

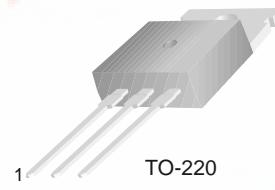
KSC5020

FAIRCHILD
SEMICONDUCTOR®

KSC5020

High Voltage, High Quality

- High Speed Switching : $t_F=0.1\mu s$
- Wide SOA



1.Base 2.Collector 3.Emitter

NPN Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ C$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	800	V
V_{CEO}	Collector-Emitter Voltage	500	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current (DC)	3	A
I_{CP}	Collector Current (Pulse)	6	A
I_B	Base Current (DC)	1	A
P_C	Collector Dissipation ($T_C=25^\circ C$)	40	W
T_J	Junction Temperature	150	$^\circ C$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ C$

Electrical Characteristics $T_C=25^\circ C$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C = 1mA, I_E = 0$	800			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = 5mA, I_B = 0$	500			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E = 1mA, I_C = 0$	7			V
$V_{CEX(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 1.5A, I_{B1}=-I_{B2}=0.6A$ $L = 2mH, Clamped$	500			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = 500V, I_E = 0$			10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$			10	μA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE} = 5V, I_C = 0.3A$ $V_{CE} = 5V, I_C = 1.5A$	15 8		50	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 0.3A$			1	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 1.5A, I_B = 0.3A$			1.5	V
C_{ob}	Output Capacitance	$V_{CB} = 10V, f = 1MHz$			50	pF
f_T	Current Gain Bandwidth Product	$V_{CE} = 10V, I_C = 0.3A$			18	MHz
t_{ON}	Turn On Time	$V_{CC} = 200V$ $I_C = 5I_{B1} = -2.5I_{B2} = 2A$ $R_L = 100\Omega$			0.5	μs
t_{STG}	Storage Time				3	μs
t_F	Fall Time				0.3	μs

h_{FE} Classification

Classification	R	O	Y
h_{FE1}	15 ~ 30	20 ~ 40	30 ~ 50

Typical Characteristics

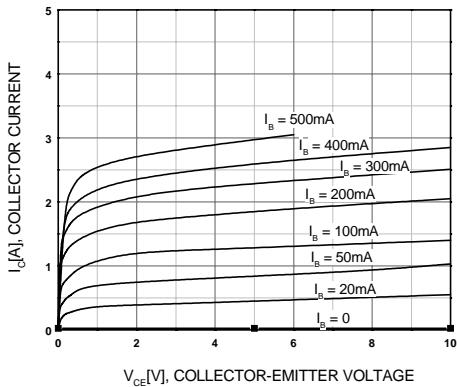


Figure 1. Static Characteristic

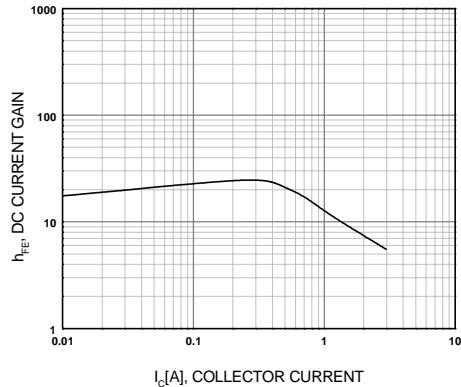


Figure 2. DC current Gain

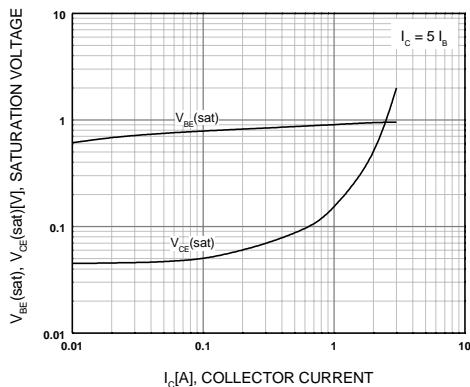


Figure 3. Collector-Emitter Saturation Voltage
Base-Emitter Saturation Voltage

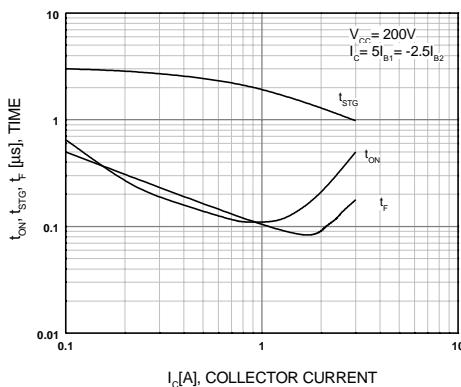


Figure 4. Turn On, Storage and Fall Time vs.
Collector Current

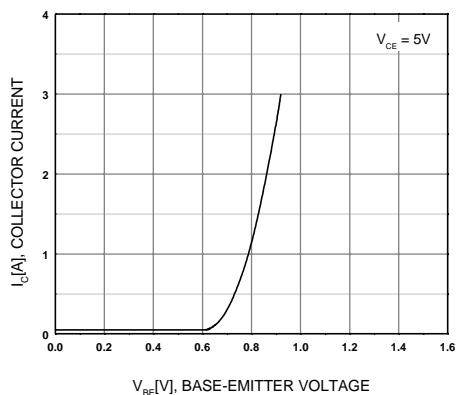


Figure 5. Base-Emitter On Voltage

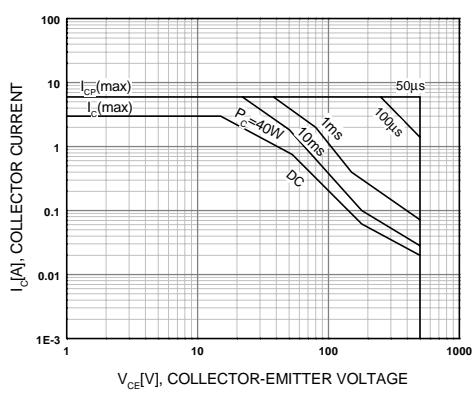


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics (Continued)

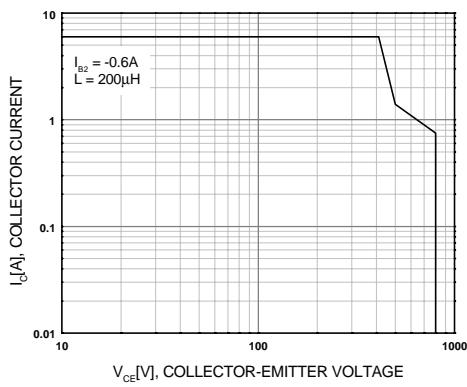


Figure 7. Reverse Bias Safe Operating Area

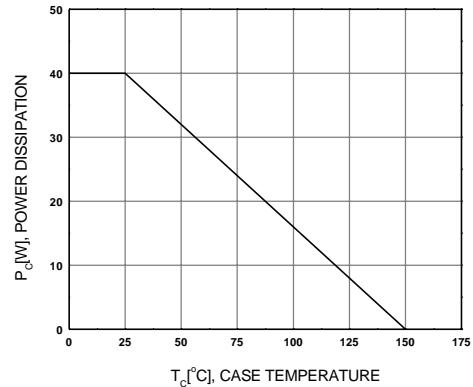
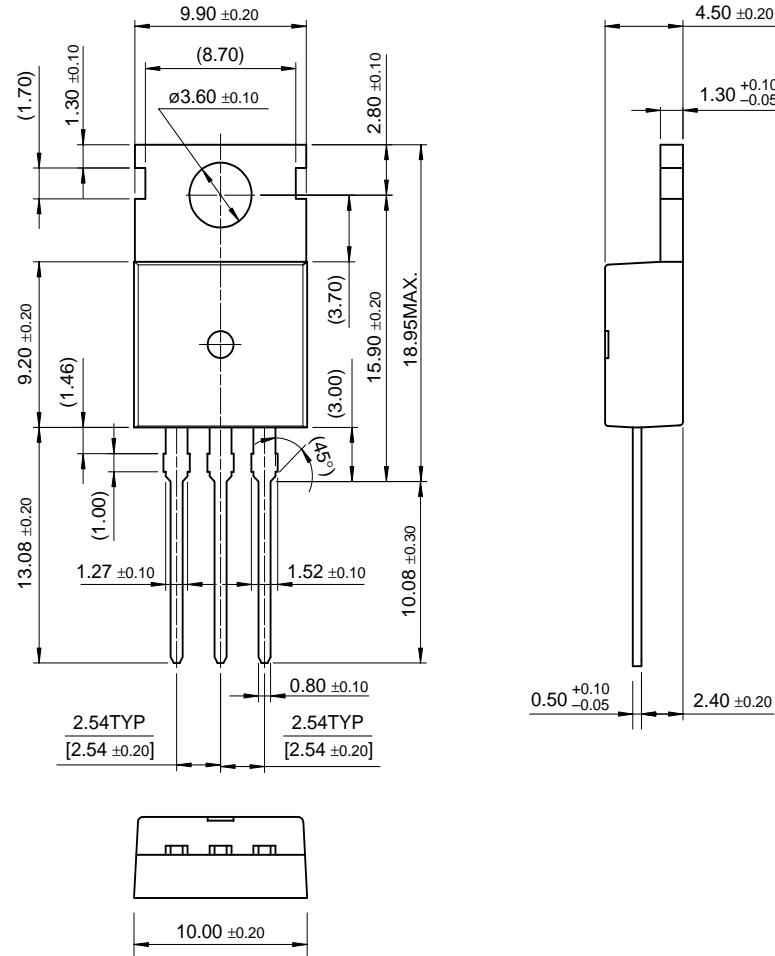


Figure 8. Power Derating

KSC5020

Package Dimensions

TO-220



Dimensions in Millimeters

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CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
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EnSigna™	I ² C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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