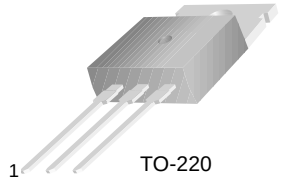
FAIRCHILD
SEMICONDUCTOR TM

KSE13006/13007

High Voltage Switch Mode Application

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



TO-220

1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings T_C=25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_{CBO}	Collector-Base Voltage	: KSE13006 : KSE13007	600 700	V V
V_{CEO}	Collector-Emitter Voltage	: KSE13006 : KSE13007	300 400	V V
V_{EBO}	Emitter- Base Voltage		9	V
I_C	Collector Current (DC)		8	A
I_{CP}	Collector Current (Pulse)		16	A
I_B	Base Current		4	A
P_C	Collector Dissipation (T_C=25°C)		80	W
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		- 65 ~ 150	°C

Electrical Characteristics T_C=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector- Emitter Breakdown Voltage : KSE13006 : KSE13007	I_C = 10mA, I_B = 0	 300 400			 V V
I_{EBO}	Emitter Cut-off Current	V_{EB} = 9V, I_C = 0			1	mA
h_{FE}	*DC Current Gain	V_{CE} = 5V, I_C = 2A V_{CE} = 5V, I_C = 5A	8 5		60 30	
V_{CE}(sat)	*Collector-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A I_C = 5A, I_B = 1A I_C = 8A, I_B = 2A			1 2 3	V V V
V_{BE} (sat)	*Base-Emitter Saturation Voltage	I_C = 2A, I_B = 0.4A I_C = 5A, I_B = 1A			1.2 1.6	V V
C_{ob}	Output Capacitance	V_{CB} = 10V, f = 0.1MHz		110		pF
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.5A	4			MHz
t_{ON}	Turn On Time	V_{CC} = 125V, I_C = 5A I_{B1} = -I_{B2} = 1A R_L = 50Ω			1.6	µs
t_{STG}	Storage Time				3	µs
t_F	Fall Time				0.7	µs

* Pulse test: PW≤300µs, Duty cycle≤2%

Typical Characteristics

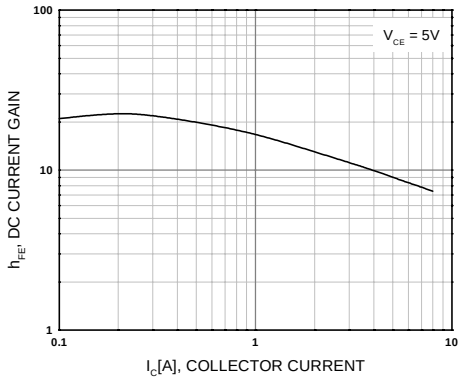


Figure 1. DC current Gain

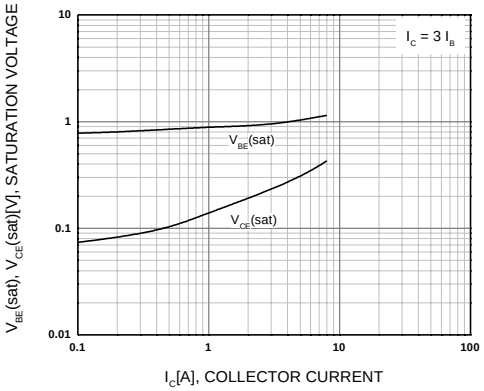


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

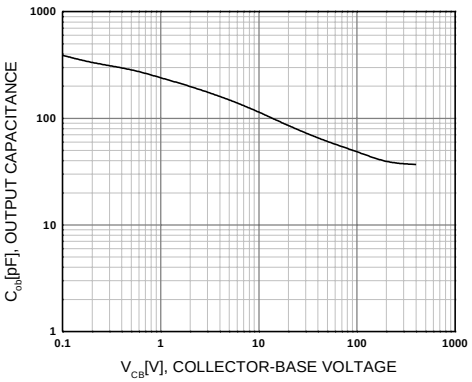


Figure 3. Collector Output Capacitance

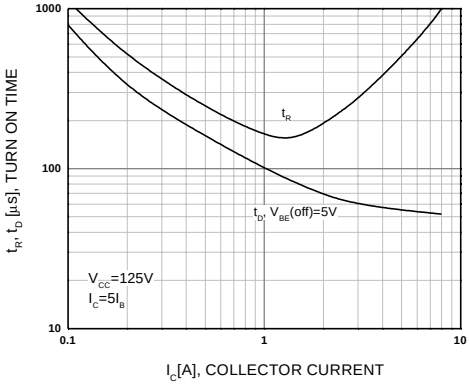


Figure 4. Turn On Time

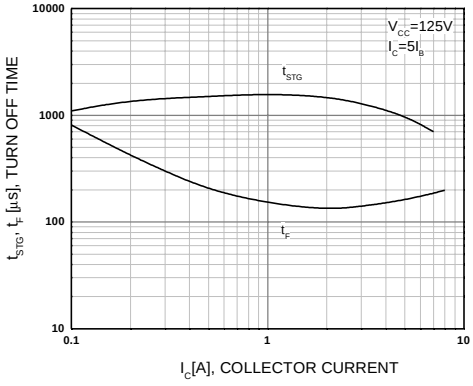


Figure 5. Turn Off Time

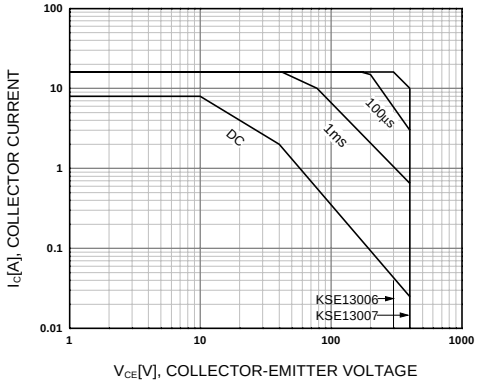


Figure 6. Safe Operating Area

Typical Characteristics (Continued)

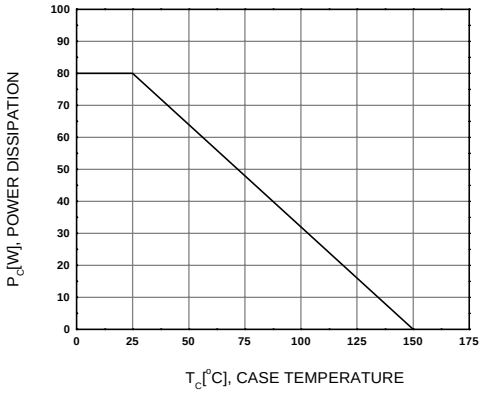
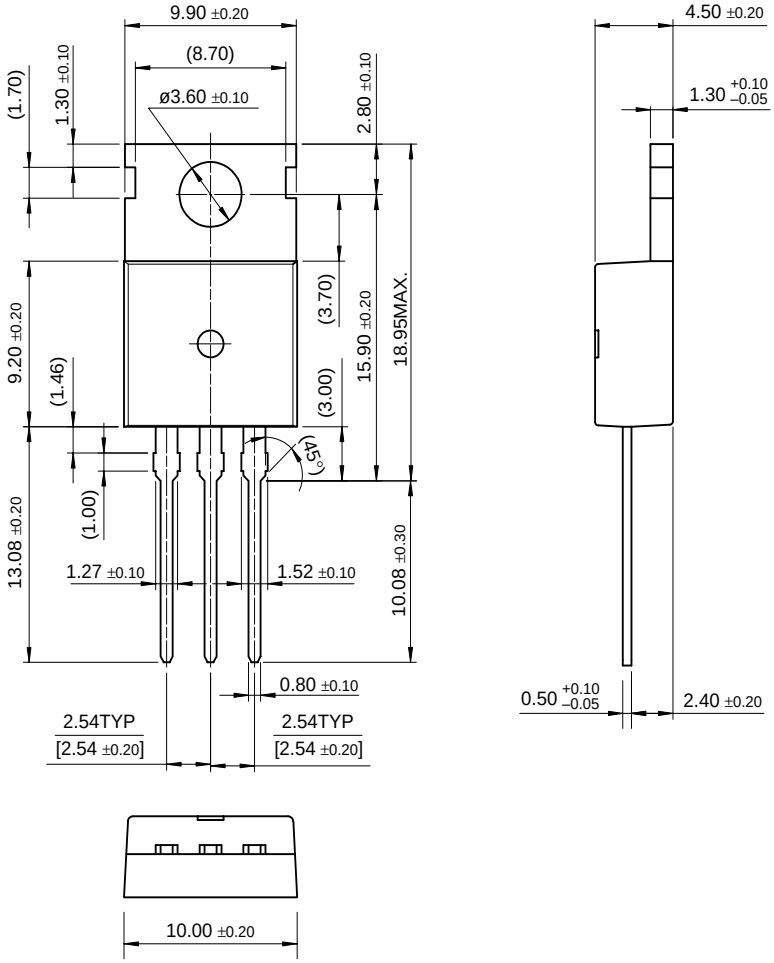


Figure 7. Power Derating

Package Demensions

TO-220



Dimensions in Millimeters

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