KODENSHI AUK

STD13003D

NPN Silicon Power Transistor

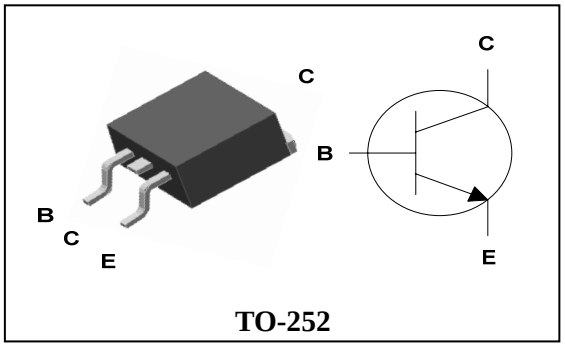
Applications

- Power amplifier application
- High current switching application

Features

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

PIN Connection



TO-252

Ordering Information

Type NO.	Marking	Package Code
STD13003D STD13003		TO-252

Absolute Maximum Ratings

(Ta=25℃)

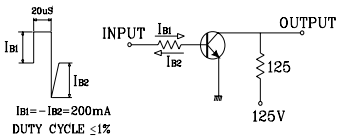
Characteristic Symbol		Ratings	Unit
Collector-base voltage	V_{CBO} 700		V
Collector-emitter voltage	V_{CEO} 400		V
Emitter-base voltage	V_{EBO} 9		V
Collector current	I_C 1.5		A(DC)
	I_{CP}* 3		A(Pulse)
Base current	I_B 0.75		A(DC)
Collector power dissipation	$P_{C(J-A)}$	1.2	W
	$P_{C(J-C)}$	15	W
Junction temperature	T_j 150		°C
Storage temperature	T_{stg}	-55~150	°C

* : Single pulse, tp= 300 μs

Characteristic Symb		ol	Typ.	Max	Unit
Thermal resistance	Junction-Ambient R	$_{th(J-A)}$ -		104.1	℃/W
	Junction-Case R	$_{th(J-C)}$ -		8.3	℃/W

Electrical Characteristics

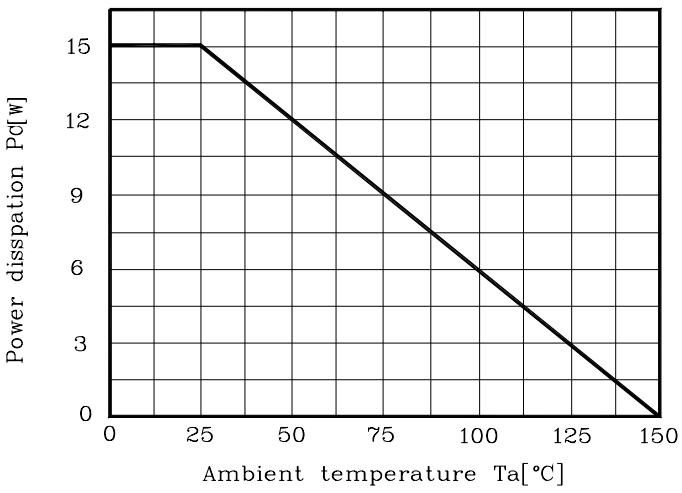
(Ta=25℃)

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	-	

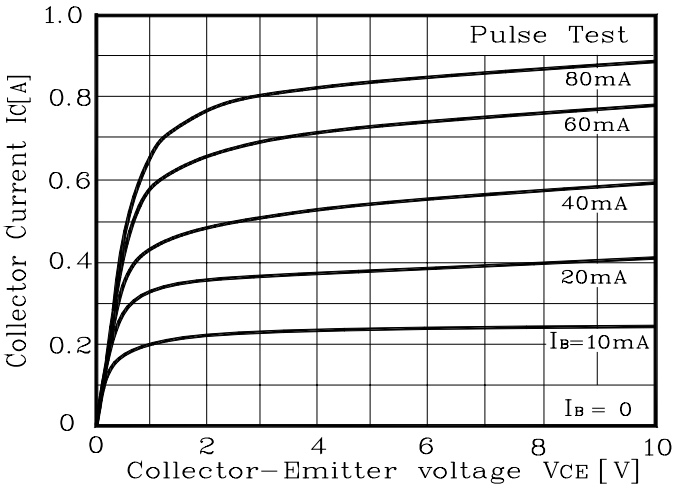
* Pulse test: PW≤300 μs, Duty cycle≤2% Pulse

Electrical Characteristic Curves

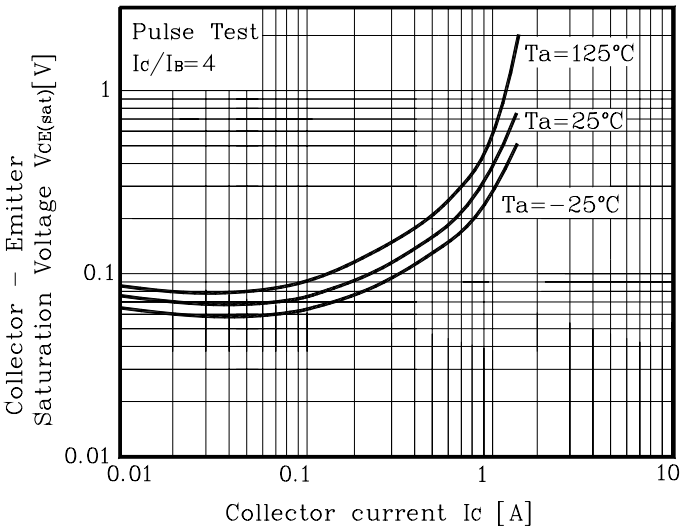
Fig. 1 P_C - T_a



Fi g. 2 I_C - V_{CE}



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



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

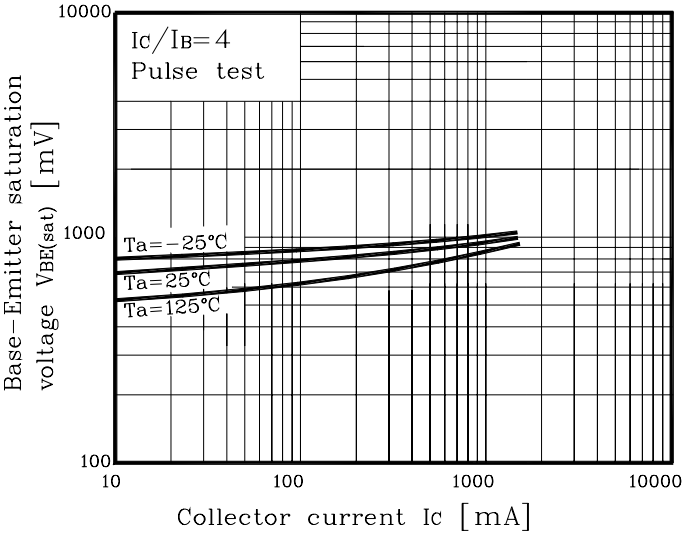


Fig. 5 h_{FE} - I_C

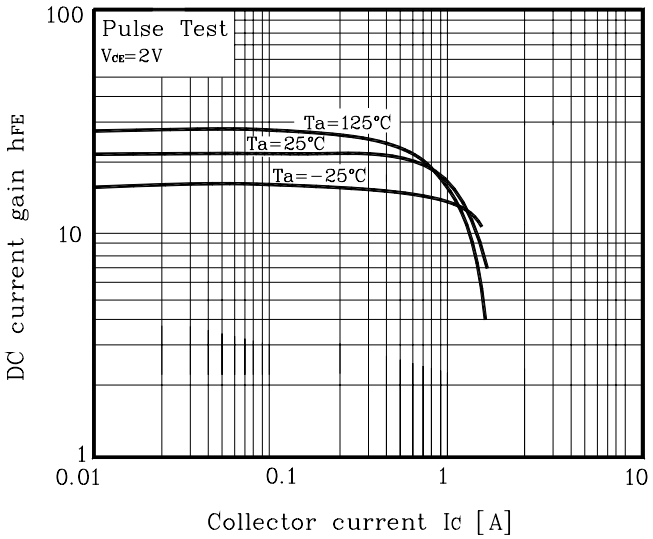
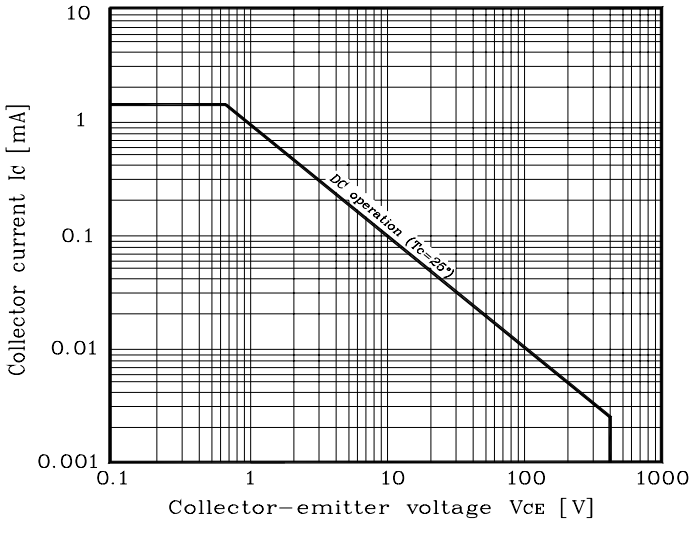


Fig. 6 Safe operating area



Electrical Characteristic Curves

Fig. 7 Turn on time

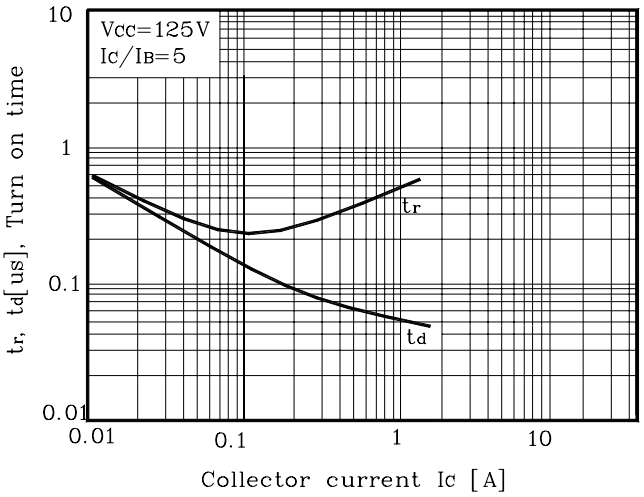
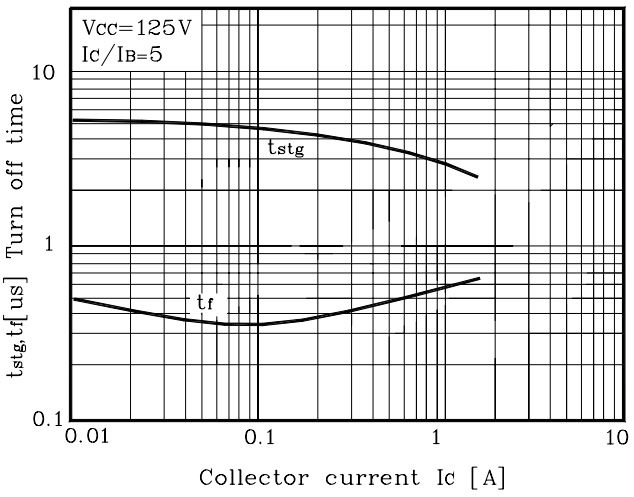
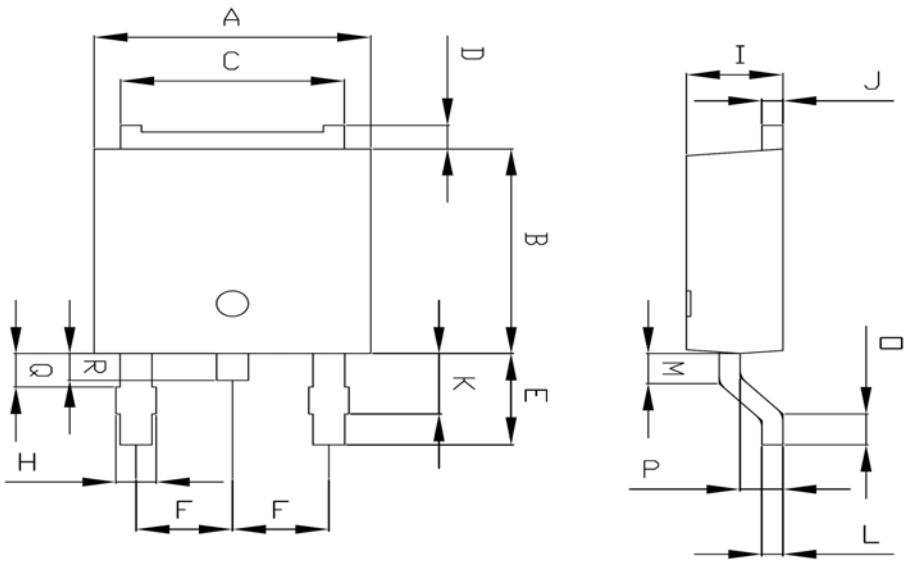


Fig. 8 Turn off time

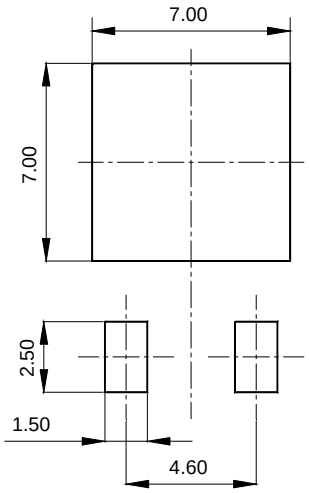


Outline Dimension



SYMBOL	MILLIMETERS			NOTE
	MINIMUM	NOMINAL	MAXIMUM	
A	6.40	6.60	6.80	
B	5.90	6.10	6.30	
C	5.04	5.34	5.64	
D	0.50	0.70	0.90	
E	2.50	2.70	2.90	
F	2.10	2.30	2.50	
H	0.96 MAX			
I	2.20	2.30	2.40	
J	0.40	0.50	0.60	
K	1.60	1.80	2.00	
L	0.40	0.50	0.60	
M	0.81	0.91	1.01	
O	0.80	0.90	1.00	
P	0.90	1.00	1.10	
Q	0.95 MAX			
R	0.60	0.80	1.00	

※Recommend PCB solder land [Unit: mm]



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