



2SB1508/2SD2281

50V/12A High-Current Switching Applications

Applications

- Relay drivers, high-speed inverters, converters.

Features

- Low collector-to-emitter saturation voltage :
 $V_{CE(sat)} = -0.5V$ (PNP), $0.4V$ (NPN) max.
- Wide ASO and highly resistant to breakdown.
- Micaless package facilitating easy mounting.

() : 2SB1508

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}		(-25)	A
Collector Dissipation	P_C		3.0	W
		$T_c = 25^\circ C$	45	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	$V_{CE(sat)}$	$I_C = (-)6A, I_B = (-)0.3A$			(-0.5)	V
					0.4	V

* : The 2SB1508/2SD2281 are classified by $1A h_{FE}$ as follows :

70	Q	140	100	R	200	140	S	280
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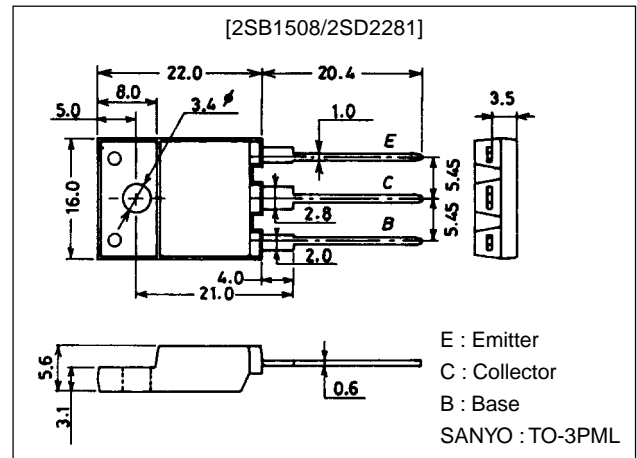
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Package Dimensions

unit:mm

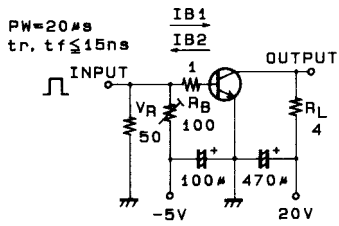
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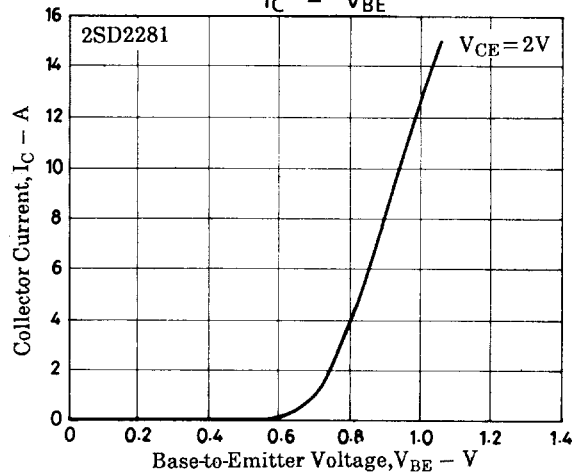
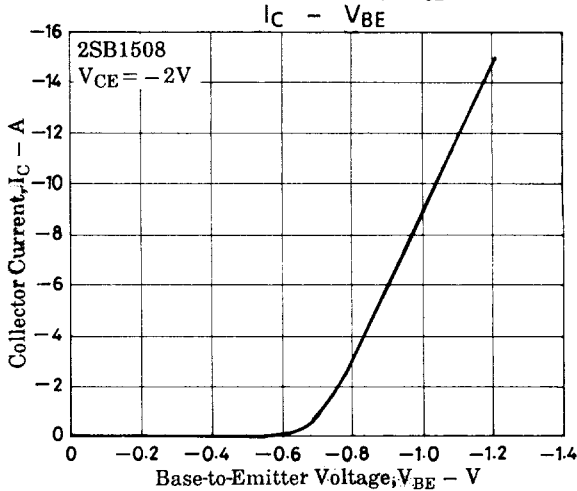
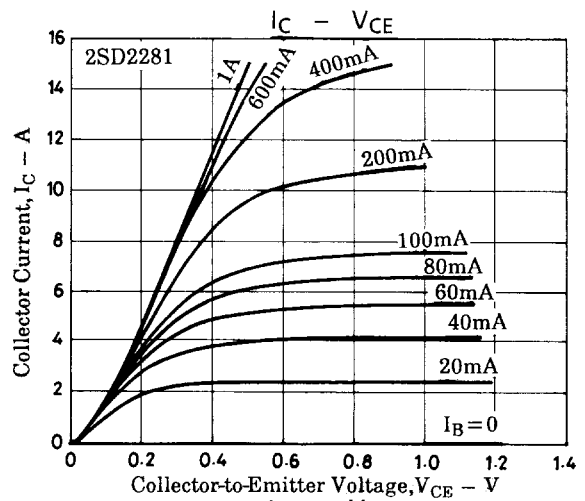
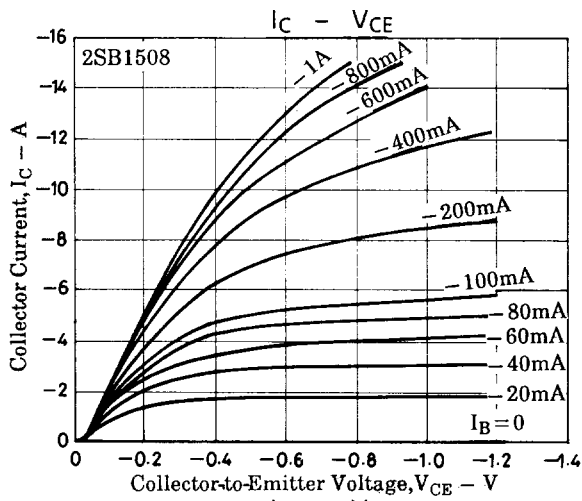
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Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=(-)1mA, I_E=0$	(-)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=(-)1mA, R_{BE}=\infty$	(-)50			V
Emitter-to-Base Breakdown 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
				(0.4)		μs
Fall Time	t_f	See specified test circuit.		1.2		μs
				(0.1)		μs
				0.5		μs

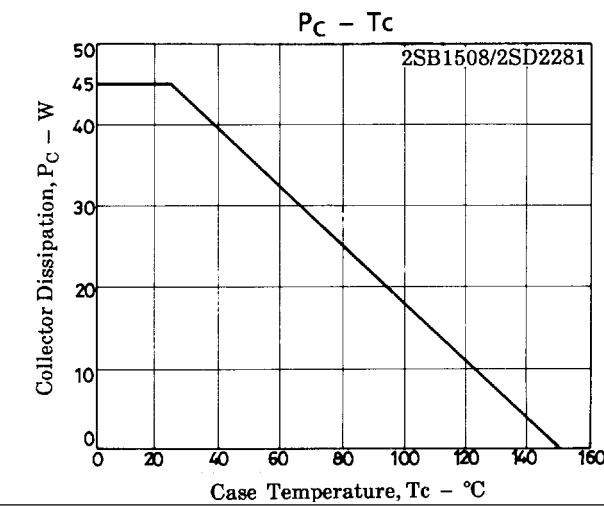
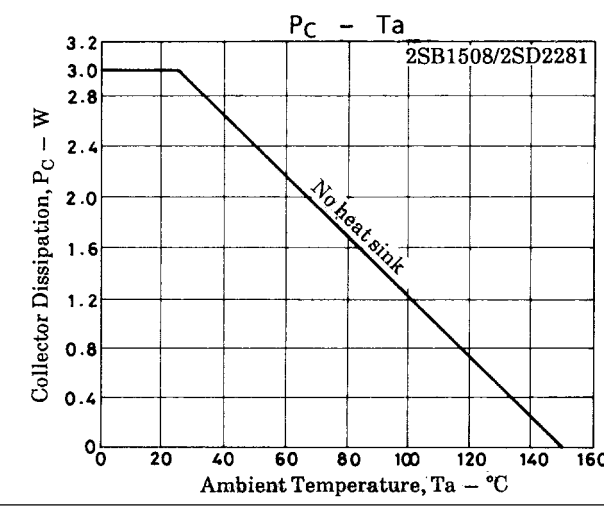
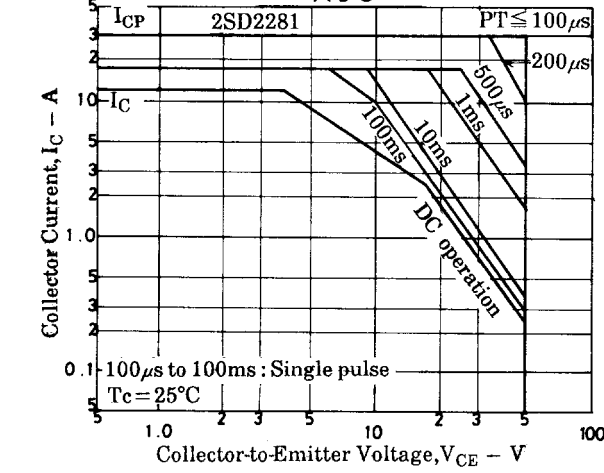
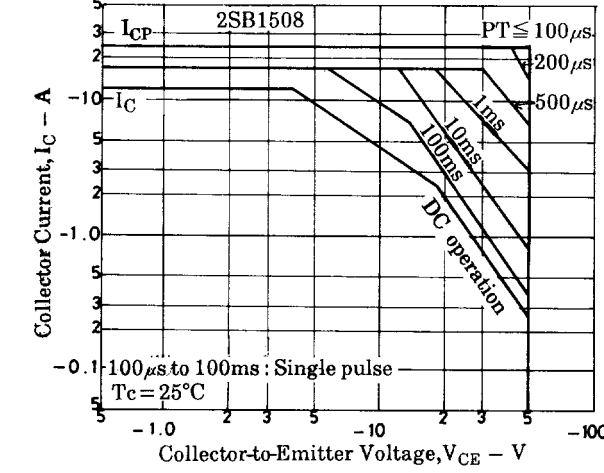
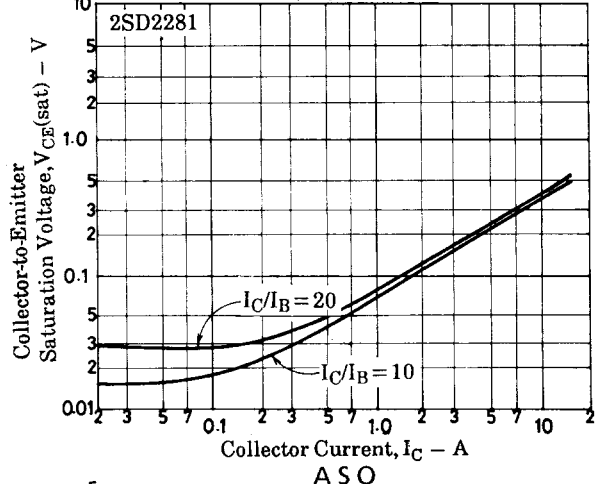
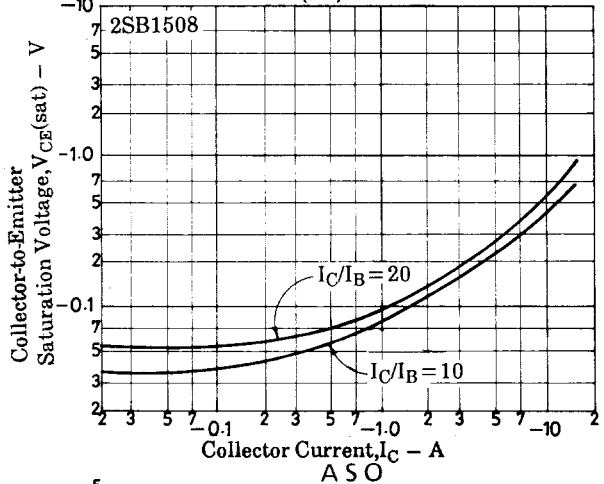
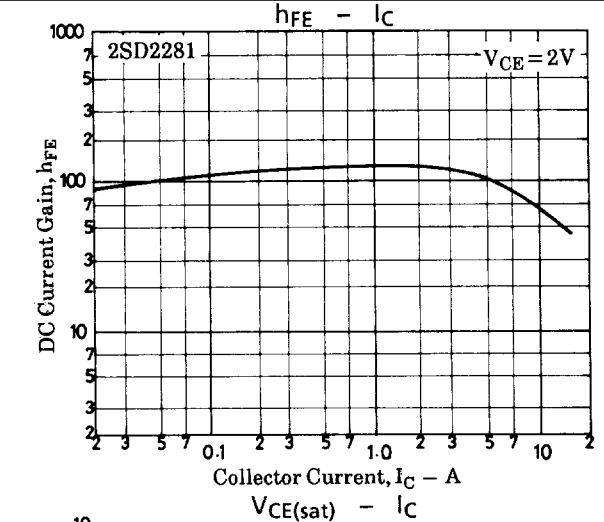
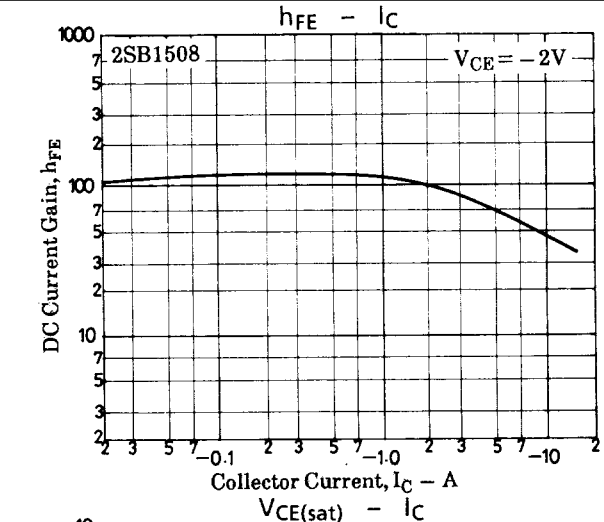
Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 5A$
 (For PNP, the polarity is reversed.)
 Unit (resistance : Ω , capacitance : F)



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