

**SANYO****2SB920L/2SD1236L****80V/5A Switching Applications****Applications**

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

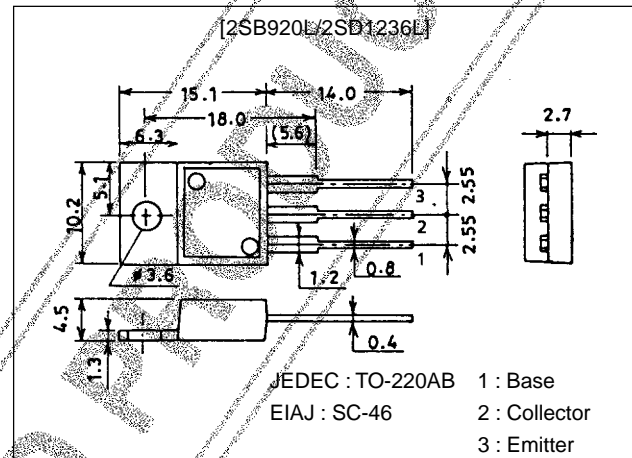
**Features**

- Low-saturation collector-to-emitter voltage :  $V_{CE(sat)} = -0.5V$  (PNP),  $0.4V$  (NPN) max.
- High current capacity.

**Package Dimensions**

unit:mm

2010C



() : 2SB920L

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	$V_{CBO}$		(-)90	V
Collector-to-Emitter Voltage	$V_{CEO}$		(-)80	V
Emitter-to-Base Voltage	$V_{EBO}$		(-)6	V
Collector Current	$I_C$		(-)5	A
Collector Current (Pulse)	$I_{CP}$		(-)9	A
Collector Dissipation	$P_C$	$T_C = 25^\circ C$	1.75	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	$I_{CBO}$	$V_{CB} = (-)80V, I_E = 0$			(-)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*	
	$h_{FE2}$	$V_{CE} = (-)2V, I_C = (-)3A$	30			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5V, I_C = (-)1A$		20		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)3A, I_B = (-)0.3A$			0.4	V
					(-)0.5	V

\* : The 2SB920L/2SD1236L are classified by  $1A h_{FE}$  as follows :

70 Q 140 100 R 200 140 S 280

■ Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.

■ SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.

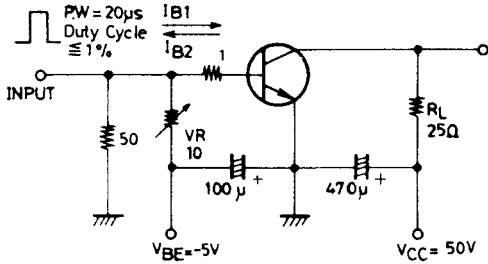
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TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

# 2SB920L/2SD1236L

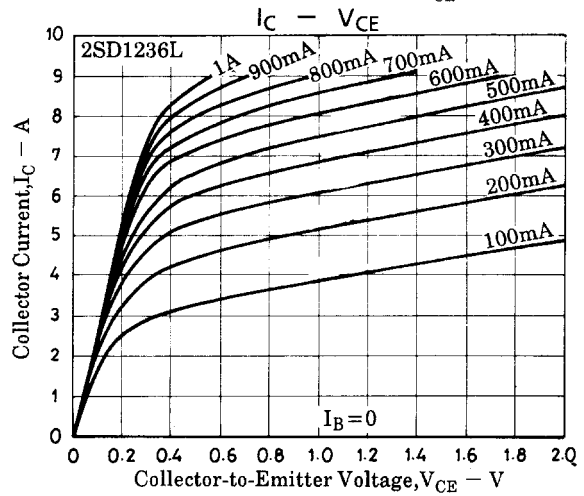
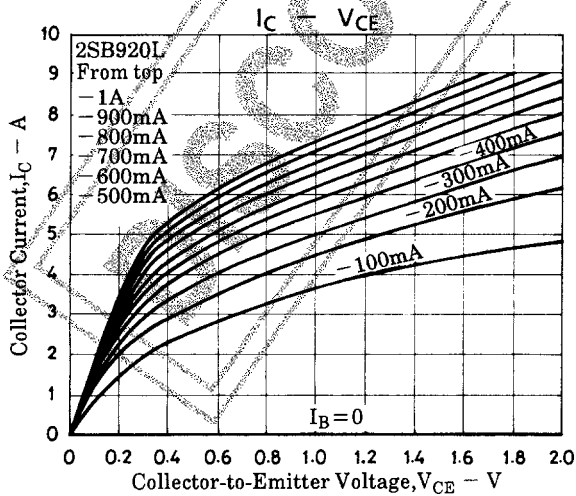
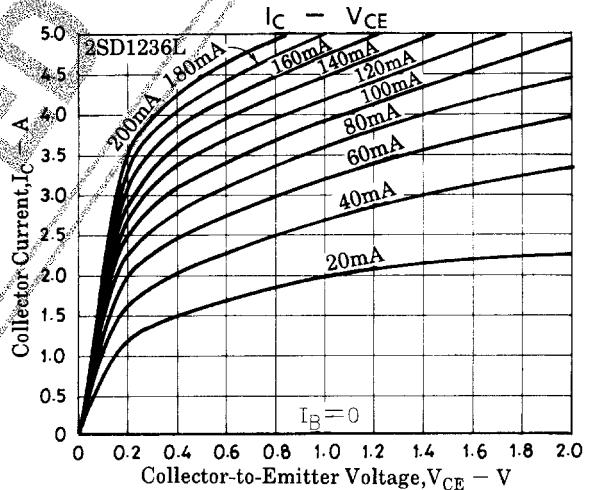
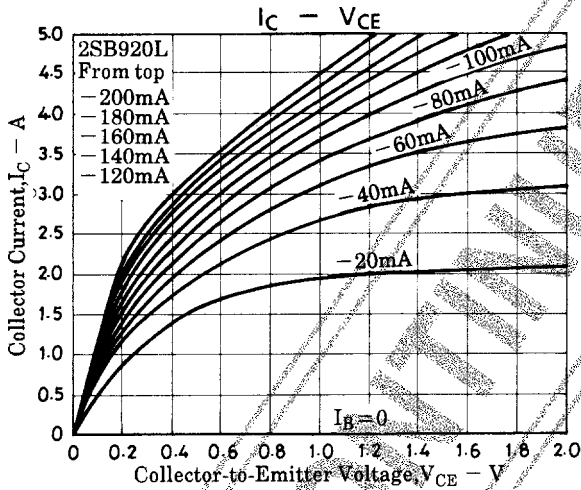
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)1mA, I_E = 0$	(-90)			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)1mA, R_{BE} = \infty$	(-80)			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)1mA, I_C = 0$	(-6)			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.2)		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		0.1		$\mu s$
				(0.7)		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		1.2		$\mu s$
				(0.2)		$\mu s$
				0.4		$\mu s$

## Switching Time Test Circuit

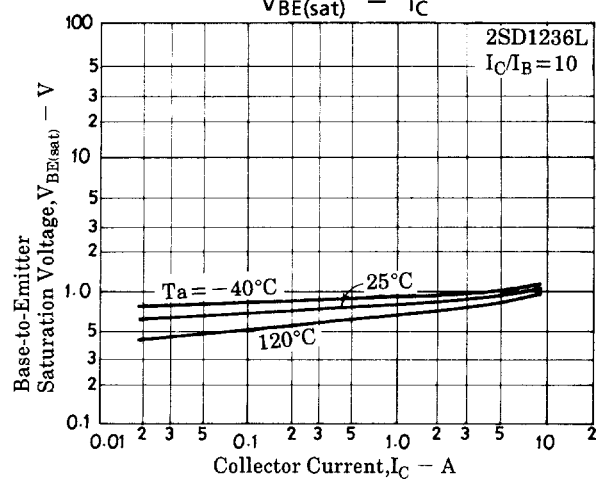
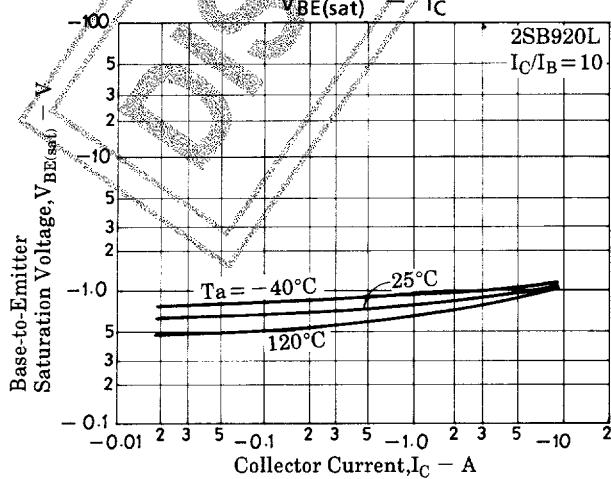
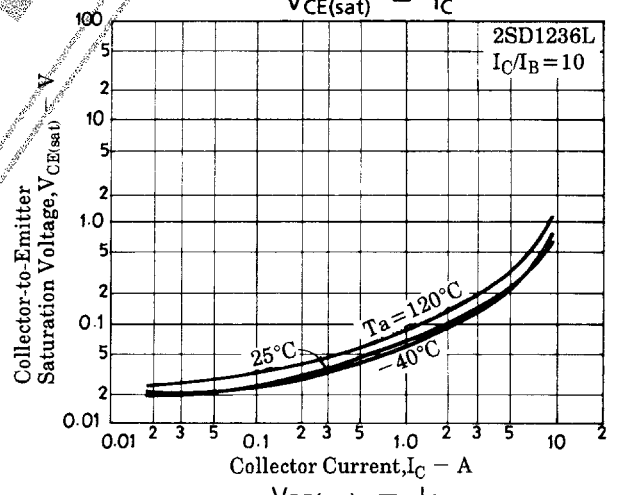
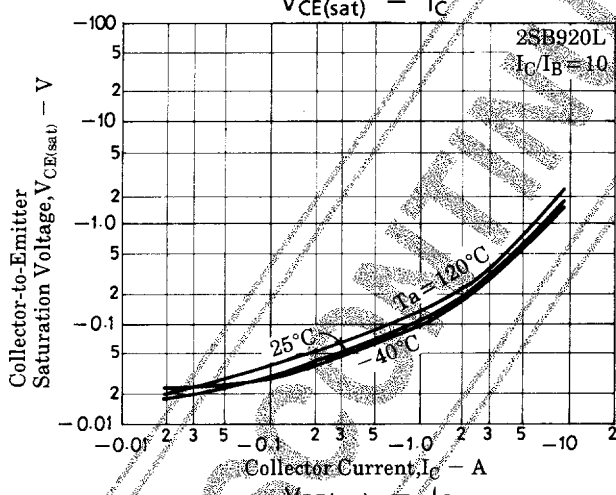
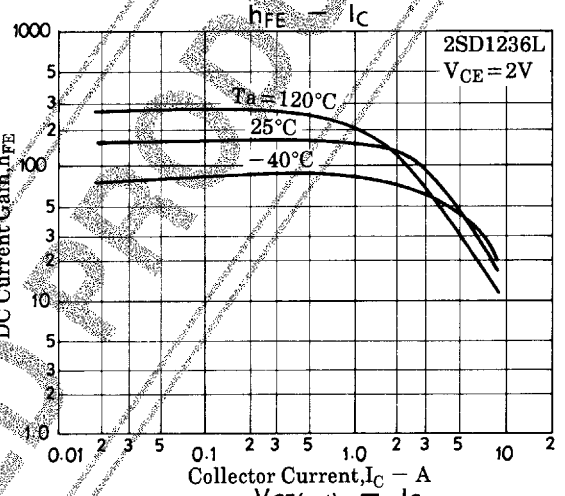
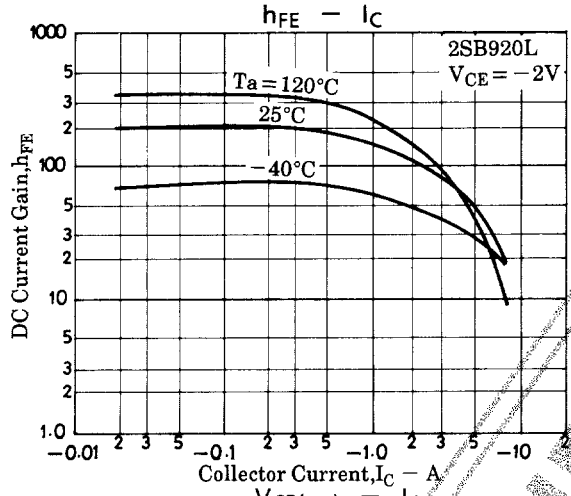
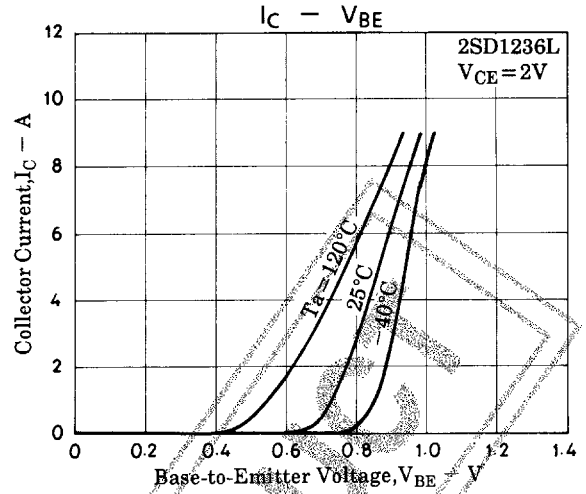
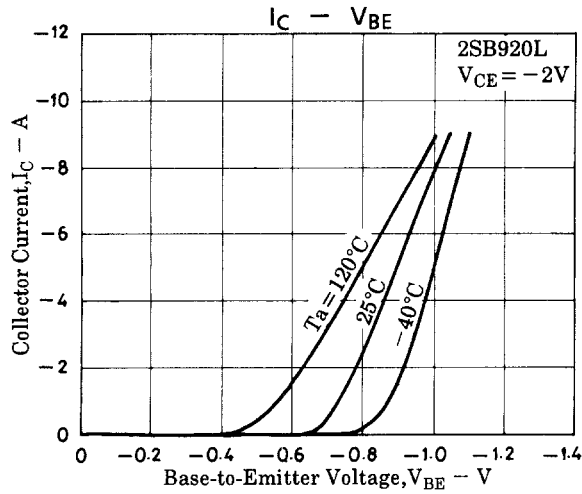


(For PNP, the polarity is reversed.)

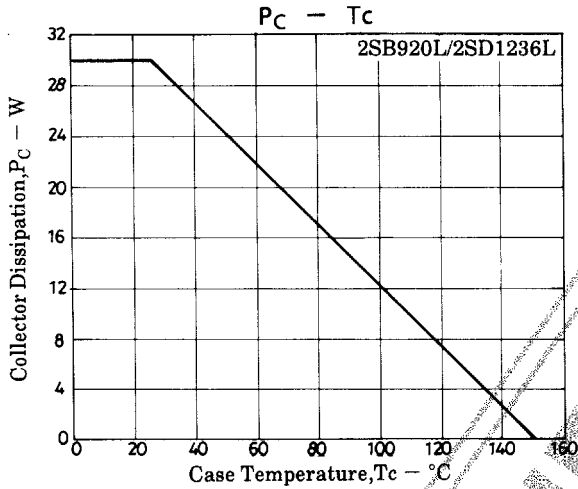
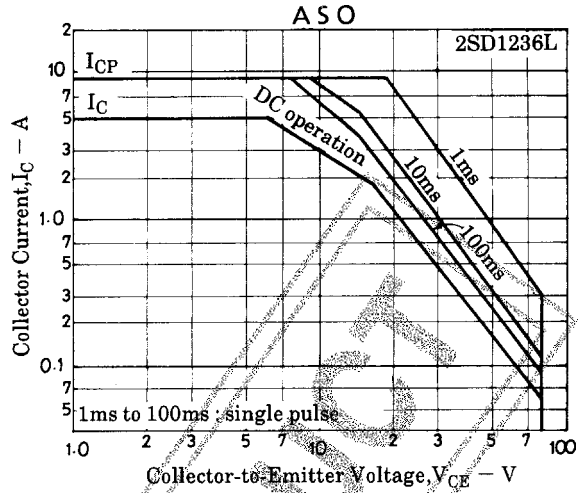
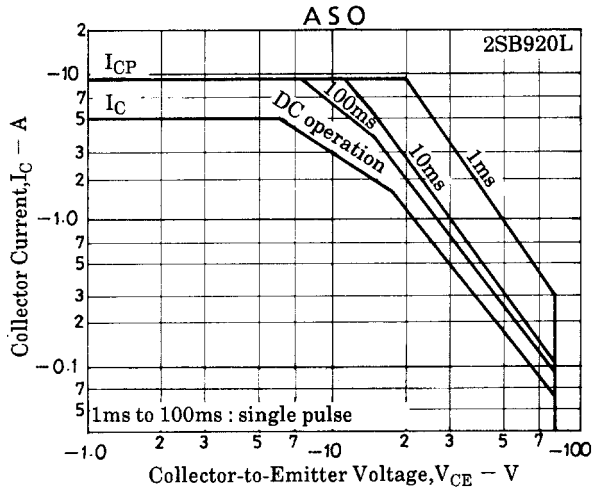
$10I_{B1} = -10I_{B2} = I_C = 2A$   
Unit ( resistance :  $\Omega$ , capacitance : F)



# 2SB920L/2SD1236L



## 2SB920L/2SD1236L



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