



# 2SB633/2SD613

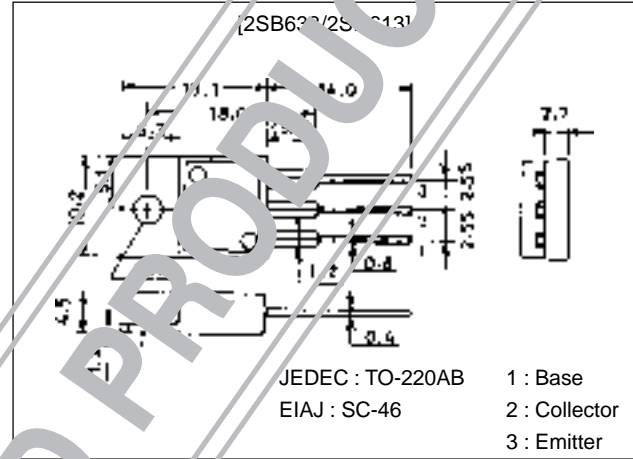
## 85V/6A, AF 25 to 35W Output Applications

### Features

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

### Package Dimensions

unit:mm  
2010C



( ) : 2SB633

### Specifications

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

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	$P_C$	$T_c=25^\circ C$	40	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	$h_{FE1}$	$V_{CE}=(-)5V, I_C=(-)1A$	40*		320*	
	$h_{FE2}$	$V_{CE}=(-)5V, I_C=(-)3A$	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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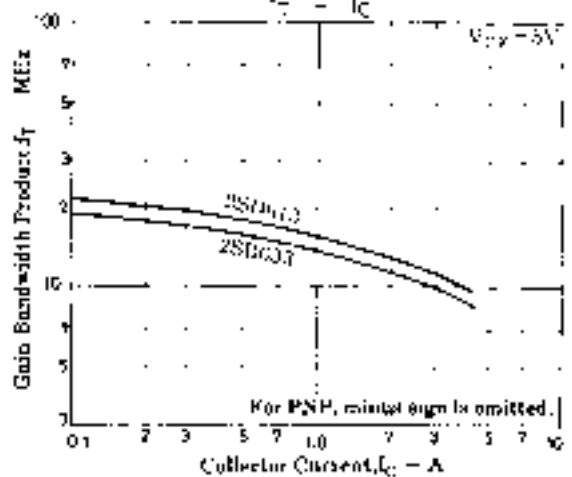
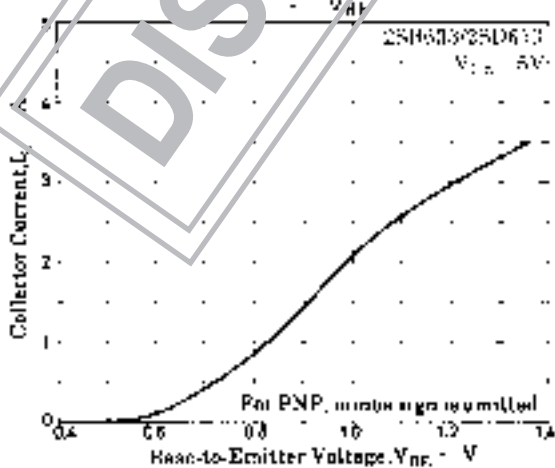
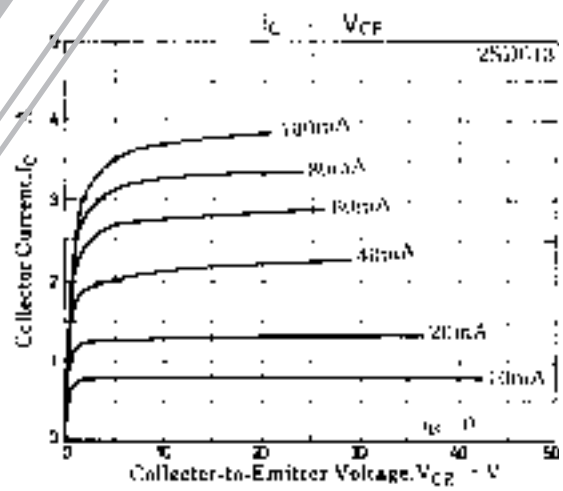
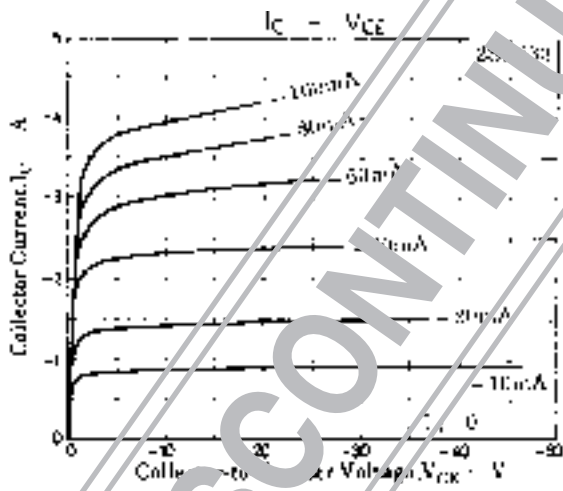
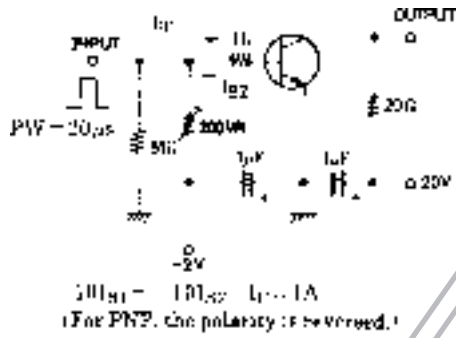
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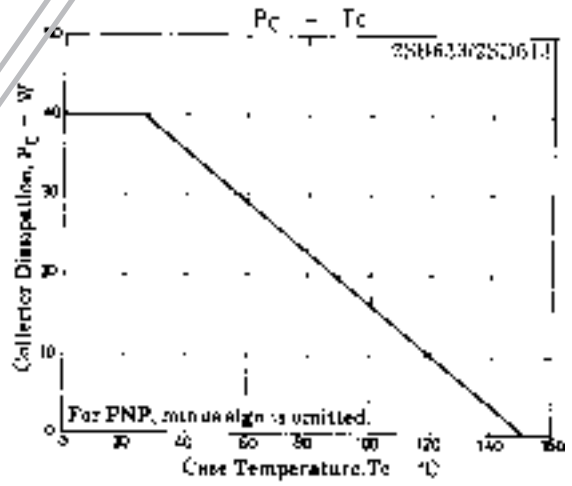
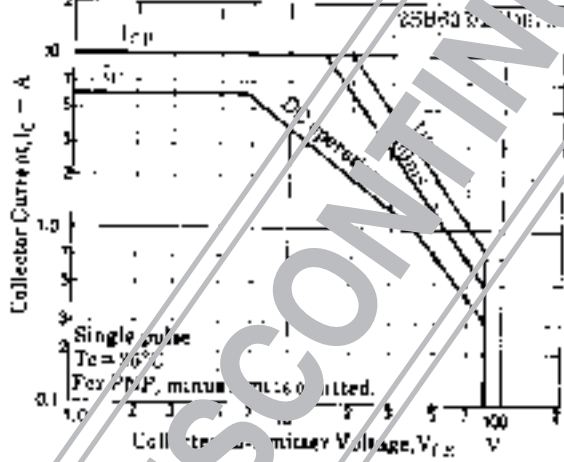
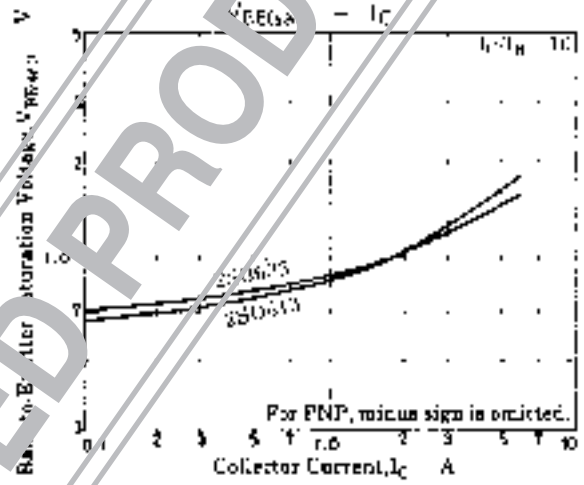
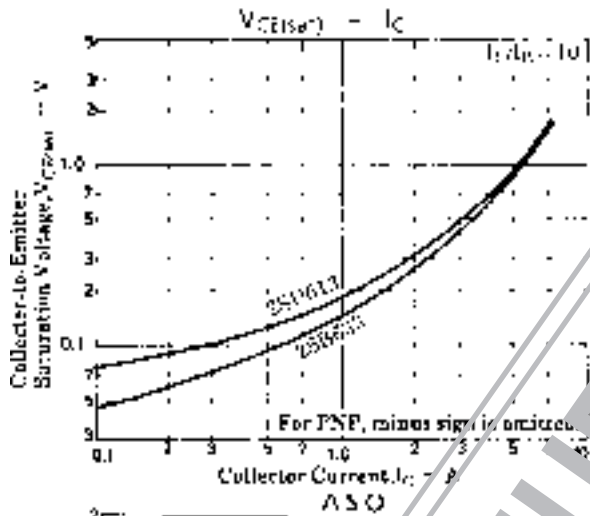
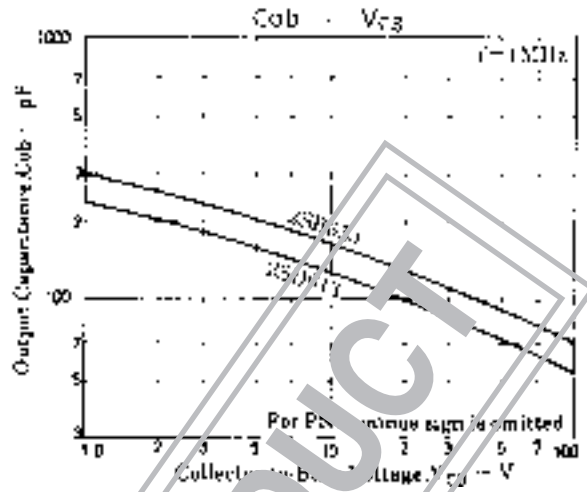
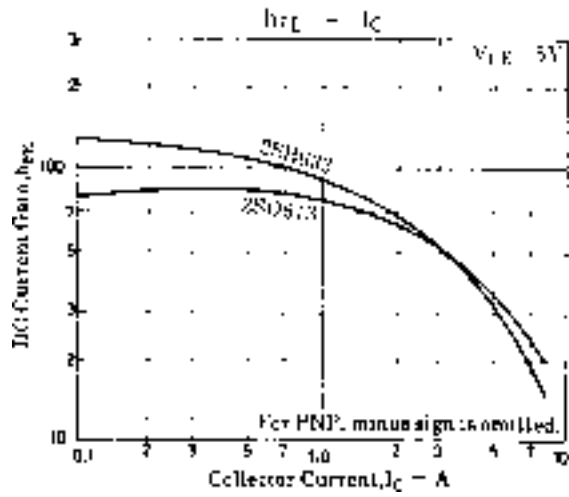
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = (-)5mA, I_E = 0$	(-)100			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = (-)5mA, R_{BE} = \infty$	(-)85			V
	$V_{(BR)CEO}$	$I_C = (-)50mA, R_{BE} = \infty$	(-)85			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = (-)5mA, I_C = 0$	(-)6			V
Turn-ON Time	$t_{on}$	See specified Test Circuit		(0.16)		$\mu s$
Fall Time	$t_f$	See specified Test Circuit		0.28		$\mu s$
				(0.33)		$\mu s$
Storage Time	$t_{stg}$	See specified Test Circuit		0.50		$\mu s$
				(15)		$\mu s$
				3.60		$\mu s$

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

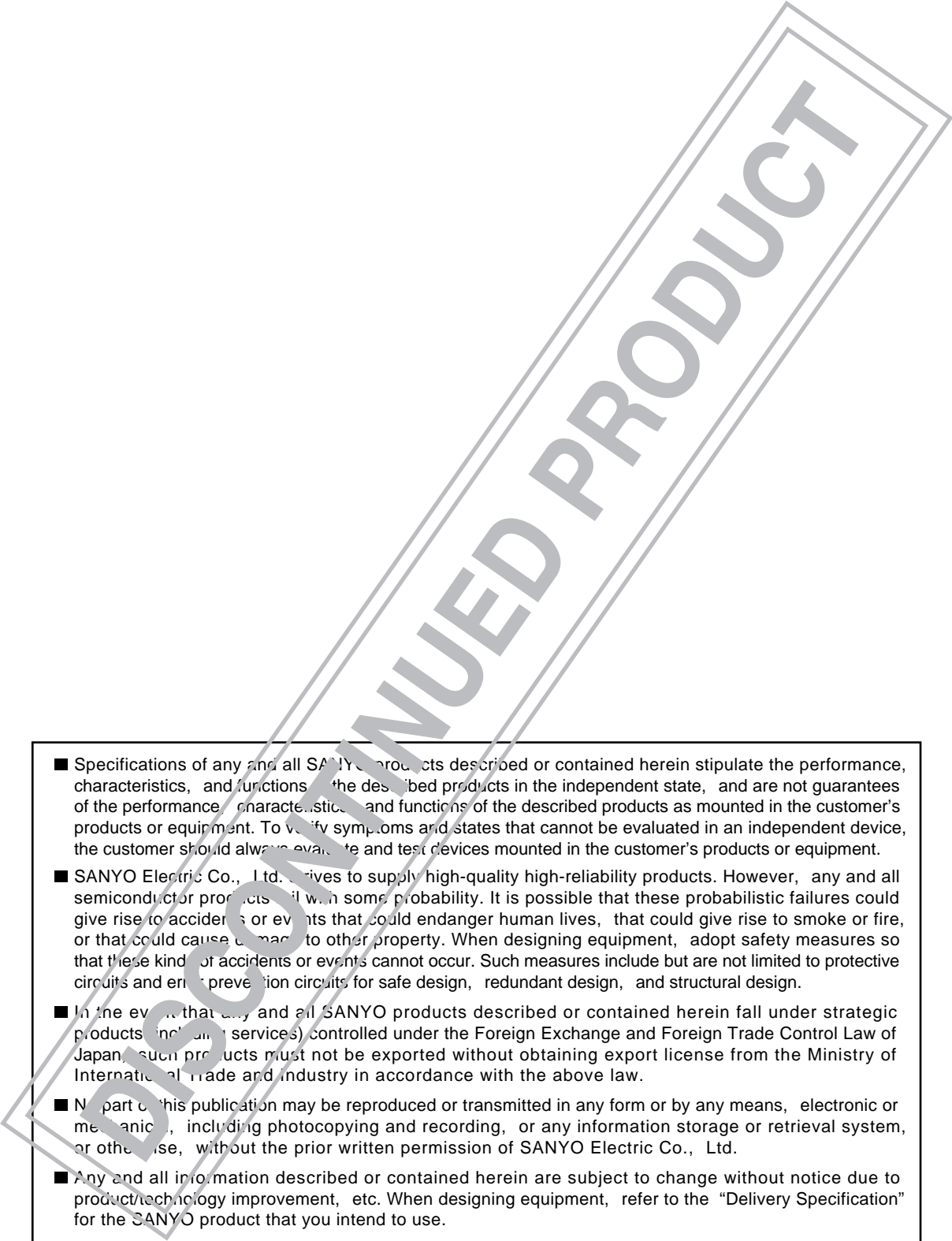
40	C	80	60	D	120	100	E	200	160	F	320
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### Switching Time Test Circuit





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