KSH13005AF

SemiHow
Know-How for Semiconductor

SemiHow
Know-How for Semiconductor

KSH13005AF

Switch Mode series NPN silicon Power Transistor

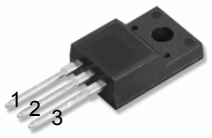
- High voltage, high speed power switching
- Suitable for switching regulator, inverters motor controls

4 Amperes
NPN Silicon Power Transistor
75 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	4	A
Collector Current(Pulse)	I_{CP}	8	A
Base Current	I_B	2	A
Collector Dissipation(Tc=25℃)	P_C	30	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-65~150	℃

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



Electrical Characteristics TC=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	Test Condition	Min	Typ.	Max	Unit
Collector-Emitter Breakdown Voltage	V_{CEO}	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_{FE1} h_{FE2}	V_{CE}=5V,I_C=1A V_{CE}=5V,I_C=2A	10 8		60 40	
*Collector-Emitter Saturation Voltage	V_{CE}(sat)	I_C=1A,I_B=0.2A I_C=2A,I_B=0.5A I_C=4A,I_B=1A			0.5 0.6 1	V V V
*Base-Emitter Saturation Voltage	V_{BE}(sat)	I_C=1A,I_B=0.2A I_C=2A,I_B=0.5A			1.2 1.6	V V
Output Capacitance	C_{ob}	V_{CB}=10V, f=0.1MHz		65		pF
Current Gain Bandwidth Product	f_T	V_{CE}=10V,I_C=0.5A	4			MHz
Turn on Time	t_{on}	Vcc=125V, Ic=2A I_{B1}=0.4A, I_{B2}= -0.4A R_L=62.5Ω			0.8	μs
Storage Time	t_{stg}				4.0	μs
Fall Time	t_F				0.9	μs

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

Note.

hFE1 Classification	R	19 ~ 28
	O	26 ~ 35
	Y	33 ~ 40

Package Mark information.

S **YWW Z** **KSH13005AF**	S	SemiHow Symbol
	YWW	Y; year code, WW; week code
	Z	hFE1 Classification

Typical Characteristics

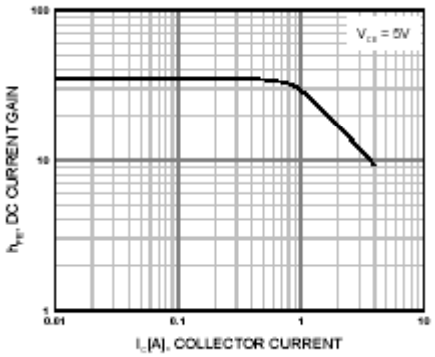


Figure 1. DC current Gain

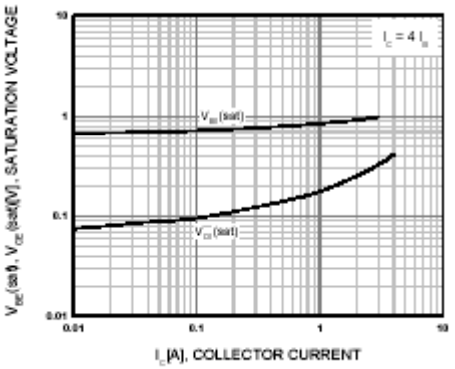


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

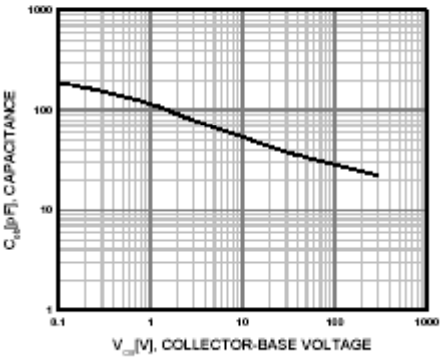


Figure 3. Collector Output Capacitance

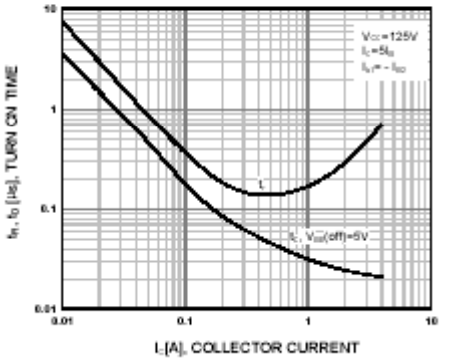


Figure 4. Turn On Time

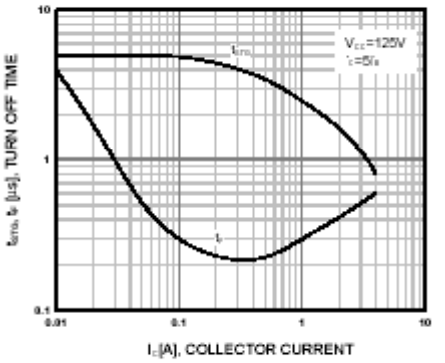


Figure 5. Turn Off Time

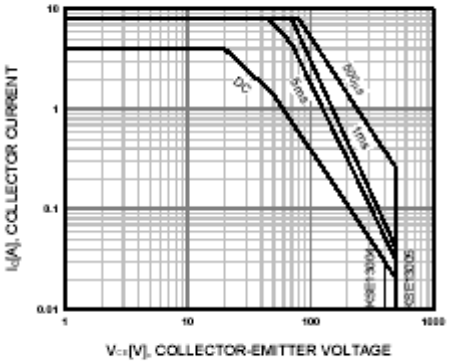


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

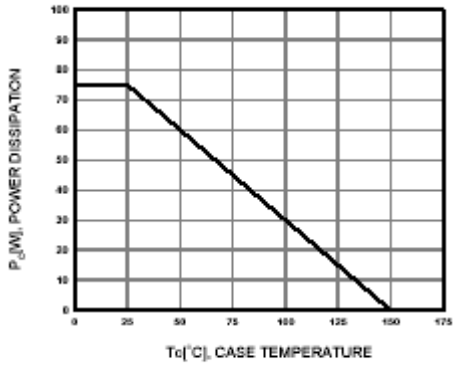
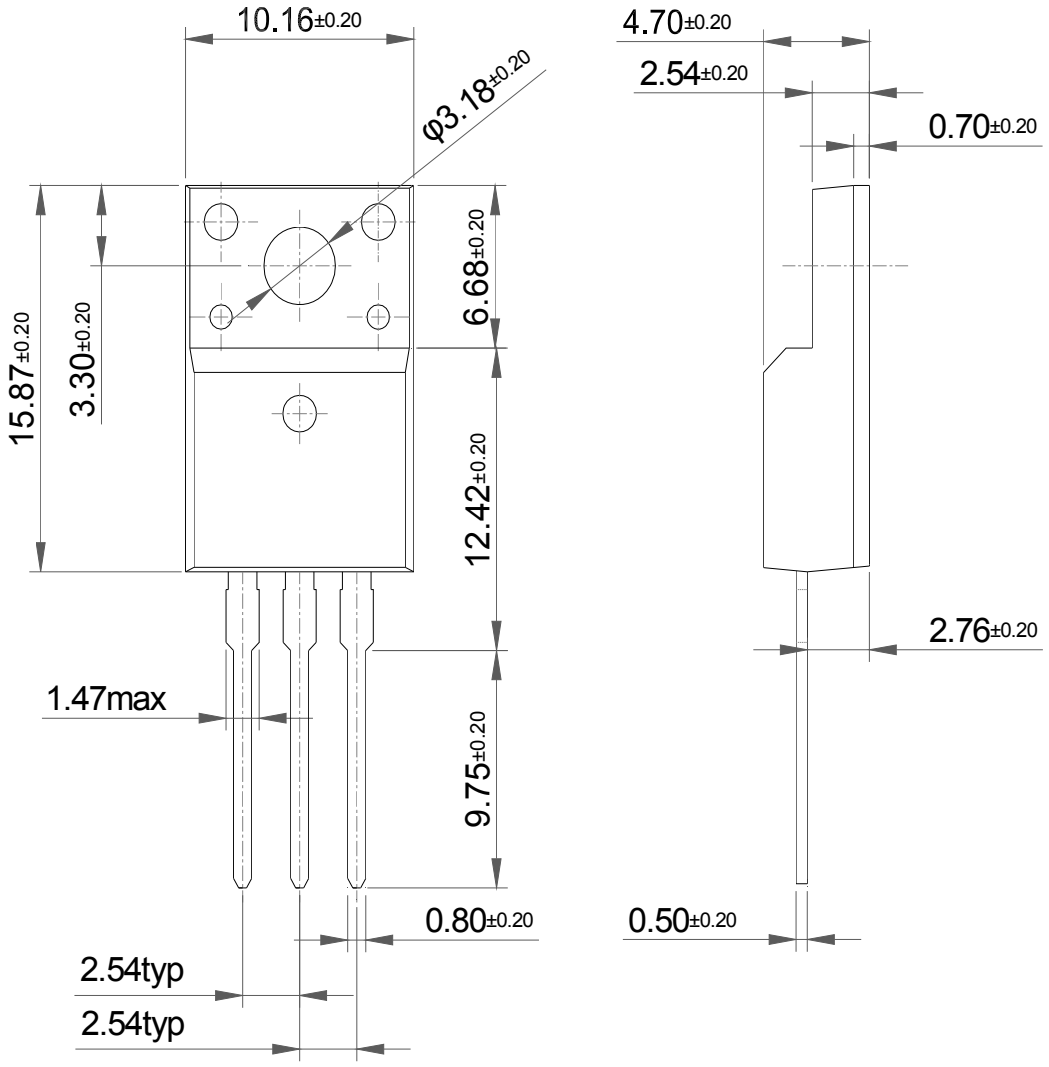


Figure 7. Power Derating

Package Dimension

TO-220F



Dimensions in Millimeters