KODENSHI AUK

STD13007

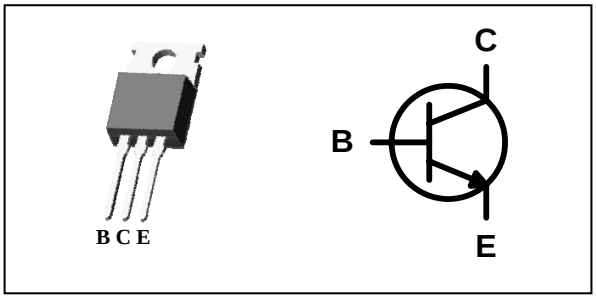
NPN Silicon Power Transistor

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
STD13007	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	80	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~150	°C

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-case	$R_{th(J-C)}$	-	1.56	℃/W
	Junction-ambient	$R_{th(J-a)}$	-	83.3	

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

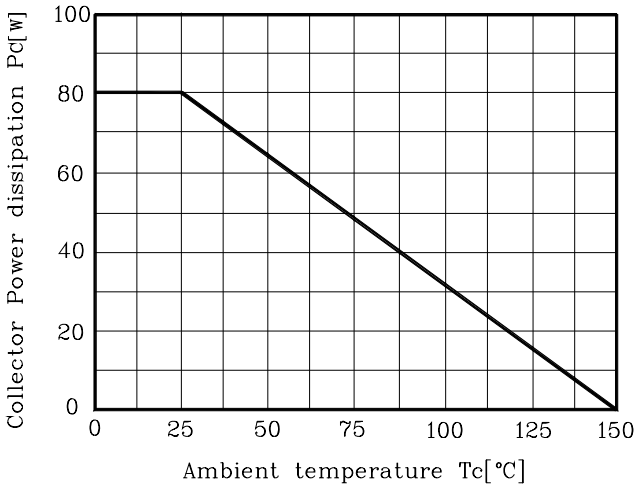


Fig. 2 $V_{BE(sat)}$, $V_{CE(sat)}$ - I_C

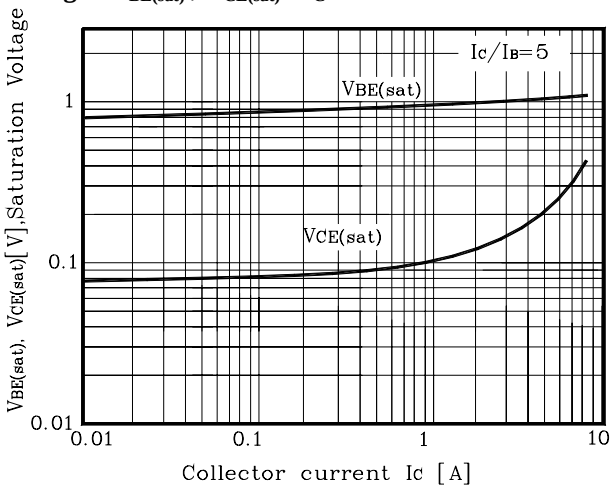


Fig. 3 h_{FE}-I_C

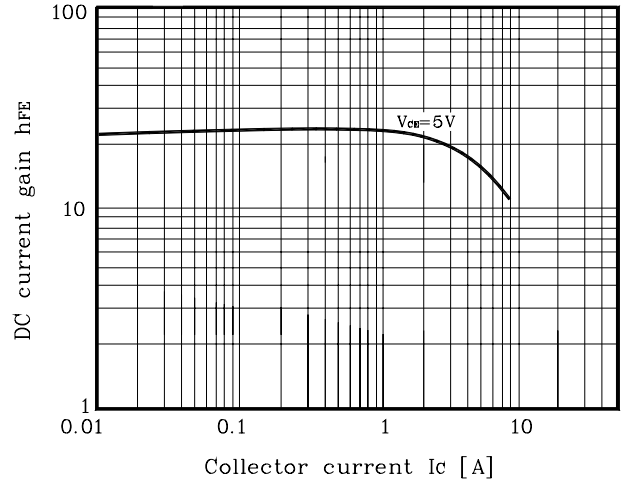


Fig. 4 t_f , t_{stg} - IC

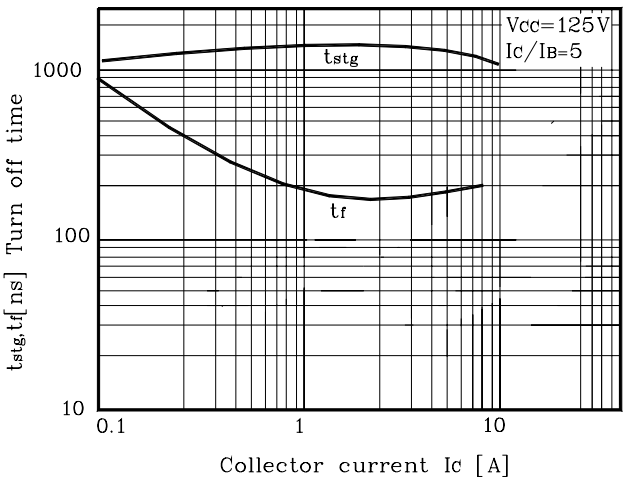


Fig. 5 td , tr - IC

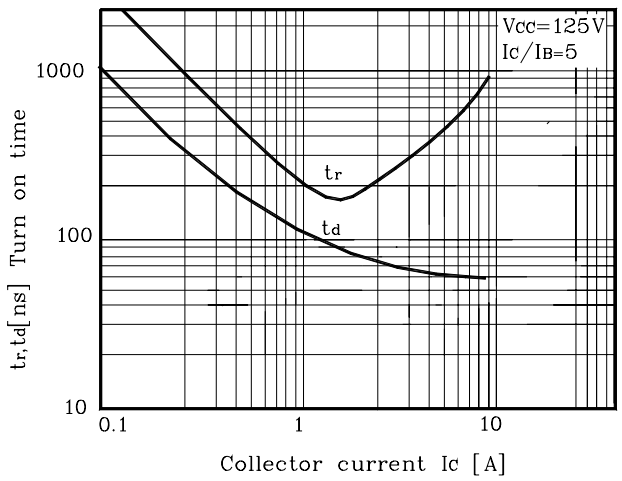
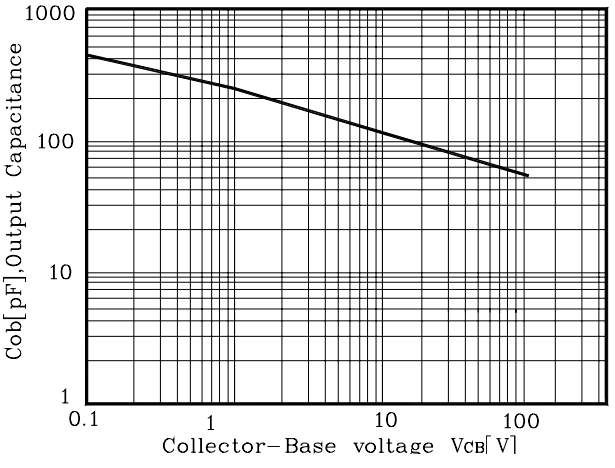
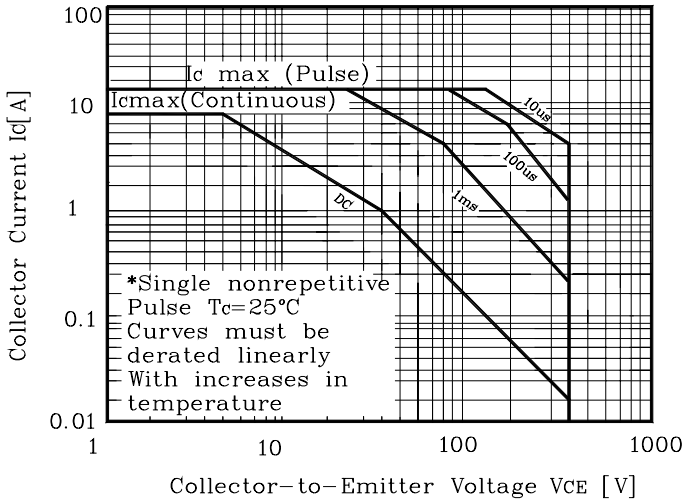


Fig. 6 Cob - V_{CB}

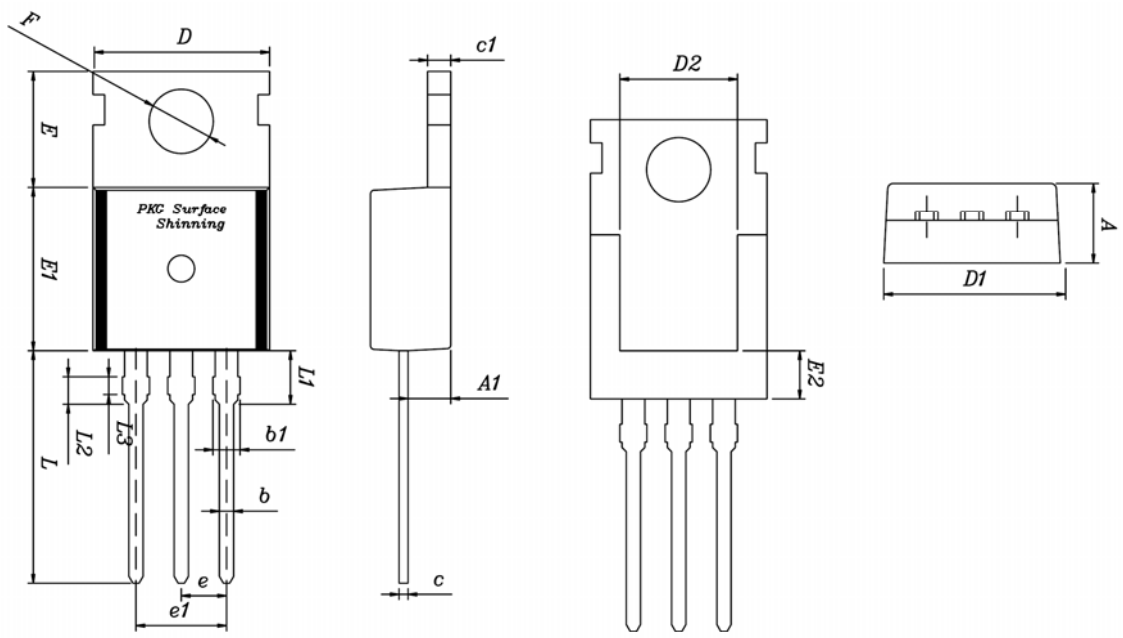


Electrical Characteristic Curves

Fig. 7 Safe Operating Area



Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	4.35	4.50	4.65	
A1	2.20	2.40	2.60	
b	0.65	0.80	0.95	
b1	1.42	1.52	1.62	
C	0.40	0.50	0.60	
C1	1.20	1.30	1.40	
D	9.80	10.00	10.20	
D1	9.85	10.00	10.15	
D2	6.40	6.60	6.80	
E	6.30	6.50	6.70	
E1	9.05	9.20	9.35	
E2	2.50	2.70	2.90	
F	3.50	3.60	3.70	
e	2.34	2.54	2.64	
e1	4.88	5.08	5.28	
L	12.68	13.08	13.48	
L1	2.80	3.00	3.20	
L2	1.49	1.54	1.59	
L3	0.95	1.00	1.05	

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