

# KSC2334RTU Datasheet

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|                              |  |
|------------------------------|--|
| DiGi Electronics Part Number | KSC2334RTU-DG  |
| Manufacturer                 | <a href="#">onsemi</a>   |
| Manufacturer Product Number  | KSC2334RTU   |
| Description                  | TRANS NPN 100V 7A TO220-3  |
| Detailed Description         | Bipolar (BJT) Transistor NPN 100 V 7 A 1.5 W Through Hole TO-220-3 |



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## Purchase and inquiry

Manufacturer Product Number:

KSC2334RTU

Series:

-

Transistor Type:

NPN

Voltage - Collector Emitter Breakdown (Max):

100 V

Current - Collector Cutoff (Max):

10 $\mu$ A (ICBO)

Power - Max:

1.5 W

Operating Temperature:

150°C (TJ)

Package / Case:

TO-220-3

Base Product Number:

KSC2334

Manufacturer:

onsemi

Product Status:

Obsolete

Current - Collector (Ic) (Max):

7 A

Vce Saturation (Max) @ Ib, Ic:

600mV @ 500mA, 5A

DC Current Gain (hFE) (Min) @ Ic, Vce:

40 @ 3A, 5V

Frequency - Transition:

-

Mounting Type:

Through Hole

Supplier Device Package:

TO-220-3

## Environmental & Export classification

Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

REACH Status:

REACH Unaffected

HTSUS:

8541.29.0095





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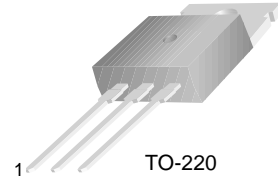
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# KSC2334

## 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   | $I_C = 5A, I_{B1} = 0.5A, L = 1mH$  | 100  |      | V             |
| $V_{CEX(sus)1}$          | Collector-Emitter Sustaining Voltage   | $I_C = 5A, I_{B1} = -I_{B2} = 0.5A$<br>$V_{BE(off)} = -5V, L = 180\mu H, \text{Clamped}$                    | 100  |      | V             |
| $V_{CEX(sus)2}$          | Collector-Emitter Sustaining Voltage   | $I_C = 10A, I_{B1} = 1A, I_{B2} = -0.5A,$<br>$V_{BE(off)} = -5V, L = 180\mu H, \text{Clamped}$              | 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            |
| $I_{CEX1}$<br>$I_{CEX2}$ | Collector Cut-off Current              | $V_{CE} = 100V, V_{BE(off)} = -1.5V$<br>$V_{CE} = 100V, V_{BE(off)} = -1.5V$<br>@ $T_C = 125^\circ\text{C}$ |      | 10   | $\mu\text{A}$ |
|                          |  |   |      | 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                           | $V_{CC} = 50V, I_C = 5A$<br>$I_{B1} = -I_{B2} = 0.5A$<br>$R_L = 10\Omega$                                   |      | 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

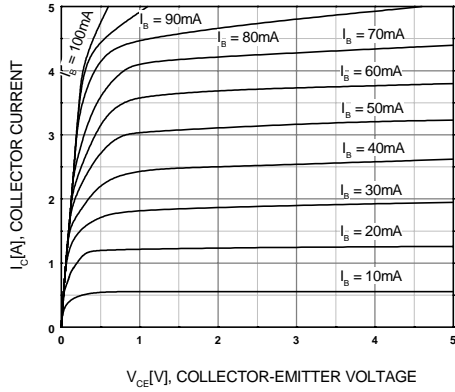


Figure 1. Static Characteristic

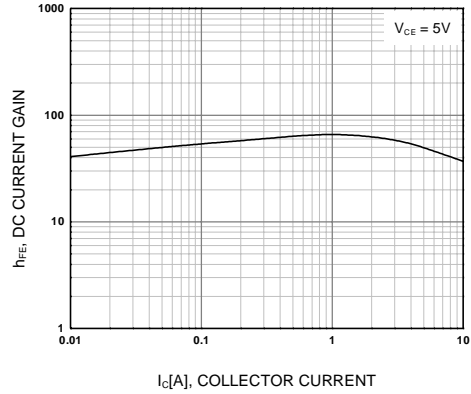


Figure 2. DC current Gain

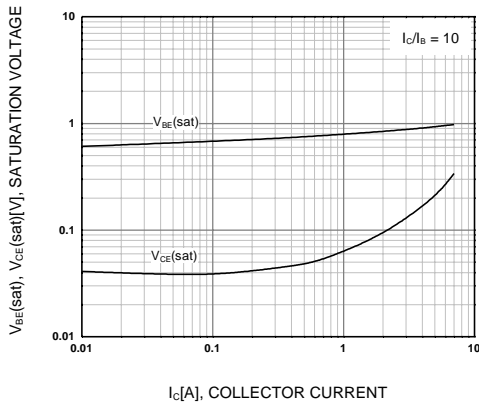


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

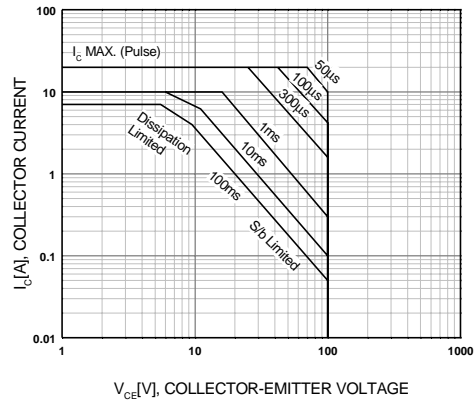


Figure 4. Safe Operating Area

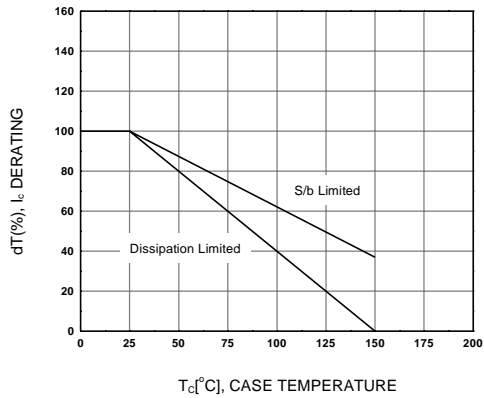


Figure 5. Derating Curve of Safe Operating Areas

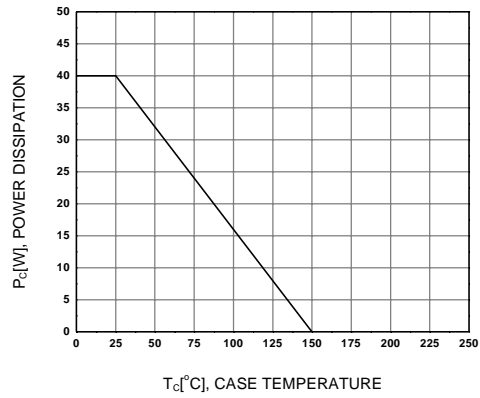
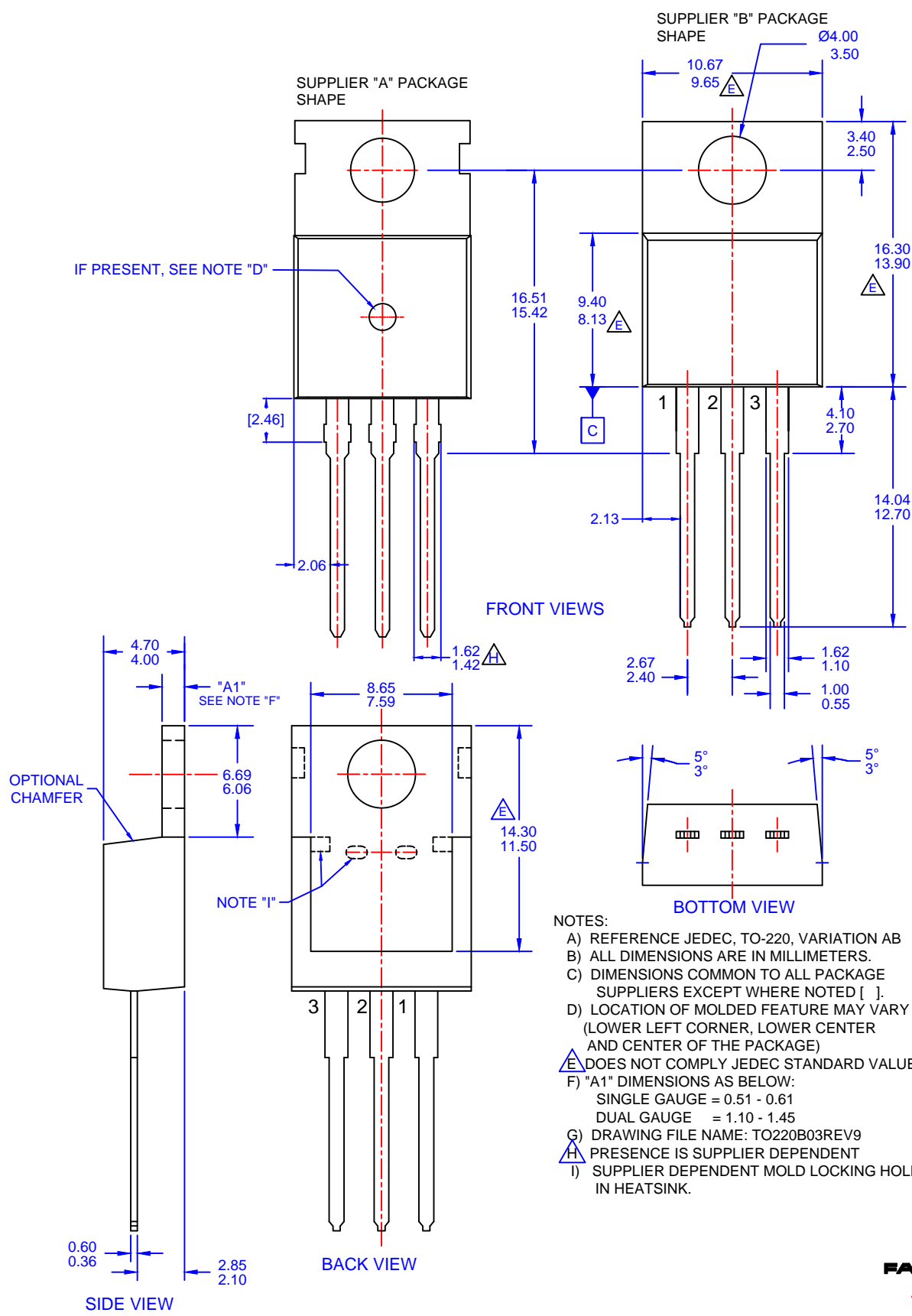



Figure 6. Power Derating



- 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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