KSH13009AF

SemiHow
Know-How for Semiconductor

◎ SEMIHOW REV.A0,Oct 2007

SemiHow
Know-How for Semiconductor

KSH13009AF

Switch Mode series NPN silicon Power Transistor

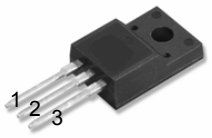
- High voltage, high speed power switching
- Suitable for switching regulator, inverters motor controls

12 Amperes
NPN Silicon Power Transistor
100 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	12	A
Collector Current(Pulse)	I_{CP}	24	A
Base Current	I_B	6	A
Collector Dissipation(Tc=25℃)	P_C	50	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 Sustaining Voltage	V_{CEO}(sus)	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=5A V_{CE}=5V,I_C=8A	8 6		40 30	
*Collector-Emitter Saturation Voltage	V_{CE}(sat)	I_C=5A,I_B=1A I_C=8A,I_B=1.6A I_C=12A,I_B=3A			1 1.5 3	V V V
*Base-Emitter Saturation Voltage	V_{BE}(sat)	I_C=5A,I_B=1A I_C=8A,I_B=1.6A			1.2 1.6	V V
Output Capacitance	C_{ob}	V_{CB}=10V, f=0.1MHz		180		pF
Current Gain Bandwidth Product	f_T	V_{CE}=10V,I_C=0.5A	4			MHz
Turn on Time	t_{on}	Vcc=125V, Ic=8A I_{B1}=1.6A, I_{B2}= -1.6A R_L=15.6Ω			1.1	µs
Storage Time	t_{stg}				3	µs
Fall Time	t_F				0.7	µs

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

Note.

hFE1 Classification	R	8 ~ 17
	O	15 ~ 28
	Y	26 ~ 39
		Y1(26~33), Y2(31~39)

Package Mark information.

S **YWW Z** **KSH13009AF**	S	SemiHow Symbol
	YWW	Y; year code, WW; week code
	Z	hFE1 Classification

© SEMIHOW REV.A0,Oct 2007

Typical Characteristics

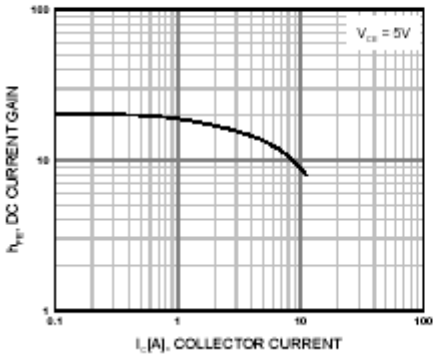


Figure 1. DC current Gain

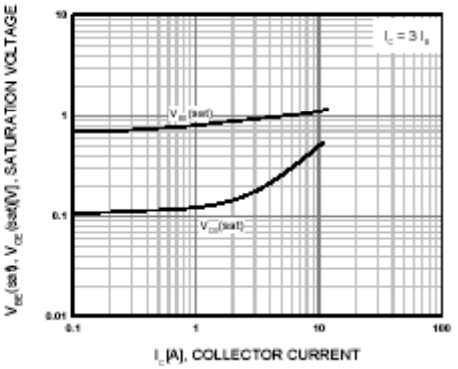


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

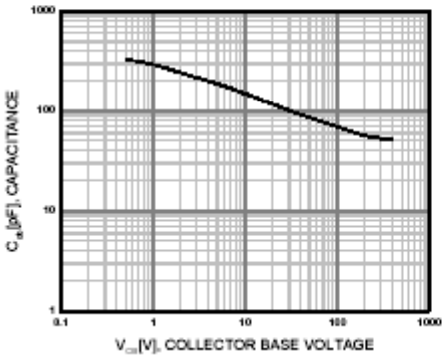


Figure 3. Collector Output Capacitance

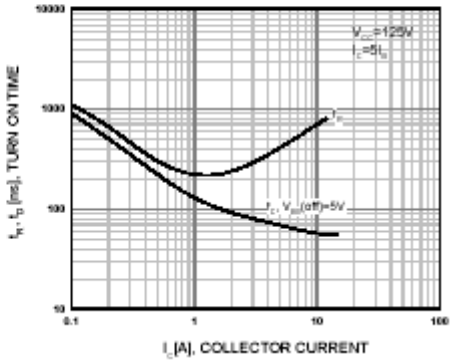


Figure 4. Turn On Time

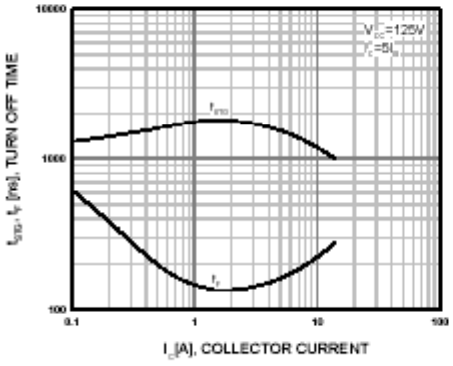


Figure 5. Turn Off Time

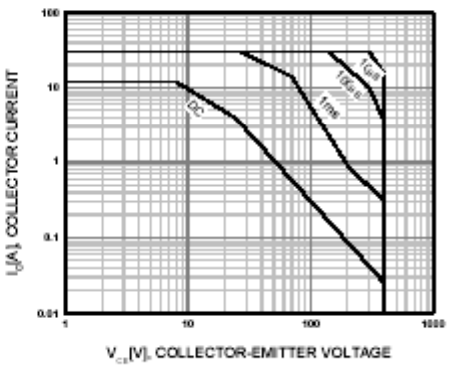


Figure 6. Forward Bias Safe Operating Area

© SEMIHOW REV.A0,Oct 2007

Typical Characteristics (Continued)

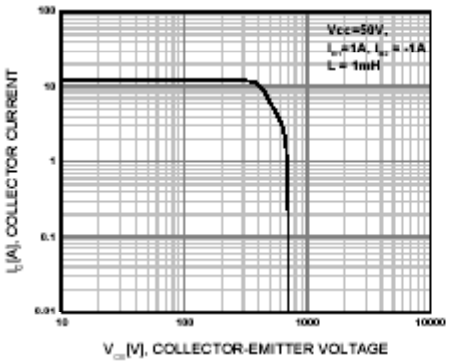


Figure 7. Reverse Bias Safe Operating Area

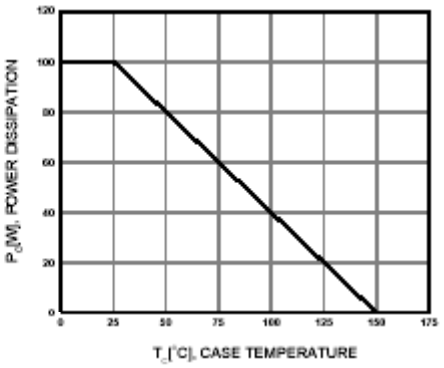
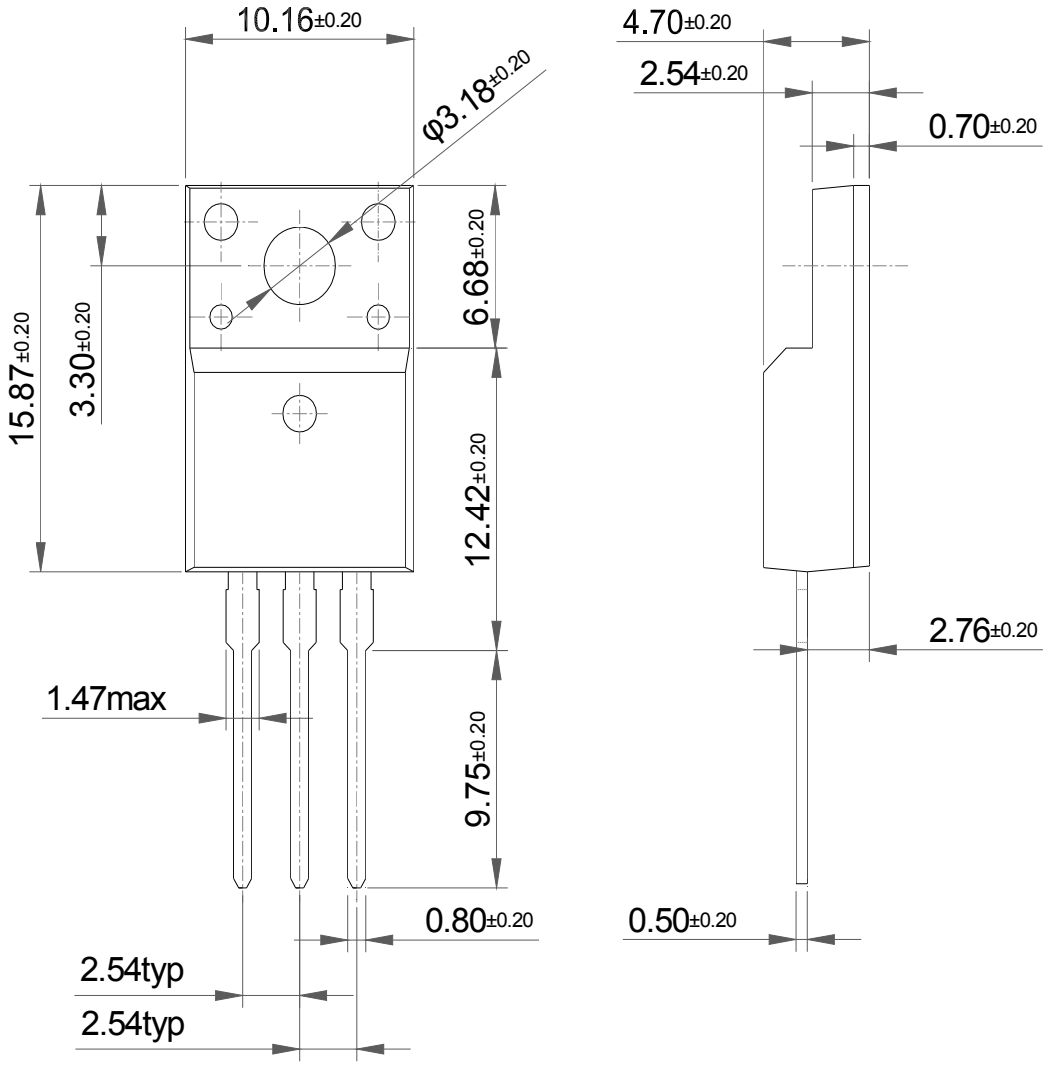


Figure 8. Power Derating

© SEMIHOW REV.A0,Oct 2007

Package Dimension

TO-220F



Dimensions in Millimeters

© SEMIHOW REV.A0,Oct 2007