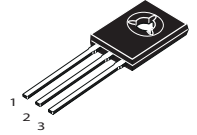


## PNP / NPN Epitaxial Planar Transistors

**(Pb)** Lead(Pb)-Free

### TO-126

1.EMITTER  
2.COLLECTOR  
3.BASE



### ABSOLUTE MAXIMUM RATINGS (T<sub>a</sub>=25°C)

Rating	Symbol	PNP/2SB772	NPN/2SD882	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	-30	30	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	-40	40	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	5.0	Vdc
Collector Current(DC)	I <sub>C(DC)</sub>	-3.0	3.0	Adc
Collector Current(Pulse) <sup>(1)</sup>	I <sub>C(Pulse)</sub>	-7.0	7.0	Adc
Base Current	I <sub>B(Pulse)</sub>	-0.6	0.6	Adc
Total Cevice Disspation T <sub>a</sub> =25°C	P <sub>D</sub>	1.0		W
Total Cevice Disspation T <sub>c</sub> =25°C	P <sub>D</sub>	10		W
Junction Temperature	T <sub>j</sub>	150		°C
Storage, Temperture	T <sub>stg</sub>	-55 to +150		°C

### Device Marking

2SB772=B772 , 2SD882=D882

### ELECTORICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collect-Emitter Breakdown Voltage (I <sub>C</sub> =-10/10 mA <sub>dc</sub> , I <sub>B</sub> =0)	V <sub>(BR)CEO</sub>	-30/30	-	Vdc
Collect-Base Breakdown Voltage (I <sub>C</sub> =-100/100 μA <sub>dc</sub> , I <sub>E</sub> =0)	V <sub>(BR)CBO</sub>	-40/40	-	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> =-100/100 μA <sub>dc</sub> , I <sub>C</sub> =0)	V <sub>(BR)EBO</sub>	-5.0/5.0	-	Vdc
Collector Cutoff Current (V <sub>CE</sub> =-30/30 Vdc, I <sub>B</sub> =0)	I <sub>CEO</sub>	-	-1.0/1.0	μA <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> =-40/40 Vdc, I <sub>E</sub> =0)	I <sub>CBO</sub>	-	-1.0/1.0	μA <sub>dc</sub>
Emitter Cutoff Current (V <sub>EB</sub> =-6.0/6.0Vdc, I <sub>C</sub> =0)	I <sub>EBO</sub>	-	-1.0/1.0	μA <sub>dc</sub>

NOTE: 1.PW ≤ 350us, duty cycle ≤ 2%

**2SB772**  
**2SD882****ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise noted) (Continued)

Characteristics	Symbol	Min	TYP	Max	Unit
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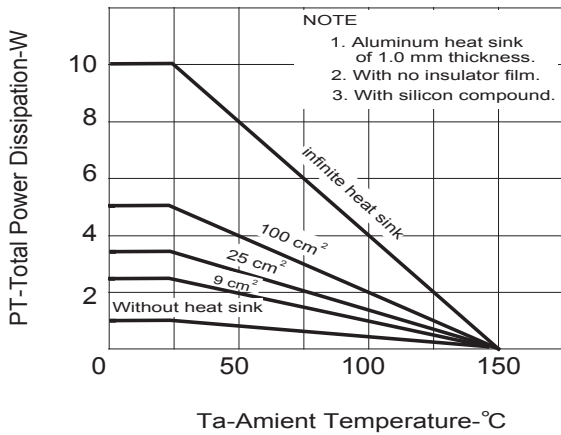
**ON CHARACTERISTICS**

DC Current Gain ( $I_C = -1.0/1.0\text{ Adc}, V_{CE} = -2.0/2.0\text{ Vdc}$ )	$h_{FE} (1)$	60	-	400	-
DC Current Gain ( $I_C = -100/100\text{ mAdc}, V_{CE} = -2.0/2.0\text{ Vdc}$ )	$h_{FE} (2)$	32	-	-	-
Collector-Emitter Saturation Voltage ( $I_C = -2.0/2.0\text{ Adc}, I_B = -0.2/0.2\text{ mAdc}$ )	$V_{CE(sat)}$	-	-	-0.5/0.5	Vdc
Base-Emitter Saturation Voltage ( $I_C = -2.0/2.0\text{ Adc}, I_B = -0.2/0.2\text{ mAdc}$ )	$V_{BE(sat)}$	-	-	-2.0/2.0	Vdc
Current-Gain-Bandwidth Product ( $I_C = -0.1/0.1\text{ mAdc}, V_{CE} = -5.0/5.0\text{ Vdc}, f = 10\text{ MHz}$ )	$f_T$	-	80/90	-	MHz

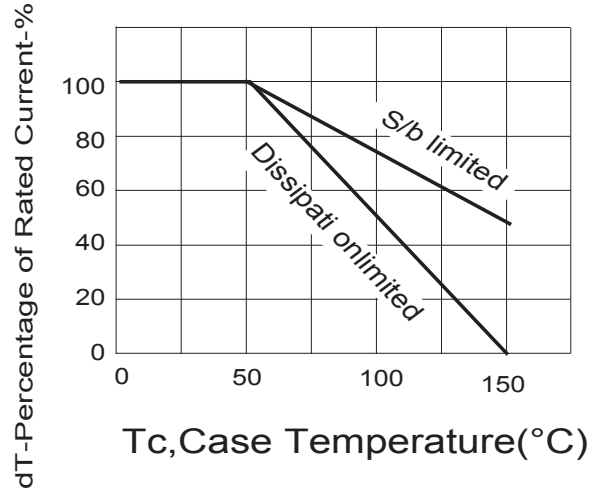
**Classification of  $h_{FE}(1)$** 

Rank	R	O	Y	GR
Range	60-120	100-200	160-320	200-400

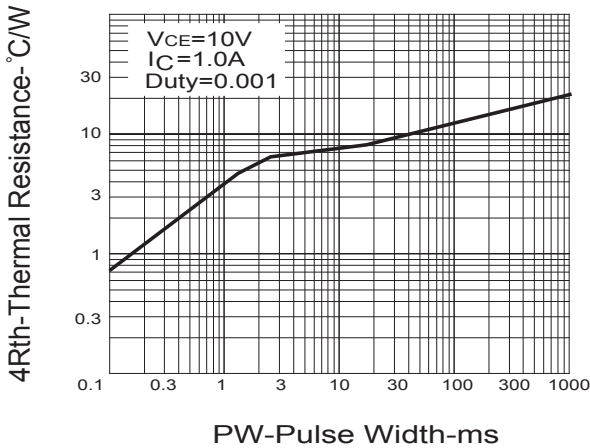
**F1. Total Power Dissipation VS. Ambient Temperature**



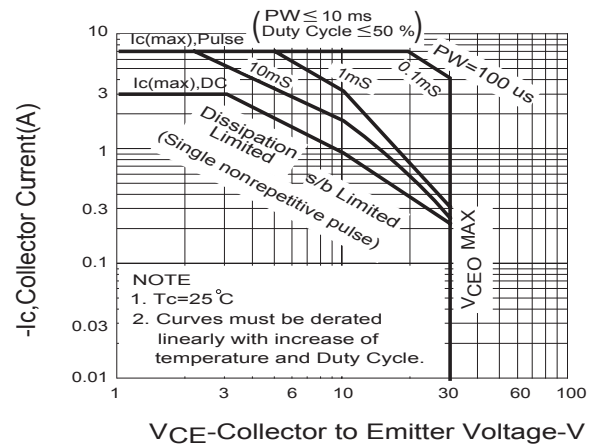
**F.2 Derating Curve for All Types**



**F3. Thermal Resistance VS. Pulse Width**

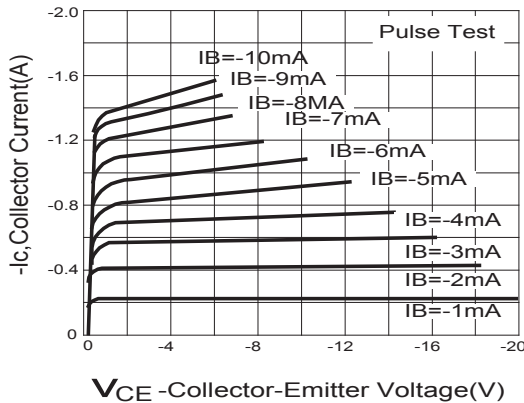


**F4. Safe Operating Areas**



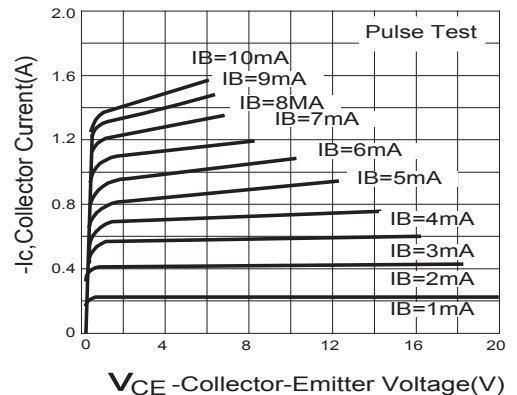
**2SB772**

**F5. Collector Current VS. Collector To Emitter Voltage**

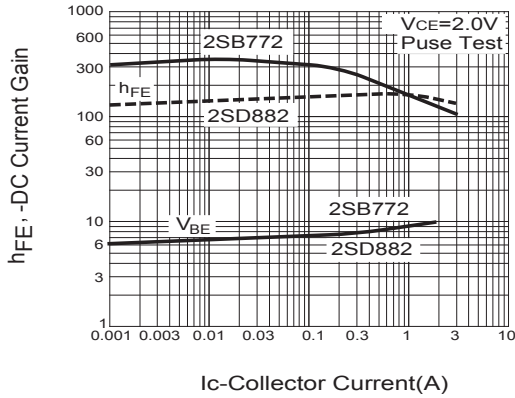


**2SD882**

**F6. Collector Current VS. Collector To Emitter Voltage**

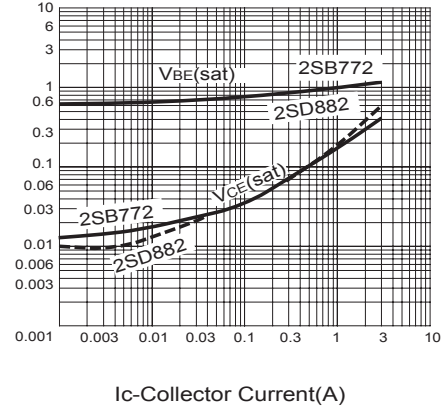


F7.  $h_{FE}$ ,  $V_{BE}$ - $I_C$

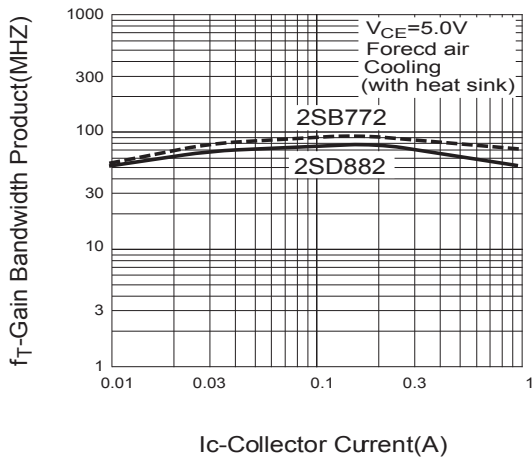


$V_{CE(sat)}$ -Collector Saturation Voltage(V)  
 $V_{BE(sat)}$ -Base Saturation Voltage(V)

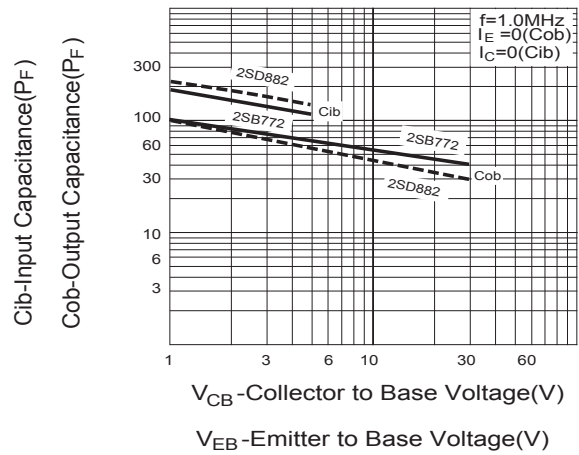
F8.  $V_{CE(sat)}$ ,  $V_{BE(sat)}$ - $I_C$



F9.  $f_T$ - $I_C$

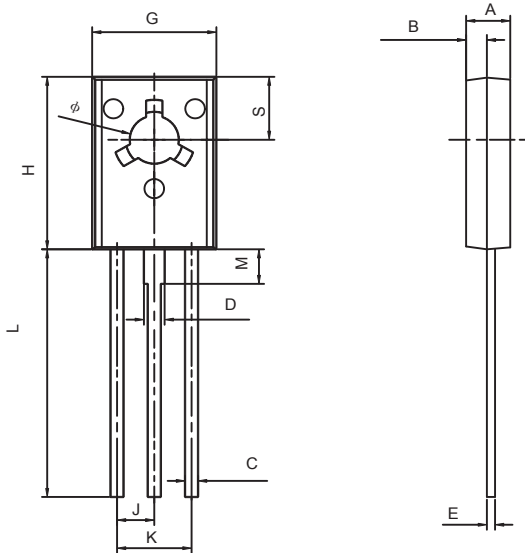


F10.  $C_{ob}$ - $V_{CB}$ ,  $C_{ib}$ - $V_{CE}$



**TO-126 Outline Dimensions**

unit:mm



<b>TO-126</b>		
<b>Dim</b>	<b>Min</b>	<b>MAX</b>
<b>A</b>	2.500	2.900
<b>B</b>	1.100	1.500
<b>C</b>	0.660	0.860
<b>D</b>	1.170	1.370
<b>E</b>	0.450	0.600
<b>G</b>	7.400	7.800
<b>H</b>	10.600	11.000
<b>J</b>	2.290TYP	
<b>K</b>	4.480	4.680
<b>L</b>	15.300	15.700
<b>M</b>	2.100	2.300
<b>S</b>	3.900	4.100
<b>φ</b>	3.000	3.200