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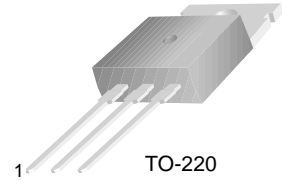


# KSA1010

KSA1010

## High Speed High Voltage Switching

- Industrial Use
- Complement to KSC2334



1.Base 2.Collector 3.Emitter

## PNP Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	- 100	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	- 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 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	$I_C = -5A, I_{B1} = -0.5A, L = 1mH$	- 100		V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = -5A, I_{B1} = -I_{B2} = -0.5A$ $V_{BE(off)} = 5V, L = 180\mu H$ Clamped	- 100		V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = -10A, I_{B1} = -1A$ $I_{B2} = 0.5A, V_{BE(off)} = 5V$ $L = 180\mu H, \text{Clamped}$	- 100		V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -100V, I_E = 0$		- 10	$\mu A$
$I_{CER}$	Collector Cut-off Current	$V_{CE} = -100V, R_{BE} = 51\Omega$ $T_C = 125^\circ C$		- 1	mA
$I_{CEX1}$	Collector Cut-off Current	$V_{CE} = -100V, V_{BE(off)} = 1.5V$		- 10	$\mu A$
$I_{CEX2}$	Collector Cut-off Current	$V_{CE} = -100V, V_{BE(off)} = 1.5V$ $T_C = 125^\circ C$		- 1	mA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -5V, I_C = 0$		- 10	$\mu A$
$h_{FE1}$ $h_{FE2}$ $h_{FE3}$	* DC Current Gain	$V_{CE} = -5V, I_C = -0.5A$ $V_{CE} = -5V, I_C = -3A$ $V_{CE} = -5V, I_C = -5A$	40 40 20	200	
$V_{CE(sat)}$	* 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	$V_{CC} = -50V, I_C = -5A,$		0.5	$\mu s$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = -0.5A$		1.5	$\mu s$
$t_F$	Fall Time	$R_L = 10\Omega$		0.5	$\mu s$

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

Classification	R	O	Y
$h_{FE2}$	40 ~ 80	60 ~ 120	100 ~ 200

# Typical Characteristics

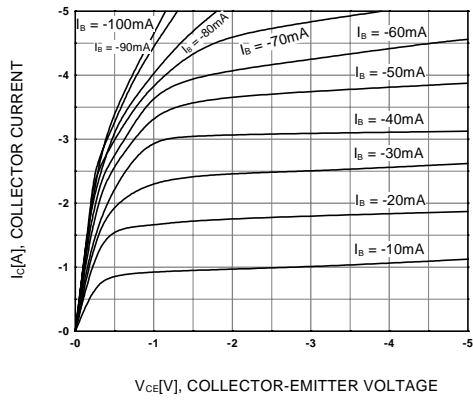


Figure 1. Static Characteristic

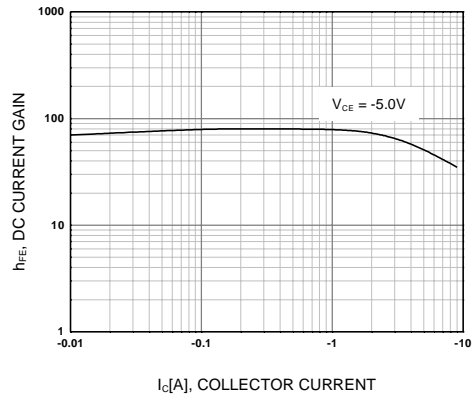


Figure 2. DC current Gain

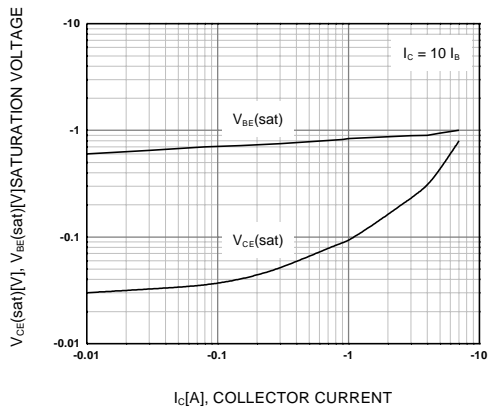


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

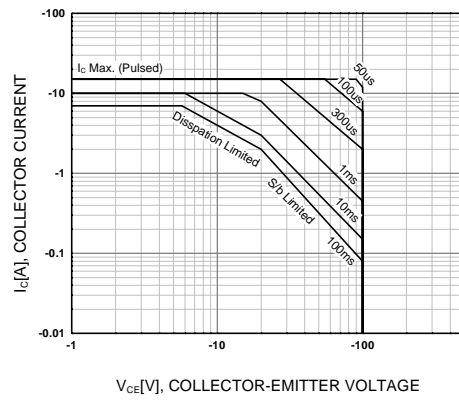


Figure 4. Safe Operating Area

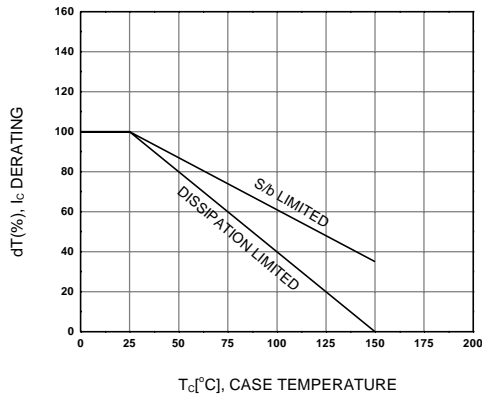


Figure 5. Derating Curve of Safe Operating Areas

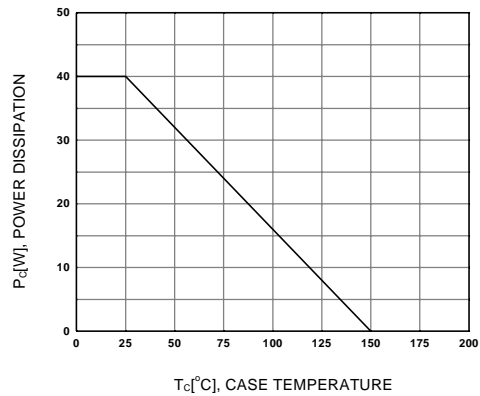
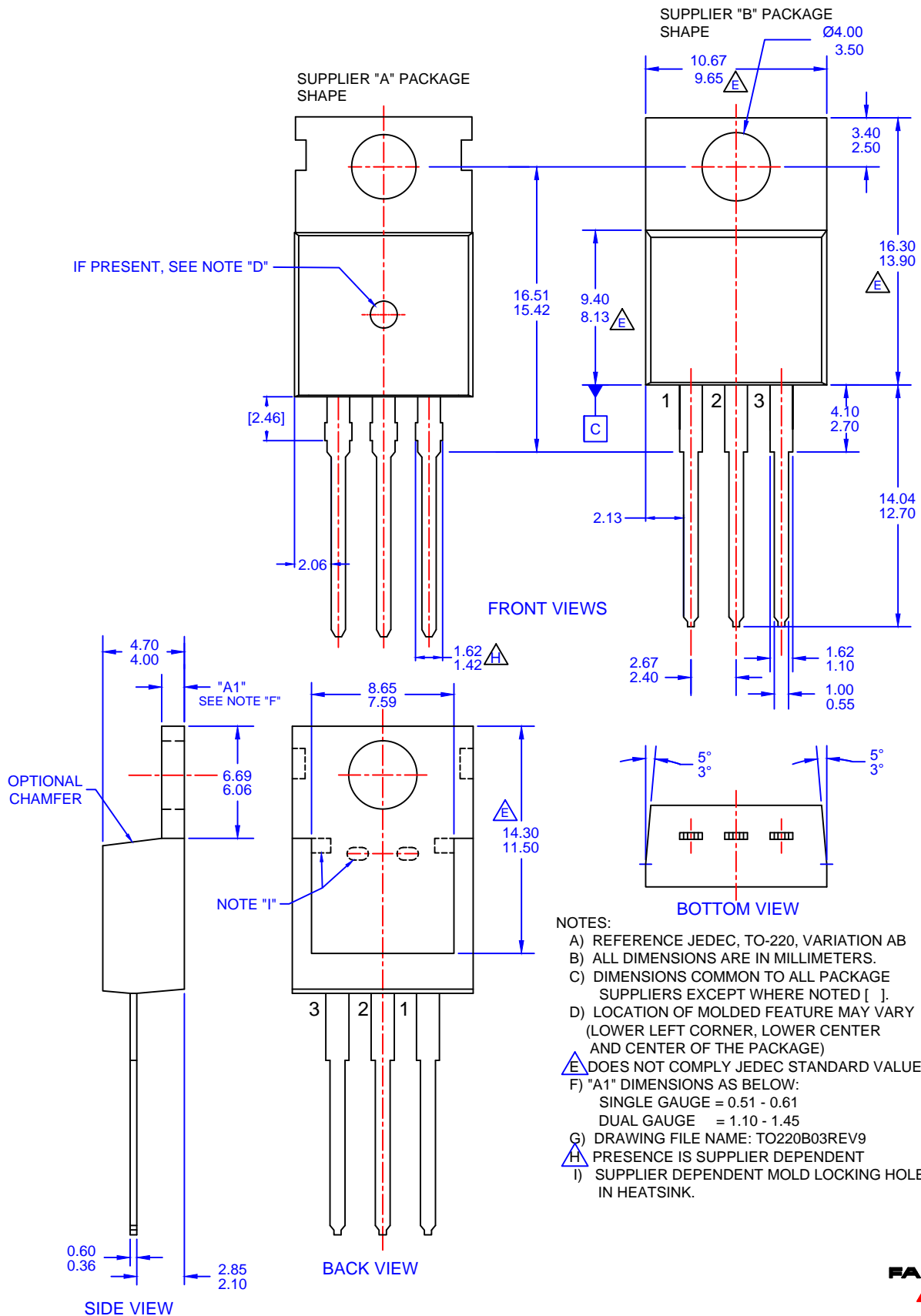


Figure 6. Power Derating



- 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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