Ordering number:1245C

PNP/NPN Epitaxial Planar Silicon Darlington Transistors

2SB986/2SD1348

50V/4A Switching Applications

Applications

· Power supplies, relay drivers, lamp drivers, electrical equipment.

Features

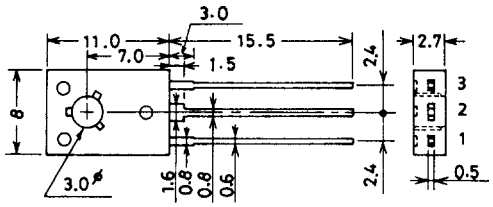
· Adoption of FBET and MBIT processes.
· Low saturation voltage.
· High current capacity and wide ASO.

Package Dimensions

unit:mm

2009B

[2SB986/2SD1348]



JEDEC : TO-126 1 : Emitter
2 : Collector
3 : Base

( ) : 2SB986

Specifications

Absolute Maximum Ratings at Ta = 25˚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		(–)4	A
Collector Current (Pulse)	I_{CP}		(–)6	A
Collector Dissipation	P_C		1.2	W
		Tc=25˚C	10	W
Junction Temperature	Tj		150	˚C
Storage Temperature	Tstg		–55 to +150	˚C

Electrical Characteristics at Ta = 25˚C

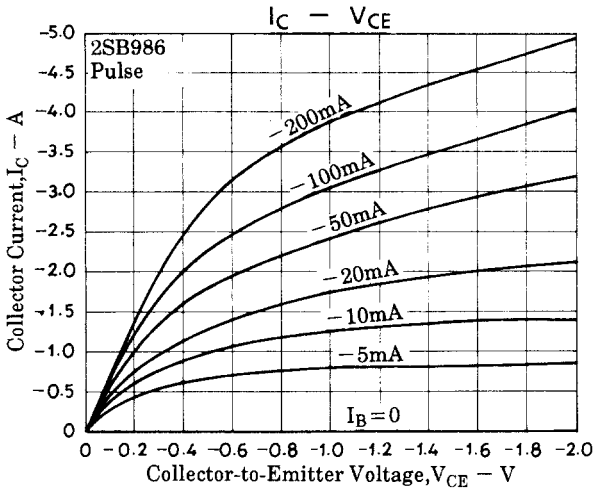
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=(–)40V, I_E=0			(–)1.0	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=(–)4V, I_C=0			(–)1.0	mA
DC Current Gain	$h_{FE}1$	V_{CE}=(–)2V, I_C=(–)100mA	100*		560*	
	$h_{FE}2$	V_{CE}=(–)2V, I_C=(–)3A	40			
Gain-Bandwidth Product	f_T	V_{CE}=(–)10V, I_C=(–)50mA		150		MHz
Output Capacitance	C_{ob}	V_{CB}=(–)10V		25(39)		pF

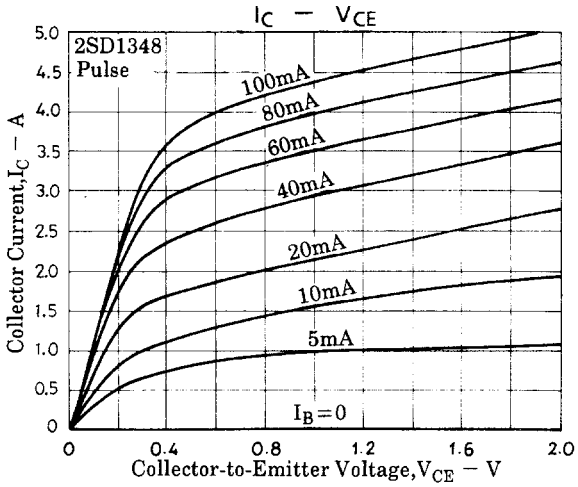
* : The 2SB986/2SD1348 are classified by 100mA h_{FE} as follows :

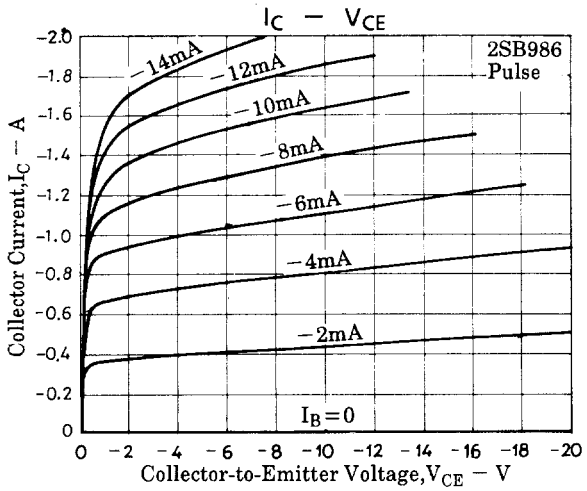
100	R	200	140	S	280	200	T	400	280	U	560

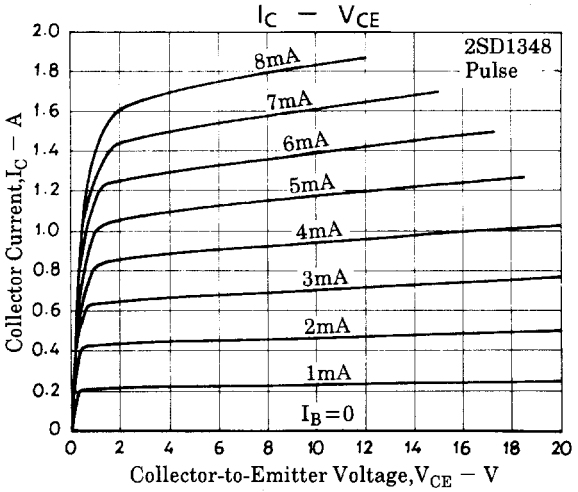
SANYO Electric Co.,Ltd. Semiconductor Bussiness Headquaters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

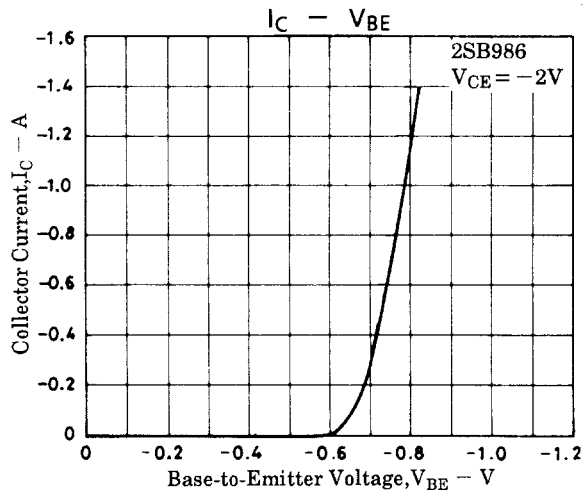
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=(–)2A, I_B=(–)100mA, Pulse		0.19	0.5	V
				(–0.35)	(–0.7)	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=(–)2A, I_B=(–)100mA, Pulse		(–)0.94	(–)1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=(–)10μA, I_E=0	(–)60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=(–)1mA, R_{BE}=∞	(–)50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=(–)10μA I_C=0	(–)6			V

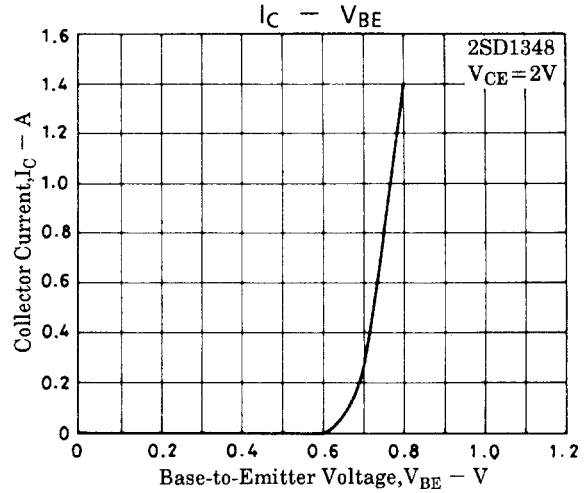


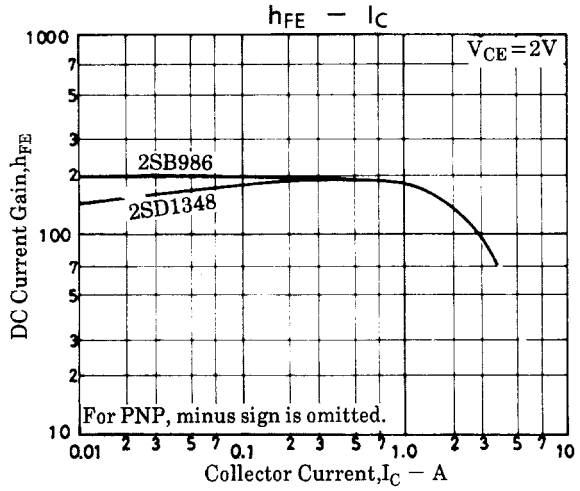


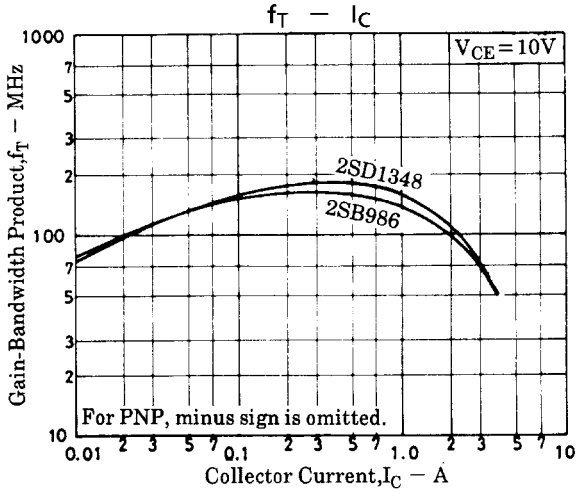


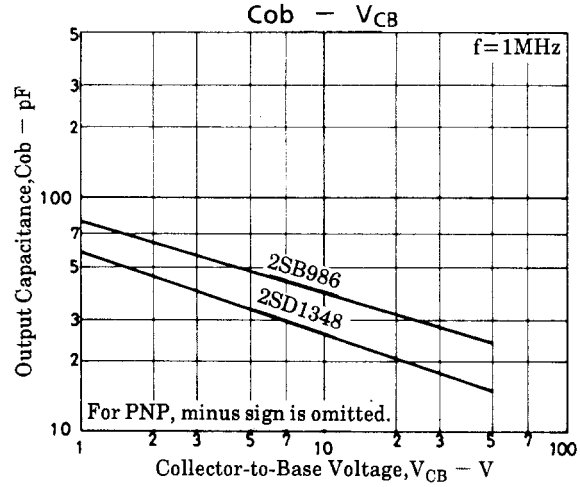


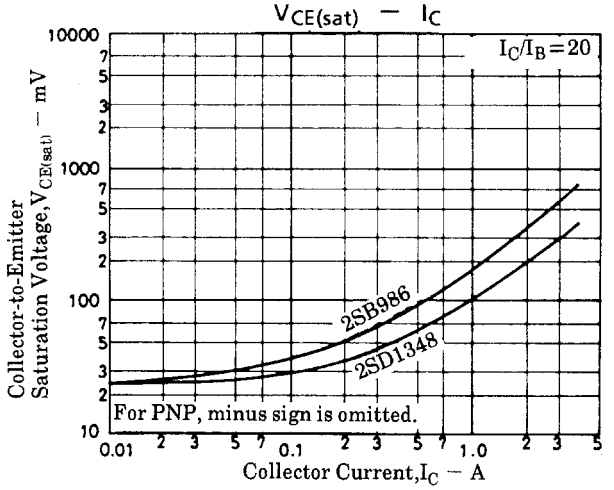


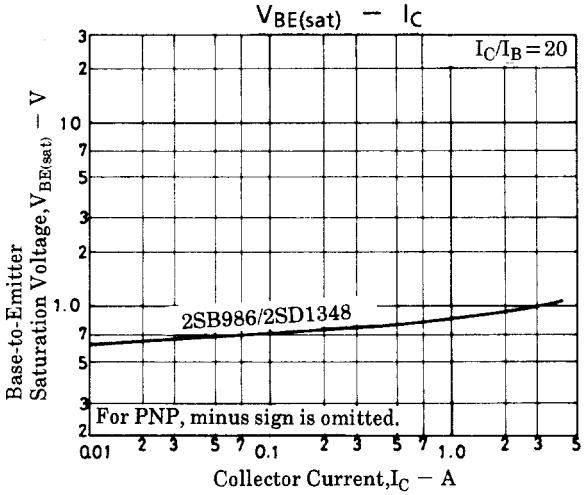


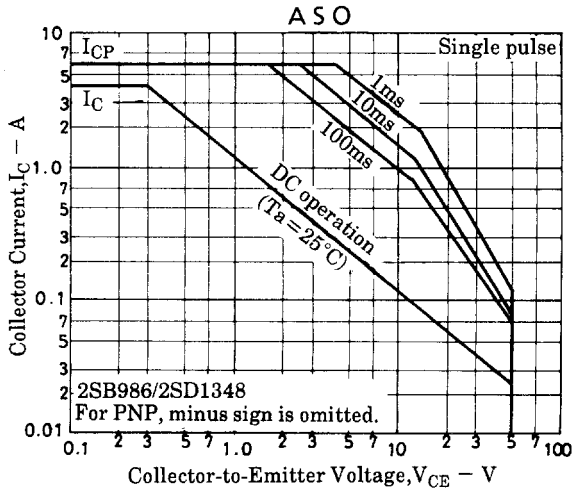

hFE – IC
VCE=2V
2SB986
2SD1348
For PNP, minus sign is omitted.
DC Current Gain,hFE
Collector Current,IC – A

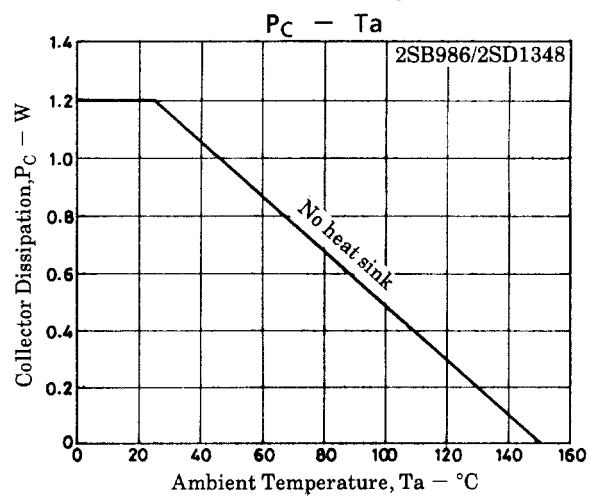

fT – IC
VCE=10V
2SD1348
2SB986
For PNP, minus sign is omitted.
Gain-Bandwidth Product,fT – MHz
Collector Current,IC – A

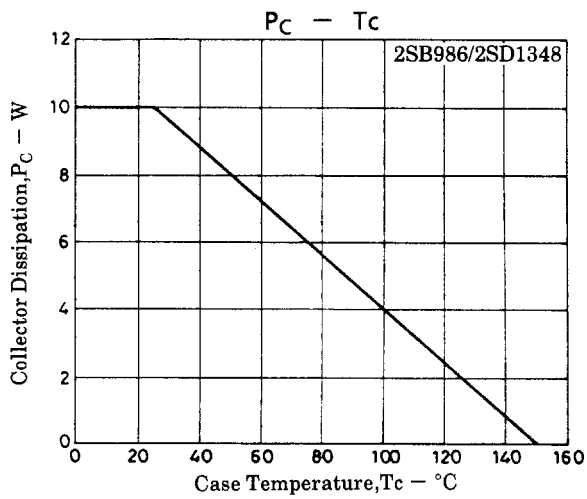

Cob – VCB
f=1MHz
2SB986
2SD1348
For PNP, minus sign is omitted.
Output Capacitance,Cob – pF
Collector-to-Base Voltage,VCB – V


VCE(sat) – IC
IC/IB=20
2SB986
2SD1348
For PNP, minus sign is omitted.
Collector-to-Emitter Saturation Voltage,VCE(sat) – mV
Collector Current,IC – A


VBE(sat) – IC
IC/IB=20
2SB986/2SD1348
For PNP, minus sign is omitted.
Base-to-Emitter Saturation Voltage,VBE(sat) – V
Collector Current,IC – A


ASO
ICP
IC
Single pulse
1ms
10ms
100ms
DC operation
(Ta=25°C)
2SB986/2SD1348
For PNP, minus sign is omitted.
Collector Current,IC – A
Collector-to-Emitter Voltage,VCE – V


PC – Ta
2SB986/2SD1348
No heat sink
Collector Dissipation,PC – W
Ambient Temperature, Ta – °C


PC – Tc
2SB986/2SD1348
Collector Dissipation,PC – W
Case Temperature,Tc – °C