



**THE DATASHEET OF  
KSC23350TU**

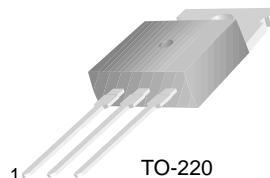


# KSC2335

KSC2335

## High Speed, High Voltage Switching

- Industrial Use



1.Base 2.Collector 3.Emmitter

## NPN Epitaxial Silicon Transistor

### Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	500	V
$V_{CEO}$	Collector-Emitter Voltage	400	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current (DC)	7	A
$I_{CP}$	*Collector Current (Pulse)	15	A
$I_B$	Base Current (DC)	3.5	A
$P_C$	Collector Dissipation ( $T_a=25^\circ\text{C}$ )	1.5	W
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

\*  $PW \leq 300\mu\text{s}$ , Duty Cycle  $\leq 10\%$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 3A, I_{B1} = 0.6A, L = 1mH$	400		V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = 3A, I_{B1} = -I_{B2} = 0.6A$ $V_{BE(off)} = -5V, L = 180\mu H, \text{Clamped}$	450		V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = 6A, I_{B1} = 2A, I_{B2} = -0.6A$ $V_{BE(off)} = -5V, L = 180\mu H, \text{Clamped}$	400		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 400V, I_E = 0$		10	$\mu\text{A}$
$I_{CER}$	Collector Cut-off Current	$V_{CE} = 400V, R_{BE} = 51\Omega @ T_C=125^\circ\text{C}$		1	mA
$I_{CEX1}$	Collector Cut-off Current	$V_{CE} = 400V, V_{BE(off)} = -1.5V$		10	$\mu\text{A}$
$I_{CEX2}$	Collector Cut-off Current	$V_{CE} = 400V, V_{BE(off)} = -1.5V @ T_C=125^\circ\text{C}$		1	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$		10	$\mu\text{A}$
$h_{FE1}$	* DC Current Gain	$V_{CE} = 5V, I_C = 0.1A$	20	80	
$h_{FE2}$		$V_{CE} = 5V, I_C = 1A$	20	80	
$h_{FE3}$		$V_{CE} = 5V, I_C = 3A$	10		
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 3A, I_B = 0.6A$		1	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 3A, I_B = 0.6A$		1.2	V
$t_{ON}$	Turn ON Time	$V_{CC} = 150V, I_C = 3A$ $I_{B1} = -I_{B2} = 0.6A$ $R_L = 50\Omega$		1	$\mu\text{s}$
$t_{STG}$	Storage Time			2.5	$\mu\text{s}$
$t_F$	Fall Time			1	$\mu\text{s}$

\* Pulse Test:  $PW \leq 350\mu\text{s}$ , Duty Cycle  $\leq 2\%$  Pulsed

## $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE2}$	20 ~ 40	30 ~ 60	40 ~ 80

# Typical Characteristics

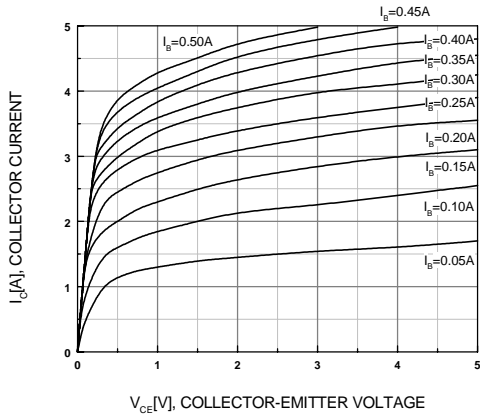


Figure 1. Static Characteristic

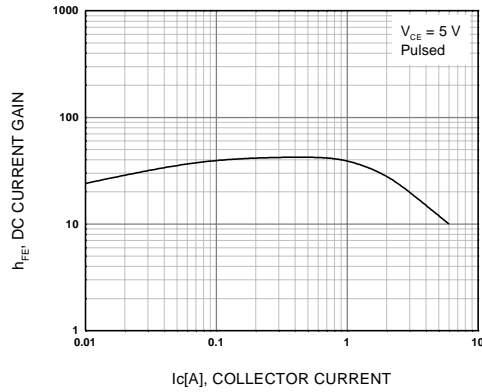


Figure 2. DC current Gain

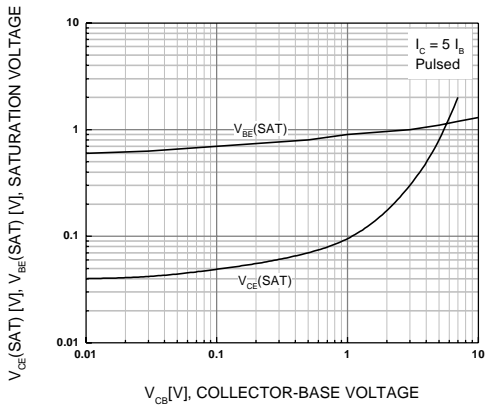


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

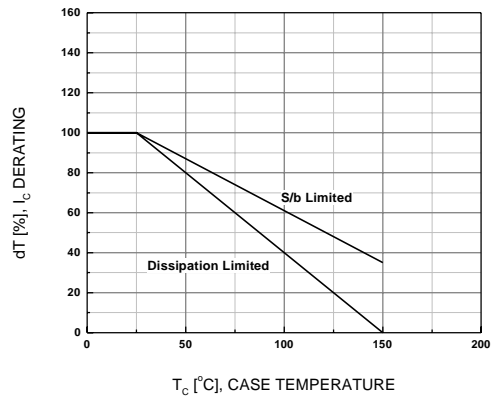


Figure 4. Derating Curve of Safe Operating Areas

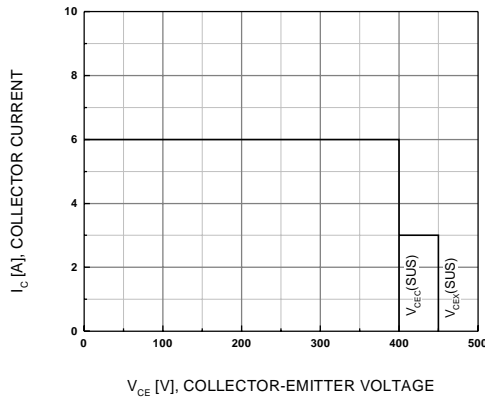


Figure 5. Reverse Bias Safe Operating Area

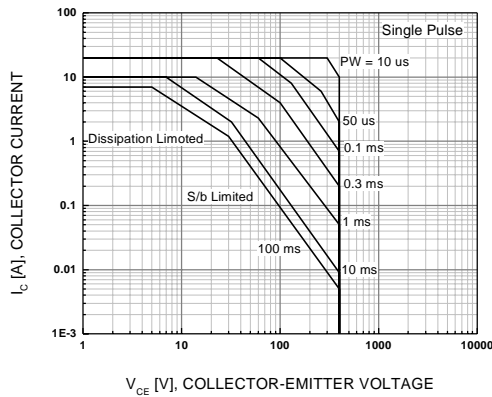
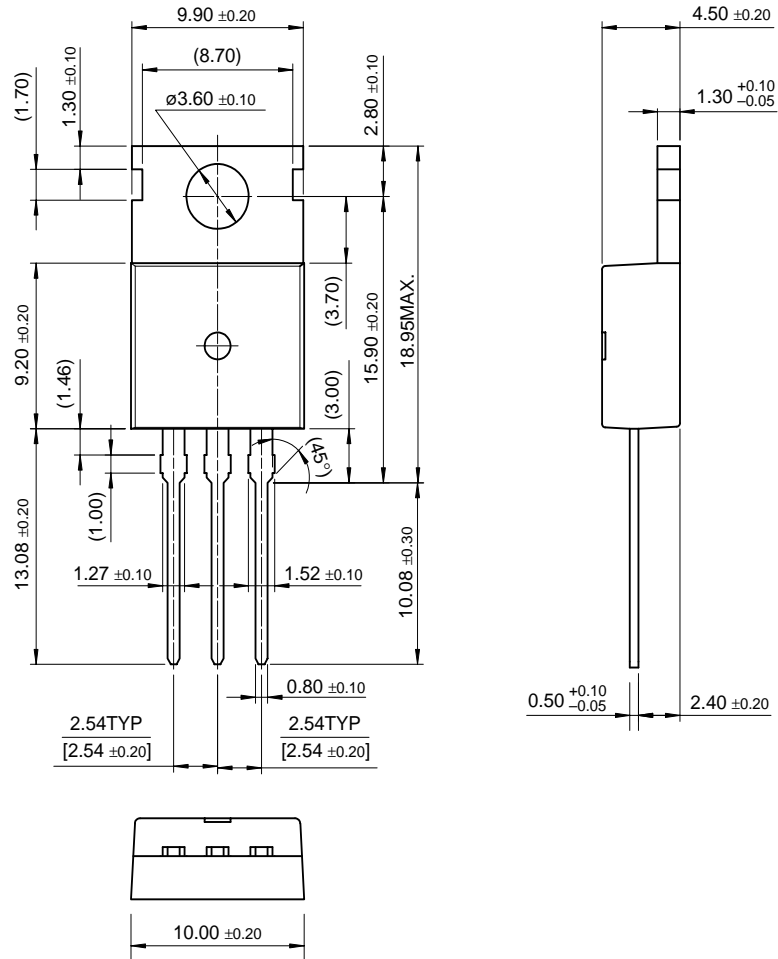


Figure 6. Forward Bias Safe Operating Area

# Package Dimensions

KSC2335

## TO-220



Dimensions in Millimeters

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