Ordering number : EN1781B

2SD1628

Bipolar Transistor
20V, 5A, Low V_{CE}(sat), NPN Single PCP

ON Semiconductor®
http://onsemi.com

Applications

- Strobe DC-DC converters, relay drivers, hammer drivers, lamp drivers, motor drovers

Features

- Low saturation voltage
- High h_{FE}
- Large current capacity
- Very small size making it easy to provide highdensity, small-sized hybrid IC's
- Halogen free compliance

Specifications

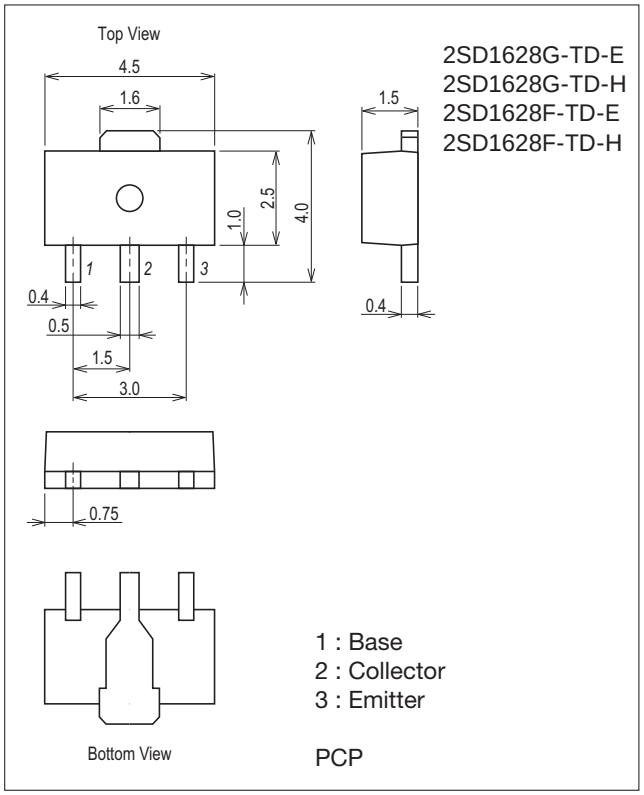
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		60	V
Collector-to-Emitter Voltage	V_{CEO}		20	V
Emitter-to-Base Voltage	V_{EBO}		6	V
Collector Current	I_C		5	A
Collector Current (Pulse)	I_{CP}		8	A

Continued on next page.

Package Dimensions

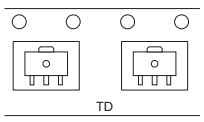
unit : mm (typ)
7007B-004



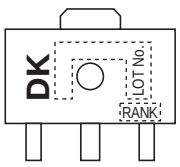
Product & Package Information

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

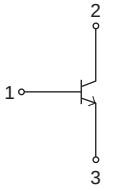
Packing Type: TD



Marking



Electrical Connection



Semiconductor Components Industries, LLC, 2013

Continued from preceding page.

Parameter	Symbol	Conditions	Ratings	Unit
Collector Dissipation	P_C		500	mW
		When mounted on ceramic substrate (250mm^2×0.8mm)	1.5	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

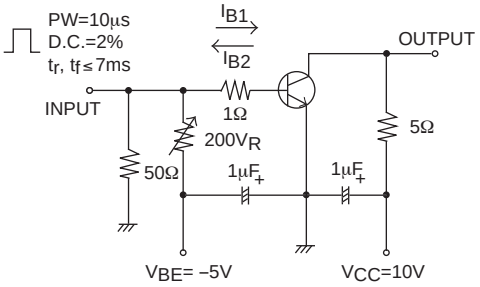
Electrical Characteristics at Ta=25°C

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}=5V, I_C=0A			100	nA
DC Current Gain	$h_{FE}1$	V_{CE}=2V, I_C=0.5A	120*		560*	
	$h_{FE}2$	V_{CE}=2V, I_C=3A	95			
Gain-Bandwidth Product	f_T	V_{CE}=10V, I_C=50mA		120		MHz
Output Capacitance	Cob	V_{CB}=10V, f=1MHz		45		pF
Collector-to-Emitter Saturation Voltage	V_{CE}(sat)	I_C=3A, I_B=60mA			500	mV
Base-to-Emitter Saturation Voltage	V_{BE}(sat)	I_C=3A, I_B=60mA			1.5	V
Turn-ON Time	t_{on}	See specified Test Circuit.		30		ns
Storage Time	t_{stg}			300		ns
Fall Time	t_f			40		ns

* : The 2SD1628 is classified by 0.5A h_{FE} as follows :

Rank	E	F	G
h_{FE}	120 to 200	160 to 320	280 to 560

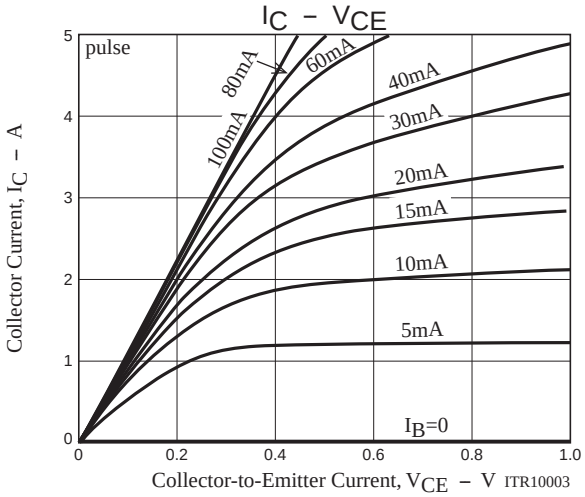
Switching Time Test Circuit

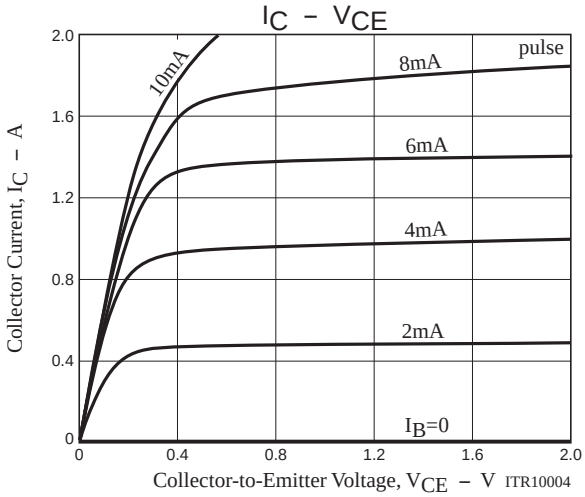


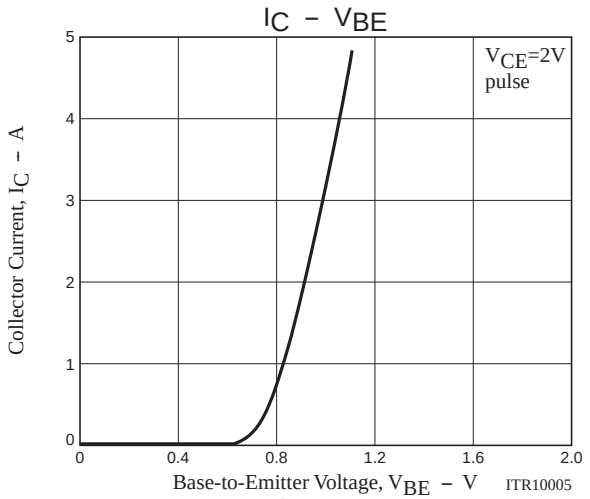
I_C=10I_{B1}= −10I_{B2}=2A

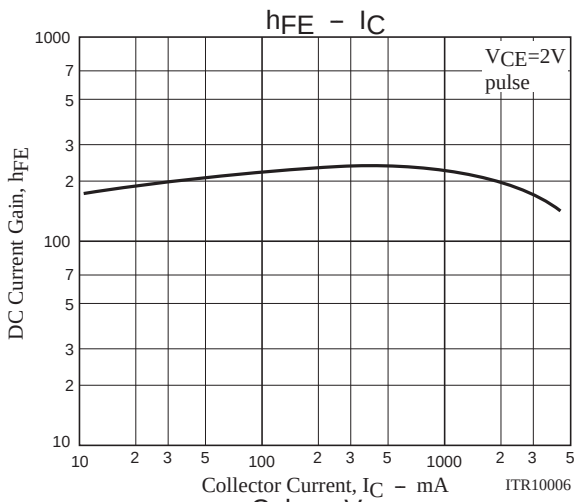
Ordering Information

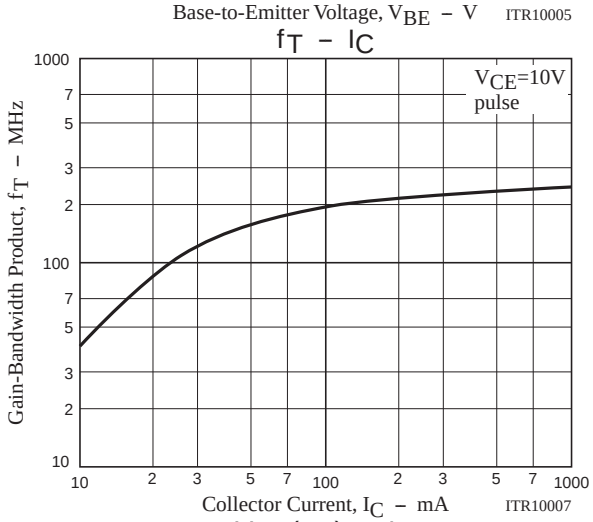
Device	Package	Shipping	memo
2SD1628G-TD-E	PCP	1,000pcs./reel	Pb Free
2SD1628G-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free
2SD1628F-TD-E	PCP	1,000pcs./reel	Pb Free
2SD1628F-TD-H	PCP	1,000pcs./reel	Pb Free and Halogen Free

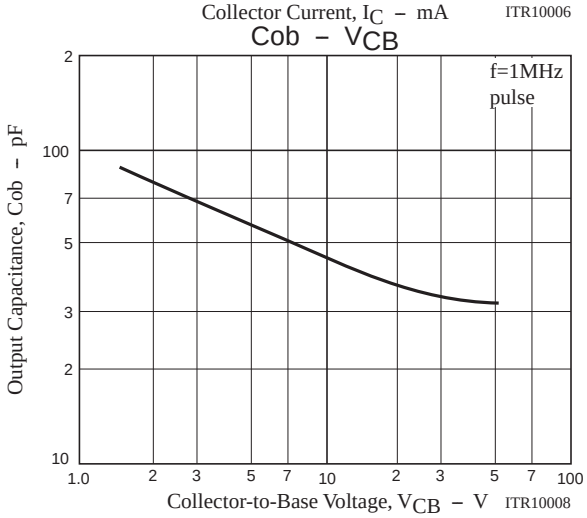


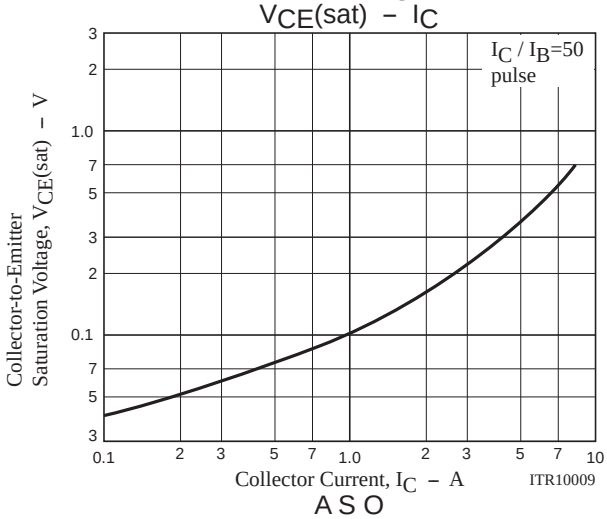


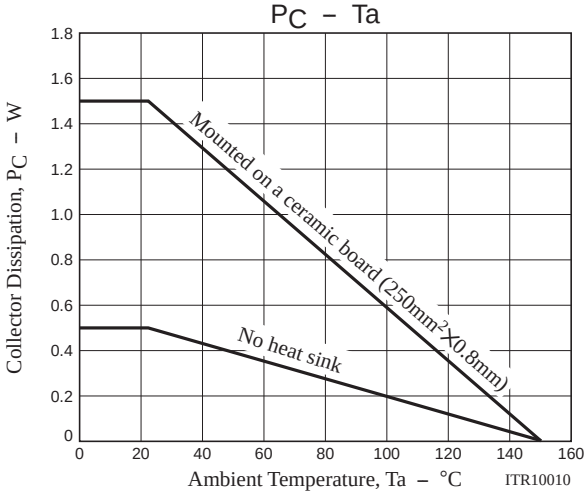

IC – VBE
VCE=2V
pulse
Collector Current, IC – A
Base-to-Emitter Voltage, VBE – V
ITR10005

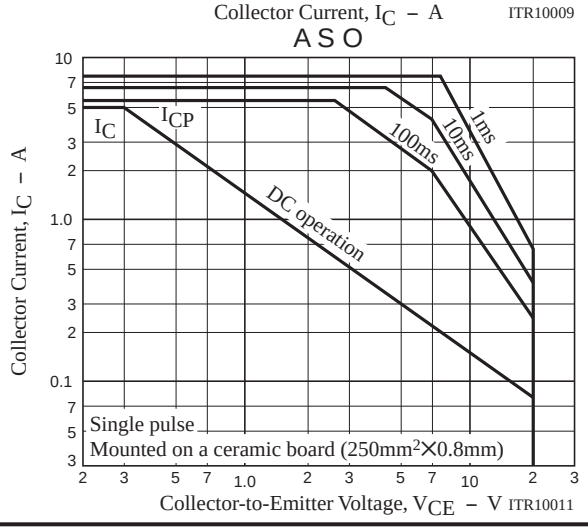

hFE – IC
VCE=2V
pulse
DC Current Gain, hFE
Collector Current, IC – mA
ITR10006


fT – IC
VCE=10V
pulse
Gain-Bandwidth Product, fT – MHz
Collector Current, IC – mA
ITR10007


Cob – VCB
f=1MHz
pulse
Output Capacitance, Cob – pF
Collector-to-Base Voltage, VCB – V
ITR10008


VCE(sat) – IC
IC / IB=50
pulse
Collector-to-Emitter
Saturation Voltage, VCE(sat) – V
Collector Current, IC – A
ITR10009


PC – Ta
Mounted on a ceramic board (250mm2×0.8mm)
No heat sink
Collector Dissipation, PC – W
Ambient Temperature, Ta – °C
ITR10010


A S O
IC
ICP
1ms
10ms
100ms
DC operation
Single pulse
Mounted on a ceramic board (250mm2×0.8mm)
Collector Current, IC – A
Collector-to-Emitter Voltage, VCE – V
ITR10011

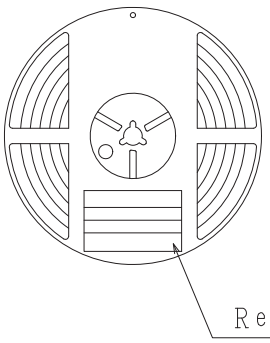
Bag Packing Specification

2SD1628G-TD-E, 2SD1628G-TD-H, 2SD1628F-TD-E, 2SD1628F-TD-H

1. Packing Format

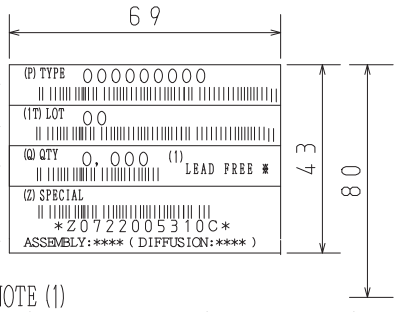
Package Name	Carrier Tape Type	Maximum Number of devices contained (pcs)			Packing format	
		Reel	Inner box	Outer box	Inner BOX (C-1)	Outer BOX (A-7)
PCP	PCP	1,000	4,000	24,000	4 reels contained Dimensions:mm (external) 183×72×185	6 inner boxes contained Dimensions:mm (external) 440×195×210

Packing method



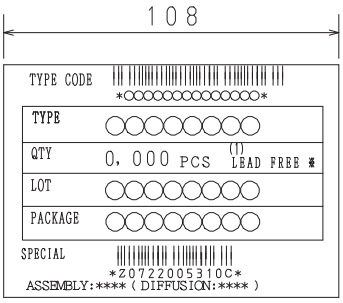
Reel label

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.

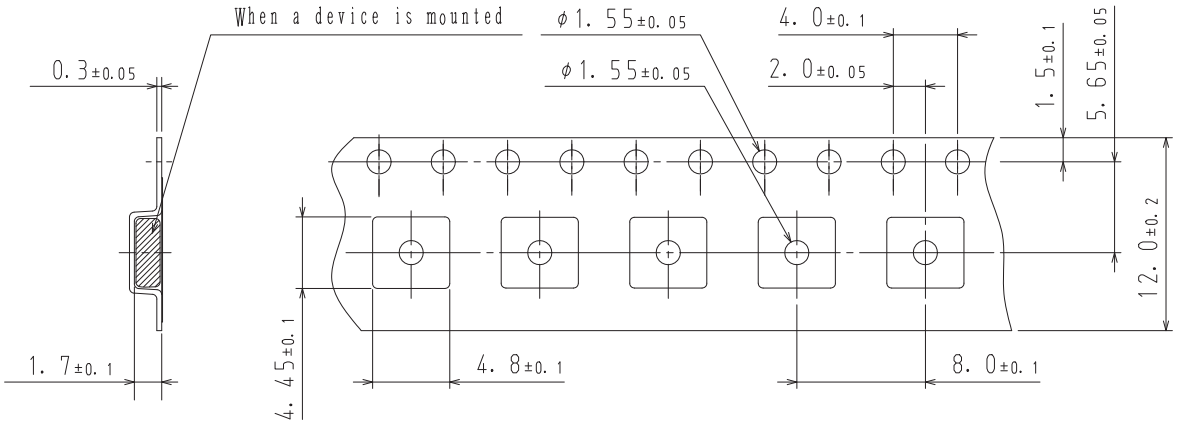


NOTE (1)
The LEAD FREE ※ description shows that the surface treatment of the terminal is lead free.

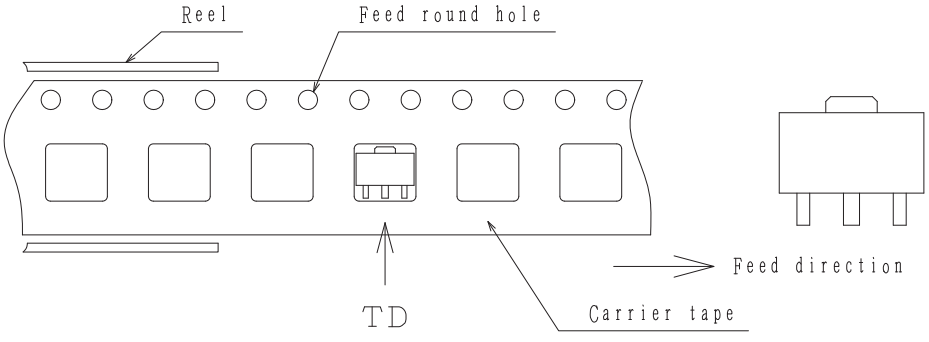
Label	JEITA Phase
LEAD FREE 3	JEITA Phase 3A
LEAD FREE 4	JEITA Phase 3

2. Taping configuration

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



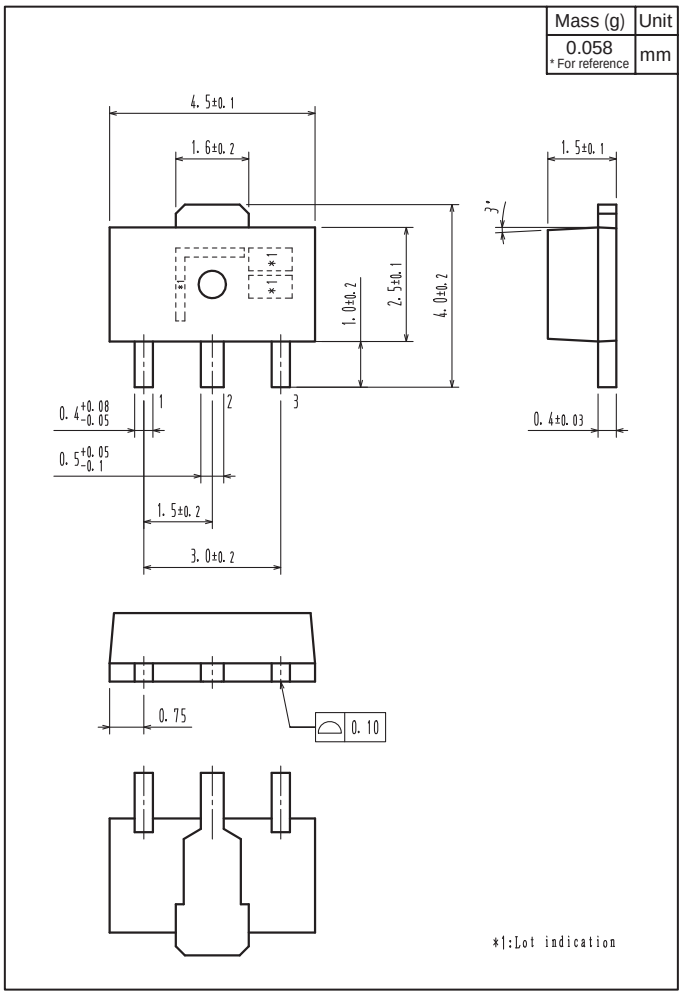
2-2. Device placement direction



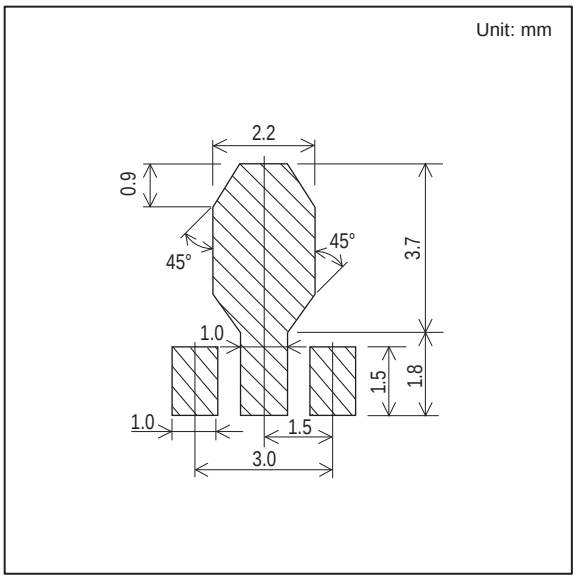
Those with pin 1 index on the feed hole side·····TD

Outline Drawing

2SD1628G-TD-E, 2SD1628G-TD-H, 2SD1628F-TD-E, 2SD1628F-TD-H



Land Pattern Example



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