



2SB1450/2SD2199

50V/7A Switching Applications

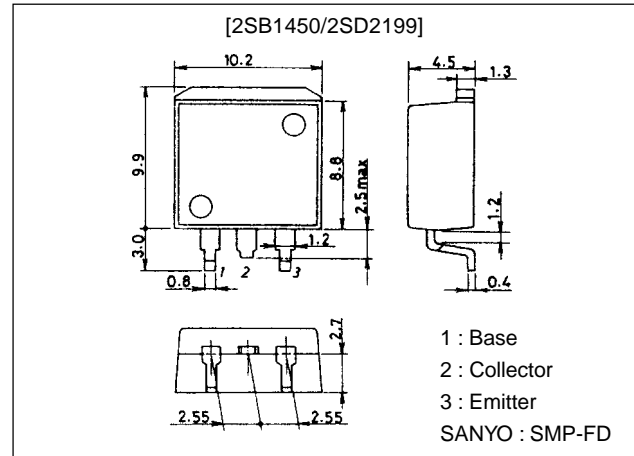
Features

- Surface mount type device making the following possible.
- Reduction in the number of manufacturing processes for 2SB1450/2SD2199-applied equipment.
- High density surface mount applications.
- Small size of 2SB1450/2SD2199-applied equipment.
- Low collector-to-emitter saturation voltage.
- Highly resistant to breakdown because of wide ASO.

Package Dimensions

unit:mm

2069B



() : 2SB1450

Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		(-)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		1.65	W
		$T_c=25^\circ\text{C}$	40	W
Junction Temperature	T_J		150	$^\circ\text{C}$
Storage Temperature	T_{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_{CBO}	$V_{CB} = (-)40\text{V}, I_E = 0$			(-)0.1	mA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = (-)4\text{V}, I_C = 0$			(-)0.1	mA
DC Current Gain	h_{FE1}	$V_{CE} = (-)2\text{V}, I_C = (-)1\text{A}$	70*		280*	
	h_{FE2}	$V_{CE} = (-)2\text{V}, I_C = (-)5\text{A}$	30			
Gain-Bandwidth Product	f_T	$V_{CE} = (-)5\text{V}, I_C = (-)1\text{A}$		10		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)4\text{A}, I_B = (-)0.4\text{A}$			(-)0.4	V

* : The 2SB1450/2SD2199 are classified by 1A h_{FE} as follows :

70	Q	140	100	R	200	140	S	280
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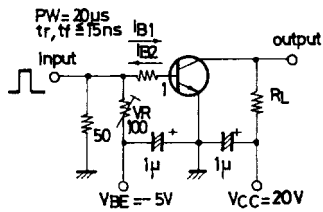
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

O1598HA (KT)/7039MO, TS No.3150-1/4

2SB1450/2SD2199

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
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		μs
Storage Time	t_{stg}	See specified test circuit.		(0.1)		μs
				0.3		μs
Fall Time	t_f	See specified test circuit.		(0.7)		μs
				0.9		μs

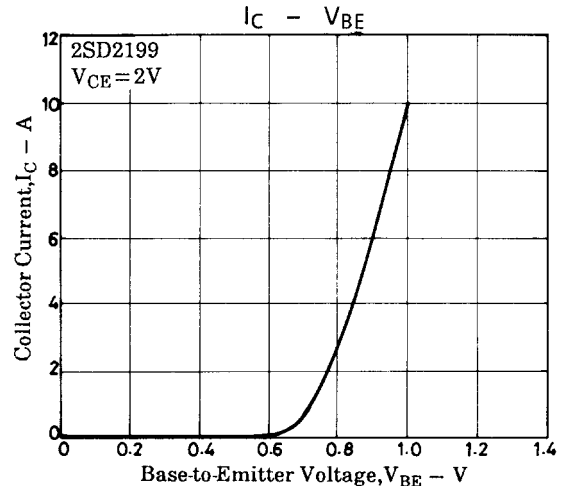
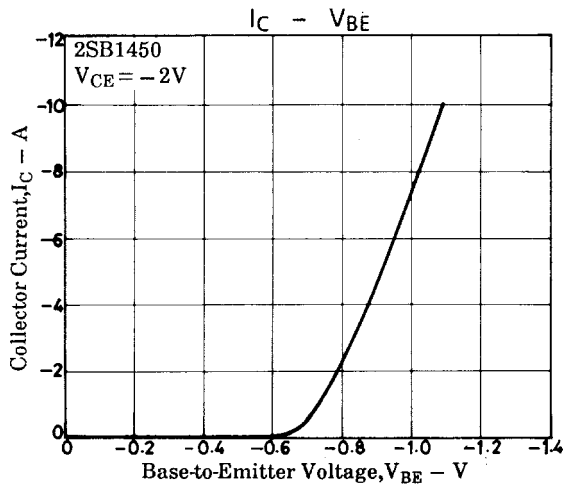
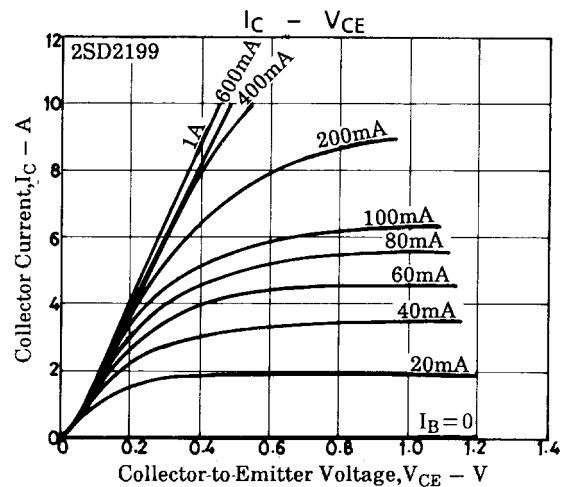
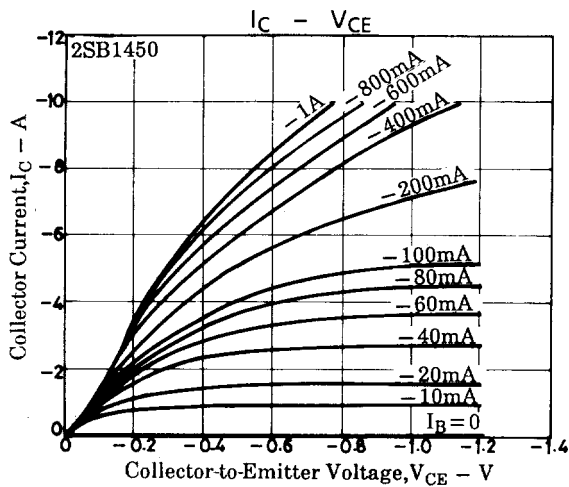
Switching Time Test Circuit



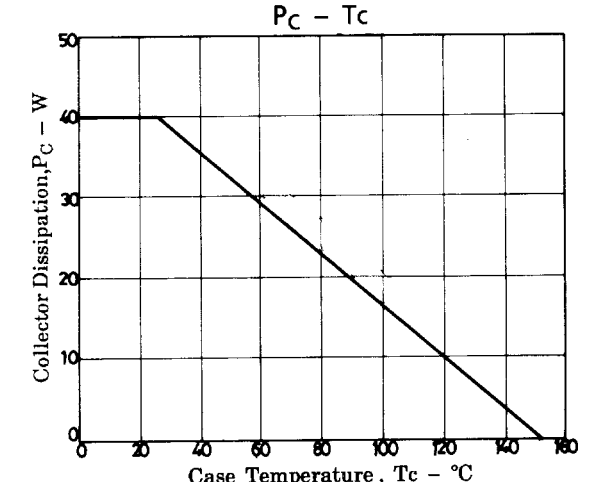
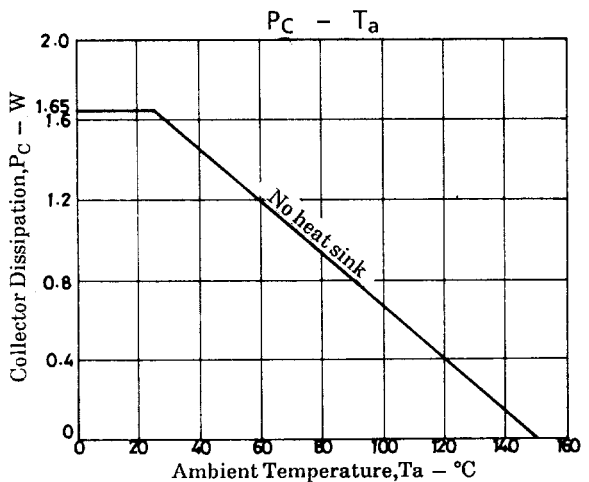
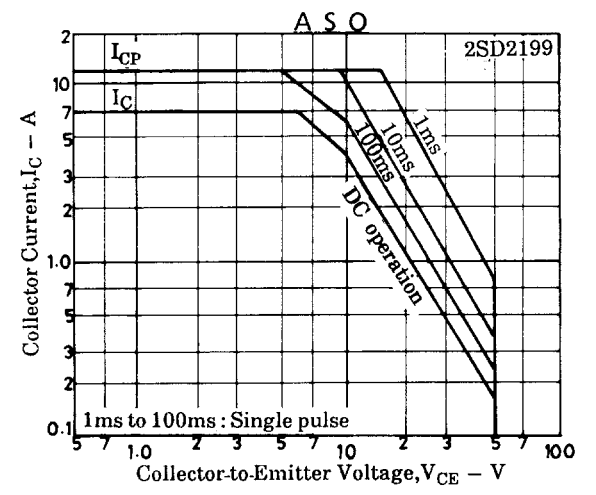
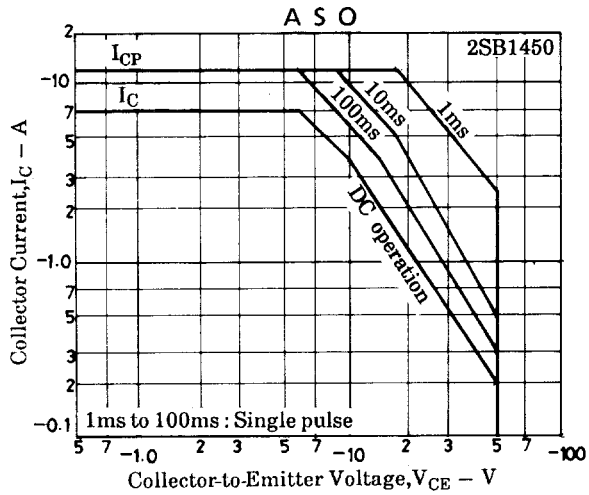
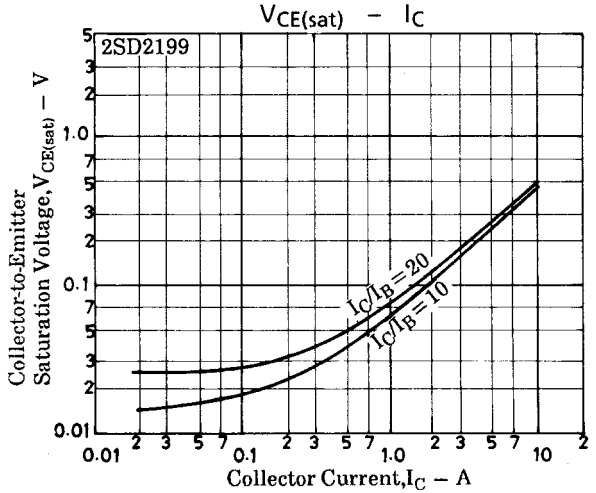
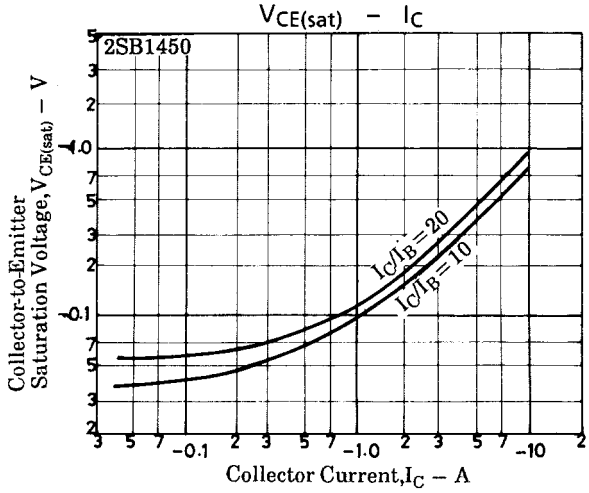
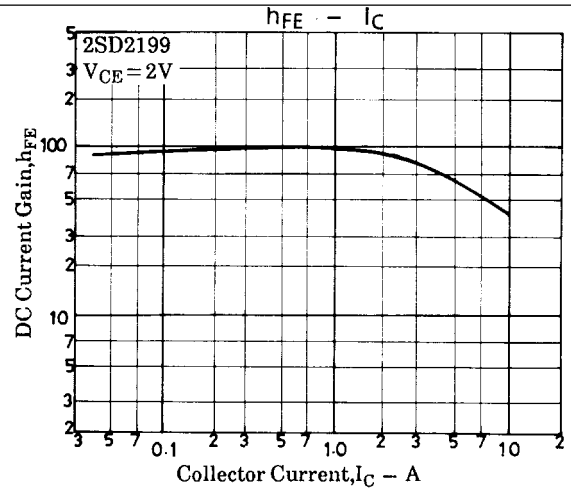
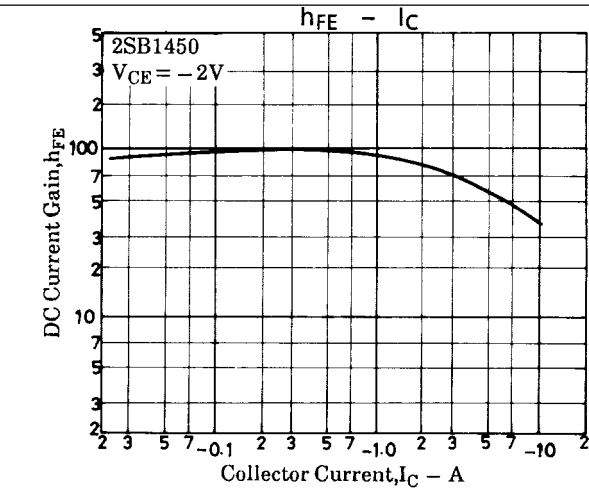
$$10 I_{B1} = -10 I_{B2} = I_C = 2A$$

For PNP, the polarity is reversed.

Unit (resistance : Ω , capacitance : F)



2SB1450/2SD2199



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