KSH13003A

SemiHow
Know-How for Semiconductor

◎ SEMIHOW REV.A1,Jan 2008

SemiHow
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KSH13003A

High Voltage Switch Mode Applications

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

1.5 Amperes
NPN Silicon Power Transistor
30 Watts

Absolute Maximum Ratings TC=25℃ unless otherwise noted

CHARACTERISTICS	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	1.5	A
Collector Current(Pulse)	I_{CP}	3	A
Base Current	I_B	0.75	A
Collector Dissipation(Tc=25℃)	P_C	30	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-65~150	℃

TO-220
1. Base
2. Collector
3. Emitter



Electrical Characteristics TC=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	Test Condition	Min	Typ.	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	I_C=500μA, I_E=0	700			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=5mA, I_B=0	400			V
Emitter Cut-off Current	I_{EBO}	V_{EB}=9V,I_C=0			10	μA
*DC Current Gain	h_{FE1} h_{FE2}	V_{CE}=2V,I_C=0.5A V_{CE}=2V,I_C=1A	9 5		35	
*Collector-Emitter Saturation Voltage	V_{CE}(sat)	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 1.0 3.0	V V V
*Base-Emitter Saturation Voltage	V_{BE}(sat)	I_C=0.5A,I_B=0.1A I_C=1A,I_B=0.25A			1.0 1.2	V V
Output Capacitance	C_{ob}	V_{CB}=10V, f=0.1MHz		21		pF
Current Gain Bandwidth Product	f_T	V_{CE}=10V,I_C=0.1A	4			MHz
Turn on Time	t_{on}	Vcc=125V, Ic=1A I_{B1}=0.2A, I_{B2}= -0.2A R_L=125Ω			1.1	μs
Storage Time	t_{stg}				4.0	μs
Fall Time	t_F				0.7	μs

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Note.

hFE1 Classification	R	9 ~ 16
	O	14 ~ 21
	Y	19 ~ 26
	G	25 ~ 35

Package Mark information.

S YWW Z KSH13003A	S	SemiHow Symbol
	YWW	Y; year code, WW; week code
	Z	hFE1 Classification

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Typical Characteristics

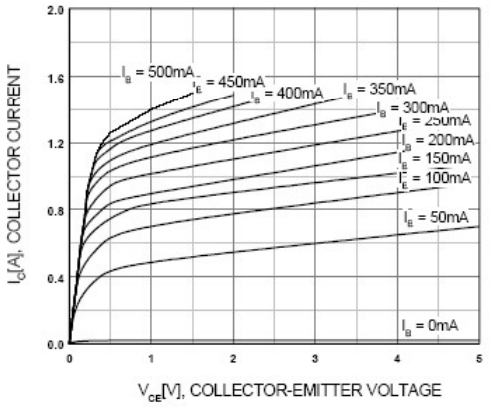


Figure 1. Static Characteristic

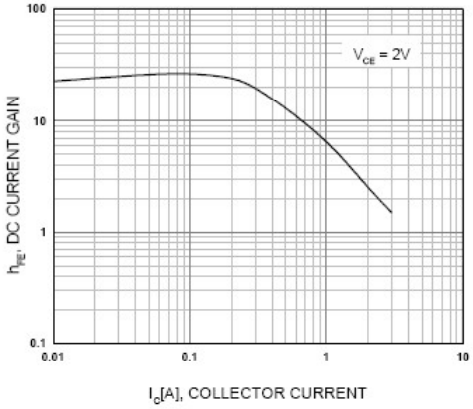


Figure 2. DC current Gain

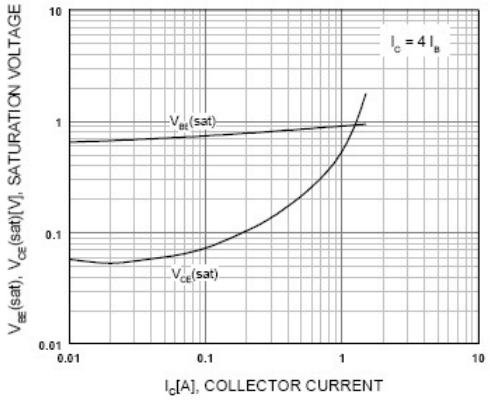


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

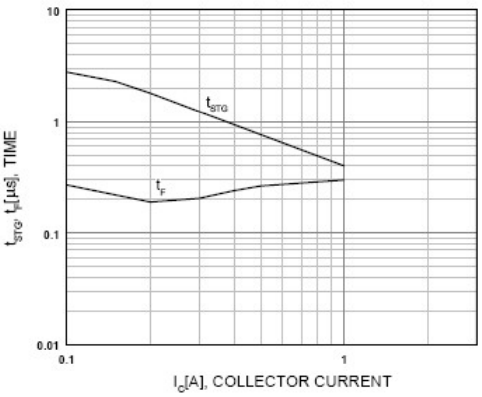


Figure 4. Switching Time

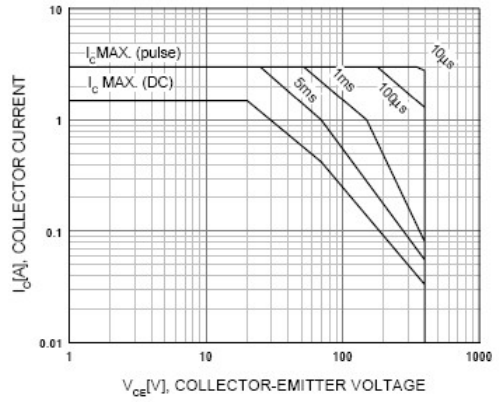


Figure 5. Safe Operating Area

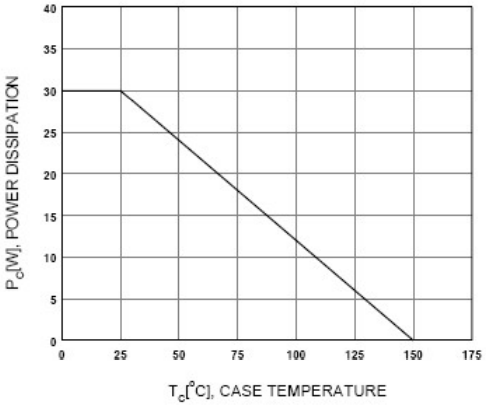
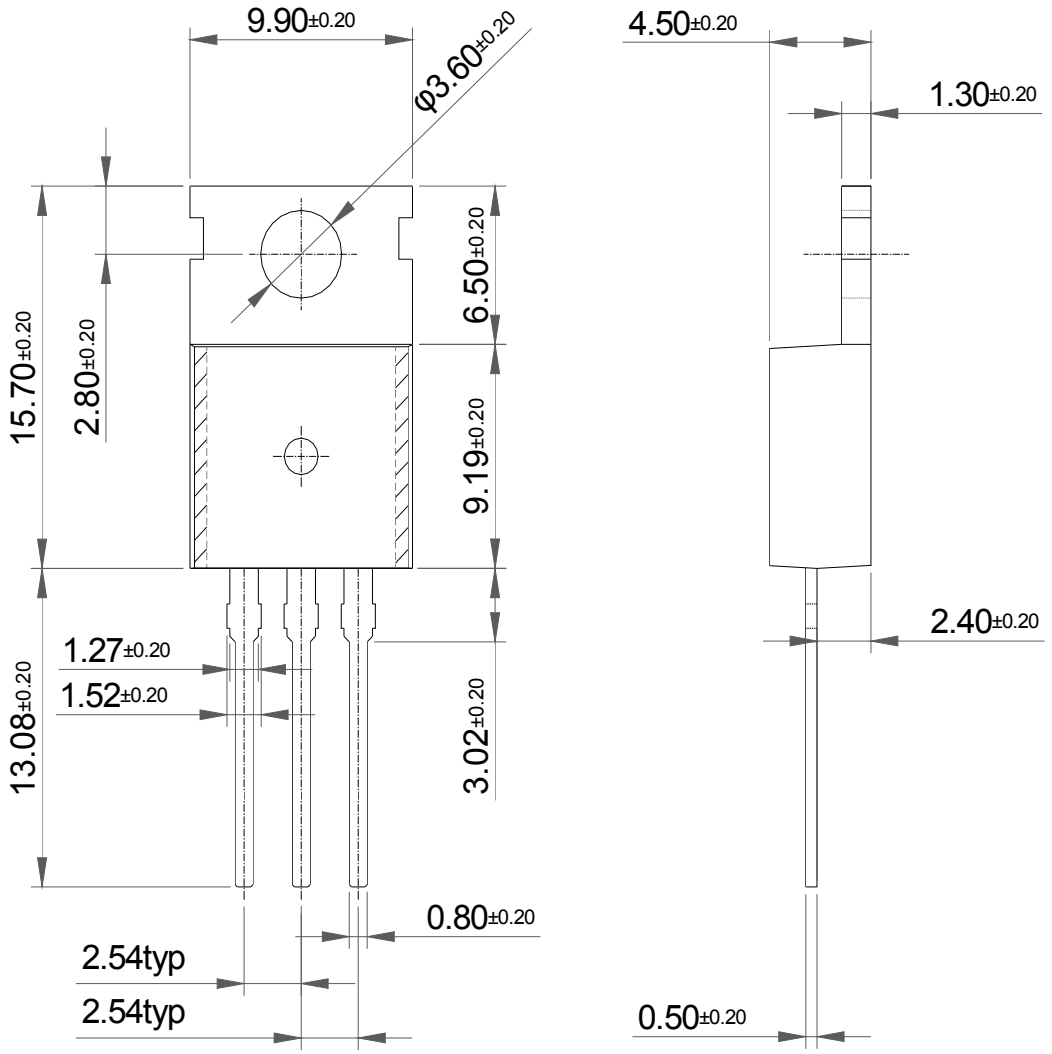


Figure 6. Power Derating

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Package Dimension

TO-220 (A)

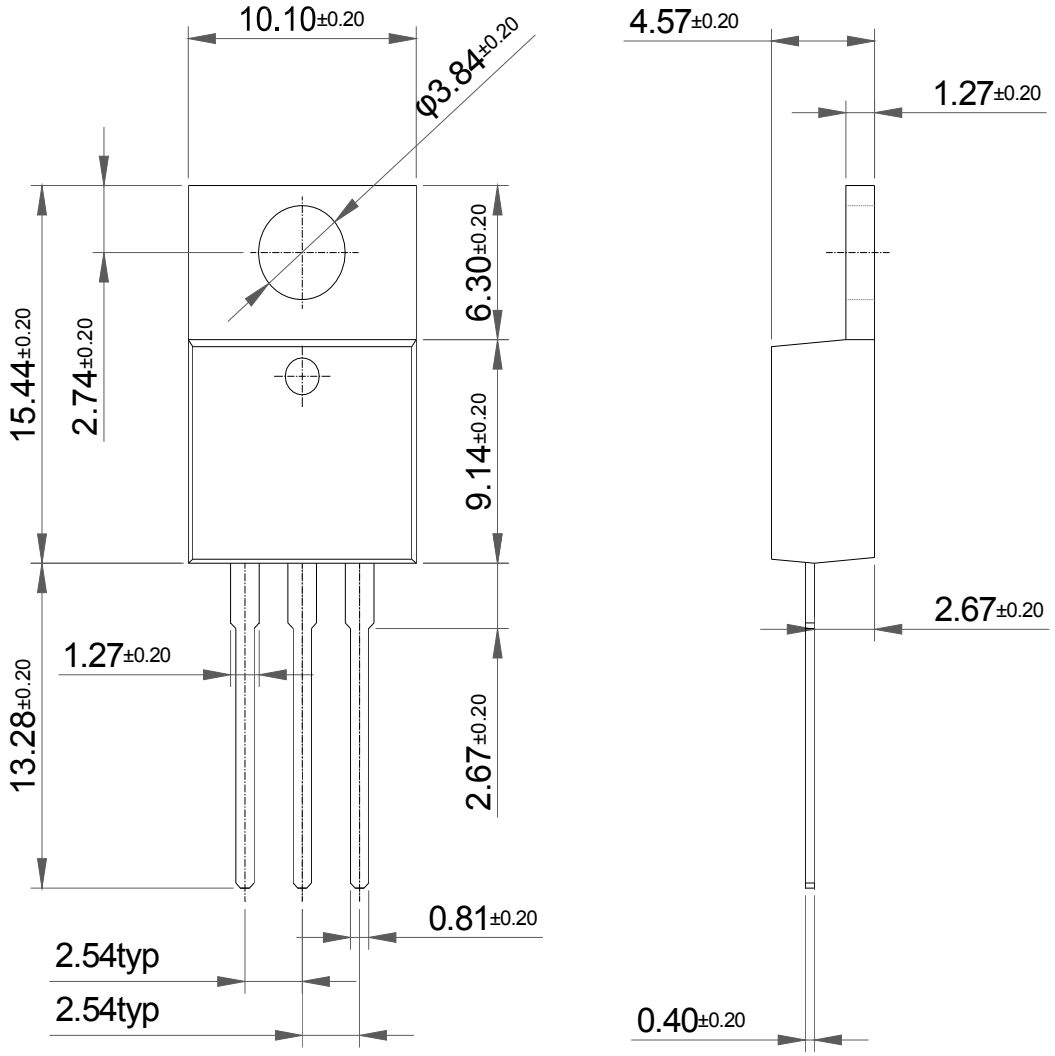


Dimensions in Millimeters

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Package Dimension

TO-220 (B)



Dimensions in Millimeters

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