

# STA405A

## Silicon NPN Triple Diffused Planar Darlington

### Maximum Ratings

(Ta = 25°C)

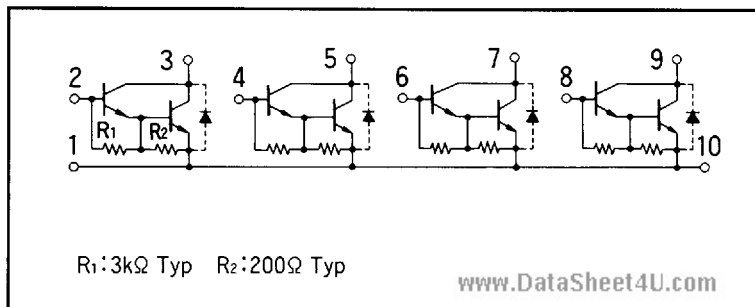
Item	Symbol	Ratings	Unit
Collector-to-Base Voltage	V <sub>CB0</sub>	100	V
Collector-to-Emitter Voltage	V <sub>CE0</sub>	80	V
Emitter-to-Base Voltage	V <sub>EB0</sub>	6	V
Collector Current	I <sub>c</sub>	4	A
Collector Current	I <sub>CP</sub>	8 (P <sub>w</sub> ≤ 10ms, D <sub>u</sub> ≤ 50%)	A
Total Power Dissipation	P <sub>T</sub>	4 (Ta = 25°C)	W
		20 (T <sub>c</sub> = 25°C)	
Operating Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +150	°C

### Electrical Characteristics

(Ta = 25°C)

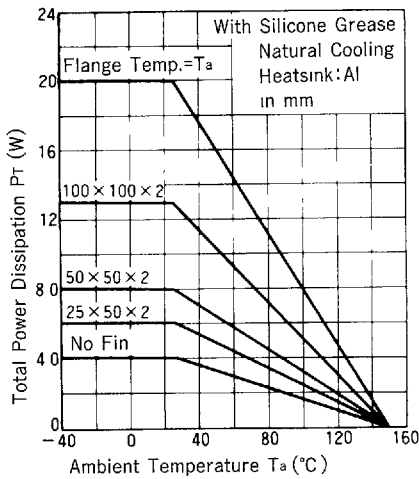
Item	Symbol	Conditions	Specification			Unit
			min	typ	max	
Collector Cut-off Current	I <sub>CBO</sub>	V <sub>CB</sub> = 100V			100	μA
Emitter Cut-off Current	I <sub>EBO</sub>	V <sub>EB</sub> = 6V			10	mA
Collector-to-Emitter Voltage	V <sub>CE0</sub>	I <sub>c</sub> = 10mA	80			V
DC Forward Current Transfer Ratio	h <sub>FE</sub>	V <sub>CE</sub> = 4V, I <sub>c</sub> = 3A	1000			
Collector-to-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>c</sub> = 3A, I <sub>B</sub> = 10mA			2.0	V
Turn on Time	t <sub>on</sub>	I <sub>c</sub> = 3A, I <sub>B1</sub> = -I <sub>B2</sub> = 10mA		1.0		μs
Storage Time	t <sub>stg</sub>			4.0		μs
Fall Time	t <sub>f</sub>			1.5		μs

### Equivalent Circuit Diagram

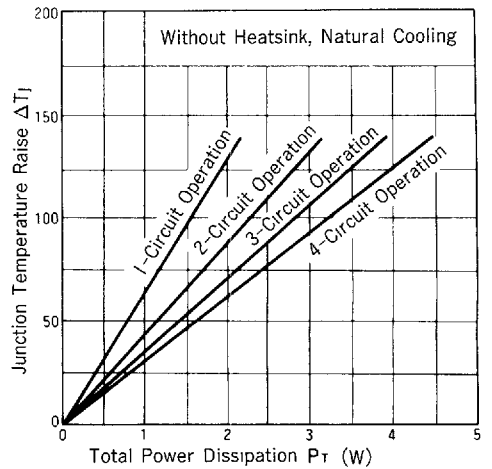


# Characteristic Curves

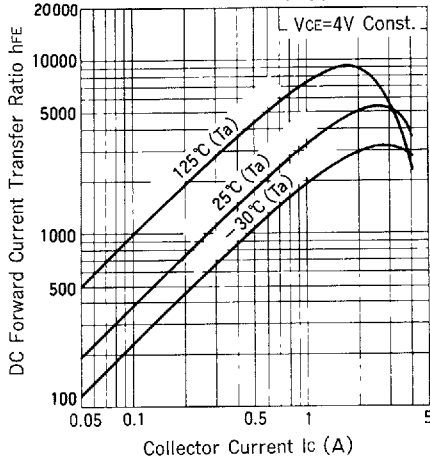
### $P_T$ - $T_a$ Characteristics



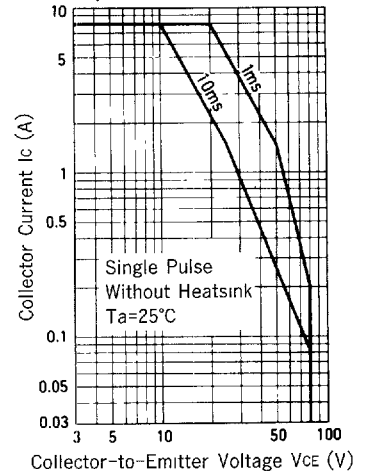
### $\Delta T_j$ - $P_T$ Characteristics



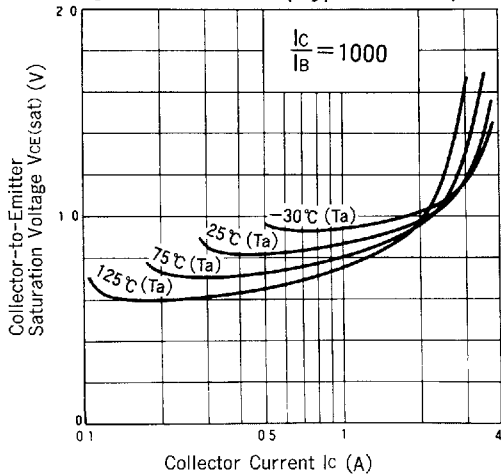
### $h_{FE}$ - $I_C$ Temperature Characteristics (Typical Value)



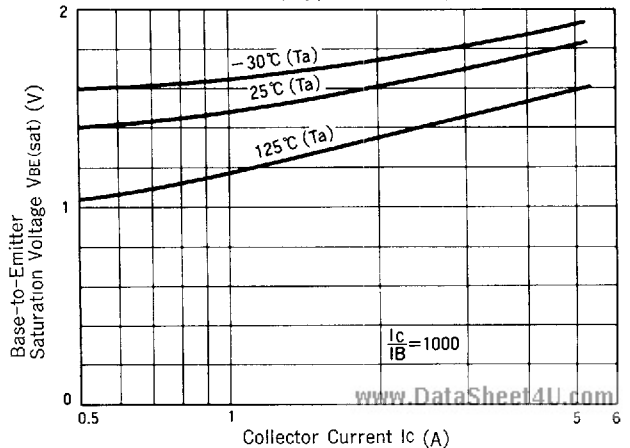
### Maximum Areas For Safe Operation (ASO)



### $V_{CE(sat)}$ - $I_C$ Temperature Characteristics (Typical Value)



### $V_{BE(sat)}$ - $I_C$ Temperature Characteristics (Typical Value)



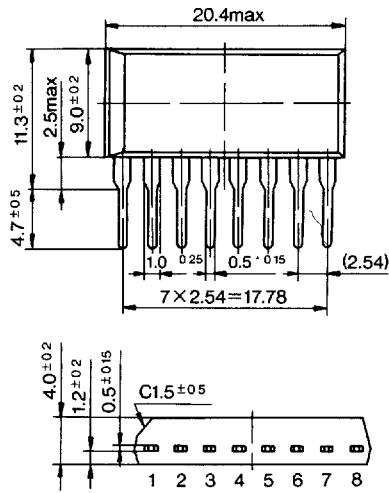
# Notes on using products

www.DataSheet4U.com

## Outline Drawings (Unit:in mm)

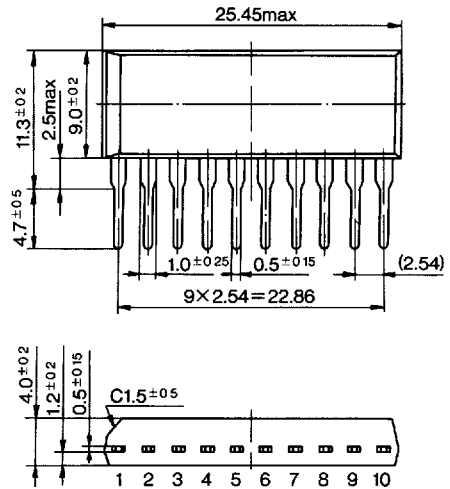
### STA Family

#### STA300 Series



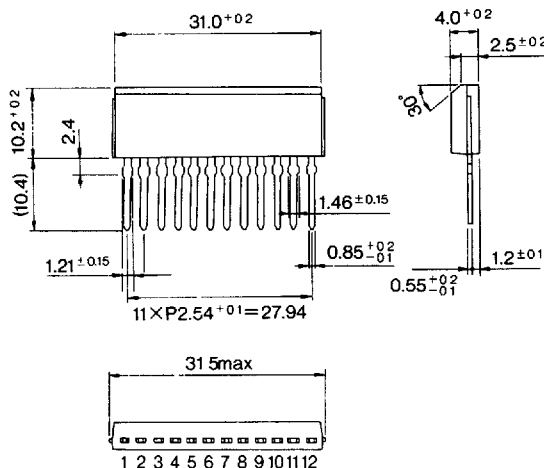
Weight Approx. 2.0g

#### STA400 Series



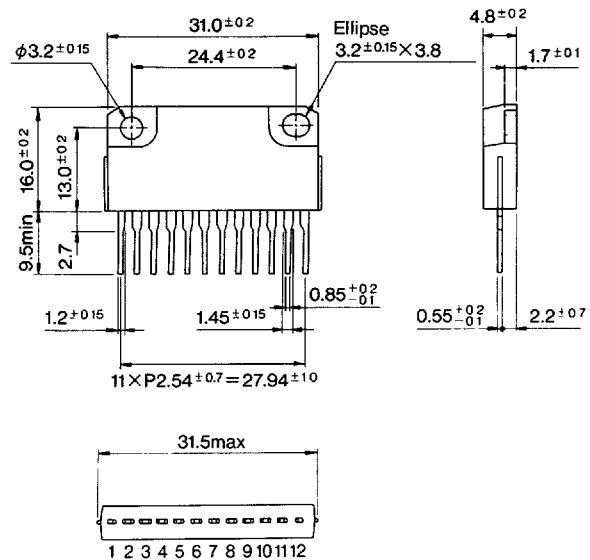
Weight Approx. 2.6g

#### SMA Family



Weight Approx. 4.0g

#### SLA Family



www.DataSheet4U.com  
Weight Approx. 6.0g