



## 2SB828/2SD1064

### 50V/12A Switching Applications

#### Applications

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

#### Features

- Low-saturation collector-to-emitter voltage :  
 $V_{CE(sat)} = -0.5V$  (PNP),  $0.4V$  (NPN) max.
- Wide ASO leading to high resistance to breakdown.

( ) : 2SB828

#### 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	$I_C$		(-)-12	A
Collector Current (Pulse)	$I_{CP}$		(-)-17	A
Collector Dissipation	$P_C$	$T_c = 25^\circ C$	80	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
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)6A, I_B = (-)0.3A$			0.4	V
					(-)-0.5	V

\* : The 2SB828/2SD1064 are classified by  $1A h_{FE}$  as follows :

70	Q	140	100	R	200	140	S	280
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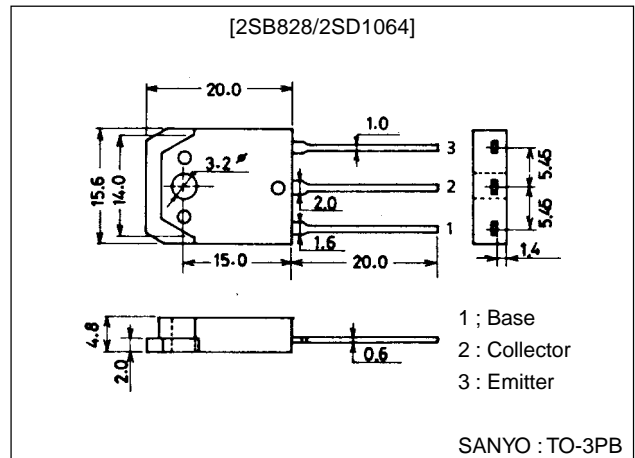
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91098HA (KT)/10996TS (KOTO)/2-3847/4027KI/7011KI No.722-1/4

#### Package Dimensions

unit:mm

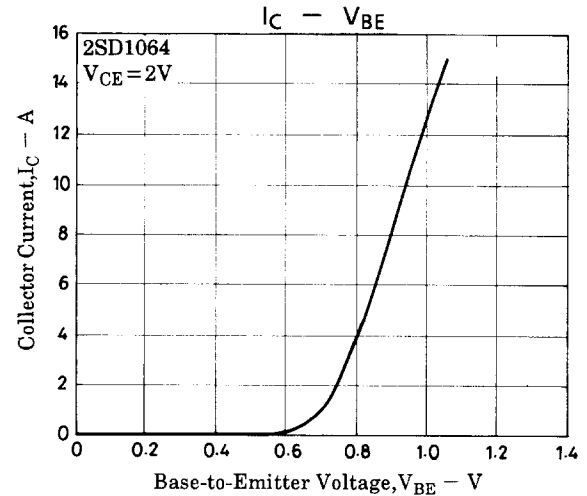
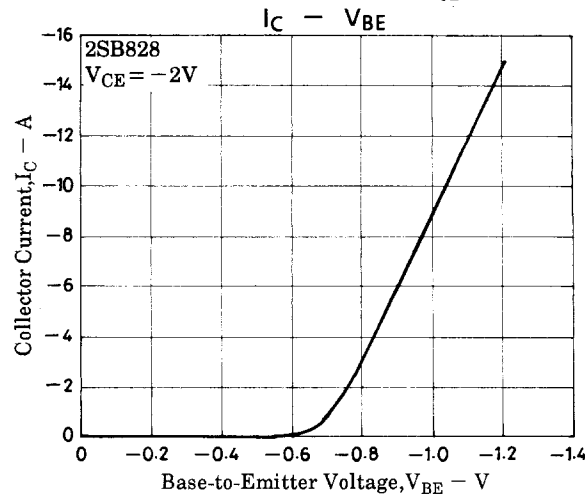
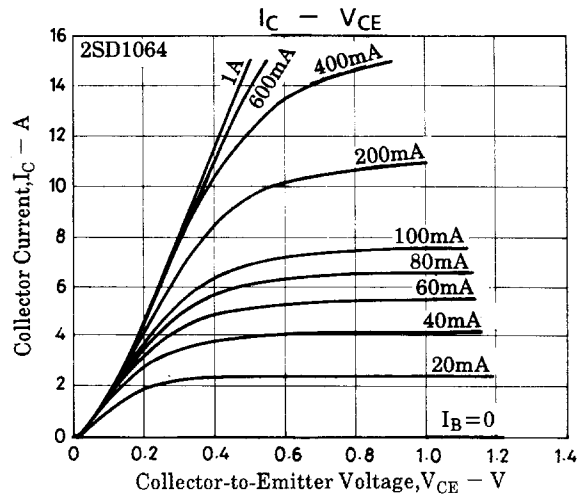
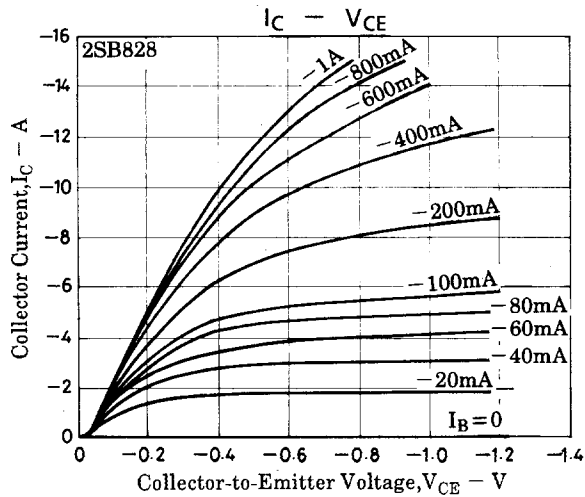
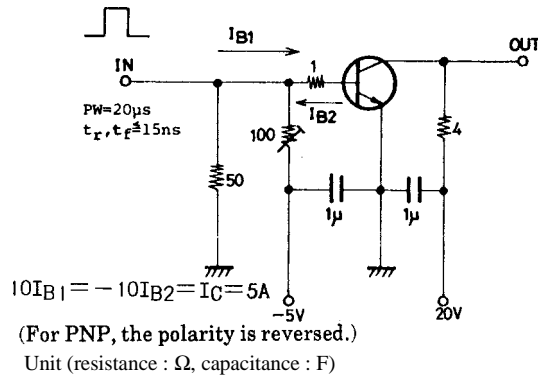
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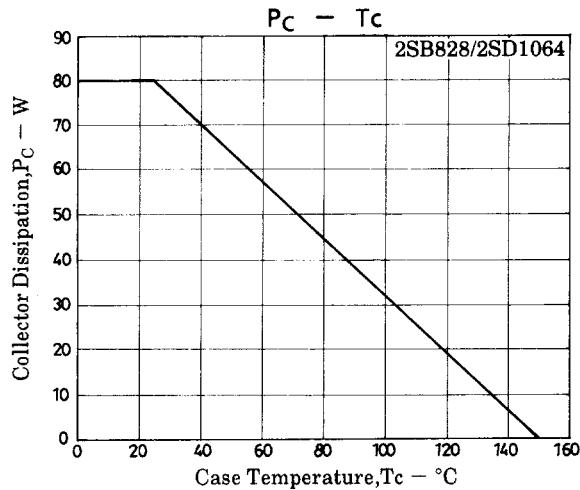
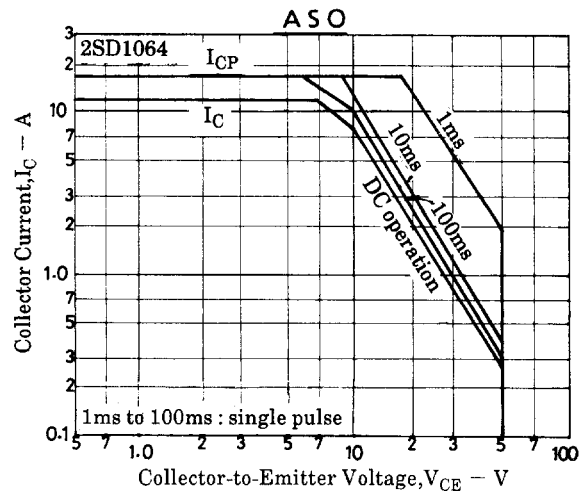
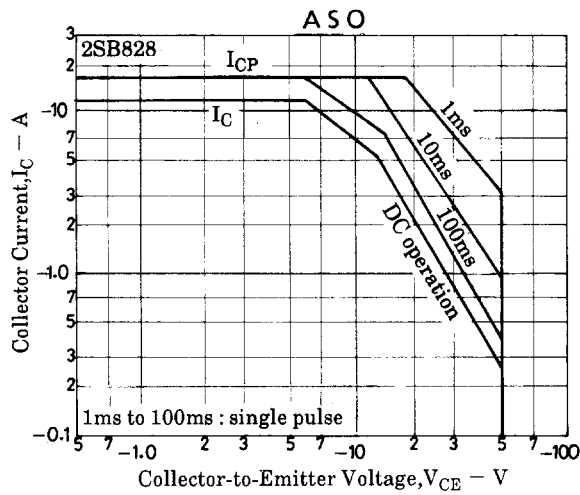
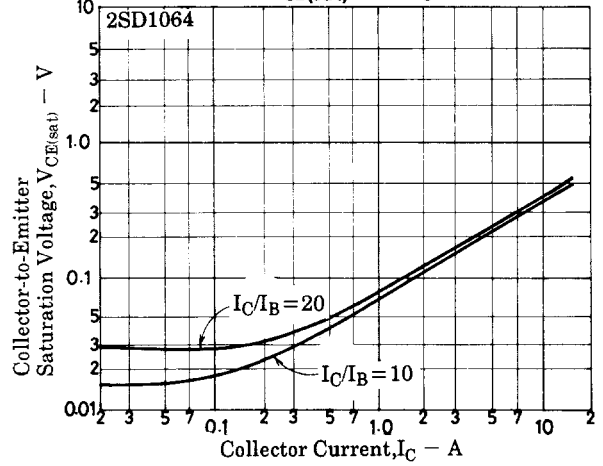
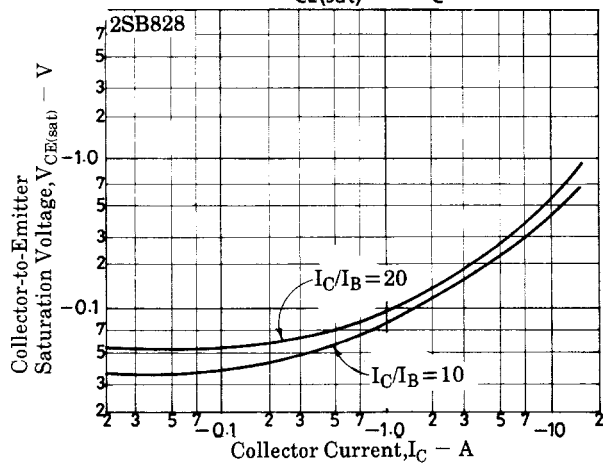
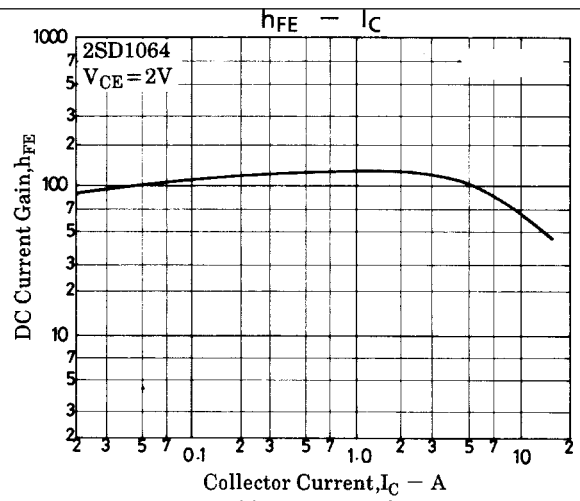
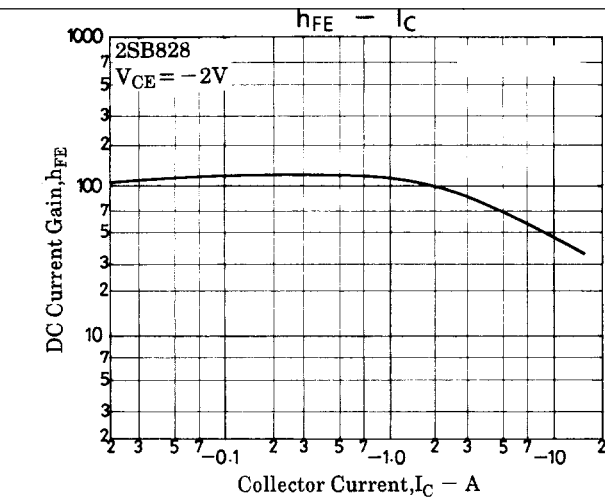
## 2SB828/2SD1064

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)1\text{mA}, I_E = 0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1\text{mA}, R_{BE} = \infty$	(-)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)1\text{mA}, I_C = 0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.2)		$\mu\text{s}$
				0.1		$\mu\text{s}$
Fall Time	$t_f$	See specified Test Circuit		(0.4)		$\mu\text{s}$
				1.2		$\mu\text{s}$
Storage Time	$t_{stg}$	See specified Test Circuit		(0.1)		$\mu\text{s}$
				0.05		$\mu\text{s}$

### Switching Time Test Circuit



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