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AUK Semiconductor

STD13007F

NPN Silicon Power Transistor

Features

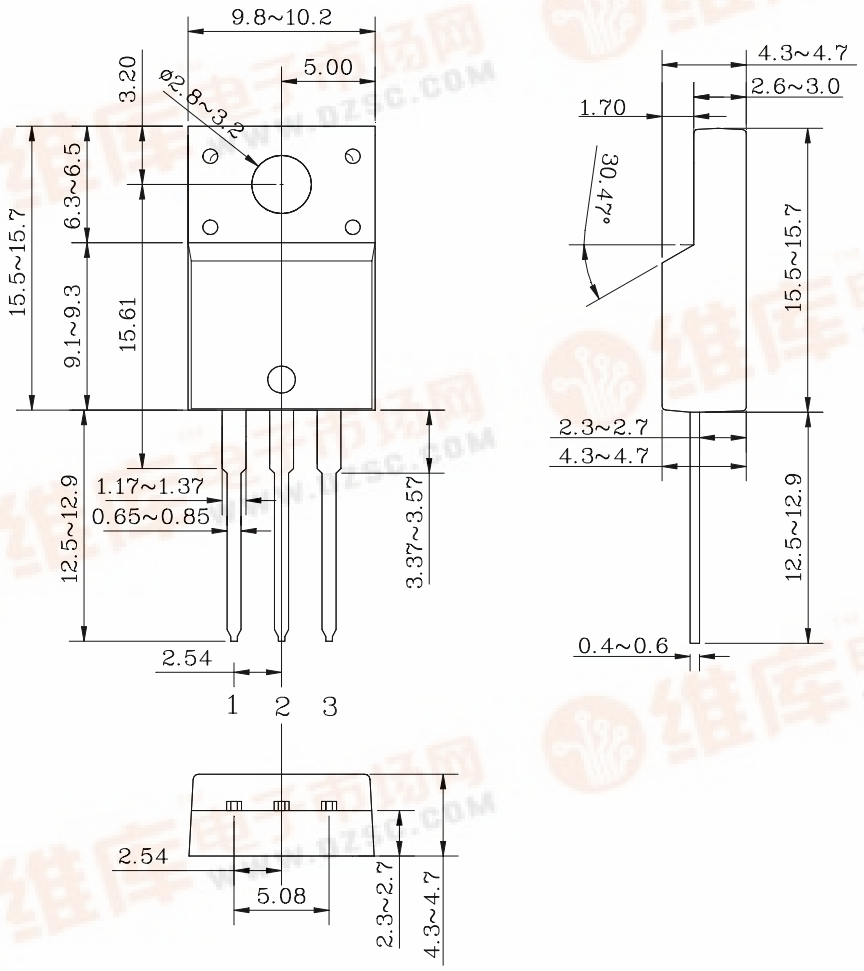
- High speed switching
- High Collector Voltage : V_{CBO} = 700V
- Suitable for Switching Regulator and Motor Control

Ordering Information

Type NO.	Marking	Package Code
STD13007F	STD13007	TO-220F

Outline Dimensions

unit : mm



PIN Connections

1. Base
2. Collector
3. Emitter

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Absolute maximum ratings

(Ta=25°C)

Characteristic	Symbol	Rating	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	8	A
Collector current (Pulse)	I_{CM}	16	A
Base current (DC)	I_B	4	A
Collector Power dissipation (Tc=25℃)	P_C	40	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~150	°C

Electrical Characteristics

(Ta=25°C)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-Emitter sustaining voltage	$BV_{CEO(sus)}$	I_C=10mA, I_B=0	400	-	-	V
Emitter cut-off current	I_{EBO}	V_{EB}=9V, I_C=0	-	-	1	mA
DC Current gain	h_{FE}*	I_C=2A, V_{CE}=5V	8	-	60	
		I_C=5A, V_{CE}=5V	5	-	30	
Collector-Emitter saturation voltage	$V_{CE(sat)}$*	I_C=2A, I_B=0.4A	-	-	1	V
		I_C=5A, I_B=1A	-	-	2	
		I_C=8A, I_B=2A	-	-	3	
Base-Emitter saturation voltage	$V_{BE(sat)}$*	I_C=2A, I_B=0.4A	-	-	1.2	V
		I_C=5A, I_B=1A	-	-	1.6	
Transition frequency	f_T	V_{CE}=10V, I_C=0.5A, f=1MHz	-	14	-	MHz
Output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz	-	80	-	pF
Turn on Time	t_{on}	V_{CC}=125V, I_C=5A I_{B1}=-I_{B2}=1A	-	-	1.6	μs
Storage Time	t_{stg}		-	-	3	
Fall Time	t_f		-	-	0.7	

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

Electrical Characteristic Curves

Fig. 1 P_C - T_C

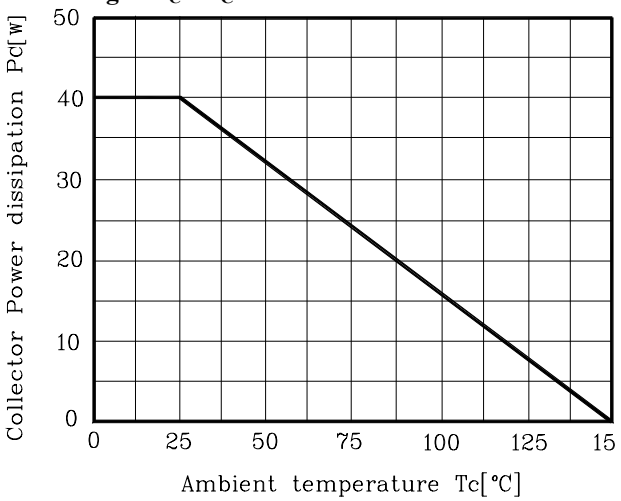


Fig. 2 $V_{BE(sat)}$, $V_{CE(sat)}$ - I_C

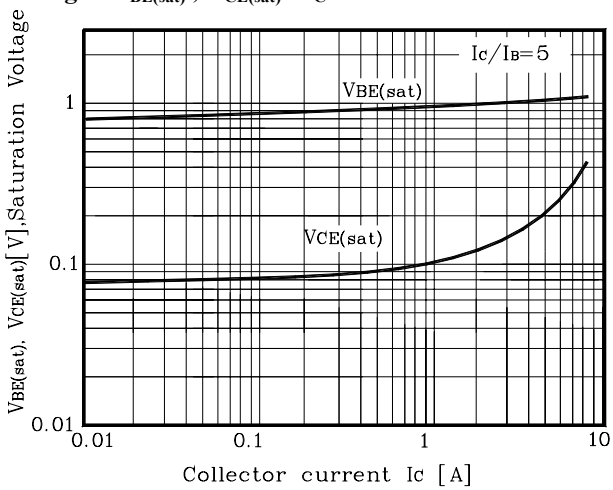


Fig. 3 h_{FE}-I_C

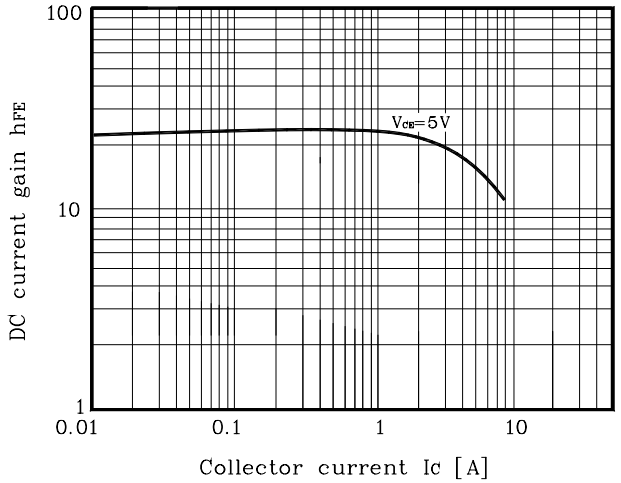


Fig. 4 t_f, t_{stg} - IC

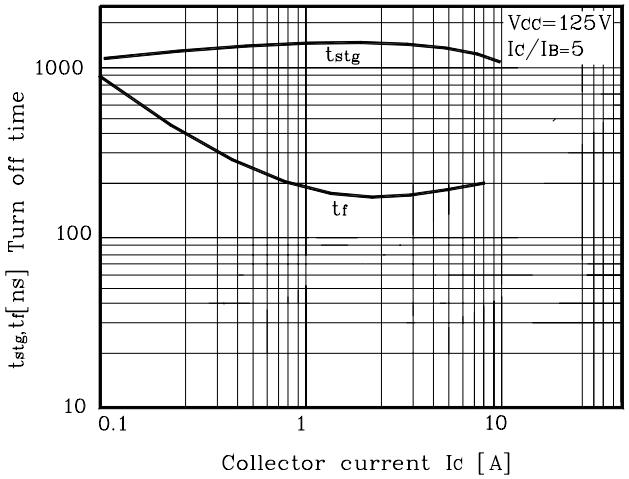


Fig. 5 td , tr - IC

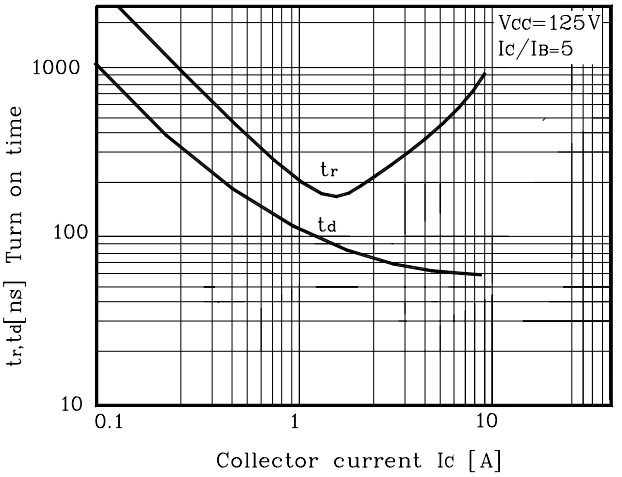


Fig. 6 Cob - V_{CB}

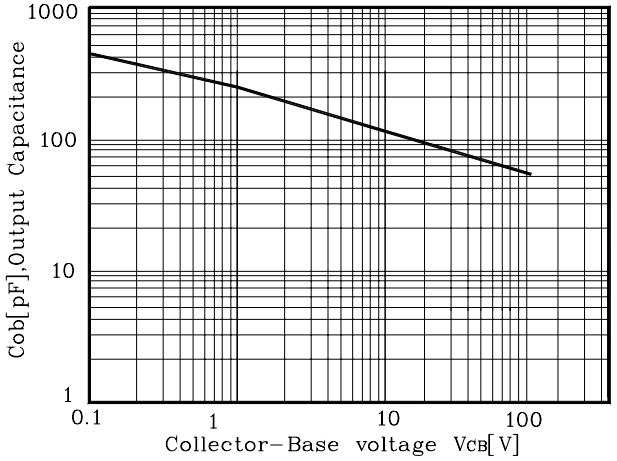
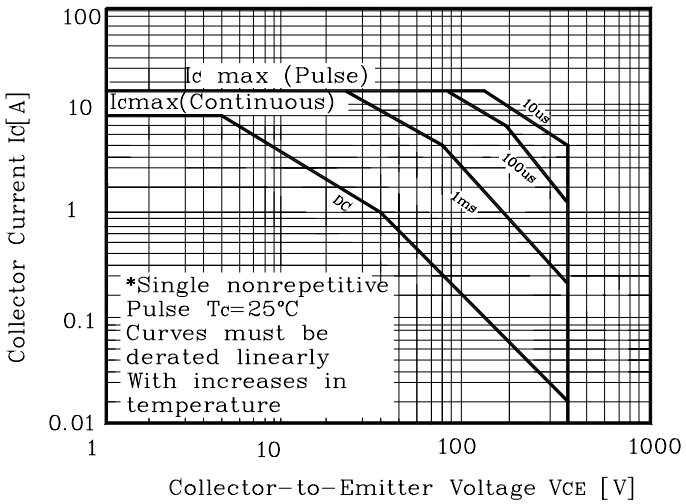


Fig. 7 Safe Operating Area



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