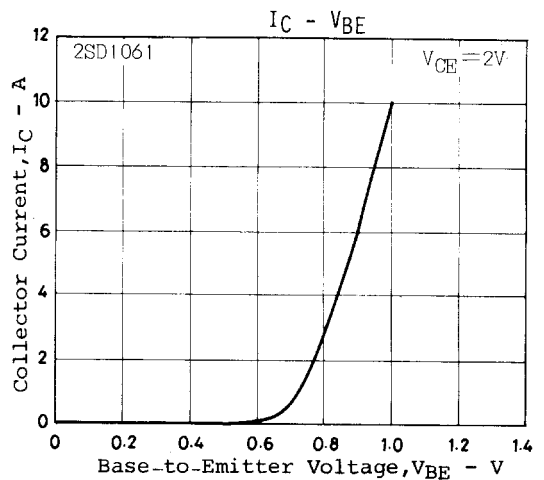
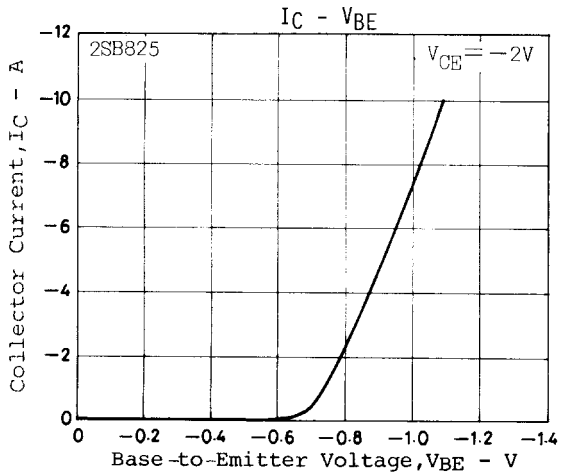
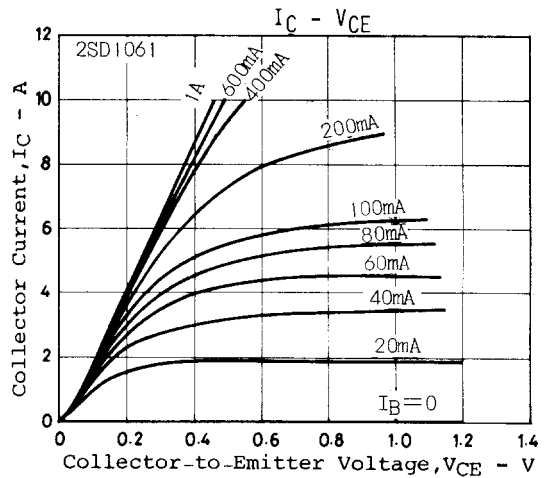
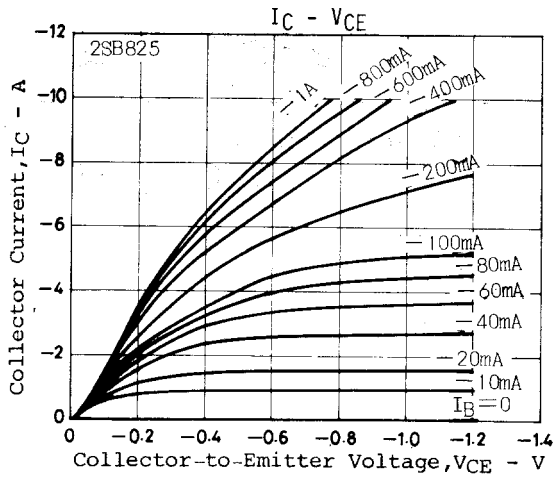
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=(-)4A, I_B=(-)0.4A$			(-)0.4	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=(-)1mA, I_C=0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified test circuit.		0.2		$\mu s$
Fall Time	$t_f$	See specified test circuit.		(0.1)		$\mu s$
				0.3		$\mu s$
Storage Time	$t_{stg}$	See specified test circuit.		(0.7)		$\mu s$
				0.9		$\mu s$

## Switching Time Test Circuit

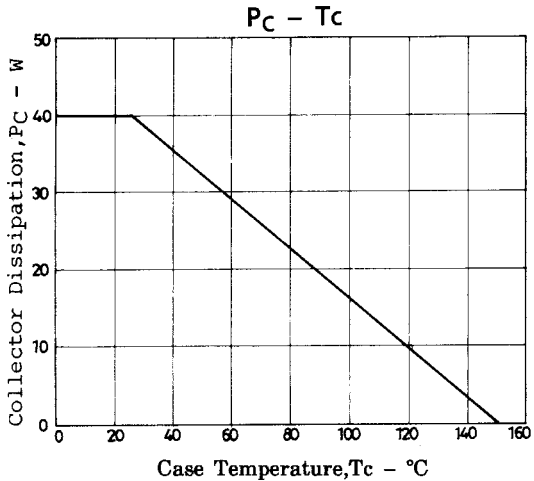
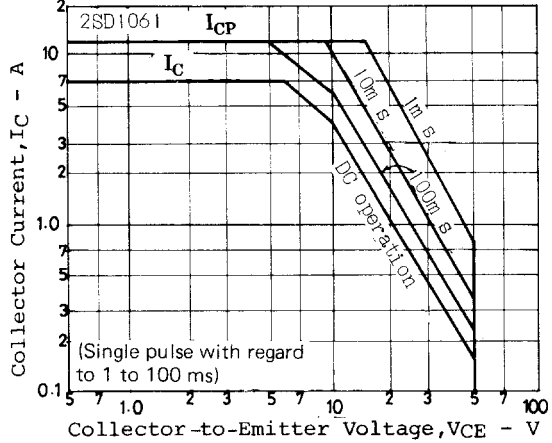
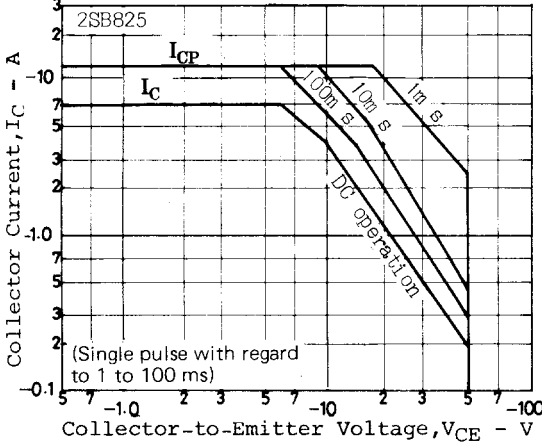
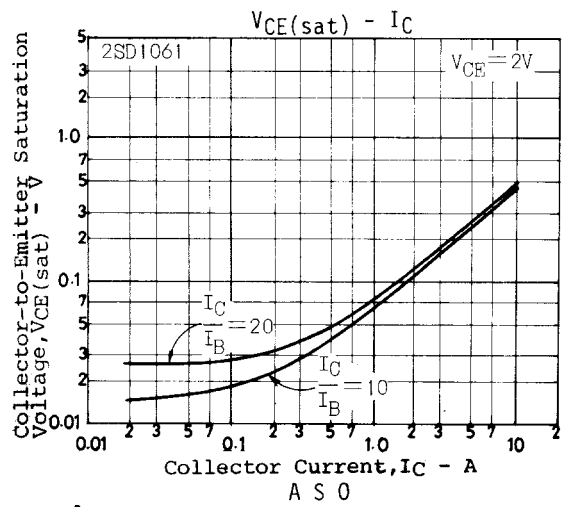
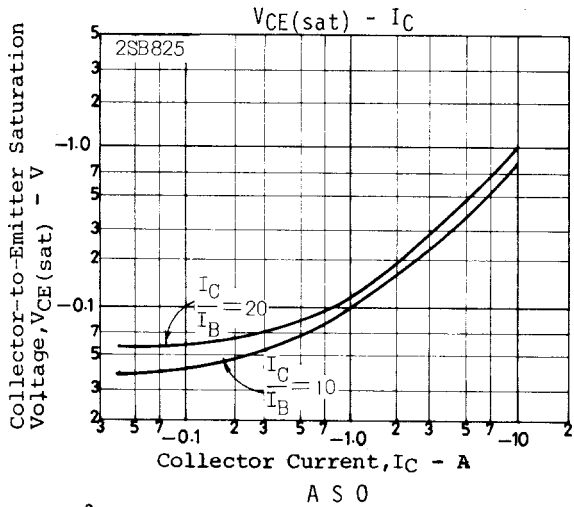
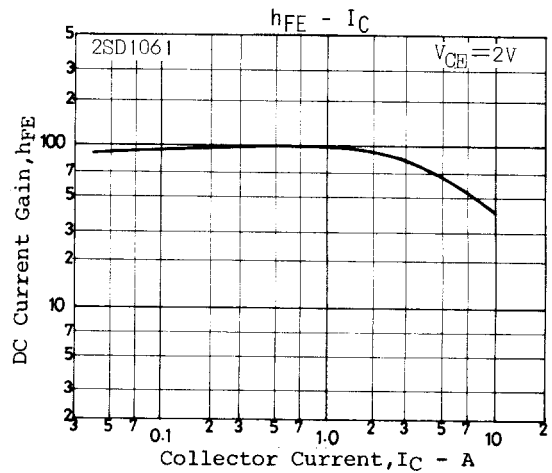
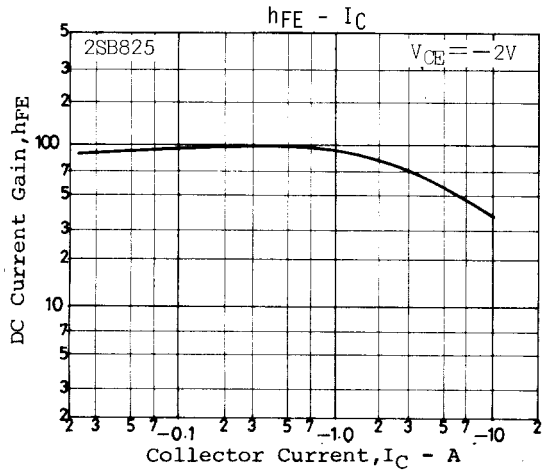


(For PNP, the polarity is reversed.)

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



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