Ordering number: EN2539B

SANYO

No.2539B

2SB1215/2SD1815

PNP/NPN Epitaxial Planar Silicon Transistors

High-Current Switching Applications

Applications

- Relay drivers, high-speed inverters, converters, and other general high-current switching applications.

Features

- Low collector-to-emitter saturation voltage.
- Excellent linearity of h_{FE}.
- Small-sized package permitting 2SB1215/2SD1815-applied sets to be made small and slim.
- High f_T.
- Fast switching time.

( ) : 2SB1215

Absolute Maximum Ratings at Ta = 25°C

				unit
Collector-to-Base Voltage	V_{CBO}		(−)120	V
Collector-to-Emitter Voltage	V_{CEO}		(−)100	V
Emitter-to-Base Voltage	V_{EBO}		(−)6	V
Collector Current	I_C		(−)3	A
Collector Current (Pulse)	I_{CP}		(−)6	A
Collector Dissipation	P_C		1	W
		Tc = 25°C	20	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
Collector Cutoff Current	I_{CBO}	V_{CB} = (−)100V, I_E = 0			(−)1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = (−)4V, I_C = 0			(−)1	μA
DC Current Gain	$h_{FE}(1)$	V_{CE} = (−)5V, I_C = (−)0.5A	70※		400※	
	$h_{FE}(2)$	V_{CE} = (−)5V, I_C = (−)2A	40			
Gain-Bandwidth Product	f_T	V_{CE} = (−)10V, I_C = (−)0.5A		180 (130)		MHz
Output Capacitance	Cob	V_{CB} = (−)10V, f = 1MHz		(40)25		pF
C-E Saturation Voltage	$V_{CE(sat)}$	I_C = (−)1.5A, I_B = (−)0.15A		150 (−200)	400 (−500)	mV

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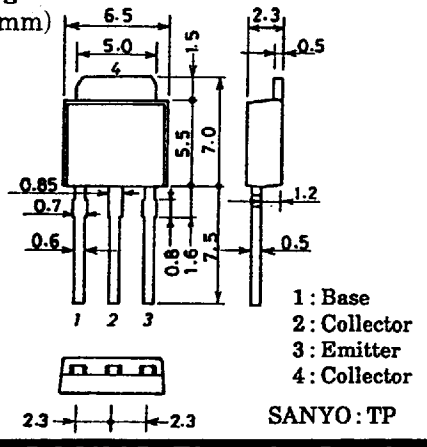
※ : The 2SB1215/2SD1815 are classified by 100mA h_{FE} as follows :

70 Q 140	100 R 200	140 S 280	200 T 400

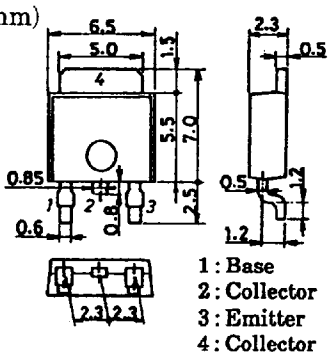
Package Dimensions 2045B
(unit : mm)



1 : Base
2 : Collector
3 : Emitter
4 : Collector

SANYO : TP

Package Dimensions 2044B
(unit : mm)



1 : Base
2 : Collector
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SANYO : TP-FA

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

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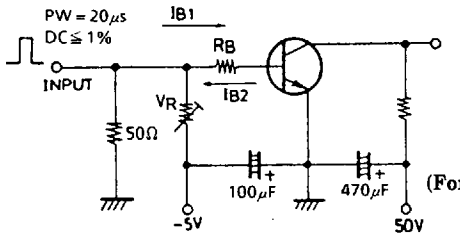
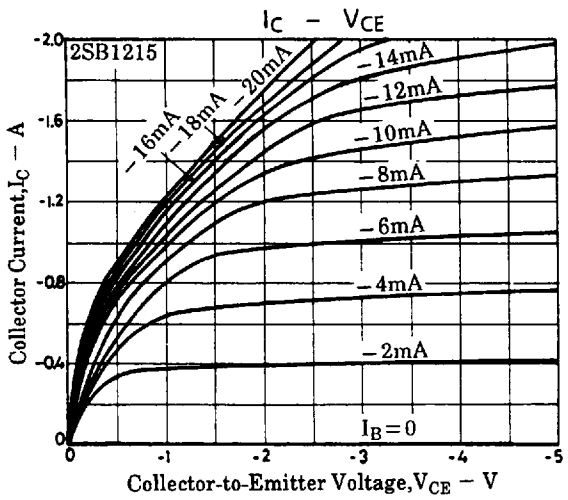
			min	typ	max	unit
B-E Saturation Voltage	$V_{BE(sat)}$	I_C=(−)1.5A, I_B=(−)0.15A		(−)0.9	(−)1.2	V
C-B Breakdown Voltage	$V_{(BR)CBO}$	I_C=(−)10μA, I_E=0	(−)120			V
C-E Breakdown Voltage	$V_{(BR)CEO}$	I_C=(−)1mA, R_{BE}=∞	(−)100			V
E-B Breakdown Voltage	$V_{(BR)EBO}$	I_E=(−)10μA, I_C=0	(−)6			V
Rise Time	t_{on}	See specified Test Circuit.		100		ns
Storage Time	t_{stg}	〃		(800)900		ns
Fall Time	t_f	〃		50		ns

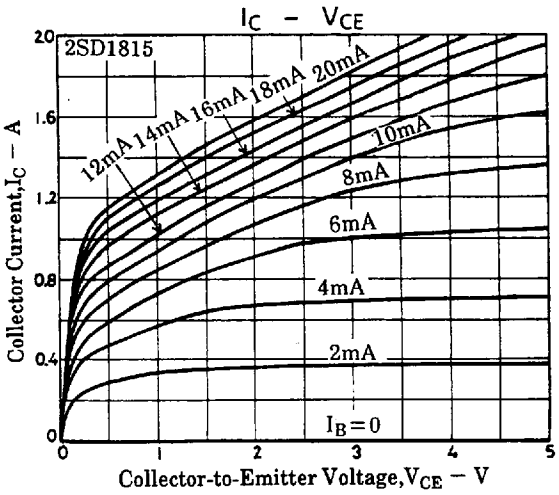
Switching Time Test Circuit

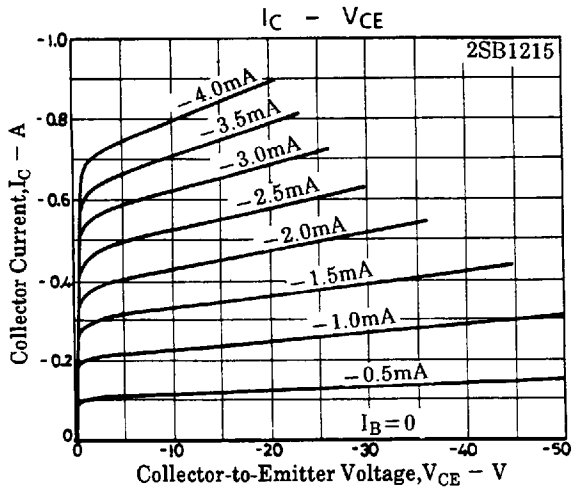


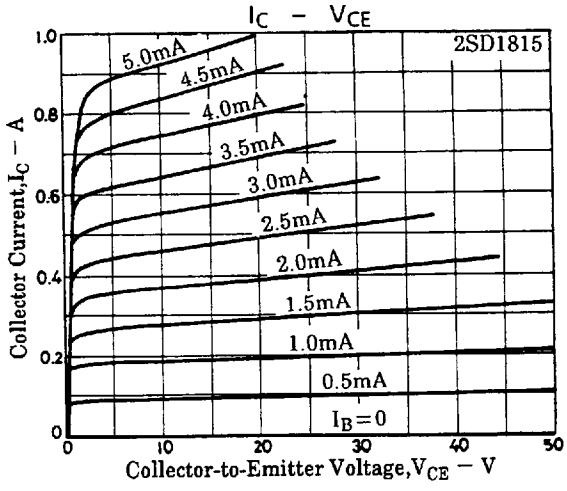
(For PNP, the polarity is reversed.)

$I_C = 10I_{B1} = -10I_{B2} = 1.5A$

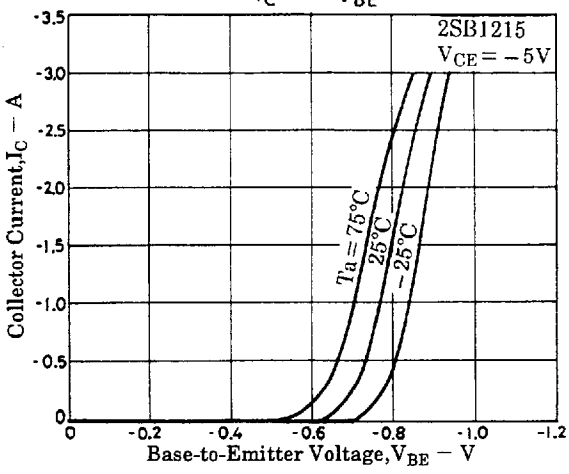




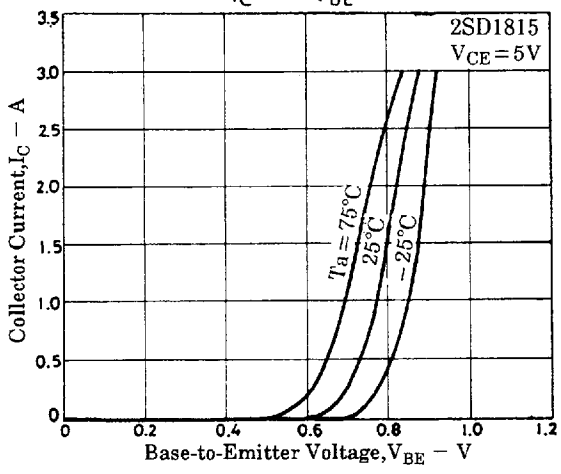




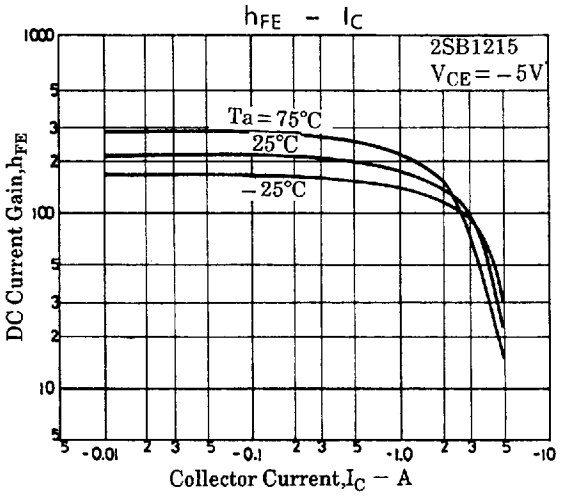
I_C – V_{BE}



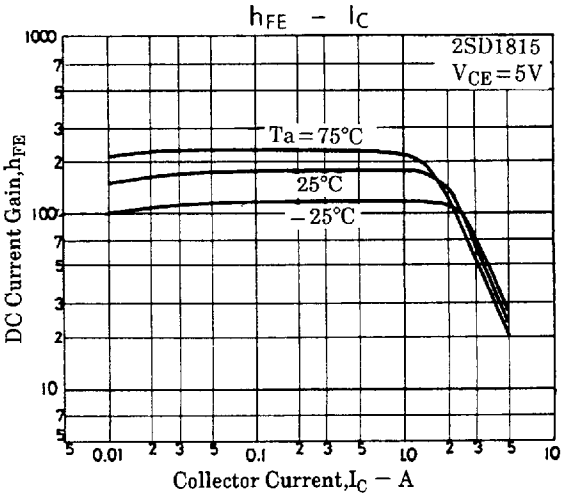
I_C – V_{BE}



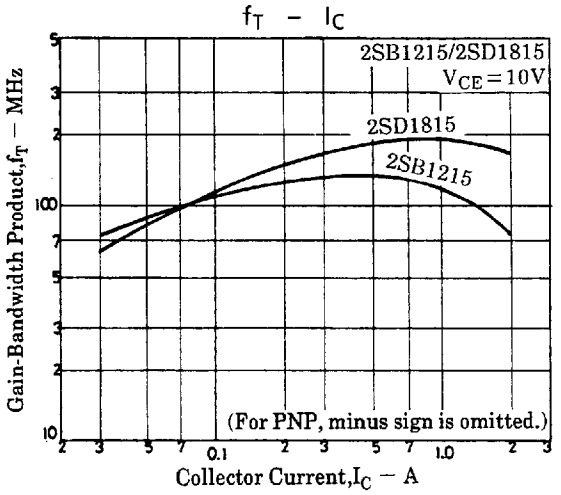
h_{FE} – I_C



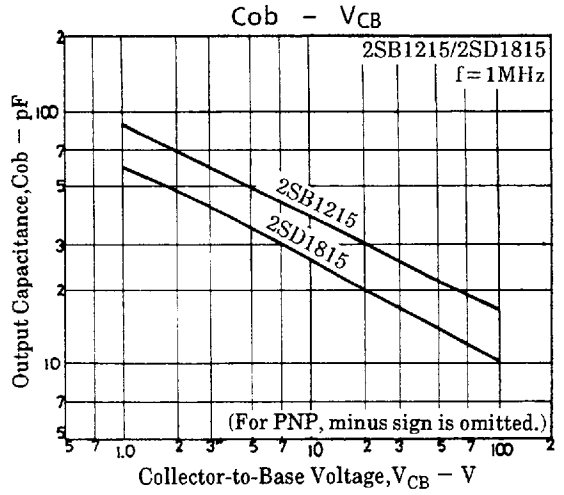
h_{FE} – I_C



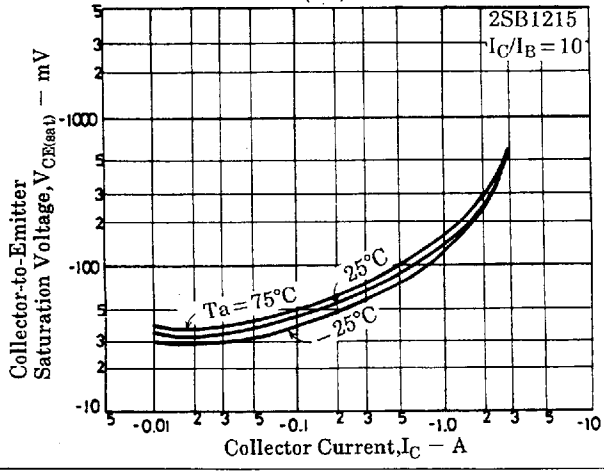
f_T – I_C



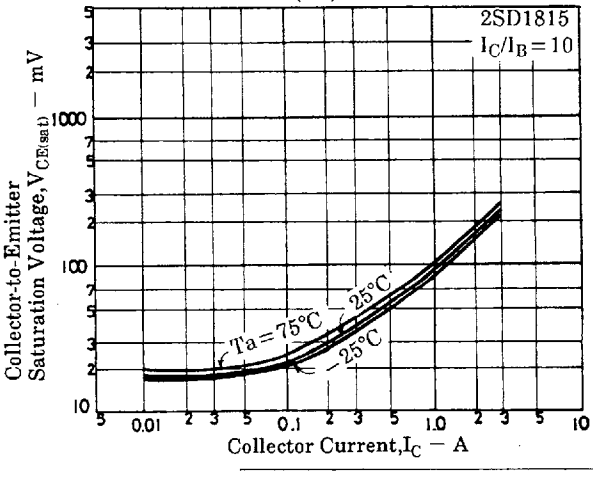
Cob – V_{CB}



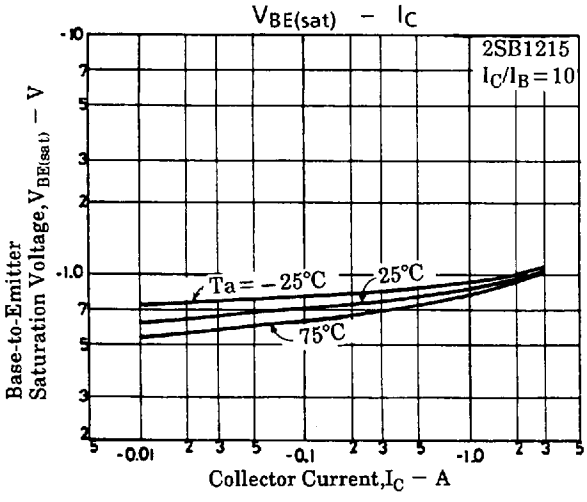
$V_{CE(sat)}$ – I_C



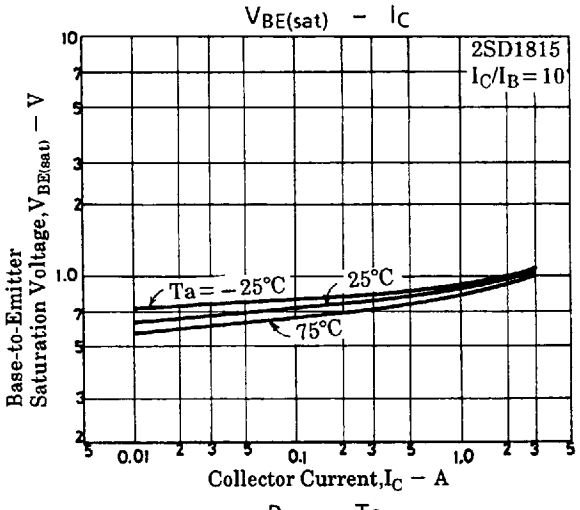
$V_{CE(sat)}$ – I_C



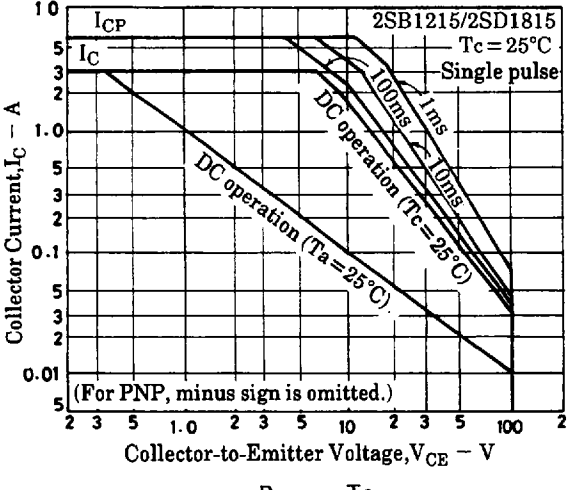
$V_{BE(sat)}$ – I_C



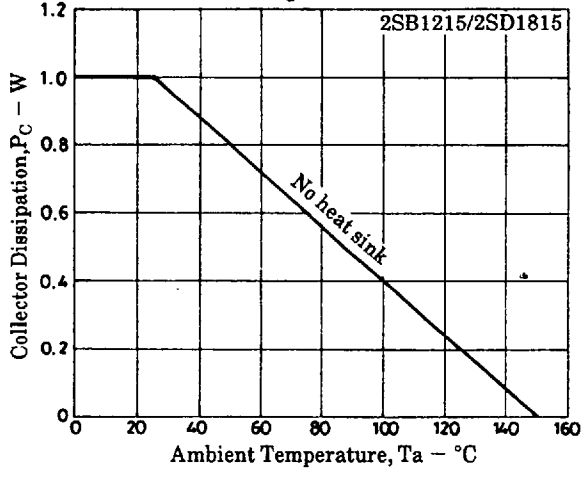
$V_{BE(sat)}$ – I_C



ASO



P_C – Ta



P_C – Tc