



SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

2SD1835 — NPN Epitaxial Planar Silicon Transistor

Driver Applications

Applications

- Voltage regulators, relay drivers, lamp drivers, electrical equipment

Features

- Adoption of FBET, MBIT processes
- Low collector-to-emitter saturation voltage
- Large current capacity
- Fast switching time

Specifications

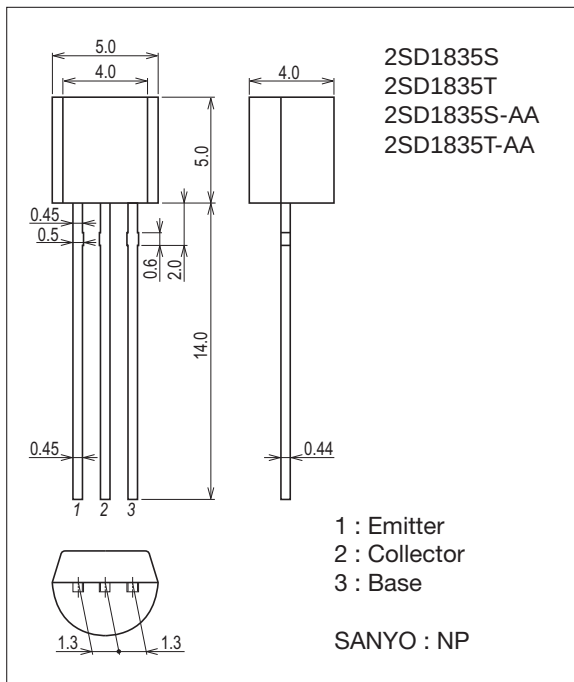
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V _{CB0}		60	V
Collector-to-Emitter Voltage	V _{CE0}		50	V
Emitter-to-Base Voltage	V _{EB0}		6	V
Collector Current	I _C		2	A
Collector Current (Pulse)	I _{CP}		3	A
Collector Dissipation	P _C		0.75	W
Junction Temperature	T _j		150	°C
Storage Temperature	T _{stg}		-55 to +150	°C

Package Dimensions

unit : mm (typ)

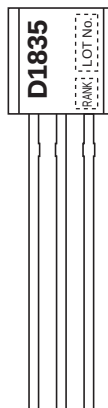
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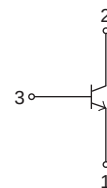
Product & Package Information

- Package : NP
- JEITA, JEDEC : SC-34A, TO-92, TO-226AA, SOT-54
- Minimum Packing Quantity : 1,500 pcs./box, 500pcs./bag

Marking



Electrical Connection



SANYO Semiconductor Co., Ltd.

<http://www.sanyosemi.com/en/network/>

2SD1835

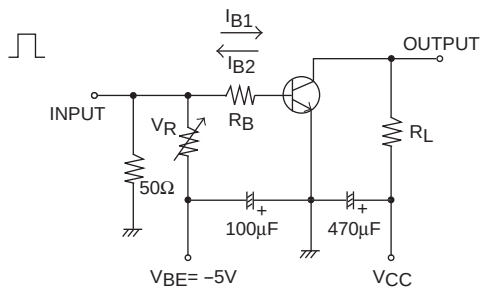
Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=50V, I_E=0A$			100	nA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=4V, I_C=0A$			100	nA
DC Current Gain	h_{FE1}	$V_{CE}=2V, I_C=100mA$	100*		560*	
	h_{FE2}	$V_{CE}=2V, I_C=1.5A$	40			
Gain-Bandwidth Product	f_T	$V_{CE}=10V, I_C=50mA$		150		MHz
Output Capacitance	C_{ob}	$V_{CB}=10V, f=1MHz$		12		pF
Collector-to-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=1A, I_B=50mA$		0.15	0.4	V
Base-to-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1A, I_B=50mA$		0.9	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C=10\mu A, I_E=0A$	60			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C=1mA, R_{BE}=\infty$	50			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E=10\mu A, I_C=0A$	6			V
Turn-ON Time	t_{on}	See specified Test Circuit.		60		ns
Storage Time	t_{stg}			550		ns
Fall Time	t_f			30		ns

* : The 2SD1835 is classified by 100mA h_{FE} as follows :

Rank	R	S	T	U
h_{FE}	100 to 200	140 to 280	200 to 400	280 to 560

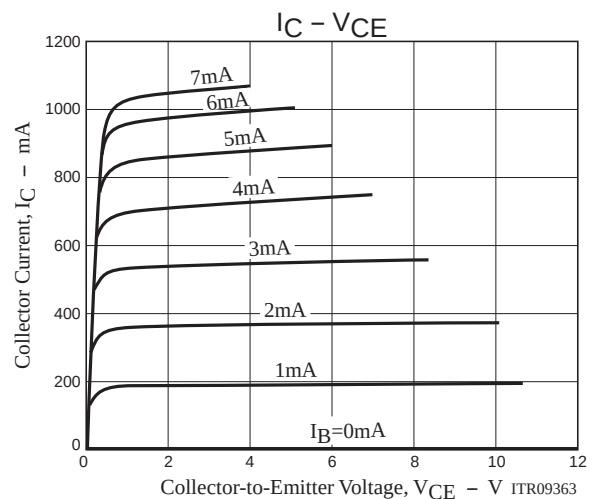
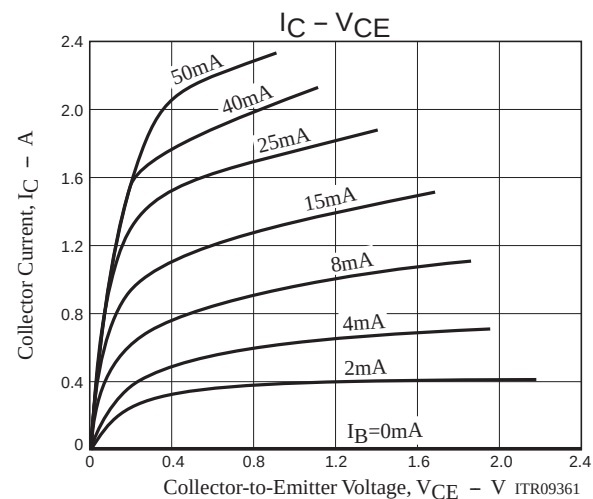
Switching Time Test Circuit

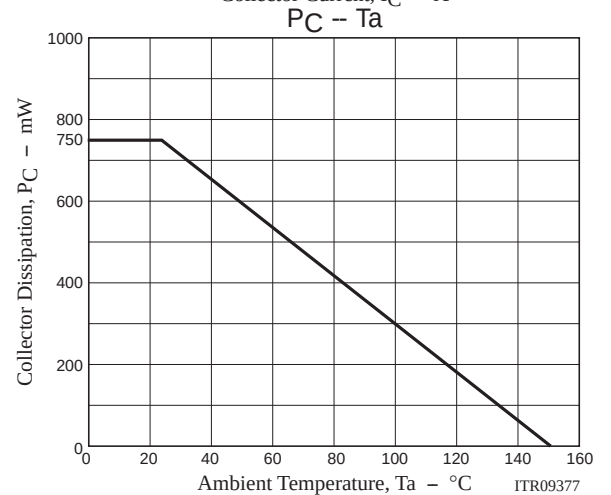
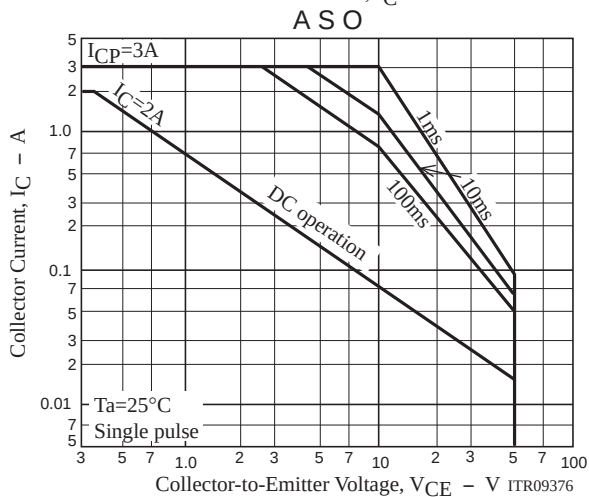
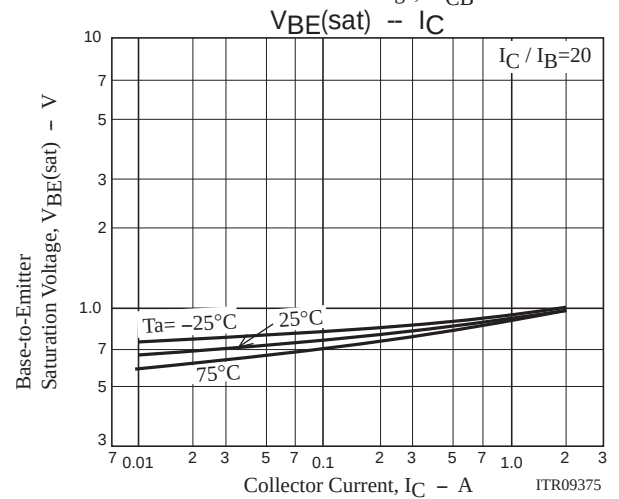
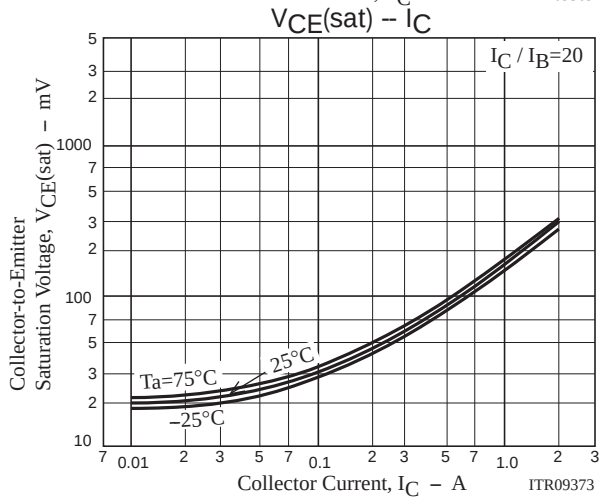
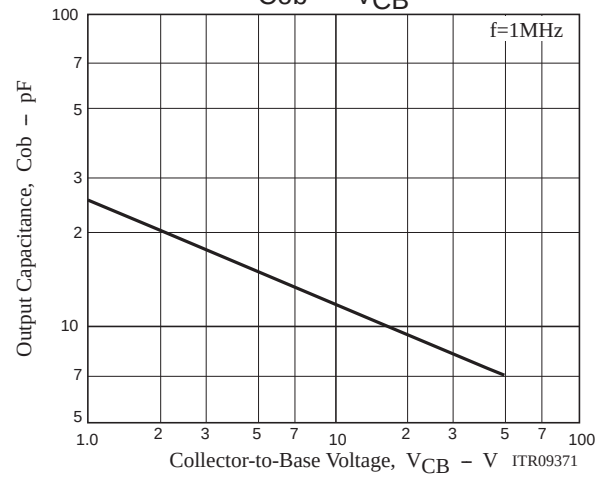
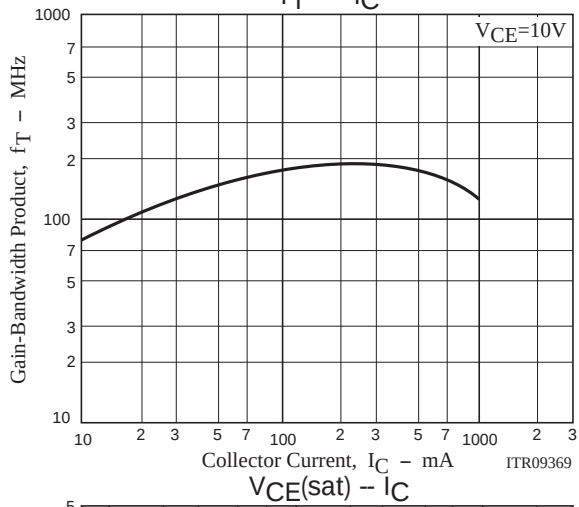
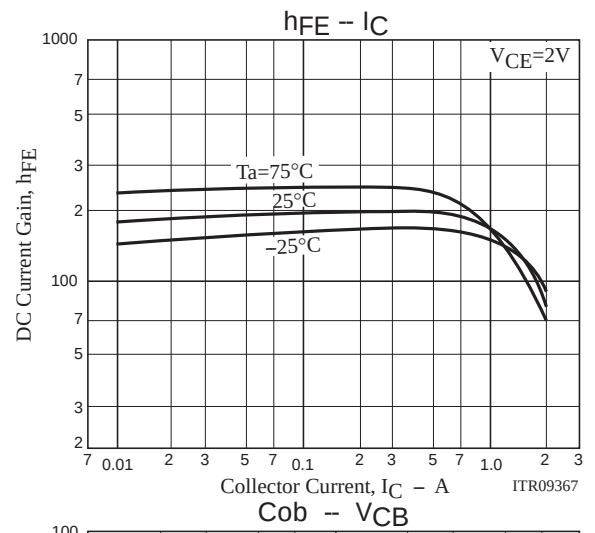
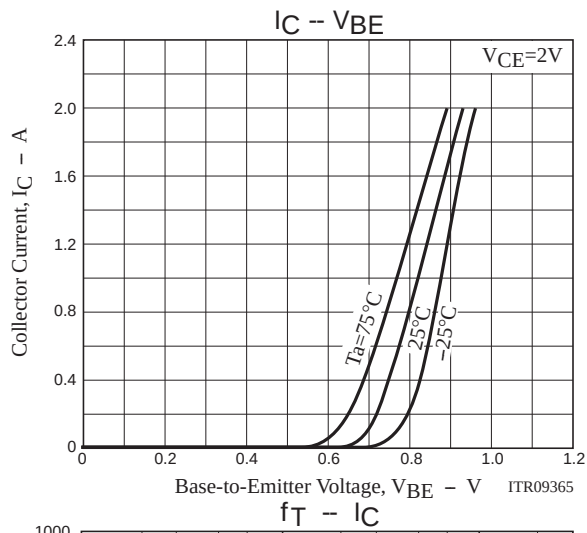


$$I_C = 10I_{B1} = -10I_{B2} = 500mA, V_{CC} = 25V$$

Ordering Information

Device	Package	Shipping	memo
2SD1835S	NP	500pcs./bag	Pb Free
2SD1835T	NP	500pcs./bag	
2SD1835S-AA	NP	1,500pcs./box	
2SD1835T-AA	NP	1,500pcs./box	





Taping Specification

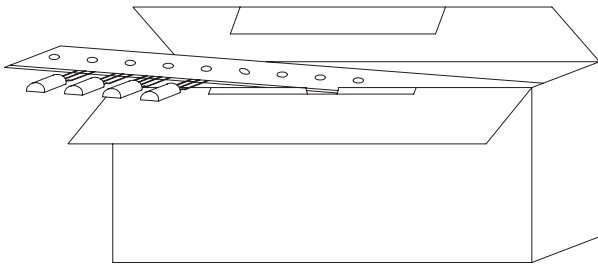
2SD1835S-AA, 2SD1835T-AA

1. Packing Format

Package Name	Packing Type	Maximum Number of devices contained (pcs)		Packing format
		Inner BOX (C-2)	number of contained	
N P	A A	Dimensions:mm (external) 330×45×145	1,500	Outer BOX (C-6) 16 inner boxes contained (24,000pcs) Dimensions:mm (external) 585×345×200

Packing method

Put zigzag folding in an inner box.

Inner box label

(unit:mm)

Type No. →

LOT No. →

Quantity →

Origin →

69		43
(P) TYPE	0000000000	
(1) LOT	00	
(Q) QTY	0,000 (1) LEAD FREE *	
(Z) SPECIAL		
Z0722005310C		
ASSEMBLY:**** (DIFFUSION:****)		

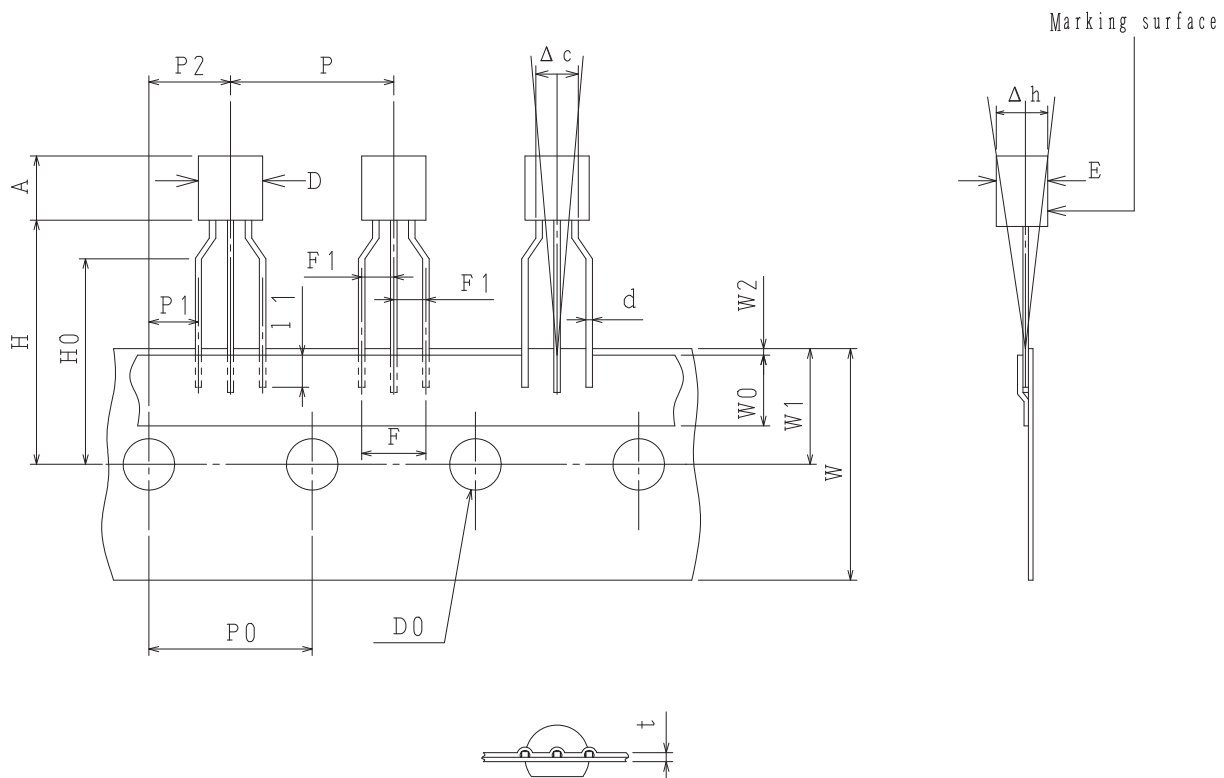
NOTE (1)

The LEAD FREE * description shows that the surface treatment of the terminal is lead free.

Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping specifications

2-1. Carrier tape size



2-2. Taping size standard

unit:mm

Item	Symbol	Standard	Tolerance	Item	Symbol	Standard	Tolerance
Work piece outside diameter	D	5.0	±0.2	Tape width	W	18.0	+1.0 -0.5
	E	4.0	±0.2	Adhesive tape	W0	6.0	±1.5
Work piece height	A	5.0	±0.2	Displacement of perforations	W1	9.0	±0.5
Lead wire diameter	d	0.45×0.44t	±0.1	Work piece bottom surface position	H	19.0	±1.0
Bonded lead wire	l1	2.0MIN		Insert stopper position	H0	16.0	±0.5
Pitch between products	P	12.7	±0.5	Work piece upper limit position	H1	24.5	±1.5
Pitch between perforations	P0	12.7	±0.2	Perforations diameter	D0	φ4.0	±0.2
Distance between lead wire	F	5.0	+0.8 -0.2	Tape thickness	t	0.6	±0.2
Lead wire pitch distance	F1	2.5	+0.2 -0.1	Product inclination	Δc	0	±1.0
Product inclination	Δh	0	±2.0	Measurement position is the bottom of the clinch Not to be displaced to the outside of the board			
Displacement of perforations	P1	3.85	±0.3				
	P2	6.35	±0.3				
Displacement of tape	W2	0.5MAX					

Bag Packing Specification

2SD1835S, 2SD1835T

1 . Packing condition

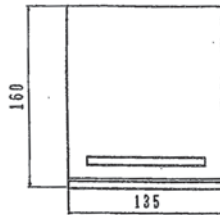
Storage package outline name	Maximum number of devices contained (pcs.)		Packing condition	
	Bags	Inner box	Outer box (A-1)	Outer box (A-2)
NP	500	B-1 Inner box dimensions : mm (external) 445×225×55	10,000 5 inner boxes contained (50,000) Outer box dimensions : mm (external) 470 × 250 × 300	30,000 3 inner boxes contained Outer box dimensions : mm (external) 470 × 250 × 190

3. Bar code label

(Unit : mm)

2. Bag dimensions

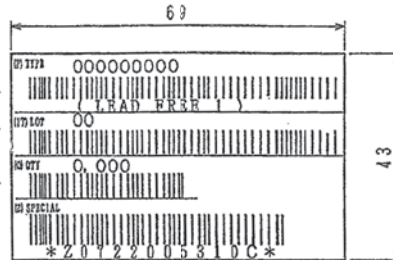
(Unit : mm)



Type No. →

Lot No. →

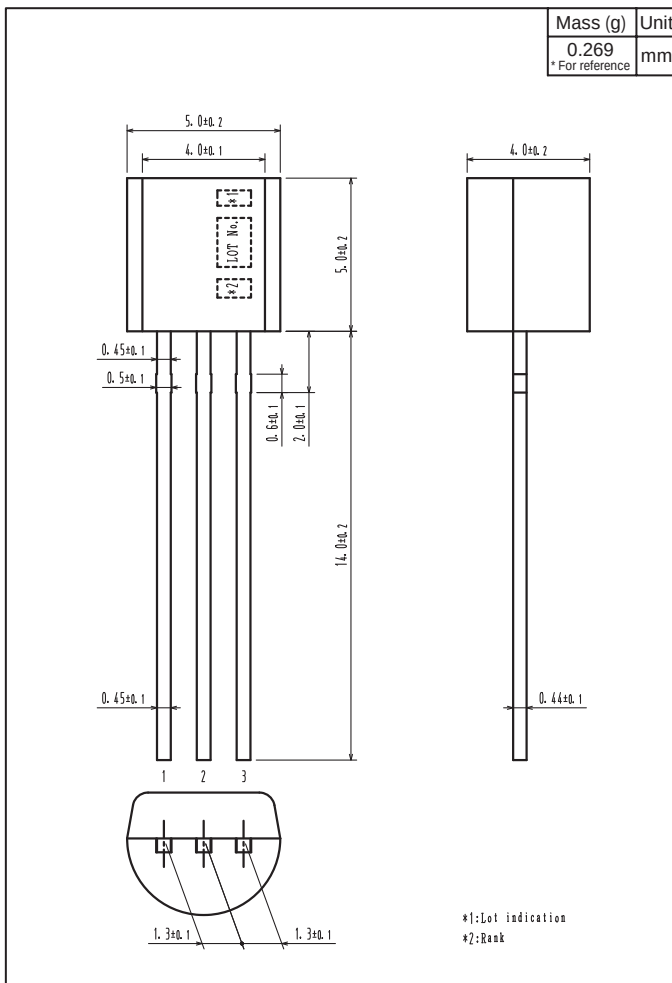
Quantity →



* LEAD FREE 1 :
Lead-free External terminal surface
treatment product.

Outline Drawing

2SD1835S, 2SD1835T



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