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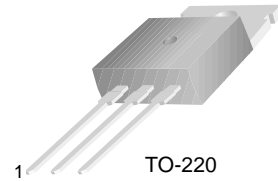


# KSC2334

KSC2334

## High Speed Switching Industrial Use

- Complement to KSA1010



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

## 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	150	V
$V_{CEO}$	Collector-Emitter Voltage	100	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 ( $T_C=25^\circ\text{C}$ )	40	W
	Collector Dissipation ( $T_A=25^\circ\text{C}$ )	1.5	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 Cycles  $\leq 10\%$

### 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	$I_C = 5A, I_{B1} = 0.5A, L = 1\text{mH}$	100		V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = 5A, I_{B1} = -I_{B2} = 0.5A$ $V_{BE(off)} = -5V, L = 180\mu\text{H}$ , Clamped	100		V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = 10A, I_{B1} = 1A, I_{B2} = -0.5A$ , $V_{BE(off)} = -5V, L = 180\mu\text{H}$ , Clamped	100		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 100, I_E = 0$		10	$\mu\text{A}$
$I_{CER}$	Collector Cut-off Current	$V_{CE} = 100V, R_{BE} = 51\Omega @ T_C = 125^\circ\text{C}$		1	mA
$I_{CEX1}$ $I_{CEX2}$	Collector Cut-off Current	$V_{CE} = 100V, V_{BE(off)} = -1.5V$		10	$\mu\text{A}$
		$V_{CE} = 100V, V_{BE(off)} = -1.5V$ @ $T_C = 125^\circ\text{C}$		1	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5V, I_C = 0$		10	$\mu\text{A}$
$h_{FE1}$	* DC Current Gain	$V_{CE} = 5V, I_C = 0.5A$	40		
$h_{FE2}$		$V_{CE} = 5V, I_C = 3A$	40	240	
$h_{FE3}$		$V_{CE} = 5V, I_C = 5A$	20		
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = 5A, I_B = 0.5A$		0.6	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = 5A, I_B = 0.5A$		1.5	V
$t_{ON}$	Turn On Time	$V_{CC} = 50V, I_C = 5A$ $I_{B1} = -I_{B2} = 0.5A$ $R_L = 10\Omega$		0.5	$\mu\text{s}$
$t_{STG}$	Storage Time			0.5	$\mu\text{s}$
$t_F$	Fall Time			1.5	$\mu\text{s}$

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

### $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE2}$	40 ~ 80	70 ~ 140	120 ~ 240

# Typical Characteristics

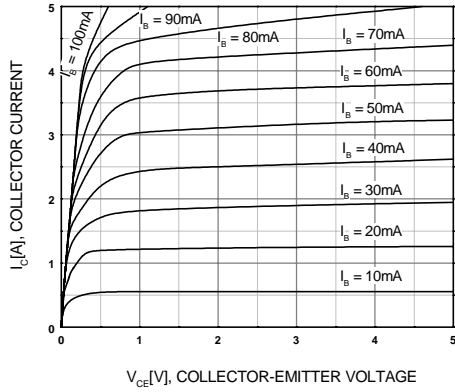


Figure 1. Static Characteristic

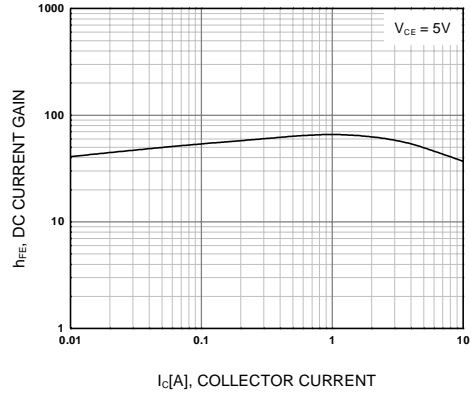


Figure 2. DC current Gain

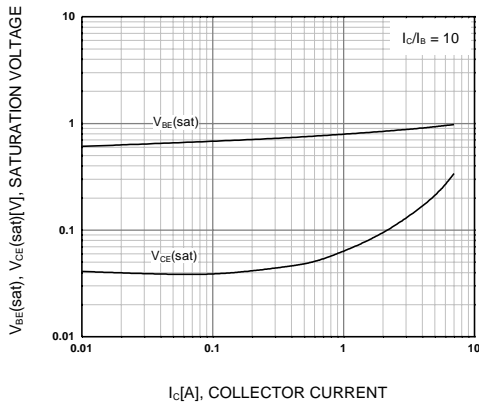


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

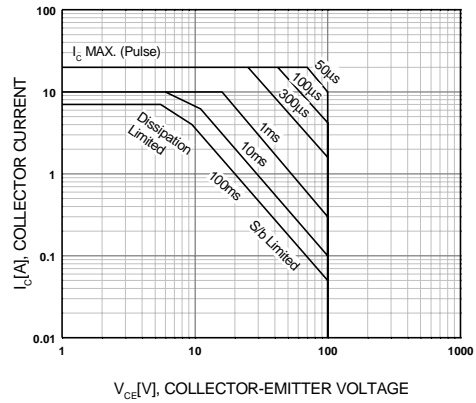


Figure 4. Safe Operating Area

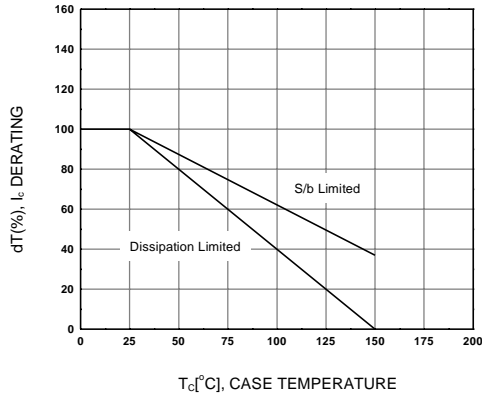


Figure 5. Derating Curve of Safe Operating Areas

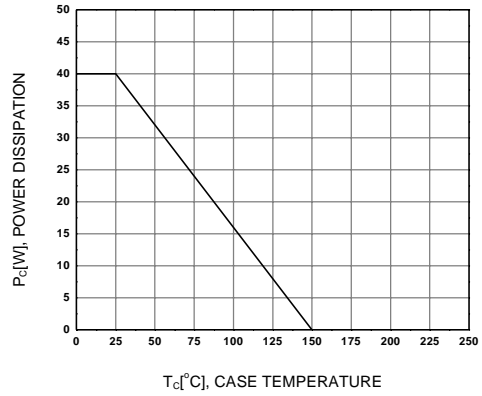
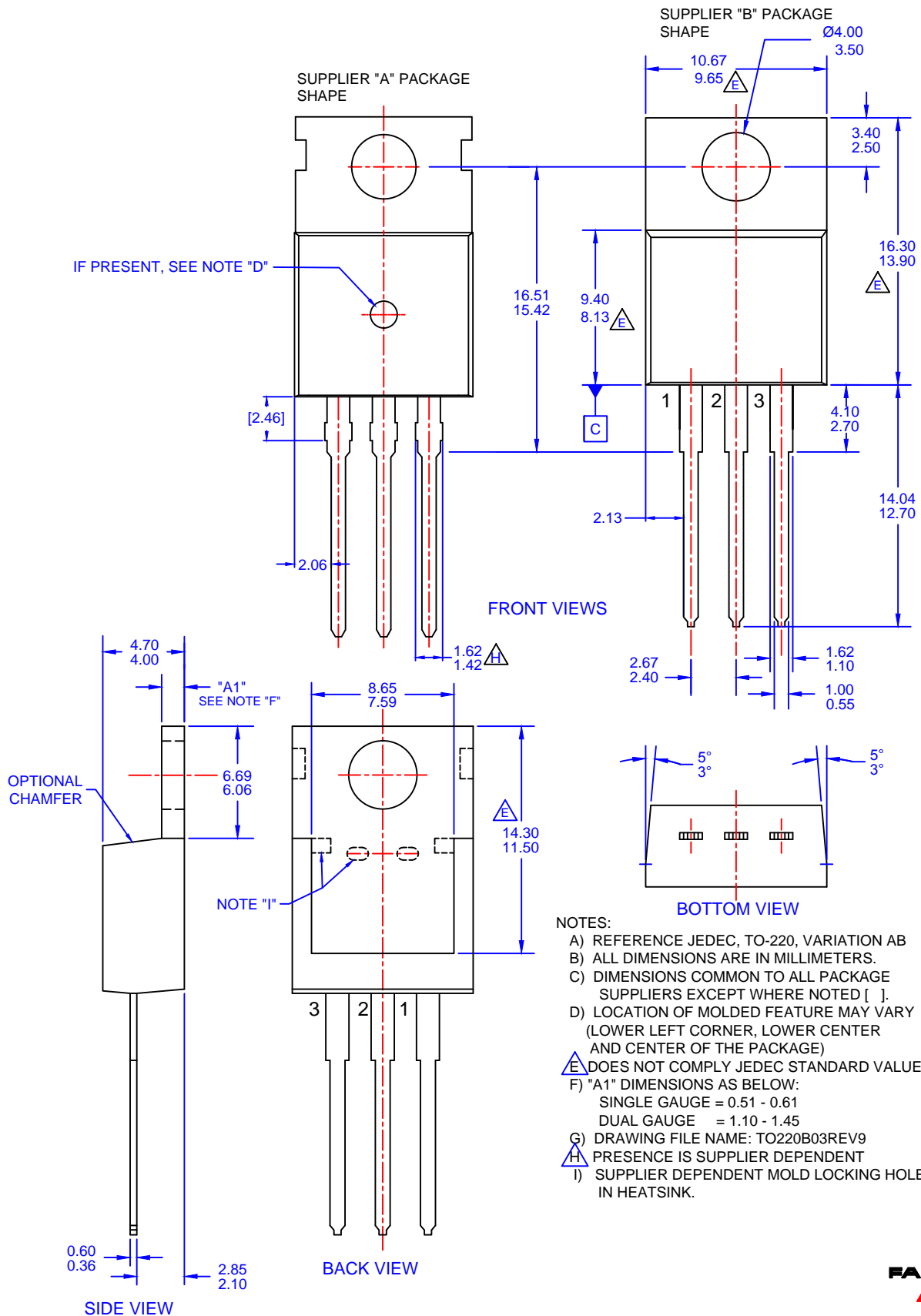


Figure 6. Power Derating



- NOTES:
- A) REFERENCE JEDEC, TO-220, VARIATION AB
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [ ].
  - D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
  - E) DOES NOT COMPLY JEDEC STANDARD VALUE.
  - F) "A1" DIMENSIONS AS BELOW:  
 SINGLE GAUGE = 0.51 - 0.61  
 DUAL GAUGE = 1.10 - 1.45
  - G) DRAWING FILE NAME: TO220B03REV9
  - H) PRESENCE IS SUPPLIER DEPENDENT
  - I) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

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