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Ordering number:513H

PNP/NPN Epitaxial Planar Silicon Transistor

2SB633/2SD613

85V/6A, AF 25 to 35W Output Applications

Features

- High breakdown voltage, V_{CEO}85V, high current 6A.
- AF25 to 35W output.

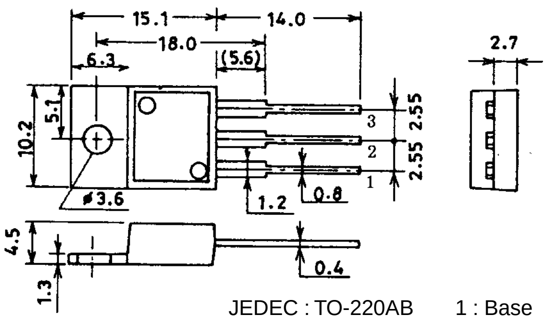
( ) : 2SB633

Package Dimensions

unit:mm

2010C

[2SB633/2SD613]



JEDEC : TO-220AB
EIAJ : SC-46

1 : Base
2 : Collector
3 : Emitter

Specifications

Absolute Maximum Ratings at Ta = 25˚C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		(–)100	V
Collector-to-Emitter Voltage	V_{CEO}		(–)85	V
Emitter-to-Base Voltage	V_{EBO}		(–)6	V
Collector Current	I_C		(–)6	A
Collector Current (Pulse)	I_{CP}		(–)10	A
Collector Dissipation	P_C	Tc=25˚C	40	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚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	$h_{FE}1$	V_{CE}=(–)5V, I_C=(–)1A	40*		320*	
	$h_{FE}2$	V_{CE}=(–)5V, I_C=(–)3A	20			
Gain-Bandwidth Product	f_T	V_{CE}=(–)5V, I_C=(–)1A		15		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)4A, I_B=(–)0.4A			(–)2.0	V
Base-to-Emitter Voltage	V_{BE}	I_E=(–)5A, I_C=(–)1A			(–)1.5	V
Output Capacitance	C_{ob}	V_{CB}=(–)10V, f=1MHz		(150)		pF
				110		pF

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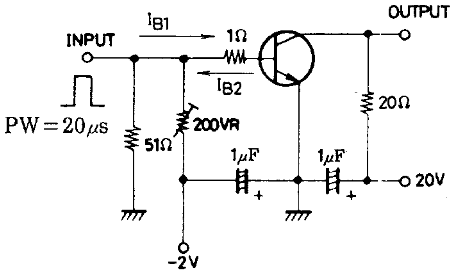
Parameter	Symbol	Conditions	Ratings min	typ	max	Unit
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)5mA, I_E=0	(–)100			V
Collector-to-Emitter Brakdown Voltage	$V_{(BR)CEO}$	I_C=(–)5mA, R_{BE}=∞	(–)85			V
	$V_{(BR)CEO}$	I_C=(–)50mA, R_{BE}=∞	(–)85			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)5mA, I_C=0	(–)6			V
Turn-ON Time	t_{on}	See specified Test Circuit		(0.16)		µs
				0.28		µs
Fall Time	t_f	See specified Test Circuit		(0.33)		µs
				0.50		µs
Storage Time	t_{stg}	See specified Test Circuit		(1.45)		µs
				3.60		µs

* : The 2SB633/2SD613 are classified by 1A h_{FE} as follows :

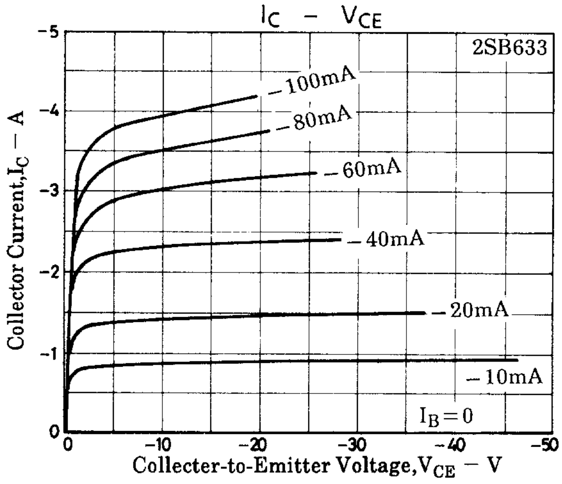
40 C 80	60 D 120	100 E 200	160 F 320

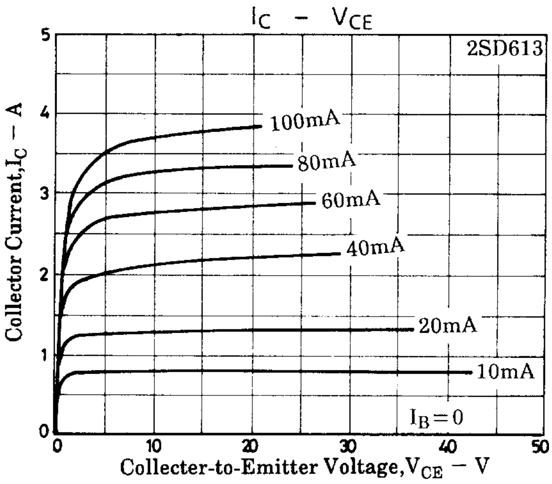
Switching Time Test Circuit

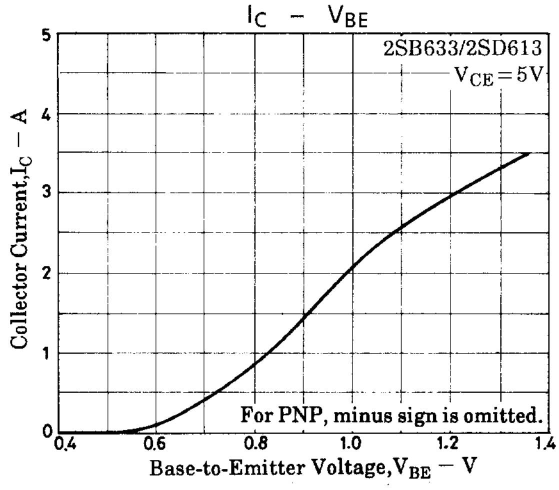


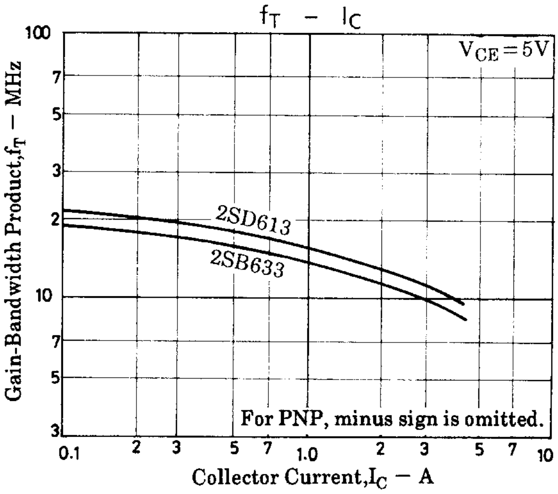
$10I_{B1}=-10I_{B2}=I_C=1A$

(For PNP, the polarity is reversed.)









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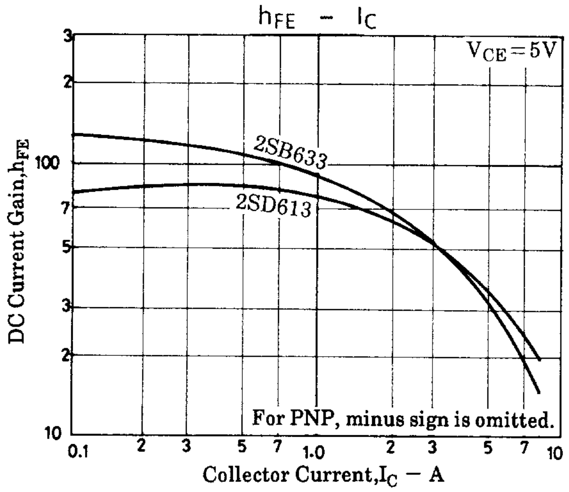

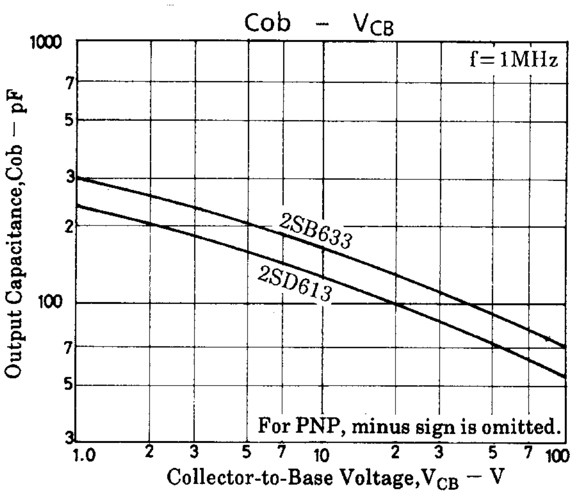

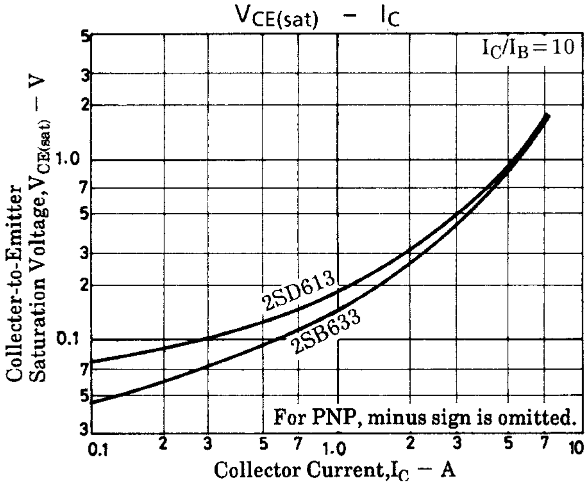

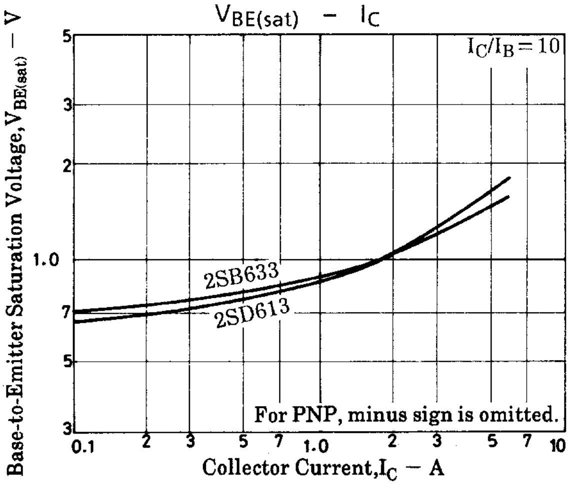

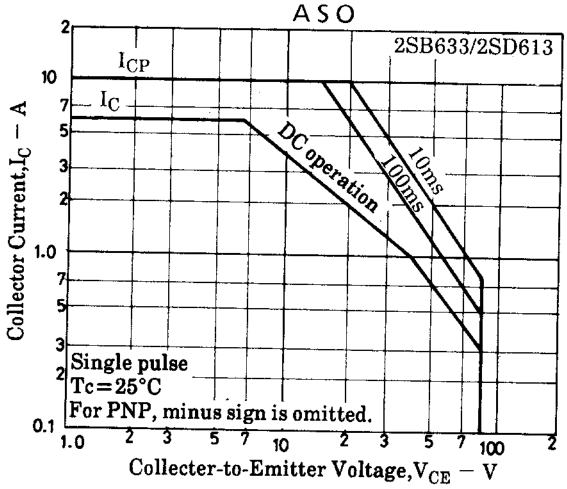

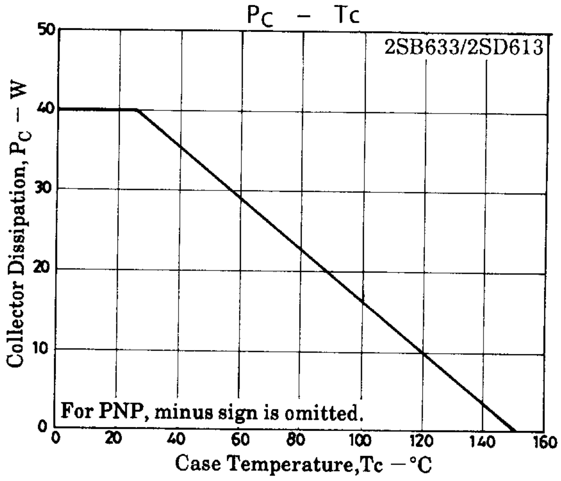

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