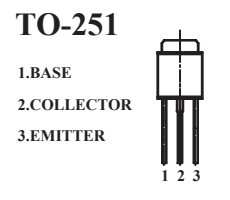


## PNP/NPN Epitaxial Planar Transistors

 **Lead(Pb)-Free**



### ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Rating	Symbol	PNP/WTP772	NPN/WTP882	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	-30	30	V <sub>dc</sub>
Collector-Base Voltage	V <sub>CBO</sub>	-40	40	V <sub>dc</sub>
Emitter-Base Voltage	V <sub>EBO</sub>	-5.0	5.0	V <sub>dc</sub>
Collector Current (DC)	I <sub>C(DC)</sub>	-3.0	3.0	A <sub>dc</sub>
Collector Current (Pulse) <sup>1</sup>	I <sub>C(Pulse)</sub>	-7.0	7.0	A <sub>dc</sub>
Base Current	I <sub>B(Pulse)</sub>	-0.6	0.6	A <sub>dc</sub>
Total Device Dissipation T <sub>c</sub> =25°C T <sub>A</sub> =25°C	P <sub>D</sub>	10	1.4	W
Junction Temperature	T <sub>j</sub>	150		°C
Storage, Temperature	T <sub>stg</sub>	-55 to +150		°C

### Device Marking

WTP772=B772 , WTP882=D882
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### ELECTRICAL CHARACTERISTICS

Characteristics	Symbol	Min	Max	Unit
Collector-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	-	V <sub>dc</sub>
Collector-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	-	V <sub>dc</sub>
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	-	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CE</sub> = -30/30 V <sub>dc</sub> , 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 V <sub>dc</sub> , I <sub>E</sub> =0)	I <sub>CBO</sub>	-	-1.0/1.0	μA <sub>dc</sub>
Emitter Cutoff Current (V <sub>EB</sub> = -6.0/6.0V <sub>dc</sub> , I <sub>C</sub> =0)	I <sub>EBO</sub>	-	-1.0/1.0	μA <sub>dc</sub>

NOTE: 1.PW ≤350us, duty cycle ≤2%

**WTP772**  
**WTP882**



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

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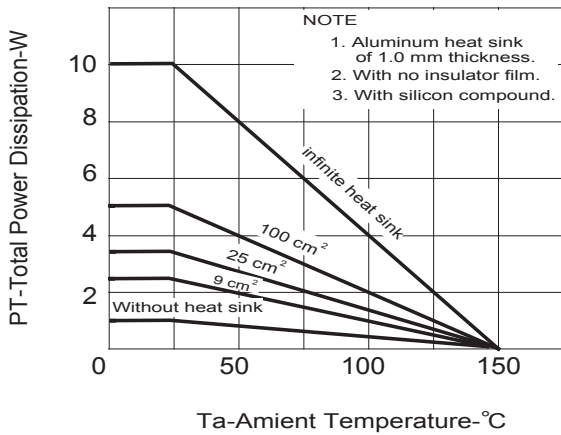
**ON CHARACTERISTICS**

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

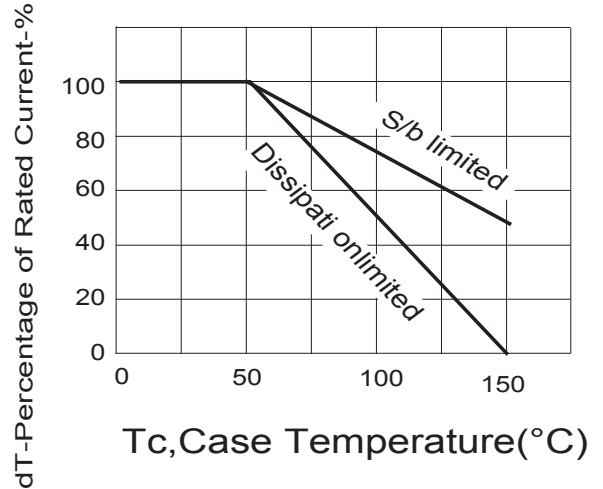
**Classification of  $h_{FE(1)}$**

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

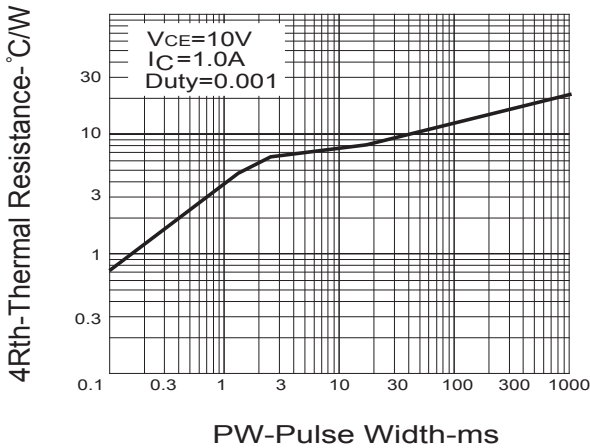
**F1. Total Power Dissipation VS. Ambient Temperature**



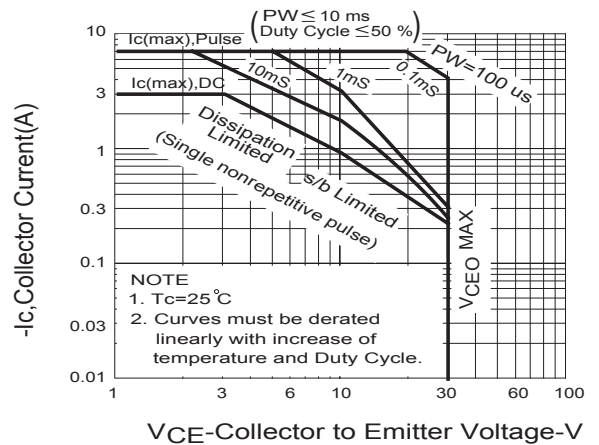
**F.2 Derating Curve for All Types**



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

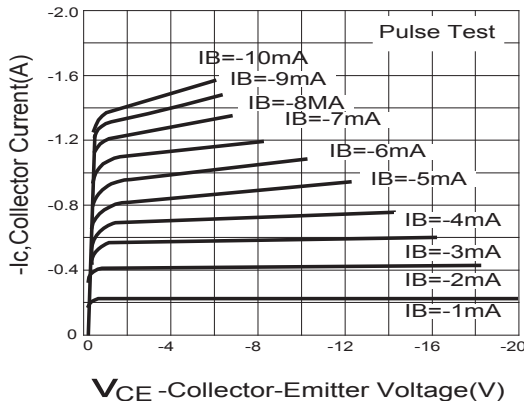


**F4. Safe Operating Areas**



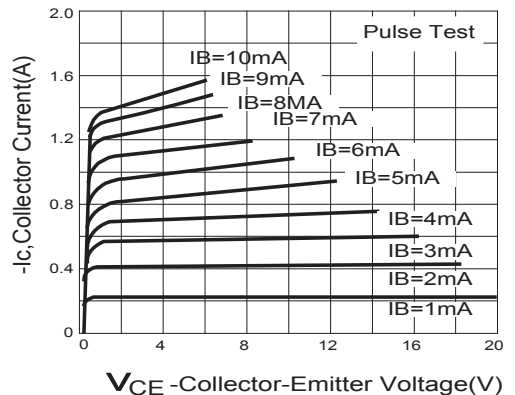
**WTP772**

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

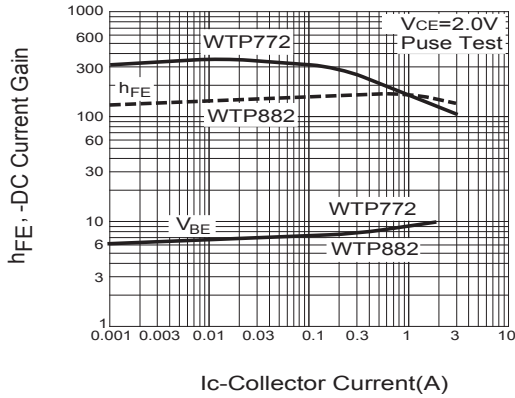


**WTP882**

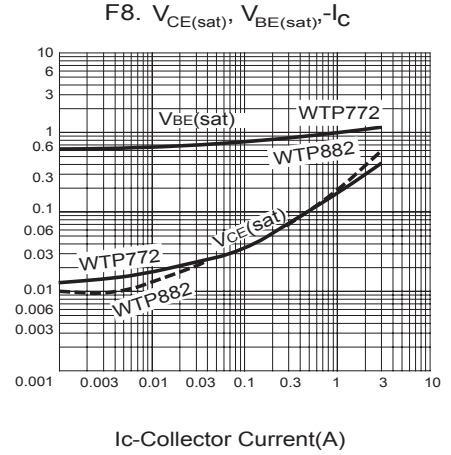
**F6. Collector Current VS. Collector To Emitter Voltage**



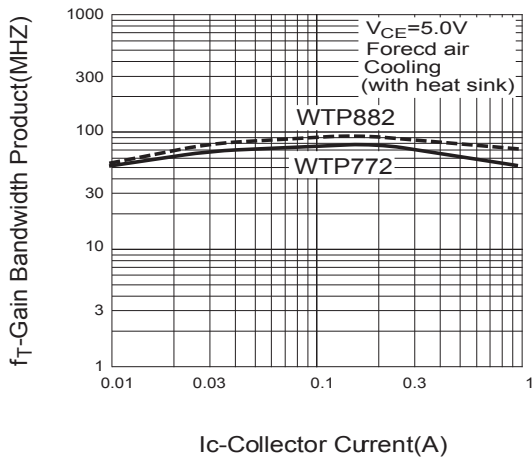
F7.  $h_{FE}, V_{BE}-I_C$



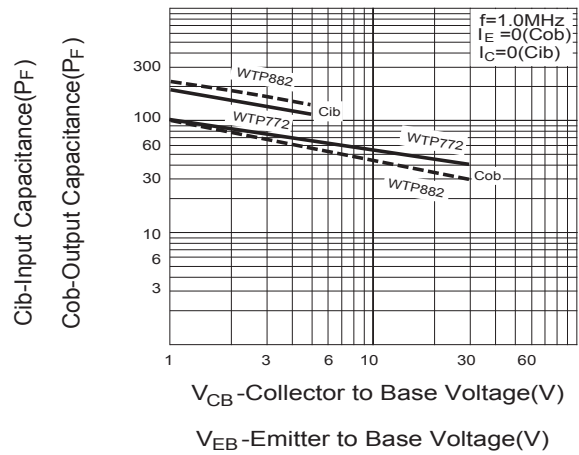
$V_{CE(sat)}, V_{BE(sat)}-I_C$



F9.  $f_T - I_C$

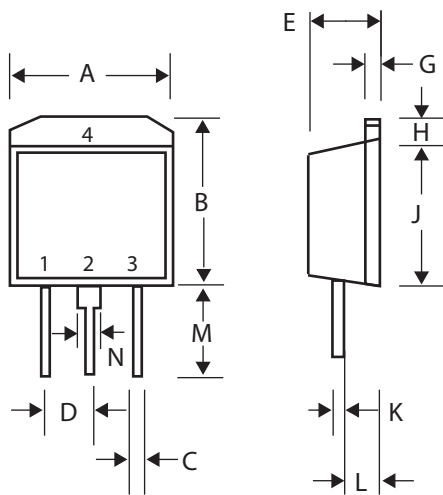


F10.  $C_{ob}-V_{CB}, C_{ib}-V_{CE}$



**TO-251 Outline Dimensions**

unit:mm



<b>TO-251</b>		
<b>Dim</b>	<b>Min</b>	<b>Max</b>
<b>A</b>	6.40	6.80
<b>B</b>	6.80	7.20
<b>C</b>	0.50	0.80
<b>D</b>	-	2.30
<b>E</b>	2.20	2.50
<b>G</b>	0.45	0.55
<b>H</b>	1.00	1.60
<b>J</b>	5.40	5.80
<b>K</b>	0.45	0.69
<b>L</b>	0.90	1.50
<b>M</b>	6.50	-
<b>N</b>	-	0.90

1. Emitter
2. Base
3. Collector