

# 2SB633/2SD613

PNP/NPN Epitaxial Planar Silicon Transistors

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

### Features

- High breakdown voltage  $V_{CE0}85V$ , high current 6A.
- AF25 to 35W output.

( ) : 2SB633

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

			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	$P_C$	40	W
Junction Temperature	$T_j$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 to +150	$^\circ C$

$T_c = 25^\circ C$

### Electrical Characteristics at $T_a = 25^\circ C$

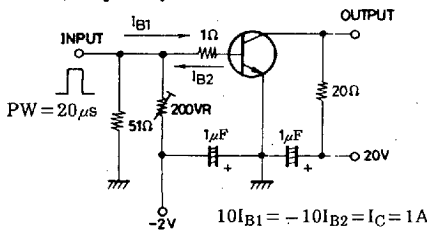
			min	typ	max	unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = (-)40V, I_E = 0$			(- )0.1	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = (-)4V, I_C = 0$			(- )0.1	mA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = (-)5V, I_C = (-)1A$	40*		320*	
	$h_{FE(2)}$	$V_{CE} = (-)5V, I_C = (-)3A$	20			
Gain-Bandwidth Product	$f_T$	$V_{CE} = (-)5V, I_C = (-)1A$		15		MHz
C-E Saturation Voltage	$V_{CE(sat)}$	$I_C = (-)4A, I_B = (-)0.4A$			(- )2.0	V
B-E Rise Voltage	$V_{BE}$	$V_{CE} = (-)5A, I_C = (-)1A$			(- )1.5	V
Output Capacitance	$C_{ob}$	$V_{CB} = (-)10V, f = 1MHz$		(150)110		pF
C-B Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)5mA, I_E = 0$	(- )100			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)5mA, R_{BE} = \infty$	(- )85			V
	$V_{(BR)CEO}$	$I_C = (-)50mA, R_{BE} = \infty$	(- )85			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)5mA, I_C = 0$	(- )6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit.	(0.16)0.28			$\mu s$
Fall Time	$t_f$	"	(0.33)0.50			$\mu s$
Storage Time	$t_{stg}$	"	(1.45)3.60			$\mu s$

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

40	C	80	60	D	120	100	E	200	160	F	320
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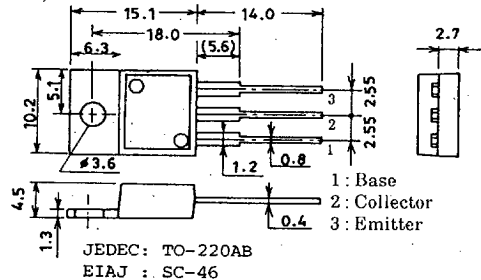
### Switching Time Test Circuit

(For PNP, the polarity is reversed.)



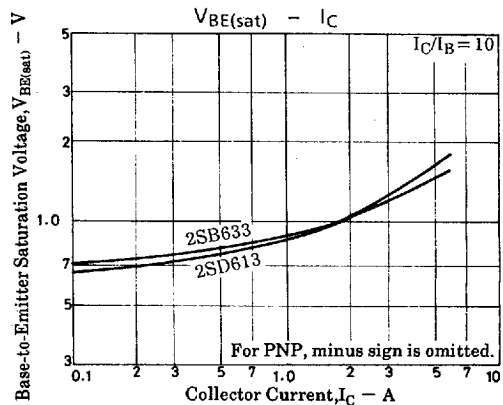
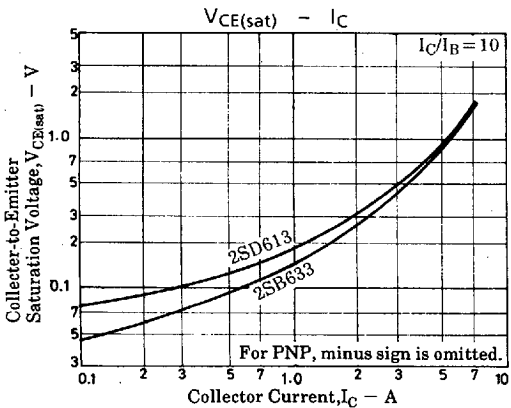
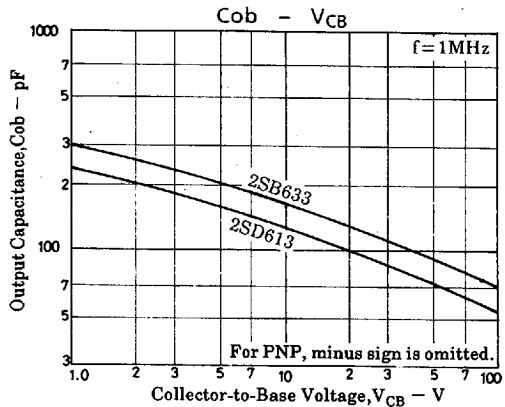
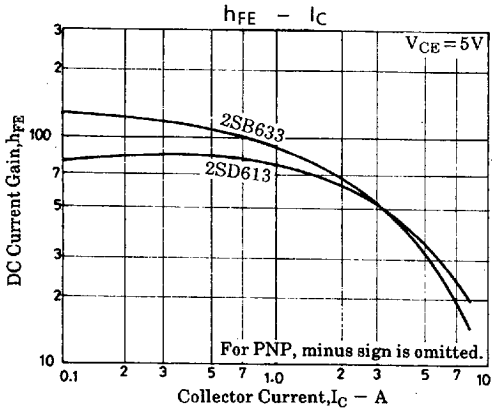
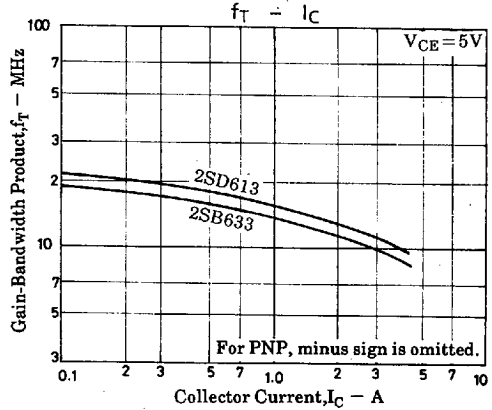
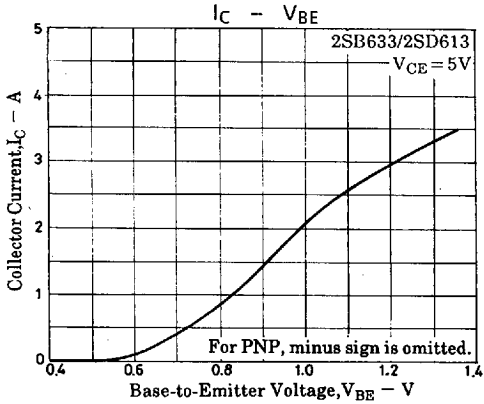
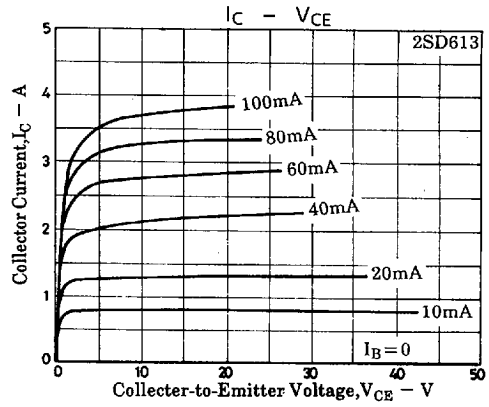
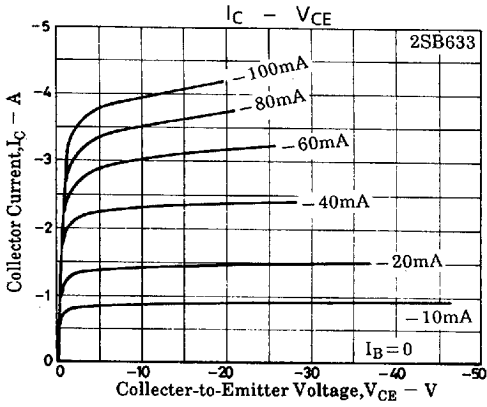
### Package Dimensions 2010C

(unit : mm)



## SANYO Electric Co., Ltd. Semiconductor Business Headquarters

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



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