

**Features**

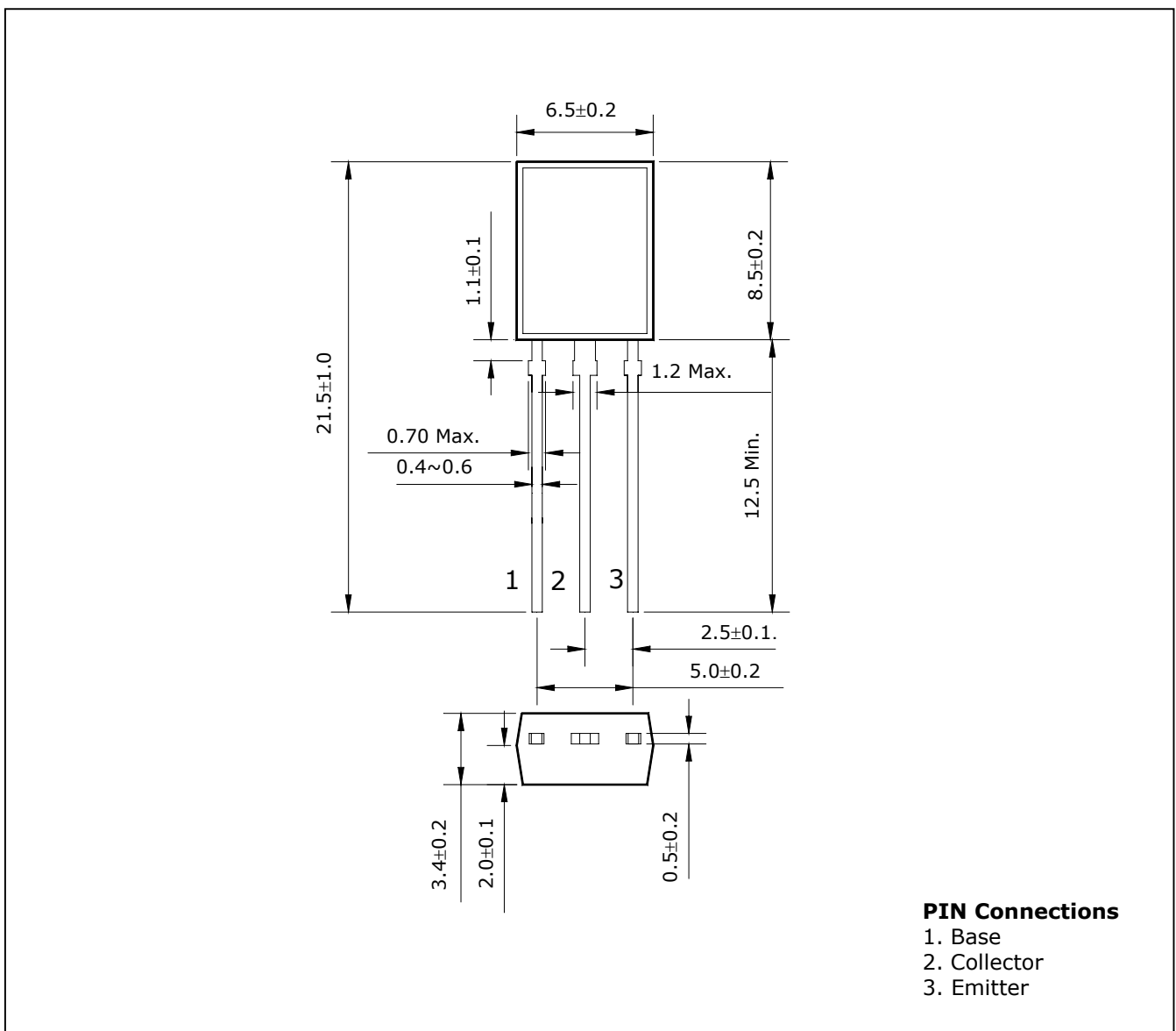
- High speed switching
- VCEO(sus)=400V
- Suitable for Switching Regulator and Motor Control

**Ordering Information**

Type NO.	Marking	Package Code
STD13003	STD13003	MPT

**Outline Dimensions**

**unit : mm**



## Absolute maximum ratings

(T<sub>c</sub>=25°C)

Characteristic	Symbol	Ratings	Unit
Collector-Base voltage	V <sub>CB0</sub>	700	V
Collector-Emitter voltage	V <sub>CEO</sub>	400	V
Emitter-base voltage	V <sub>EBO</sub>	9	V
Collector current (DC)	I <sub>C</sub>	1.5	A
Collector current (Pulse)	I <sub>CM</sub>	3	A
Base current (DC)	I <sub>B</sub>	0.75	A
Total Power dissipation (T <sub>a</sub> =25°C)	P <sub>C</sub>	1.2	W
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55~150	°C

## Electrical Characteristics

(T<sub>c</sub>=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter sustaining voltage	V <sub>CE(sus)</sub>	I <sub>C</sub> =5mA, I <sub>B</sub> =0	400	-	-	V
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> =9V, I <sub>C</sub> =0	-	-	10	uA
DC Current gain	h <sub>FE</sub> *	I <sub>C</sub> =0.5A, V <sub>CE</sub> =2V	8	-	40	
		I <sub>C</sub> =1A, V <sub>CE</sub> =2V	5	-	-	
Collector-Emitter saturation voltage	V <sub>CE(sat)</sub> *	I <sub>C</sub> =0.5A, I <sub>B</sub> =0.1A	-	-	0.5	V
		I <sub>C</sub> =1A, I <sub>B</sub> =0.25A	-	-	1	
		I <sub>C</sub> =1.5A, I <sub>B</sub> =0.5A	-	-	3	
Base-Emitter saturation voltage	V <sub>BE(sat)</sub> *	I <sub>C</sub> =0.5A, I <sub>B</sub> =0.1A	-	-	1	V
		I <sub>C</sub> =1A, I <sub>B</sub> =0.25A	-	-	1.2	
Transition frequency	f <sub>T</sub>	V <sub>CB</sub> =10V, I <sub>C</sub> =0.1A, f=1MHz	4	-	-	MHz
Output capacitance	C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=0.1MHz	-	21	-	pF
Turn on Time	t <sub>on</sub>	V <sub>CC</sub> =125V, I <sub>C</sub> =1A I <sub>B1</sub> =-I <sub>B2</sub> =0.2A	-	-	1.1	μs
Storage Time	t <sub>stg</sub>		-	-	4	
Fall Time	t <sub>f</sub>		-	-	0.7	

\* Pulse test: PW ≤ 300 μs, Duty cycle ≤ 2% Pulse

Electrical Characteristic Curves

Fig. 1  $I_C - V_{CE}$

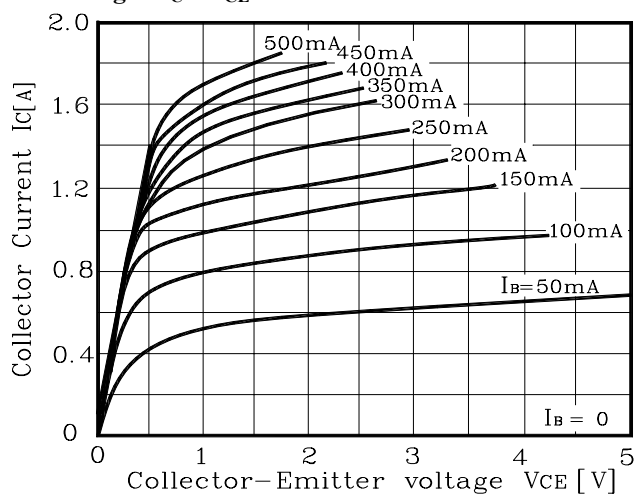


Fig. 2  $V_{BE(sat)}, V_{CE(sat)} - I_C$

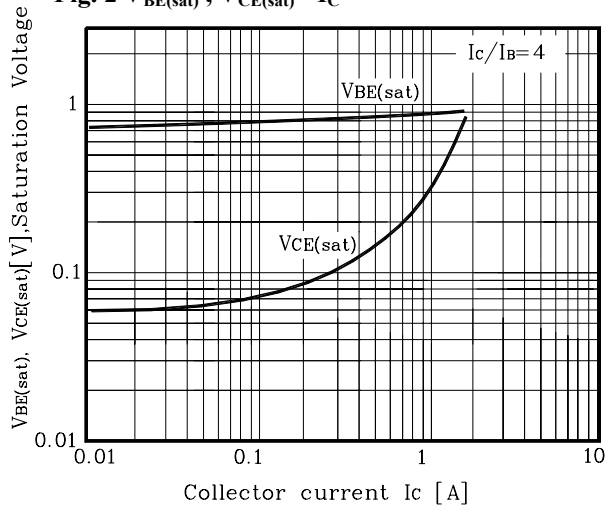


Fig. 3  $h_{FE} - I_C$

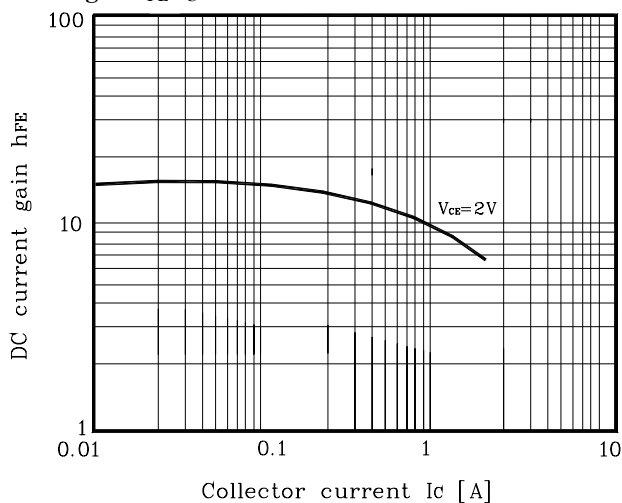


Fig. 4 Turn off time

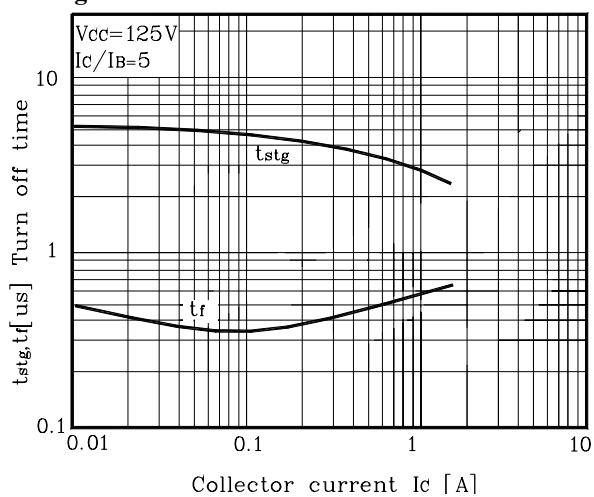


Fig. 5 Turn on time

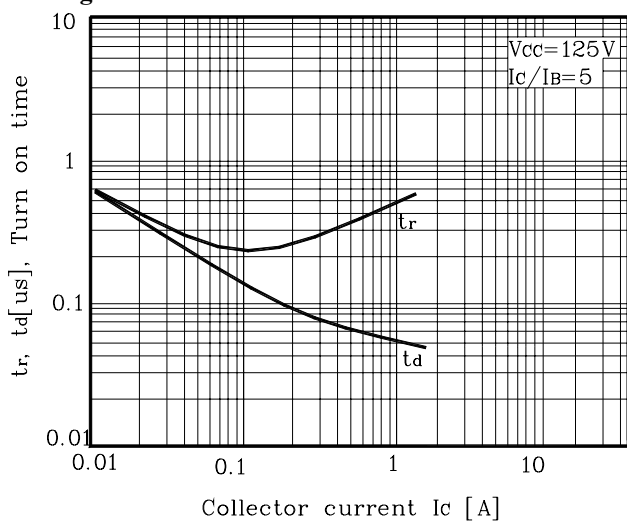


Fig. 6 Safe Operating Area

