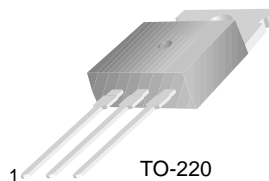


# KSC5321

KSC5321

## High Voltage and High Reliability

- High speed Switching
- Wide Safe Operating Area



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

## NPN Triple Diffused Planar Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ 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)	5	A
$I_{CP}$	*Collector Current (Pulse)	10	A
$I_B$	Base Current (DC)	2	A
$I_{BP}$	*Base Current (Pulse)	4	A
$P_C$	Power Dissipation( $T_C=25^\circ\text{C}$ )	100	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

\* Pulse Test: Pulse Width = 5ms, Duty Cycle $\leq$ 10%

### Thermal Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Characteristics		Rating	Unit
$R_{\theta jc}$	Thermal Resistance	Junction to Case	1.25	$^\circ\text{C/W}$
$R_{\theta ja}$		Junction to Ambient	62.5	

**Electrical Characteristics**  $T_C=25^\circ\text{C}$  unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C = 1\text{mA}, I_E = 0$	800	-	-	V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 5\text{mA}, I_B = 0$	500	-	-	V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_C = 1\text{mA}, I_C = 0$	7	-	-	V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 800\text{V}, I_E = 0$	-	-	100	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 7\text{V}, I_C = 0$	-	-	10	$\mu\text{A}$
$h_{FE1}$ $h_{FE2}$	DC Current Gain	$V_{CE} = 5\text{V}, I_C = 0.6\text{A}$ $V_{CE} = 5\text{V}, I_C = 3\text{A}$	15 8	- -	40 -	
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 0.6\text{A}$	-	-	1.0	V
$V_{BE}(\text{sat})$	Base-Emitter Saturation Voltage	$I_C = 3\text{A}, I_B = 0.6\text{A}$	-	-	1.5	V
$f_T$	Current Gain bandwidth Product	$V_{CE} = 10\text{V}, I_C = 0.6\text{A}$	-	14	-	MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}, I_E = 0, f = 1\text{MHz}$	-	65	100	pF
$C_{ib}$	Input Capacitance	$V_{EB} = 7\text{V}, I_C = 0, f = 1\text{MHz}$	-	1400	2000	pF
$t_{ON}$	Turn ON Time	$V_{CC} = 125\text{V}, I_C = 1\text{A}$	-	-	0.5	$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = 0.2\text{A}$	-	-	6.5	$\mu\text{s}$
$t_F$	Fall Time	$R_L = 125\Omega$	-	-	0.3	$\mu\text{s}$
$t_{ON}$	Turn ON Time	$V_{CC} = 250\text{V}, I_C = 4\text{A}$	-	-	0.5	$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = 0.8\text{A}, I_{B2} = -1.6\text{A}$	-	-	3.0	$\mu\text{s}$
$t_F$	Fall Time	$R_L = 62.5\Omega$	-	-	0.3	$\mu\text{s}$

# Typical Characteristics

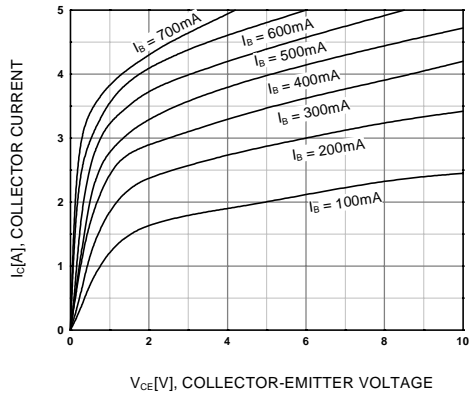


Figure 1. Static Characteristic

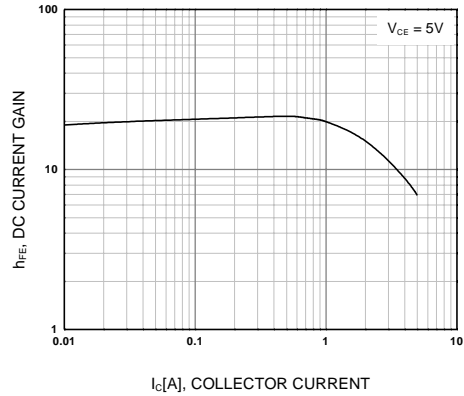


Figure 2. DC current Gain

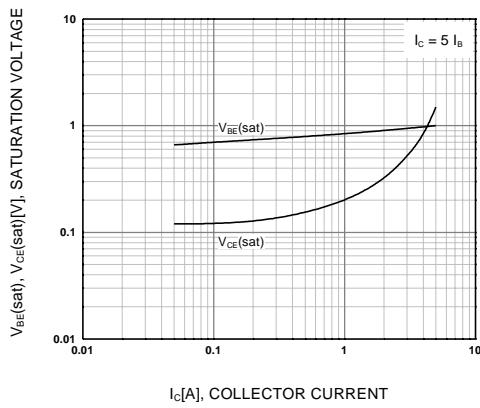


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

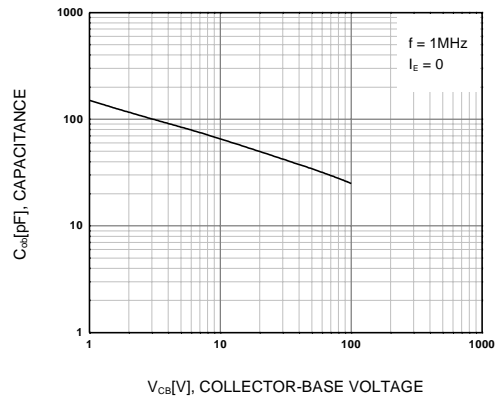


Figure 4. Collector Output Capacitance

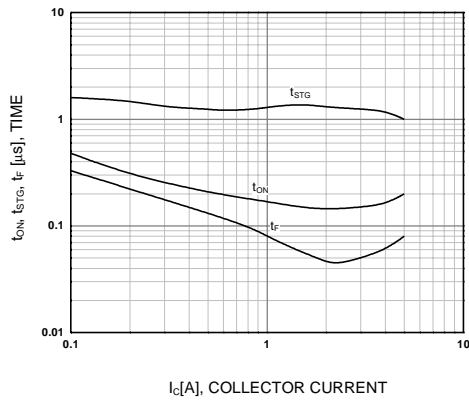


Figure 5. Switching Time

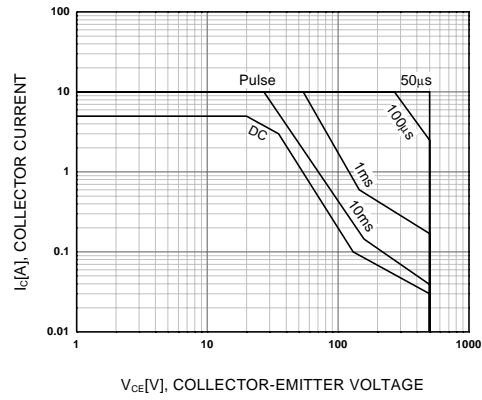


Figure 6. Safe Operating Area

### Typical Characteristics (Continued)

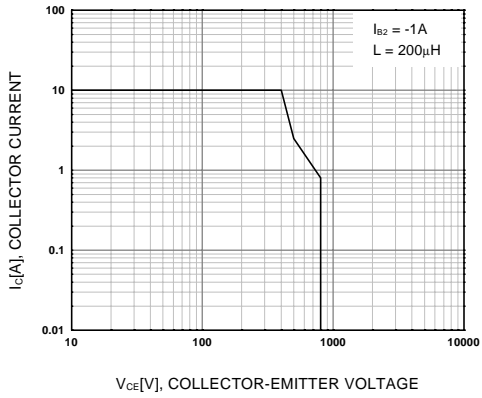


Figure 7. Reverse Bias Safe Operating Area

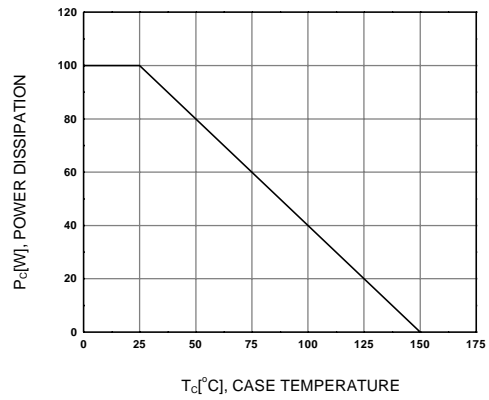
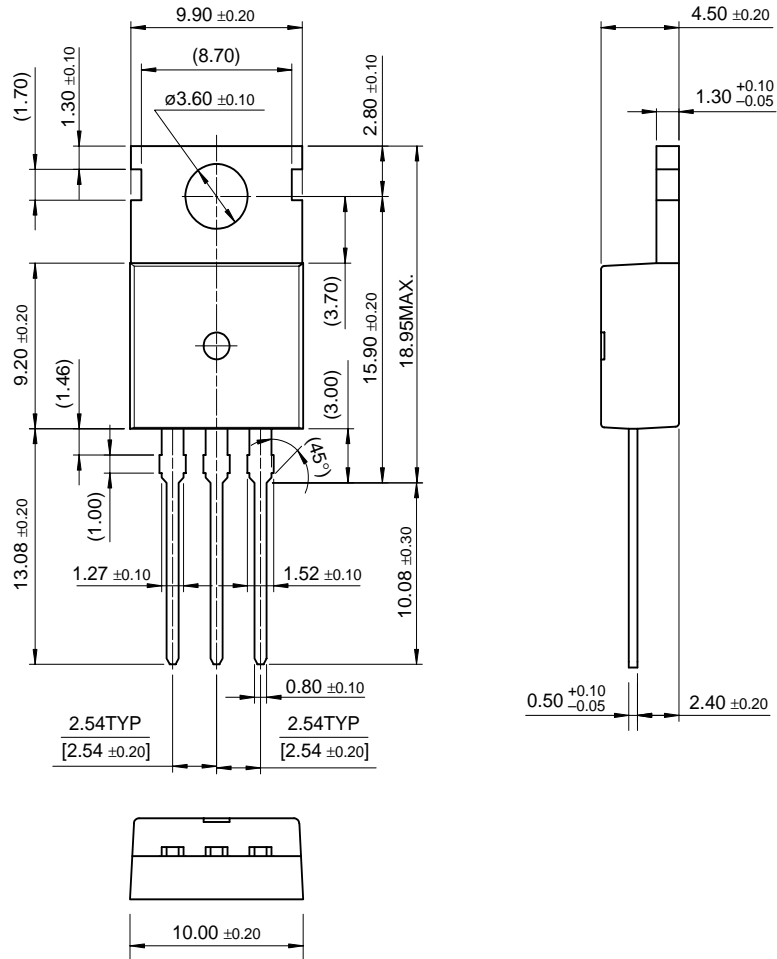


Figure 8. Power Derating

# Package Dimensions

KSC5321

## TO-220



Dimensions in Millimeters

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