KSH5027F

SemiHow
Know-How for Semiconductor

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High Voltage and High Reliability

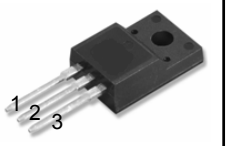
- High Speed Switching
- Wide SOA

3 Amperes
NPN Silicon Power Transistor
50 Watts

Absolute Maximum Ratings TC=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	RATING	UNIT
Collector-Base Voltage	V_{CBO}	1100	V
Collector-Emitter Voltage	V_{CEO}	800	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current(DC)	I_C	3	A
Collector Current(Pulse)	I_{CP}	10	A
Base Current	I_B	1.5	A
Collector Dissipation(Tc=25℃)	P_C	40	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~150	℃

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



Electrical Characteristics TC=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	Test Condition	Min	Typ.	Max	Unit
Collector-Base Breakdown Voltage	V_{CBO}	I_C=1mA, I_E=0	1100			V
Collector-Emitter Breakdown Voltage	V_{CEO}	I_C=5mA, I_B=0	800			V
Emitter-Base Breakdown Voltage	V_{EBO}	I_E=1mA, I_E=0	7			V
Collector-Emitter Sustaining Voltage	I_{CEX}(sus)	I_C=1.5A, I_{B1}=-I_{B2}=0.3A L=2mH, Clamped	800			V
Collector Cut0off Current	I_{CBO}	V_{CB}=800V,I_E=0			10	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=5V,I_C=0			10	μA
DC Current Gain	h_{FE1} h_{FE2}	V_{CE}=5V,I_C=0.2A V_{CE}=5V,I_C=1A	10 8		40	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C=1.5A,I_B=0.3A			2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C=1.5A,I_B=0.3A			1.5	V
Output Capacitance	C_{ob}	V_{CB}=10V,I_E=0, f=0.1MHz		60		pF
Current Gain Bandwidth Product	f_T	V_{CE}=10V,I_C=0.2A		15		MHz
Turn on Time	t_{on}	Vcc=400V, Ic=5A I_{B1}=-2.5A, I_{B2}=2A R_L=200Ω			0.5	μs
Storage Time	t_{stg}				3.0	μs
Fall Time	t_f				0.3	μs

Note : **h_{FE1} Classification** **R** :10 ~ 20, **O** : 15 ~ 30, **Y** : 20 ~ 40

Typical Characteristics

Figure 1. Static Characteristic

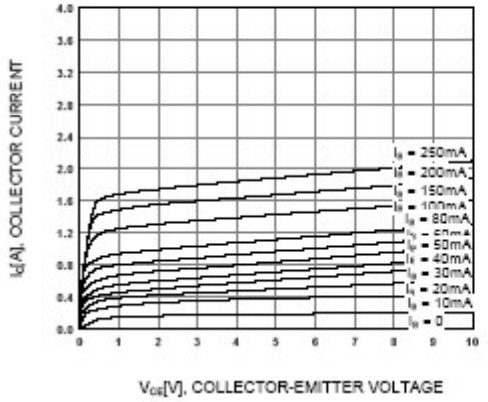


Figure 2. DC current Gain

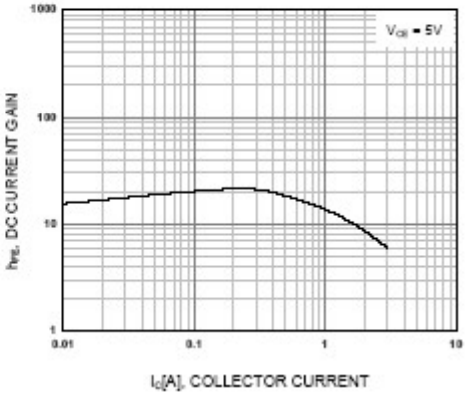


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation

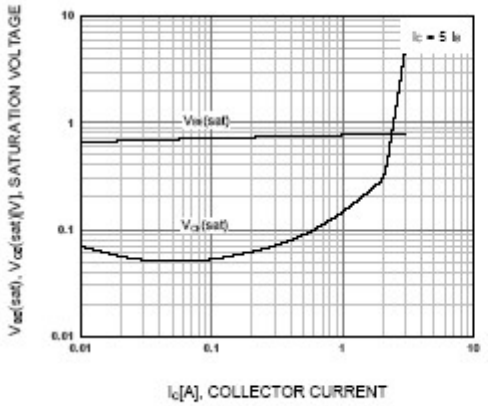


Figure 4. Base-Emitter On Voltage

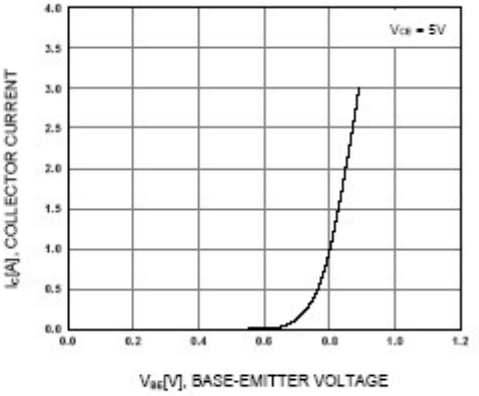


Figure 5. Switching Time

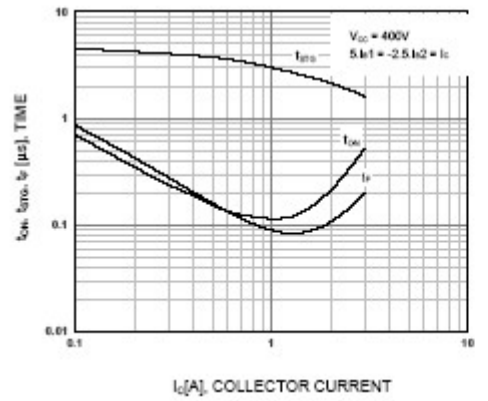
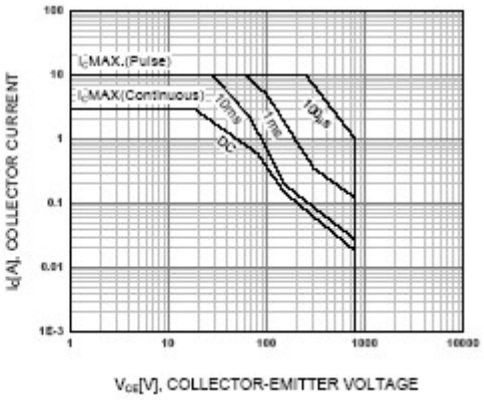


Figure 6. Safe Operating Area



Typical Characteristics (Continued)

Figure 7. Reverse Bias Operating Area

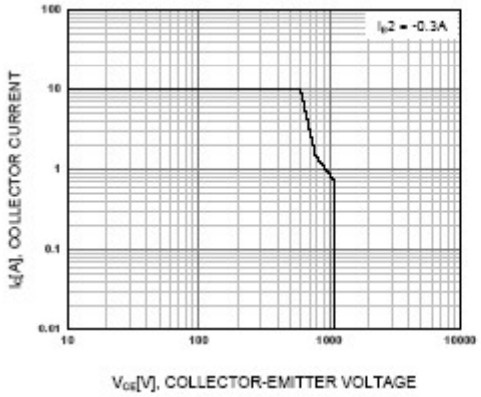
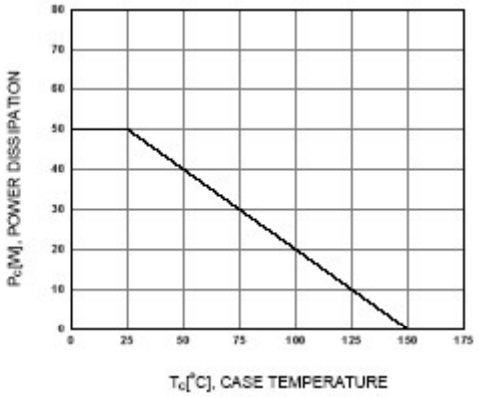
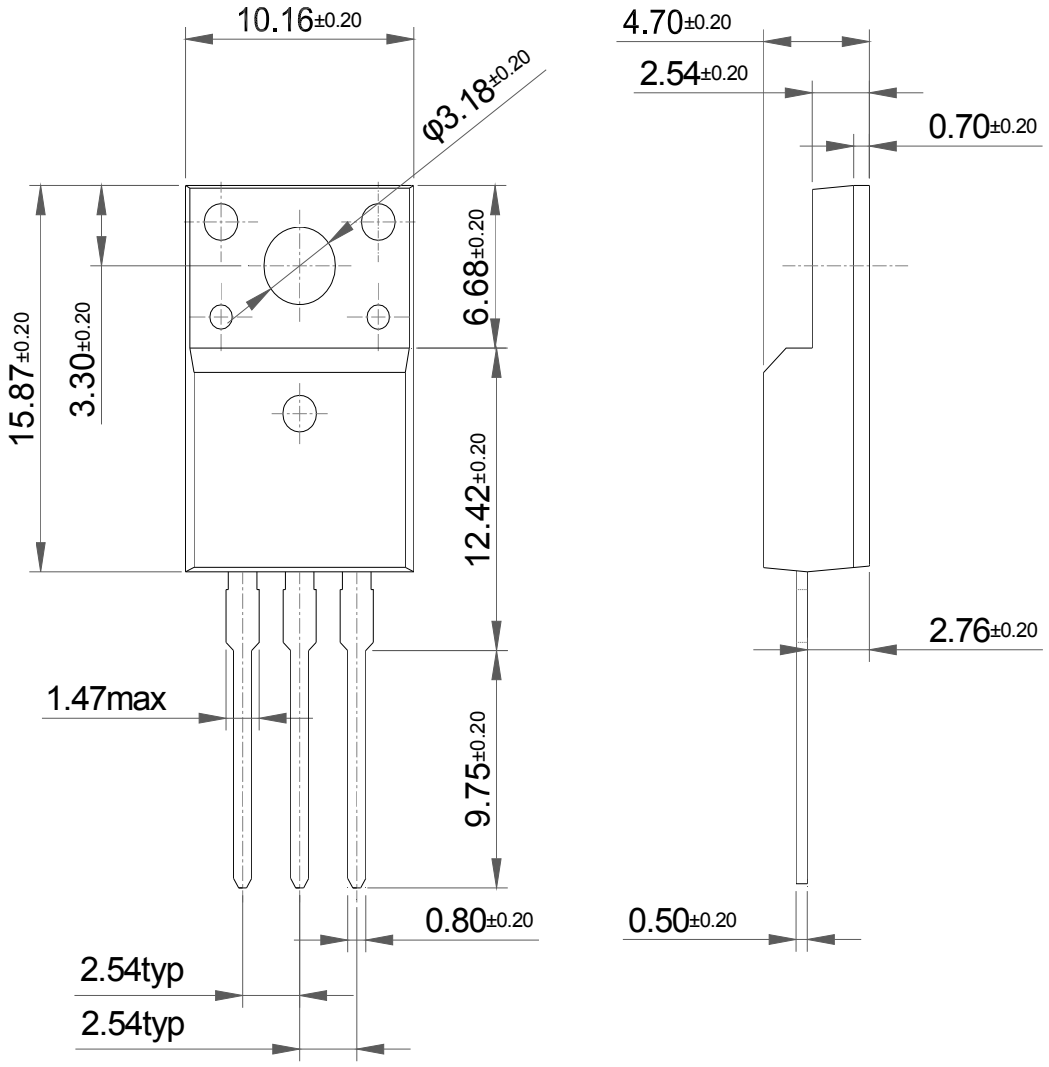


Figure 8. Power Derating



Package Dimension

TO-220F



Dimensions in Millimeters