Ordering number : EN1784C

SANYO Semiconductors

DATA SHEET

An ON Semiconductor Company

NPN Epitaxial Planar Silicon Transistors

2SD1618 — Low-Voltage High-Current Amplifier, Muting Applications

Features

- Low collector-to-emitter saturation voltage
- Very small size making it easy to provide highdensity, small-sized hybrid IC's

Specifications

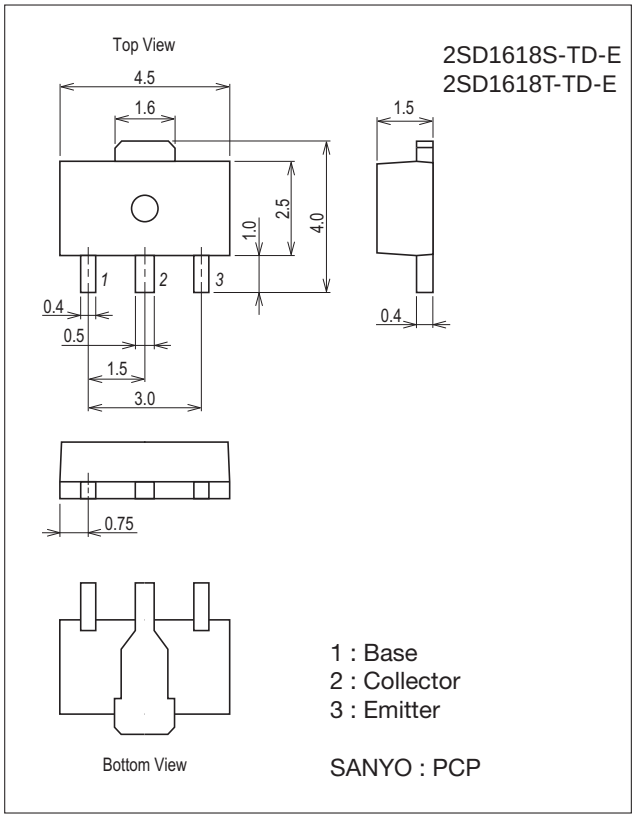
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		20	V
Collector-to-Emitter Voltage	V_{CEO}		15	V
Emitter-to-Base Voltage	V_{EBO}		5	V
Collector Current	I_C		0.7	A
Collector Current (Pulse)	I_{CP}		1.5	A
Collector Dissipation	P_C		500	mW
		When mounted on ceramic substrate (250mm^2×0.8mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Package Dimensions

unit : mm (typ)

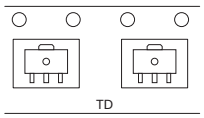
7007B-004



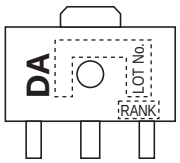
Product & Package Information

- Package : PCP
- JEITA, JEDEC : SC-62, SOT-89, TO-243
- Minimum Packing Quantity : 1,000 pcs./reel

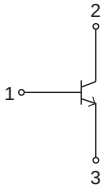
Packing Type: TD



Marking



Electrical Connection



Electrical Characteristics at Ta=25°C

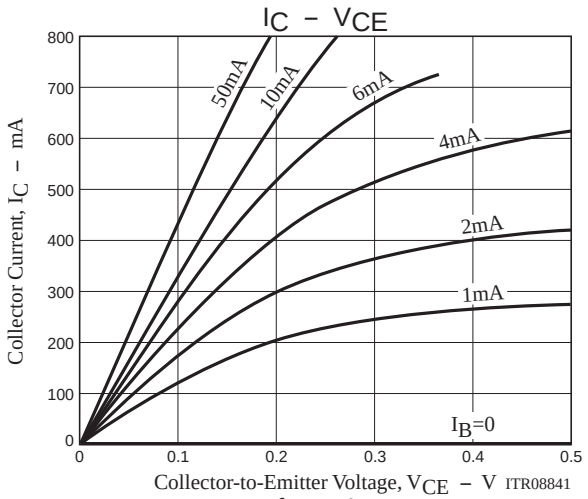
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	V_{CB}=15V, I_E=0A			0.1	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=4V, I_C=0A			0.1	μA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=50mA	140*		560*	
	$h_{FE}2$	V_{CE}=2V, I_C=500mA	60			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=50mA		250		MHz
Collector-to-Emitter Saturation Voltage	$V_{CE}(sat)1$	I_C=5mA, I_B=0.5mA		10	25	mV
	$V_{CE}(sat)2$	I_C=100mA, I_B=10mA		30	80	mV
Base-to-Emitter Saturation Voltage	$V_{BE}(sat)$	I_C=100mA, I_B=10mA		0.8	1.2	V
Collector-to-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C=10μA, I_E=0A	20			V
Collector-to-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C=1mA, R_{BE}=∞	15			V
Emitter-to-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E=10μA, I_C=0A	5			V
Output Capacitance	C_{ob}	V_{CB}=10V, f=1MHz		8		pF

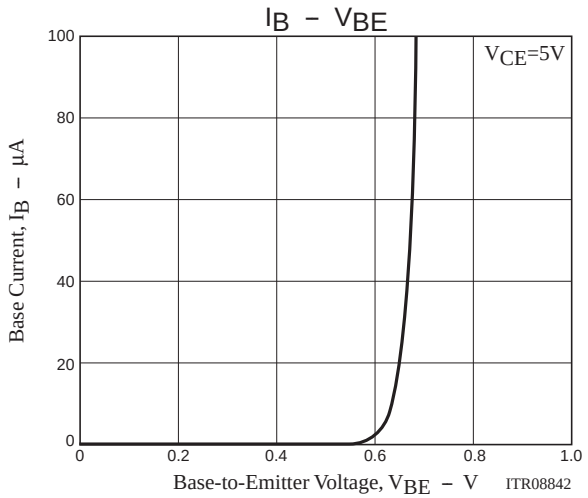
* : The 2SD1618 is classified by 50mA hFE as follows :

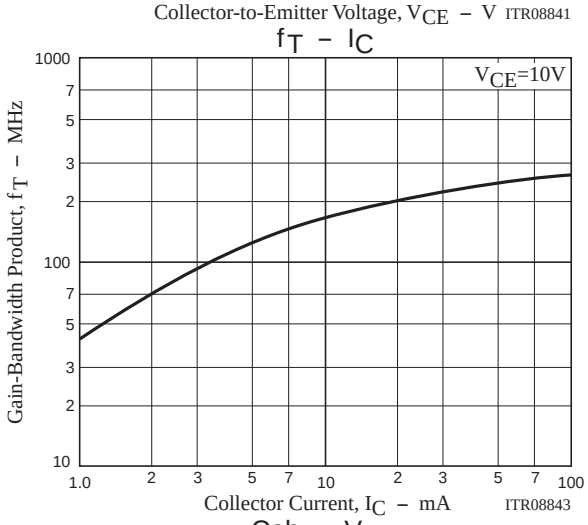
Rank	S	T	U
h_{FE}	140 to 280	200 to 400	280 to 560

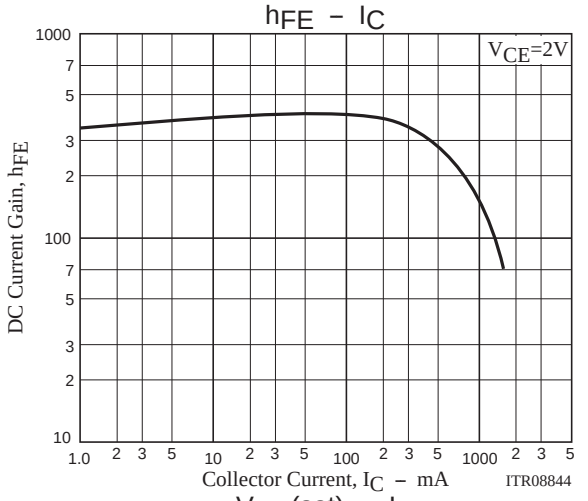
Ordering Information

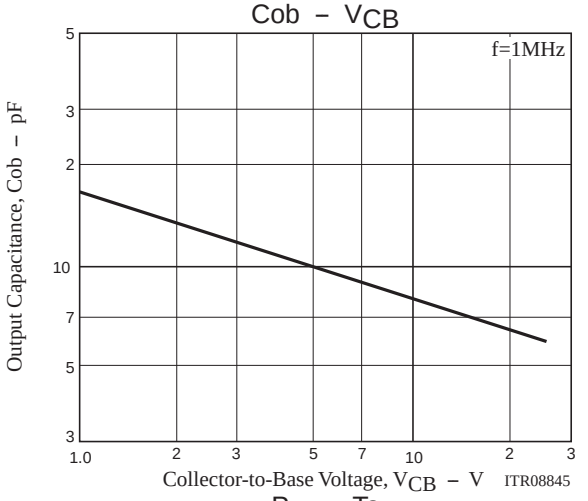
Device	Package	Shipping	memo
2SD1618S-TD-E	PCP	1,000pcs./reel	Pb Free
2SD1618T-TD-E	PCP	1,000pcs./reel	

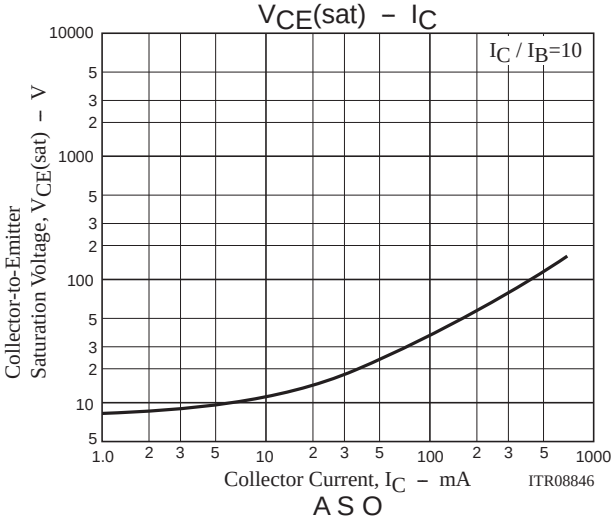

IC – VCE
Collector Current, IC – mA
Collector-to-Emitter Voltage, VCE – V
ITR08841
50mA
10mA
6mA
4mA
2mA
1mA
IB=0

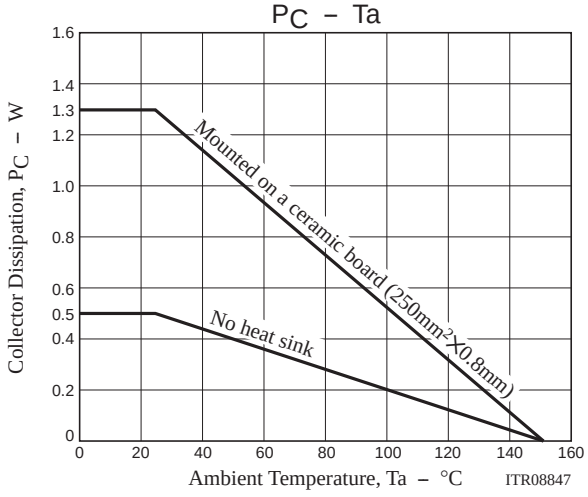

IB – VBE
Base Current, IB – μA
Base-to-Emitter Voltage, VBE – V
ITR08842
VCE=5V

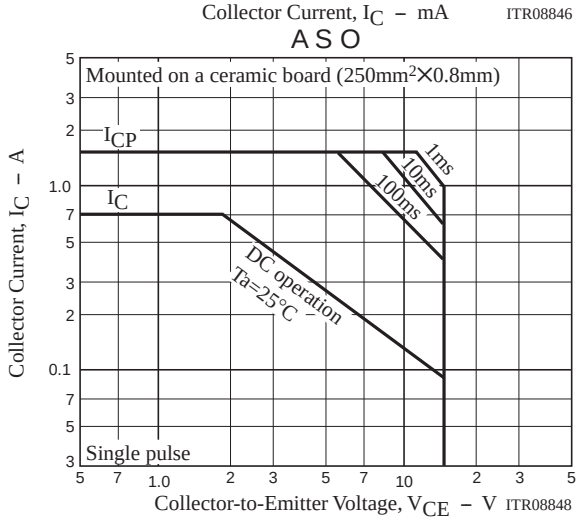

fT – IC
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR08843
VCE=10V


hFE – IC
DC Current Gain, hFE
Collector Current, IC – mA
ITR08844
VCE=2V


Cob – VCB
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR08845
f=1MHz


VCE(sat) – IC
Collector-to-Emitter Saturation Voltage, VCE(sat) – V
Collector Current, IC – mA
ITR08846
IC / IB=10


PC – Ta
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
ITR08847
Mounted on a ceramic board (250mm²×0.8mm)
No heat sink


A S O
Mounted on a ceramic board (250mm²×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR08848
ICP
IC
1ms
10ms
100ms
DC operation
Ta=25°C
Single pulse

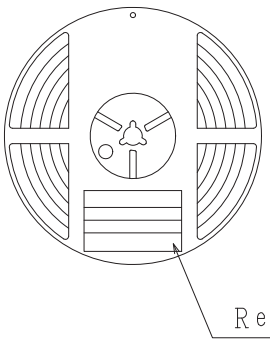
Bag Packing Specification

2SD1618S-TD-E, 2SD1618T-TD-E

1. Packing Format

Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
PCP	PCP	1,000	4,000	24,000	4 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

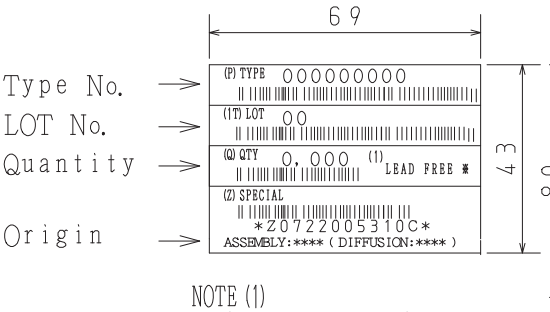
Packing method



Reel label

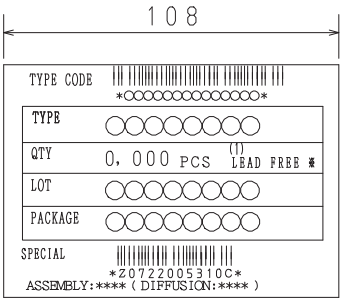
Reel label, Inner box label

(unit:mm)



Outer box label

It is a label at the time of factory shipments. The form of a label may change in physical distribution process.

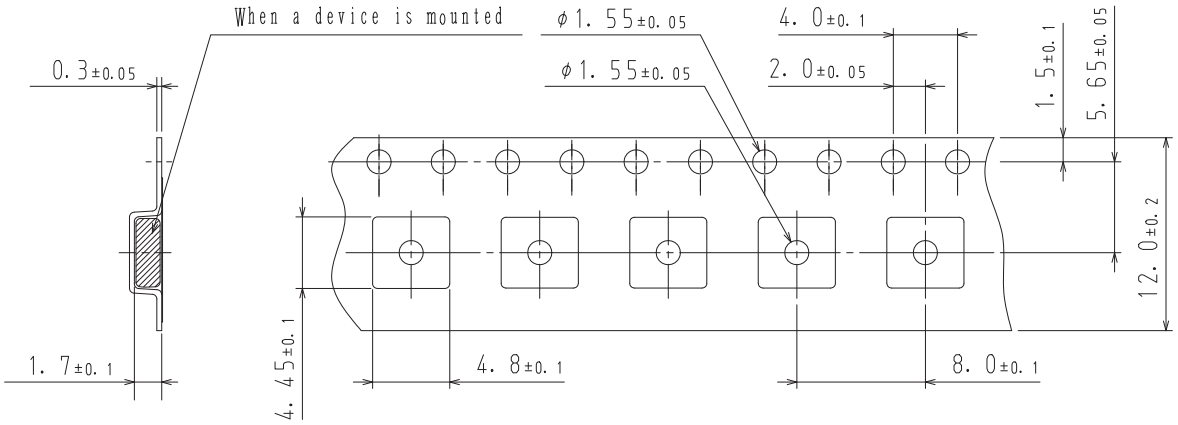


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

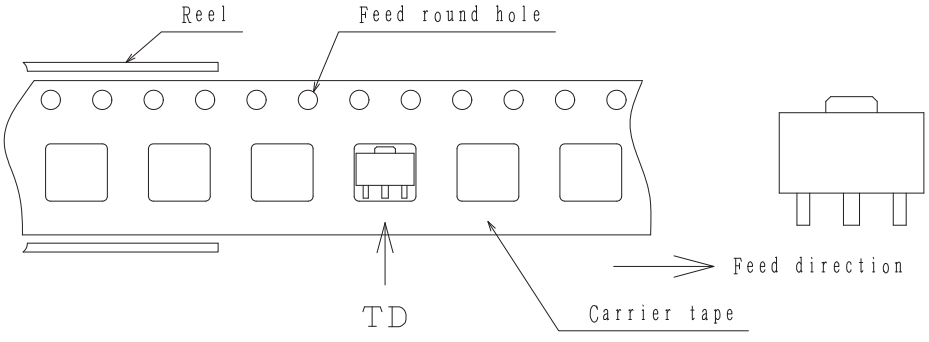
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

2-1. Carrier tape size (unit:mm)



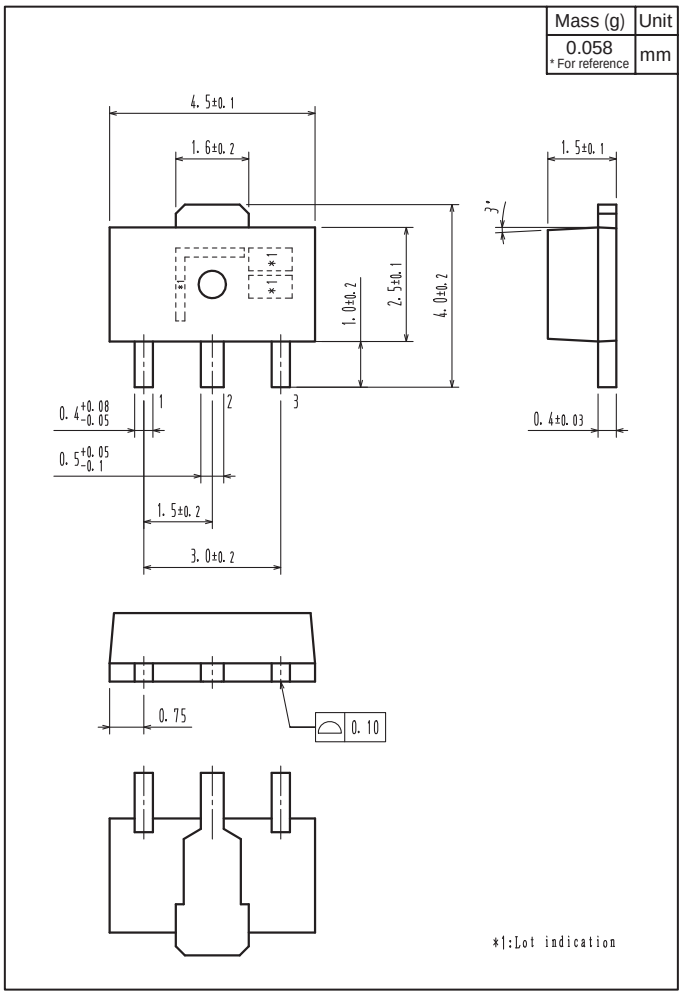
2-2. Device placement direction



Those with pin 1 index on the feed hole side·····TD

Outline Drawing

2SD1618S-TD-E, 2SD1618T-TD-E



Land Pattern Example