KODENSHI AUK

STD13003Q

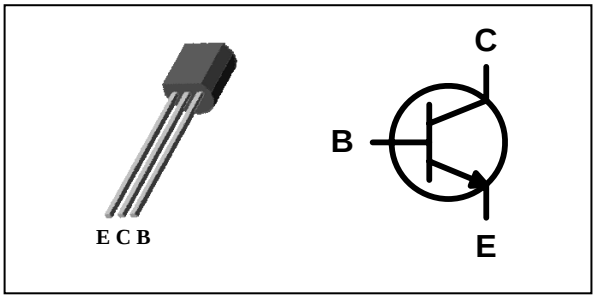
NPN Silicon Power Transistor

SWITCHING REGULATOR APPLICATIONS

Features

- High speed switching
- $V_{CEO(sus)}$ = 400V
- Suitable for Switching Regulator and Motor Control

PIN Connection



Ordering Information

Type NO.	Marking	Package Code
STD13003Q	STD13003	TO-92

Absolute Maximum Ratings

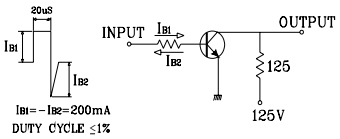
(Ta=25℃)

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	1.5	A
Collector current (Pulse)	I_{CP}	3	A
Base current (DC)	I_B	0.75	A
Collector power dissipation	P_C	1.1	W
Junction temperature	T_j	150	°C
Storage temperature	T_{stg}	-55~150	°C

Characteristic		Symbol	Typ.	Max	Unit
Thermal resistance	Junction-ambient	$R_{th(J-a)}$	-	113.6	℃/W

Electrical Characteristics

(Ta=25℃)

Characteristic	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Collector-emitter sustaining voltage	$V_{CE(sus)}$	I_C=5mA, I_B=0	400	-	-	V
Collector cut-off current	I_{CBO}	V_{CB}=700V, I_E=0	-	-	10	uA
Emitter cut-off current	I_{EBO}	V_{EB}=9V, I_C=0	-	-	10	uA
DC current gain	h_{FE}*	I_C=0.5A, V_{CE}=2V	15	-	35	
		I_C=1A, V_{CE}=2V	5	-	-	
Collector-emitter saturation voltage	$V_{CE(sat)}$*	I_C=0.5A, I_B=0.1A	-	-	0.5	V
		I_C=1A, I_B=0.25A	-	-	1	
		I_C=1.5A, I_B=0.5A	-	-	3	
Base-emitter saturation voltage	$V_{BE(sat)}$*	I_C=0.5A, I_B=0.1A	-	-	1	V
		I_C=1A, I_B=0.25A	-	-	1.2	
Transition frequency	f_T	V_{CB}=10V, I_C=0.1A, f=1MHz	-	4	-	MHz
Output capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz	-	13	-	pF
Turn on Time	t_{on}		-	1.1	-	μs
Storage Time	t_{stg}		-	4	-	
Fall Time	t_f		-	0.7	-	

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

Electrical Characteristic Curves

Fig. 1 P_C - T_a

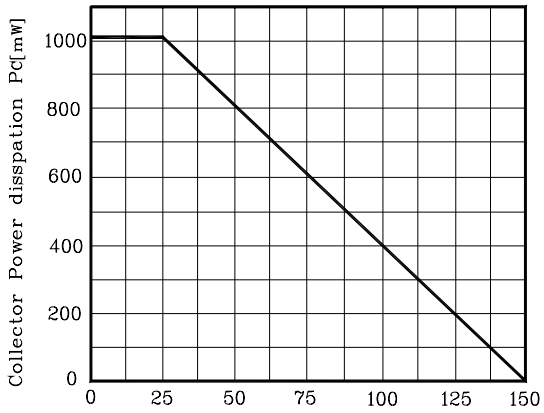


Fig. 2 I_C - V_{CE}

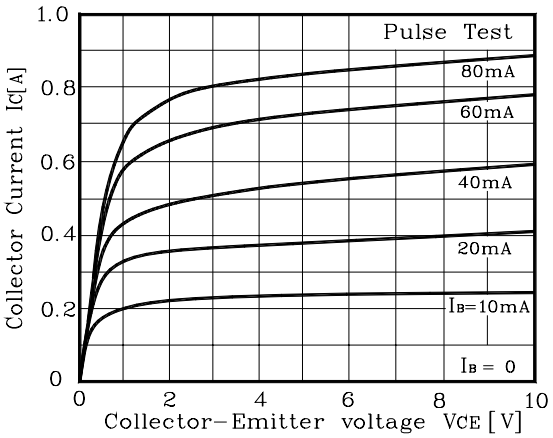


Fig. 3 $V_{CE(sat)}$ - I_C

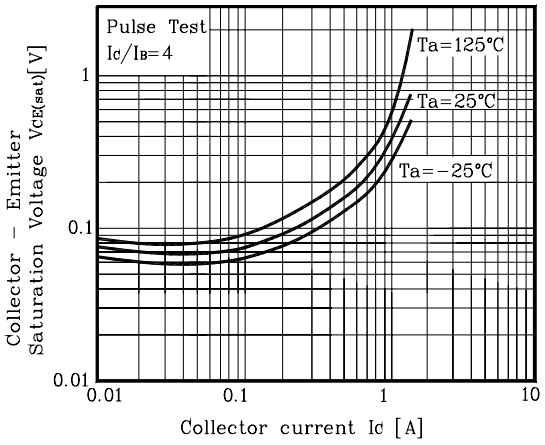


Fig. 4 $V_{BE(sat)}$ - I_C

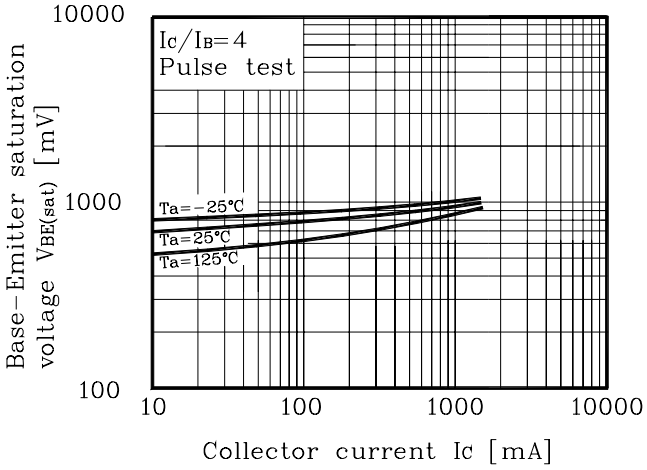


Fig. 5 h_{FE} - I_C

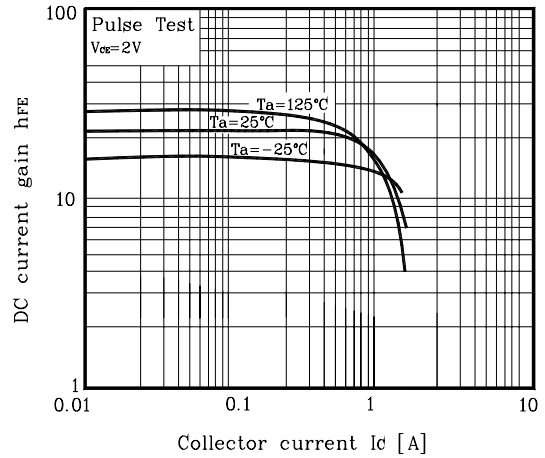
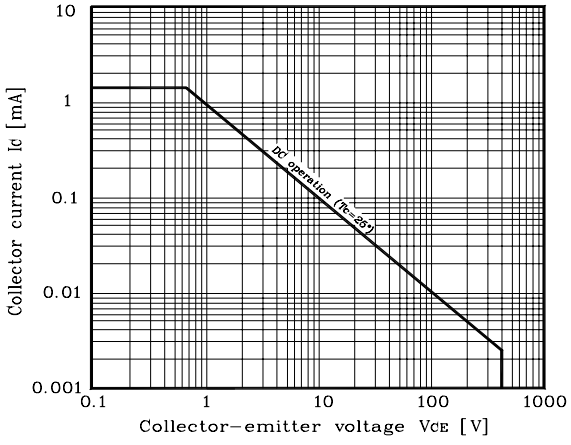


Fig. 6 Safe operating area



Electrical Characteristic Curves

Fig. 7 Turn on time

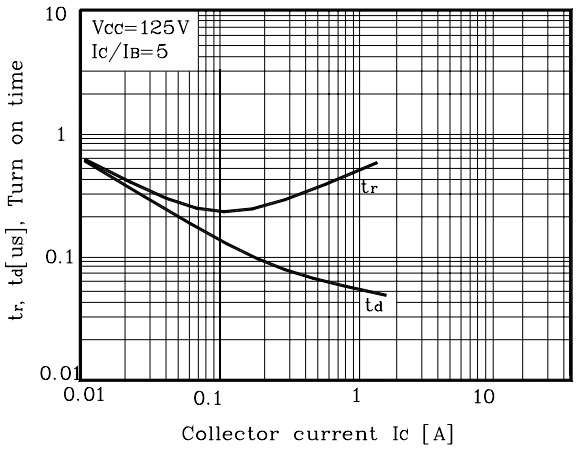
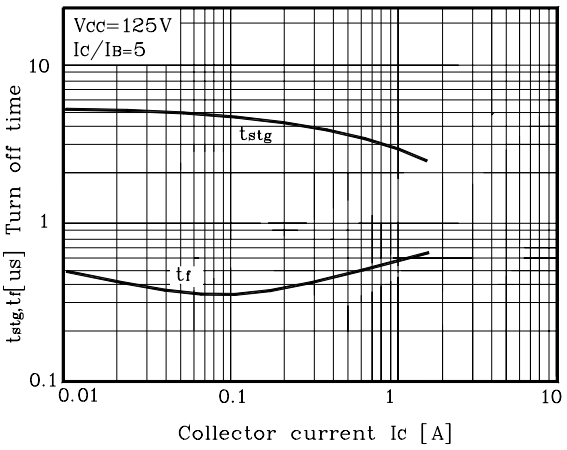
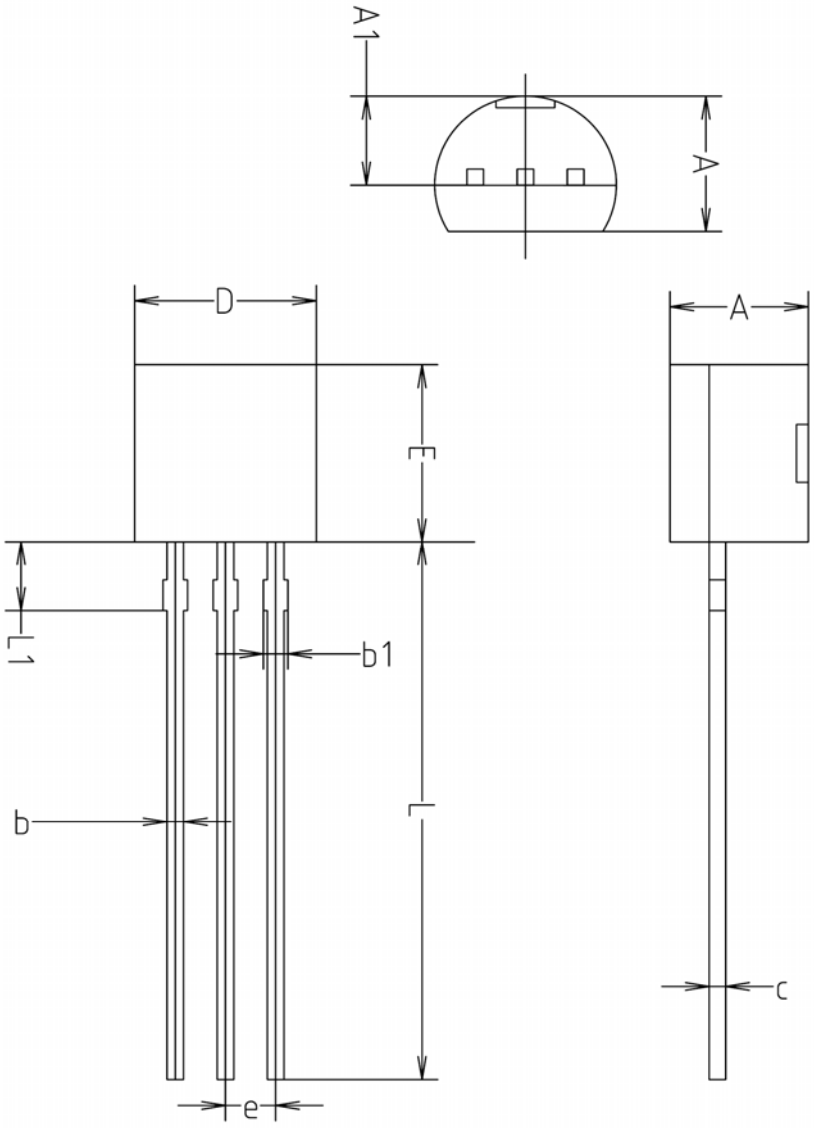


Fig. 8 Turn off time



Outline Dimension



SYMBOL	MILLMETERS(mm)		
	MINIMUM	NOMINAL	MAXIMUM
A	3.40	3.50	3.66
A1	2.46	2.51	2.59
b	0.39	0.44	0.53
b1	0.39	–	0.63
c	0.35	0.42	0.47
D	4.48	4.60	4.70
E	4.48	4.60	4.70
e	1.17	1.27	1.37
L	13.70	14.00	14.77
L1	1.55	1.70	2.15

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