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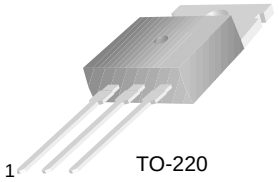
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KSC2333

High Speed Switching Application

- Low Collector Saturation Voltage
- Specified of Reverse Biased SOA With Inductive Load



TO-220

1.Base 2.Collector 3.Emitter

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_C=25°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)	2	A
I_{CP}	*Collector Current (Pulse)	4	A
I_B	Base Current (DC)	1	A
P_C	Collector Dissipation (T_C=25°C)	15	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 55 ~ 150	°C

*PW≤350µs, Duty Cycle≤10%

Electrical Characteristics TC=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage	I_C = 0.5A, I_B =0.1A, L = 1mH	400		V
V_{CEX}(sus)1	Collector-Emitter Sustaining Voltage	I_C = 0.5A, I_{B1} = -I_{B2} = 0.1A T_C = 125°C, L = 180µH, clamped	450		V
V_{CEX}(sus)2	Collector-Emitter Sustaining Voltage	I_C = 1A, I_{B1} = 0.2A, -I_{B2} =0.2A T_C= 125°C, L = 180µH, clamped	400		V
I_{CBO}	Collector Cut-off Current	V_{CB} = 400V, I_E = 0		10	µA
I_{CER}	Collector Cut-off Current	V_{CE} = 400V, R_{BE} =51Ω, T_C = 125°C		1	mA
I_{CEX1}	Collector Cut-off Current	V_{CE} = 400V, V_{BE}(off) = -5V		10	µA
I_{CEX2}	Collector Cut-off Current	V_{CE} = 400V, V_{BE}(off) = -5V @ T_C = 125°C		1	mA
I_{EBO}	Emitter Cut-off Current	V_{EB} = 5V, I_C = 0		10	µA
h_{FE1} h_{FE2}	* DC Current Gain	V_{CE} = 5V, I_C = 0.1A V_{CE} = 5V, I_C = 0.5A	20 10	80	
V_{CE}(sat)	* Collector-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A		1	V
V_{BE}(sat)	* Base-Emitter Saturation Voltage	I_C = 0.5A, I_B = 0.1A		1.2	V
t_{ON}	Turn ON Time	V_{CC} = 150V, I_C = 0.5A I_{B1} = - I_{B2} = 0.1A R_L = 300Ω		1	µs
t_{STG}	Storage Time			2.5	µs
t_F	Fall Time			1	µs

* Pulse Test: PW≤350µs, Duty Cycle≤2%Pulsed

h_{FE} Classification

Classification	R	O	Y
h_{FE1}	20 ~ 40	30 ~ 60	40 ~ 80

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Typical Characteristics

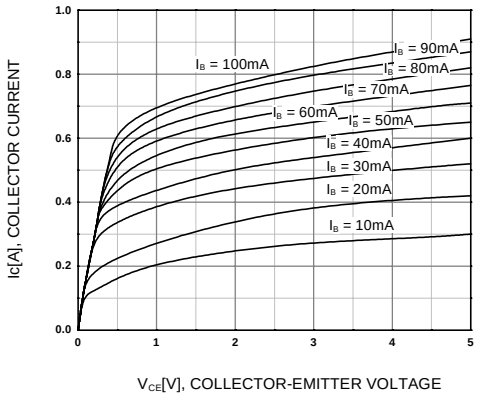


Figure 1. Static Characteristic

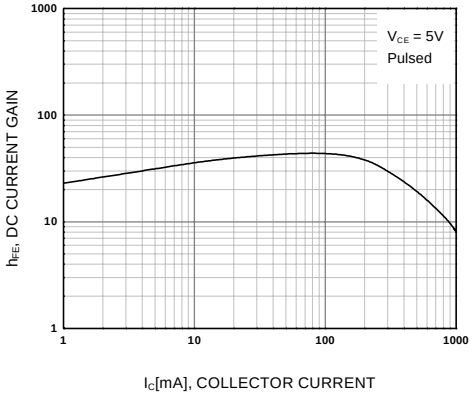


Figure 2. DC current Gain

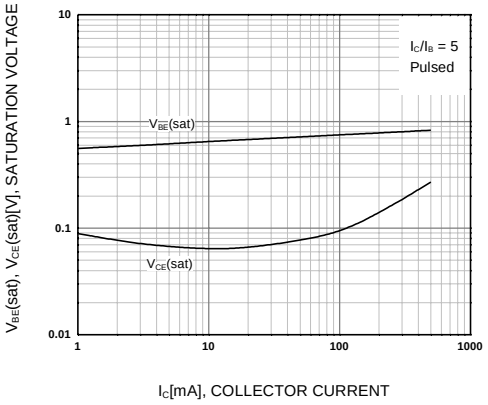


Figure 3. Collector-Emitter Saturation Voltage Base-Emitter Saturation Voltage

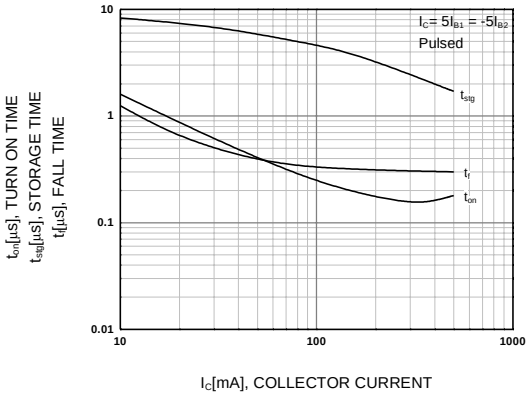


Figure 4. Turn On, Storage and Fall Time vs Collector Current

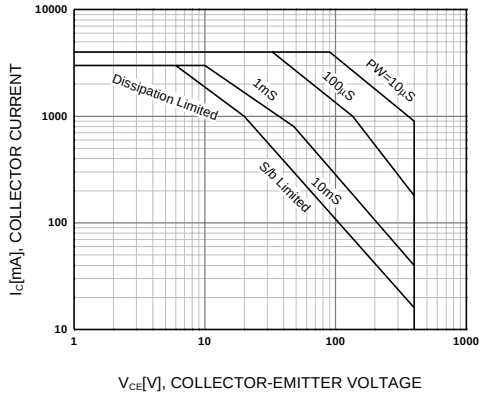


Figure 5. Forward Bias Safe Operating Area

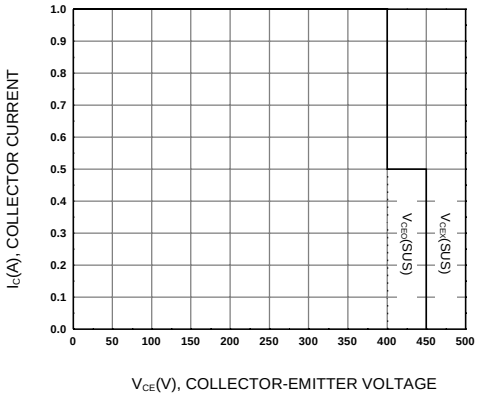


Figure 6. Reverse Bias Safe Operating Area

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Typical characteristics (Continued)

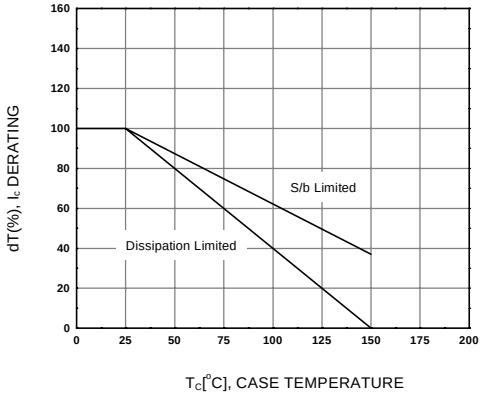


Figure 7. Derating Curve of Safe Operating Areas

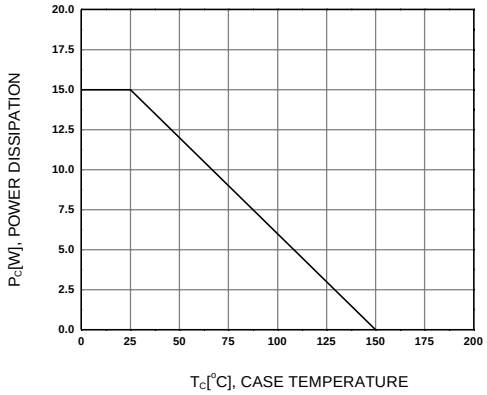
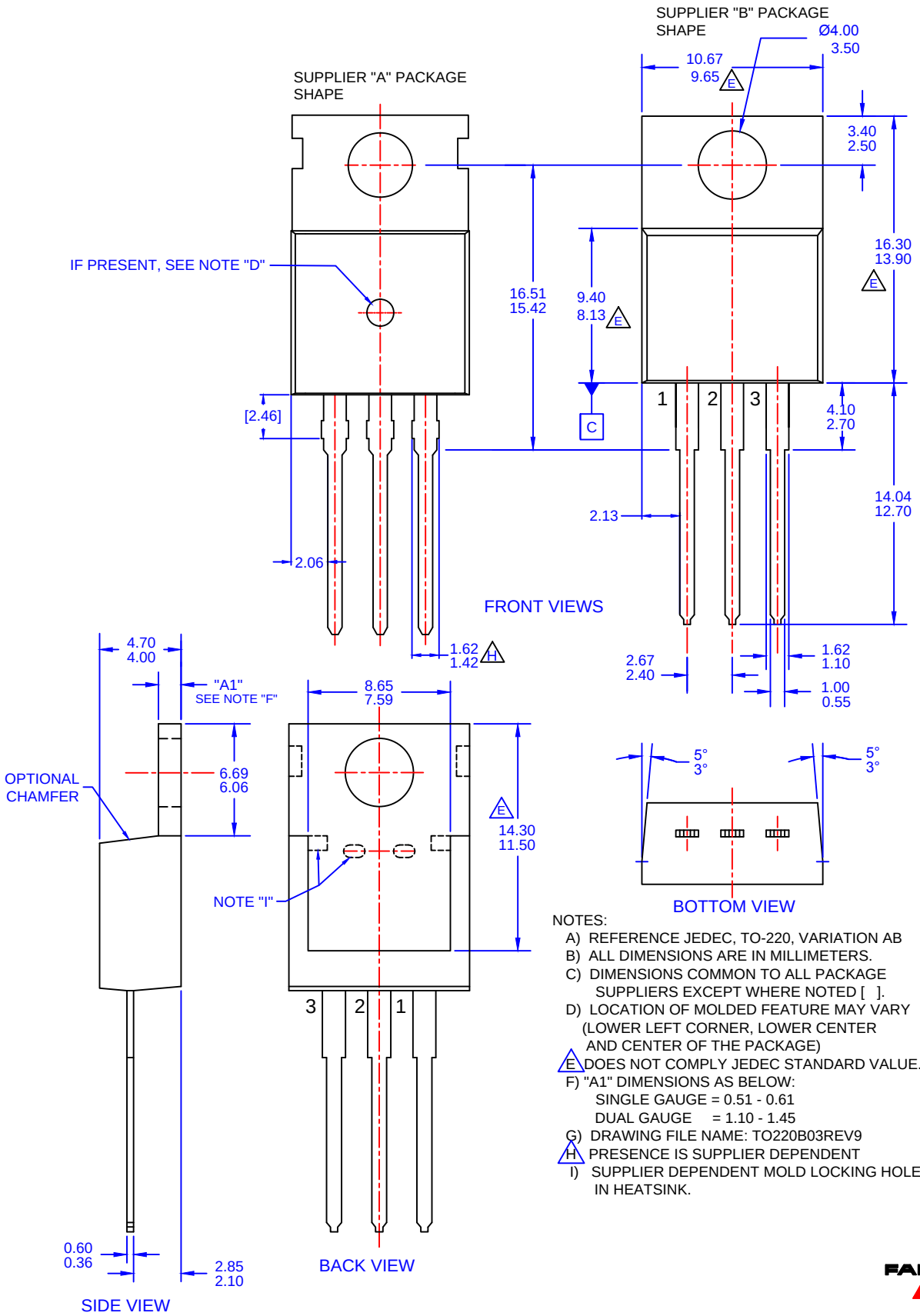


Figure 8. Power Derating

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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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