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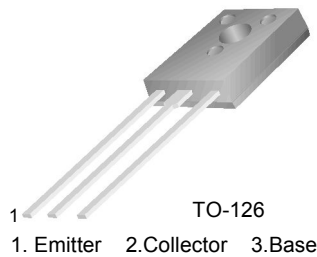


KSE13003

NPN Silicon Transistor

High Voltage Switch Mode Applications

- High Voltage Capability
- High Speed Switching
- Suitable for Switching Regulator and Motor Control



Absolute Maximum Ratings* $T_C = 25^\circ\text{C}$ unless otherwise noted (notes_1)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	1.5	A
I_{CP}	Collector Current (Pulse)	3	A
I_B	Base Current	0.75	A
P_C	Collector Dissipation ($T_C = 25^\circ\text{C}$)	20	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-65 ~ 150	$^\circ\text{C}$

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

NOTES_1:

1) These ratings are based on a maximum junction temperature of 150°C .

2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

h_{FE} Classification

Classification	H1	H2	H3
h_{FE}^*	9 ~ 16	14 ~ 21	19 ~ 26

* Test on $V_{CE} = 2V$, $I_C = 0.5A$.

Electrical Characteristics T_C = 25°C unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max	Units
BV _{CEO}	Collector-Emitter Breakdown Voltage	I _C = 5mA, I _B = 0	400			V
I _{EBO}	Emitter Cut-off Current	V _{EB} = 9V, I _C = 0			10	μA
h _{FE}	*DC Current Gain	V _{CE} = 2V, I _C = 0.5A V _{CE} = 2V, I _C = 1A	8 5		40	
V _{CE(sat)}	*Collector Emitter Saturation Voltage	I _C = 0.5A, I _B = 0.1A I _C = 1A, I _B = 0.25A I _C = 1.5A, I _B = 0.5A			0.5 1 3	V V V
V _{BE(sat)}	*Base Emitter Saturation Voltage	I _C = 0.5A, I _B = 0.1A I _C = 1A, I _B = 0.25A			1 1.2	V V
C _{ob}	Output Capacitance	V _{CB} = 10V, f = 0.1MHz		21		pF
f _T	Current Gain Bandwidth Product	V _{CE} = 10V, I _C = 0.1A	4			MHz
t _{ON}	Turn On Time	V _{CC} = 125V, I _C = 1A			1.1	ms
t _{STG}	Storage Time	I _{B1} = 0.2A, I _{B2} = -0.2A R _L = 125W			4.0	ms
t _F	Fall Time				0.7	ms

* Pulse Test: Pulse Width=5ms, Duty Cycle≤10%

Package Marking and Ordering Information

Device Item (notes_2)	Device Marking	Package	Packing Method	Remarks
KSE13003H1ASTU	1 E13003	TO-126	TUBE	
KSE13003H2ASTU	2 E13003	TO-126	TUBE	
KSE13003H3ASTU	3 E13003	TO-126	TUBE	

Notes_2 :

1) The Affix "-H1/-H2/-H3" means the hFE classification.

2) The Suffix "-STU" means the TO126 short lead package and the Tube packing method, which can be on fairchildsemi website at <http://www.fairchildsemi.com>

Typical Performance Characteristics

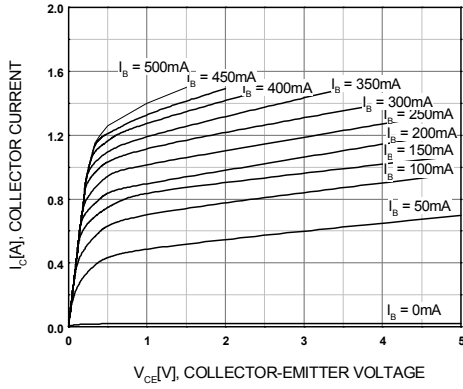


Figure 1. Static Characteristic

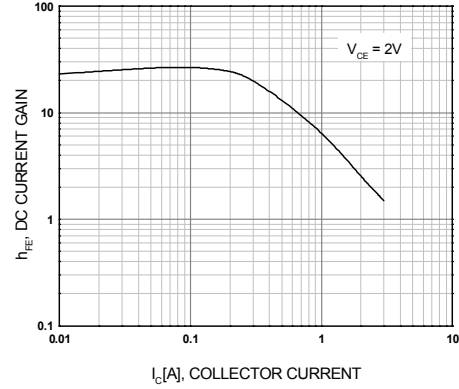


Figure 2. DC current Gain

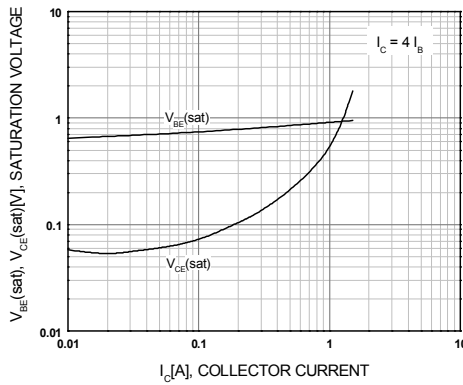


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

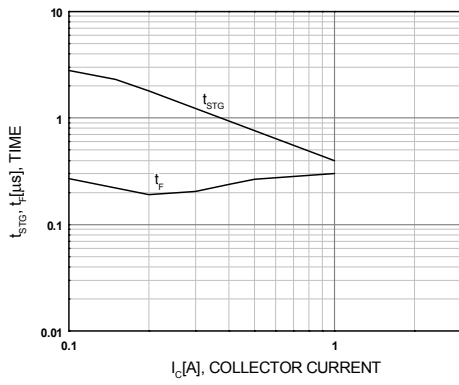


Figure 4. Switching Time

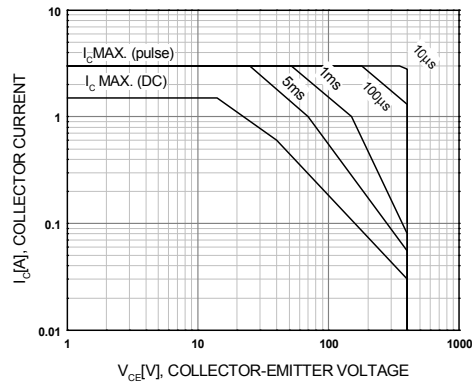


Figure 5. Safe Operating Area

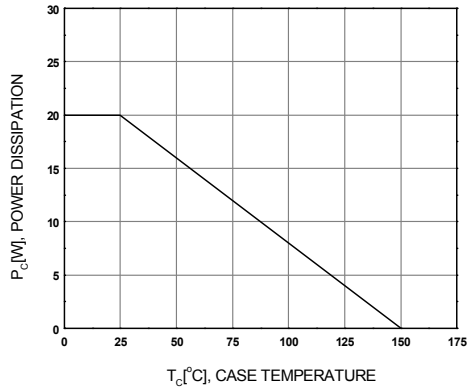


Figure 6. Power Derating



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