AUK Semiconductor

STD13005F

NPN Silicon Power Transistor

Features

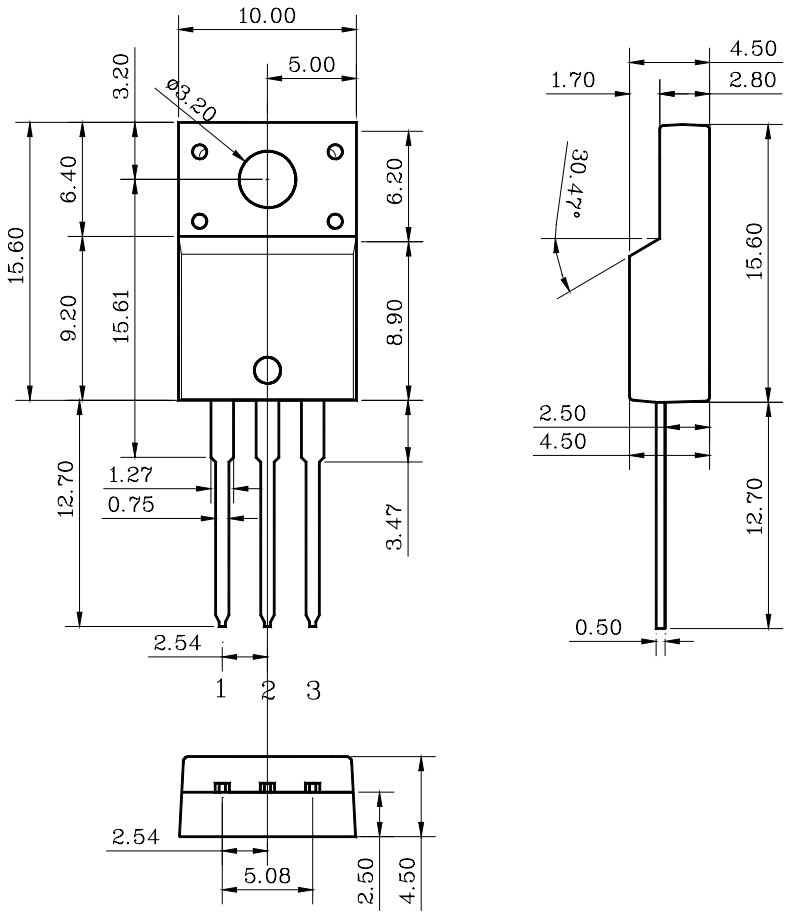
- High speed switching
- VCEO(sus)=400V
- Suitable for Switching Regulator and Motor Control

Ordering Information

Type NO.	Marking	Package Code
STD13005F	STD13005	TO-220F

Outline Dimensions

unit : mm



PIN Connections

1. Base
2. Collector
3. Emitter

Absolute maximum ratings

(Tc=25℃)

Characteristic	Symbol	Ratings	Unit
Collector-Base voltage	V_{CBO}	700	V
Collector-Emitter voltage	V_{CEO}	400	V
Emitter-base voltage	V_{EBO}	9	V
Collector current (DC)	I_C	4	A
Collector current (Pulse)	I_{CM}	8	A
Base current (DC)	I_B	2	A
Base current (Pulse)	I_{BM}	4	A
Total Power dissipation (Tc=25℃)	P_D	30	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~150	°C

Electrical Characteristics

(Tc=25℃)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter sustaining voltage	$V_{CE(sus)}$	I_C=10mA, I_B=0	400	-	-	V
Collector cut-off current	I_{CEV}	V_{CEV}=Rated Value $V_{BE(off)}$=1.5V	-	-	1	mA
Emitter cut-off current	I_{EBO}	V_{EB}=9V, I_C=0	-	-	1	mA
DC Current gain	h_{FE}*	I_C=1A, V_{CE}=5V	10	-	60	
		I_C=2A, V_{CE}=5V	8	-	40	
Collector-Emitter saturation voltage	$V_{CE(sat)}$*	I_C=1A, I_B=0.2A	-	-	0.5	V
		I_C=2A, I_B=0.5A	-	-	0.6	
		I_C=4A, I_B=1A	-	-	1	
Base-Emitter saturation voltage	$V_{BE(sat)}$*	I_C=1A, I_B=0.2A	-	-	1.2	V
		I_C=2A, I_B=0.5A	-	-	1.6	
Transition frequency	f_T	V_{CB}=10V, I_C=0.5A, f=1MHz	4	-	-	MHz
Output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz	-	65	-	pF
Turn on Time	t_{ON}	V_{CC}=125V,I_C=2A, R_L=62.5Ω I_{B1}=-I_{B2}=0.4A	-	-	0.8	μs
Storage Time	t_{STG}		-	-	4	
Fall Time	t_F		-	-	0.9	

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

Electrical Characteristic Curves

Fig. 1 P_D - T_C

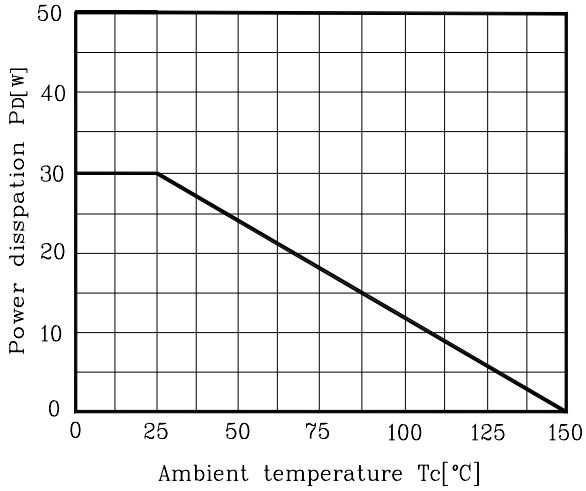


Fig. 2 $V_{BE(sat)}$, $V_{CE(sat)}$ - I_C

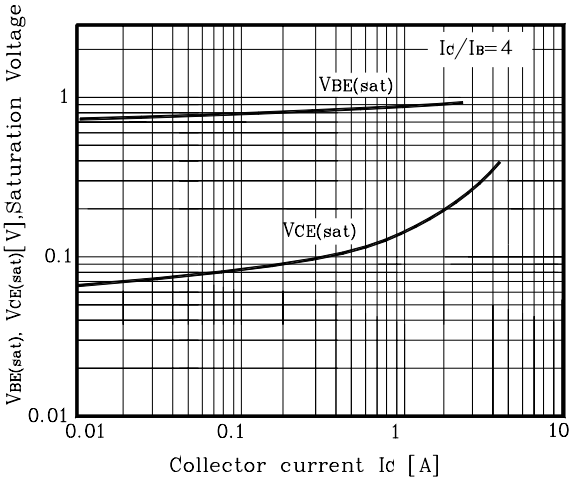


Fig. 3 h_{FE}-I_C

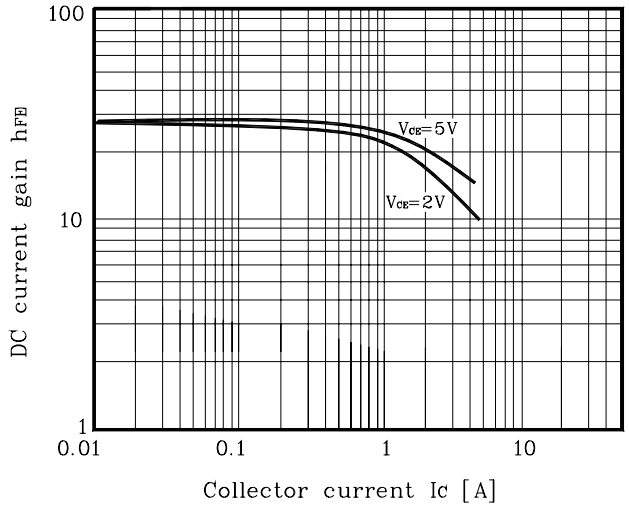


Fig. 4 Turn off time

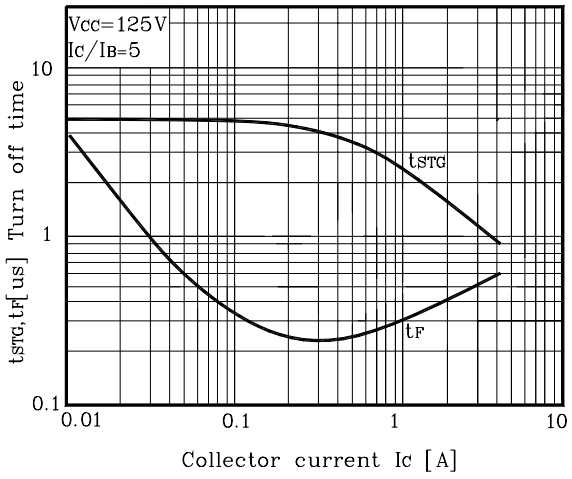


Fig. 5 Turn on time

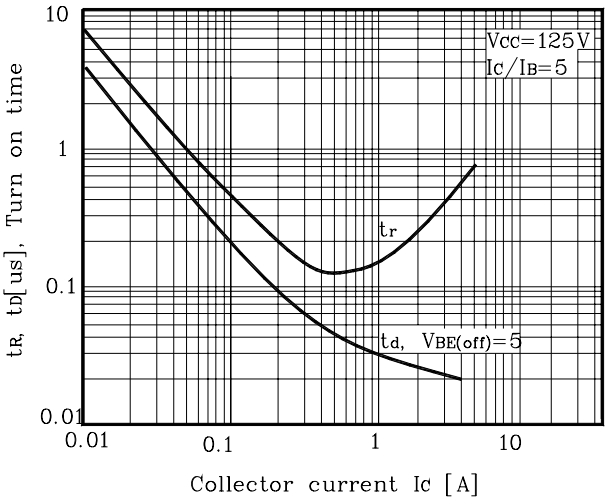


Fig. 6 Capacitance

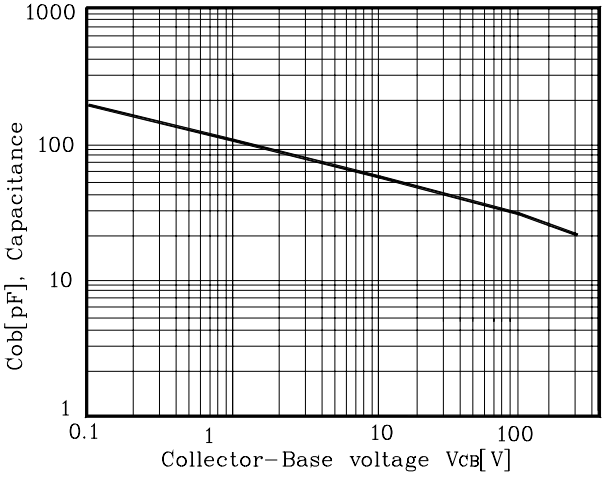


Fig. 7 Safe Operating Area