KODENSHI AUK

STD13007P

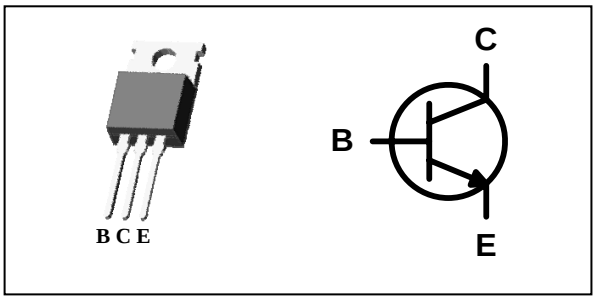
NPN Silicon Power Transistor

SWITCHING REGULATOR APPLICATIONS

Features

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

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STD13007P	STD13007	TO-220AB

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	87	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~150	°C

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	1.43	℃/W
	Junction-ambient	$R_{th(J-a)}$	-	88	

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※	10	-	45	
		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%.

※h_{FE} rank / A : 10~30, B : 25~45

Electrical Characteristic Curves

Fig. 1 P_C - T_C

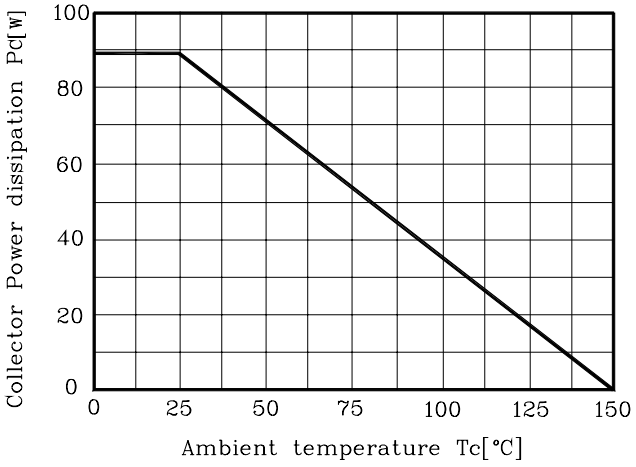


Fig. 2 $V_{BE(sat)}$, $V_{CE(sat)}$ - I_C

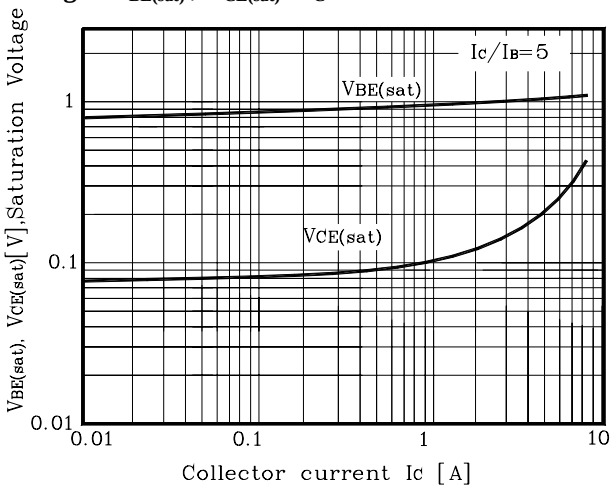


Fig. 3 h_{FE}-I_C

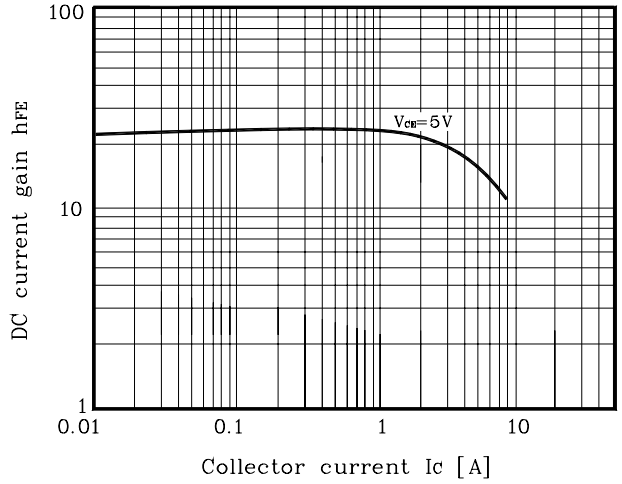


Fig. 4 t_f , t_{stg} - IC

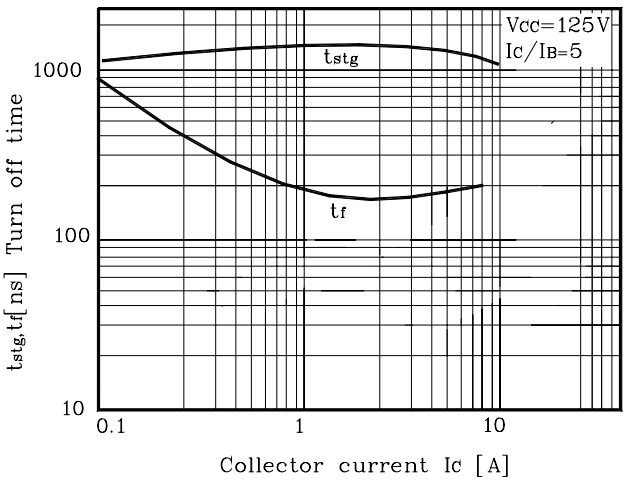


Fig. 5 td , tr - IC

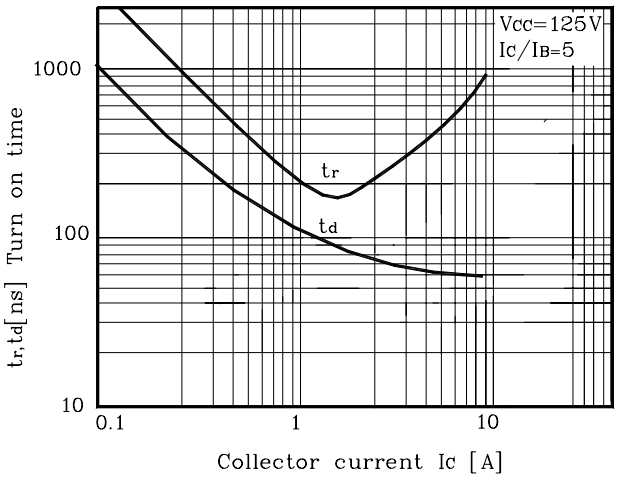
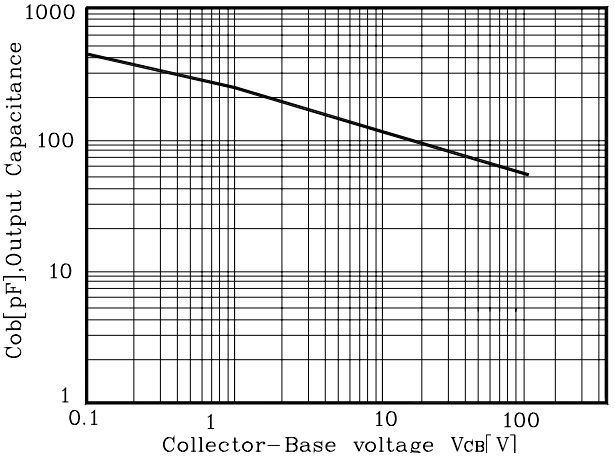
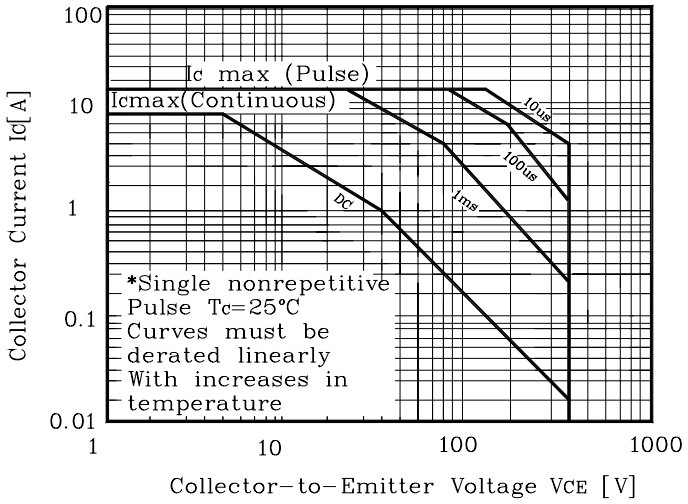


Fig. 6 Cob - V_{CB}

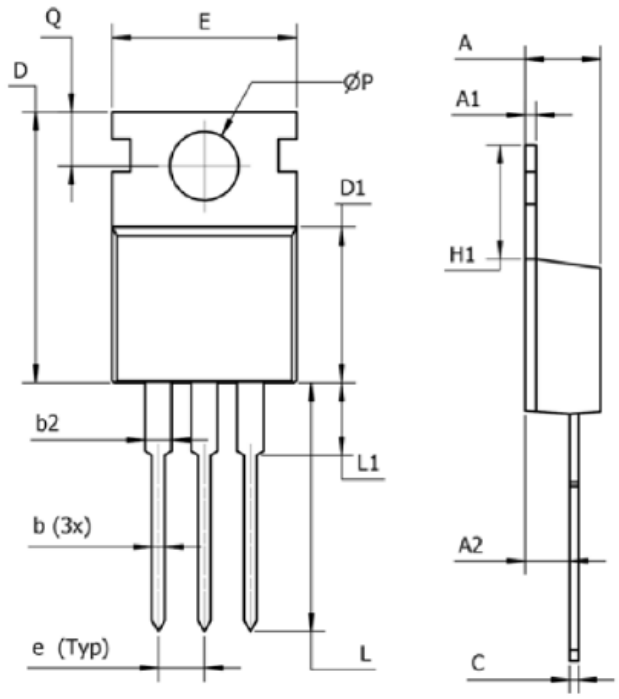


Electrical Characteristic Curves

Fig. 7 Safe Operating Area



Outline Dimension



DIM	MM	INCHES
D	14.22-16.51	0.560-0.650
ØP	Ø3.53-4.09	Ø0.139-0.161
H1	5.84-6.86	0.230-0.270
b	0.38-1.02	0.015-0.040
b2	1.14-1.78	0.045-0.070
D1	8.38-9.02	0.330-0.355
e	2.54	0.100
E	9.65-10.67	0.380-0.420
L1	6.35(MAX)	0.250(MAX)
A	3.56-4.83	0.140-0.190
A1	0.51-0.71	0.020-0.028
L	12.70-14.73	0.500-0.580
A2	2.03-2.92	0.080-0.115
Q	2.54-3.43	0.100-0.135
C	0.36-0.61	0.014-0.024

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