# Bipolar Transistor (-)100V, (-)4A, Low VCE(sat), (PNP)NPN Single



# **ON Semiconductor®**

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#### Features

- Low Collector to Emitter Saturation Voltage
- Small and Slim Package Facilitating Compactness of Sets
- High fT
- Good Linearity of hFE
- Fast Switching Time

#### **Typical Applications**

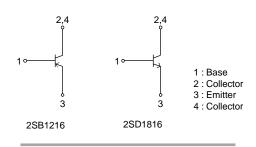
- Suitable for Relay Drivers
- High Speed Inverters
- Converters
- Other General High Current Switching Applications

#### **SPECIFICATIONS** (): 2SB1216 **ABSOLUTE MAXIMUM RATING** at Ta = 25°C (Note 1)

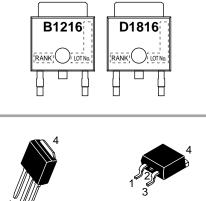
Parameter		Symbol	Value	Unit		
Collector to Base Voltage		VCBO	(–) 120	V		
Collector to Emitter Voltage		VCEO	(–) 100	V		
Emitter to Base Voltage		VEBO	(–) 6	V		
Collector Current		IC	(-) 4	А		
Collector Current (Pulse)		ICP	(–) 8	А		
Collector Dissipation		De	1	W		
Collector Dissipation	Tc=25°C	PC	20	W		
Junction Temperature		Tj	150	°C		
Storage Temperature		Tstg	-55 to +150	°C		

Note 1 : Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.





MARKING



DPAK / TP-FA

**ORDERING INFORMATION** See detailed ordering and shipping information on page 7 of this data sheet.

IPAK / TP

### **ELECTRICAL CHARACTERISTICS** at $Ta = 25^{\circ}C$ (Note 2)

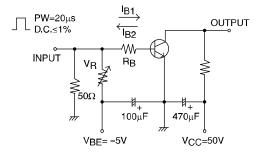
Parameter	Current al	Conditions	Value			Linit
	Symbol	Conditions	min	typ	max	Unit
Collector Cutoff Current	ICBO	V <sub>CB</sub> =(-)100V, I <sub>E</sub> =0A			(–)1	μA
Emitter Cutoff Current	IEBO	V <sub>EB</sub> =(-)4V, I <sub>C</sub> =0A			(–)1	μA
DC Current Gain	hFE1	VCE=(-)5V, IC=(-)0.5A	140*		400*	
	hFE2	VCE=(-)5V,IC=(-)3A	40			
Gain-Bandwidth Product	fT	V <sub>CE</sub> =(-)10V, I <sub>C</sub> =(-)0.5A		(130) 180		MHz
Output Capacitance	Cob	V <sub>CB</sub> =(-)10V, f=1MHz		(65) 40		pF
Collector to Emitter Saturation Voltage	V <sub>CE</sub> (sat)	IC=(-)2A, IB=(-)0.2A		(–200) 150	(500) 400	mV
Base to Emitter Saturation Voltage	V <sub>BE</sub> (sat)	IC=(-)2A, IB=(-)0.2A		(–) 0.9	(–) 1.2	V
Collector to Base Breakdown Voltage	V(BR)CBO	I <sub>C</sub> =(-)10μΑ, I <sub>E</sub> =0Α	(–)120			V
Collector to Emitter Breakdown Voltage	V(BR)CEO	IC=(−)1mA, RBE=∞	(–)100			V
Emitter to Base Breakdown Voltage	V(BR)EBO	I <sub>E</sub> =(–)10μΑ, I <sub>C</sub> =0Α	(–) 6			V
Turn-On Time	t <sub>on</sub>	1		100		ns
Storage Time	t <sub>stg</sub>	See specified Test Circuit		(800) 900		ns
Fall Time	tf			50		ns

Note 2 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

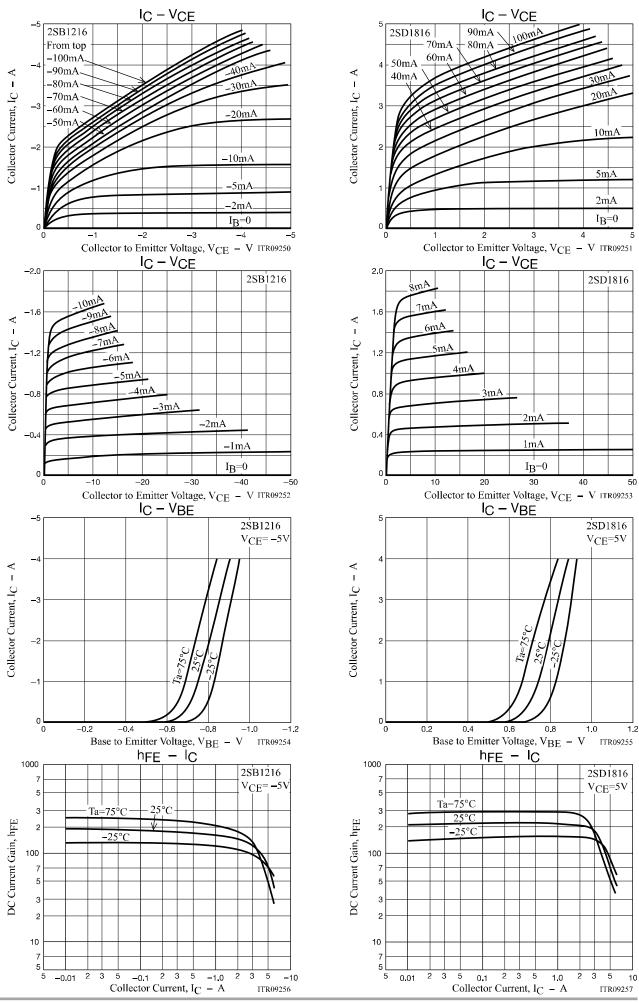
\*: The 2SB1216/2SD1816 are classified by 0.5A hFE as follows:

Rank	S	Т	
hFE	140 to 280	200 to 400	

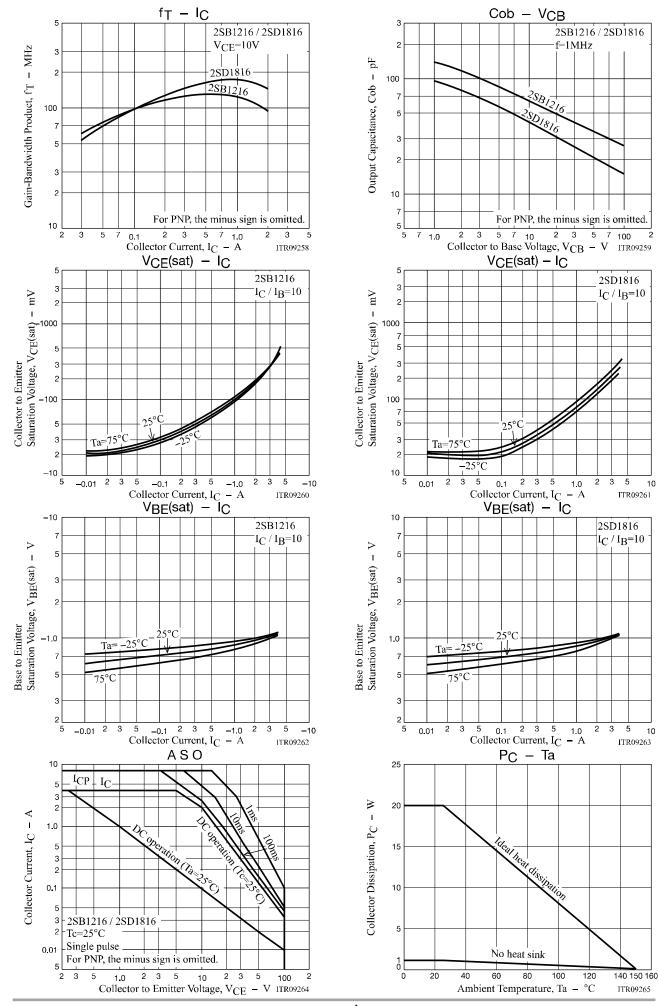
#### Fig.1 Switching Time Test Circuit



 $I_{C}=10I_{B1}=-10I_{B2}=2A$ For PNP, the polarity is reversed.



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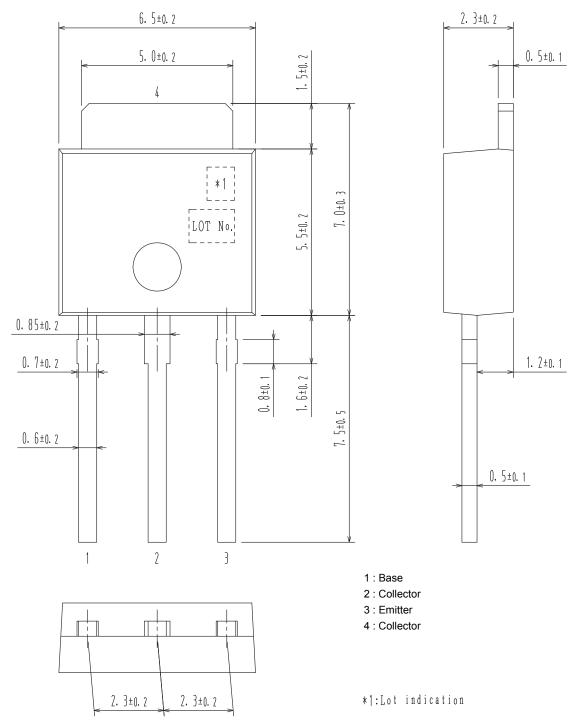
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### PACKAGE DIMENSIONS

unit : mm

#### IPAK / TP

CASE 369AJ ISSUE O

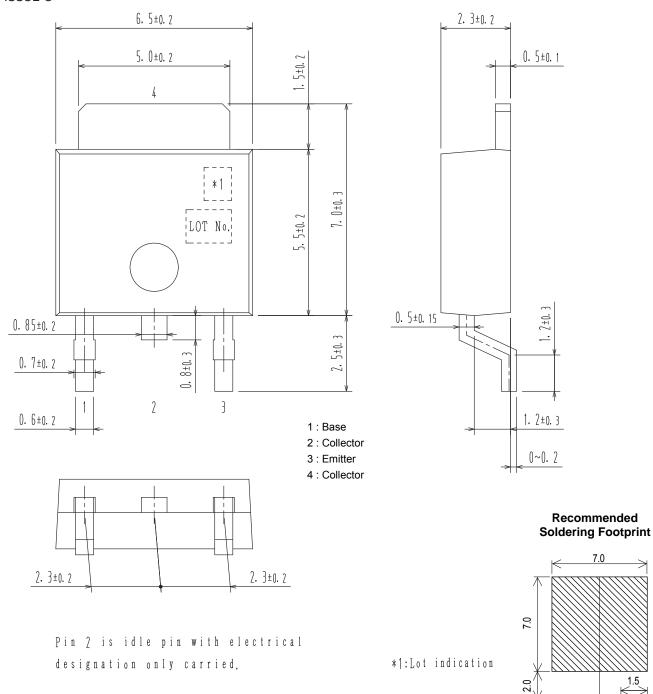


PACKAGE DIMENSIONS

unit : mm

#### DPAK / TP-FA

CASE 369AH ISSUE O



7.0

2.3

2.5

1.5

\_ 2.3

#### **ORDERING INFORMATION**

Device	Marking	Package	Shipping (Qty / Packing)	
2SB1216S-E	B1216			
2SB1216T-E	B1216	IPAK / TP		
2SD1816S-E	D1816	(Pb-Free)		
2SD1816T-E	D1816			
2SB1216S-H	B1216		500/ bag	
2SB1216T-H	B1216	IPAK / TP		
2SD1816S-H	D1816	(Pb-Free / Halogen Free)		
2SD1816T-H	D1816			
2SB1216S-TL-E	B1216		700/ Tape & Reel	
2SB1216T-TL-E	B1216	DPAK / TP-FA		
2SD1816S-TL-E	D1816	(Pb-Free)		
2SD1816T-TL-E	D1816			
2SB1216S-TL-H	B1216			
2SB1216T-TL-H	B1216	DPAK / TP-FA		
2SD1816S-TL-H	D1816	(Pb-Free / Halogen Free)		
2SD1816T-TL-H	D1816			

† For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D. http://www.onsemi.com/pub\_link/Collateral/BRD8011-D.PDF

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