

PNP Epitaxial Silicon Transistor

KSB1015

Low Frequency Power Amplifier

- Low Collector Emitter Saturation Voltage
- This is a Pb-Free Device

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Symbol	Parameter	Ratings	Unit
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-7	V
I_C	Collector Current (DC)	-3	A
I_B	Base Current	-0.5	A
P_C	Collector Power Dissipation ($T_C = 25^\circ\text{C}$)	25	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

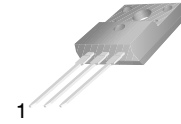
ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C = -50\text{ mA}$, $I_B = 0$	-60	-	-	V
I_{CBO}	Collector Cut-off Current	$V_{CB} = -60\text{ V}$, $I_E = 0$	-	-	-100	μA
I_{EBO}	Emitter Cut-off Current	$V_{BE} = -7\text{ V}$, $I_C = 0$	-	-	-100	μA
h_{FE1} h_{FE2}	DC Current Gain	$V_{CE} = -5\text{ V}$, $I_C = -0.5\text{ A}$ $V_{CE} = -5\text{ V}$, $I_C = -3\text{ A}$	60 20	-	200 -	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -3\text{ A}$, $I_B = -0.3\text{ A}$	-	-0.5	-1	V
$V_{BE(on)}$	Base-Emitter ON Voltage	$V_{CE} = -5\text{ V}$, $I_C = -0.5\text{ A}$	-	-0.7	-1	V
f_T	Current Gain Bandwidth Product	$V_{CE} = -5\text{ V}$, $I_C = -0.5\text{ A}$	-	9	-	MHz
C_{ob}	Output Capacitance	$V_{CB} = -10\text{ V}$, $f = 1\text{ MHz}$	-	150	-	pF
t_{ON}	Turn ON Time	$V_{CC} = -30\text{ V}$, $I_C = -1\text{ A}$, $I_{B1} = -I_{B2} = -0.2\text{ A}$, $R_L = 30\ \Omega$	-	0.4	-	μs
t_{STG}	Storage Time		-	1.7	-	μs
t_F	Fall Time		-	0.5	-	μs

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

h_{FE} Classification

Classification	O	Y
h_{FE1}	60 ~ 120	100 ~ 200



- Base
- Collector
- Emitter

TO-220 Fullpack, 3-Lead
CASE 221AT

MARKING DIAGRAM

B1015- Y AYWWZZ

B1015-Y = Specific Device Code
A = Site Code
YWW = Year WW
ZZ = Assembly Lot Code

ORDERING INFORMATION

Device	Package	Shipping
KSB1015YTU	TO-220-3 Fullpack (Pb-Free)	1000 Units / Tube

TYPICAL CHARACTERISTICS

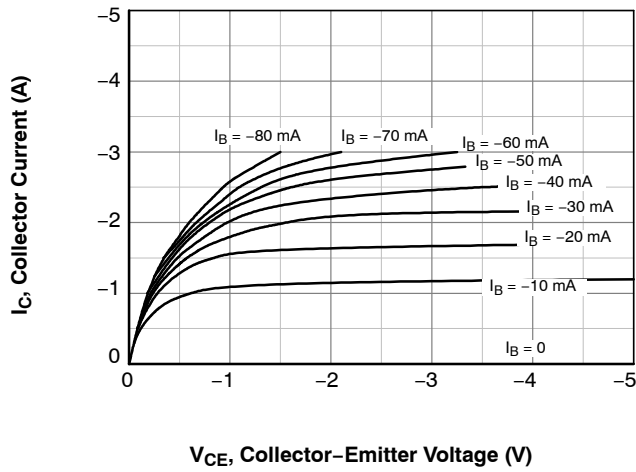


Figure 1. Static Characteristic

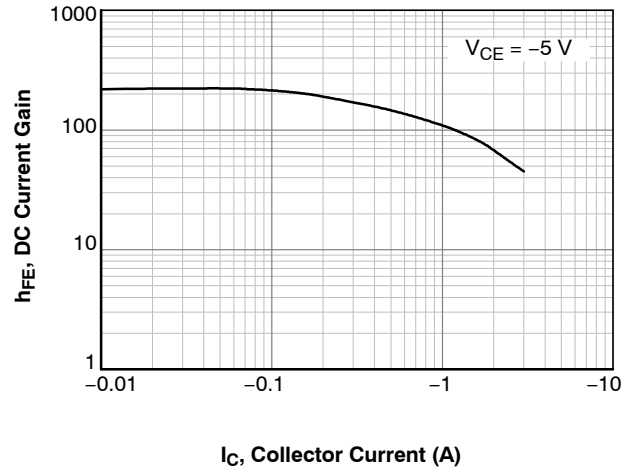


Figure 2. DC Current Gain

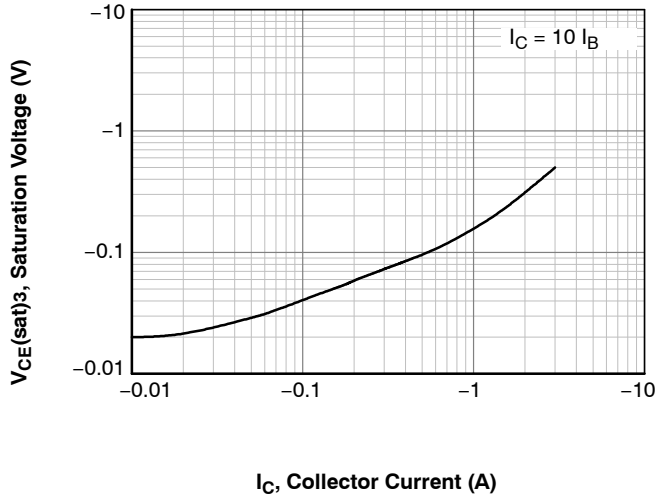


Figure 3. Collector-Emitter Saturation Voltage

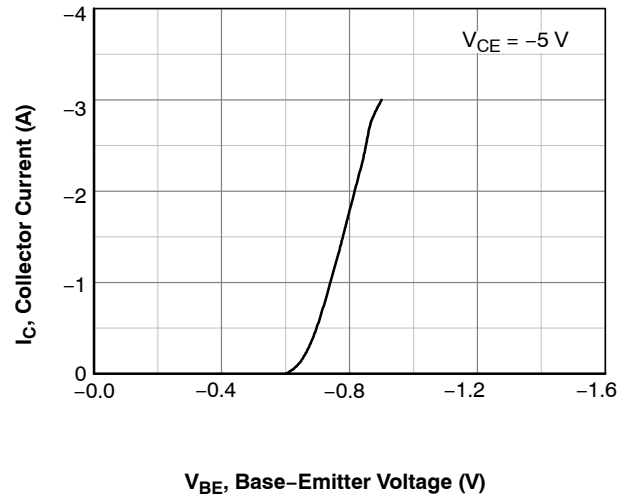


Figure 4. Base-Emitter On Voltage

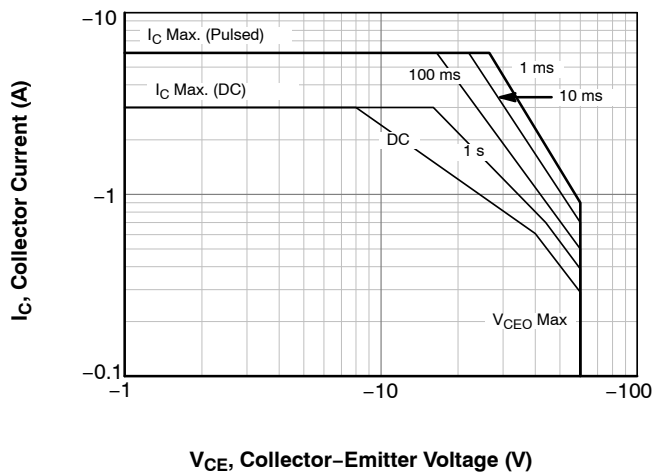


Figure 5. Safe Operating Areas

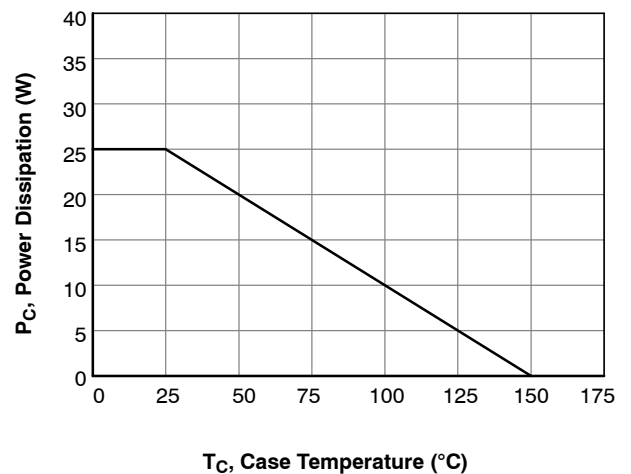


Figure 6. Power Derating

MECHANICAL CASE OUTLINE

PACKAGE DIMENSIONS

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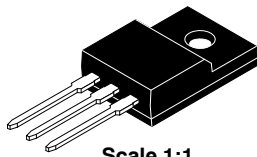
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TO-220 Fullpack, 3-Lead / TO-220F-3SG

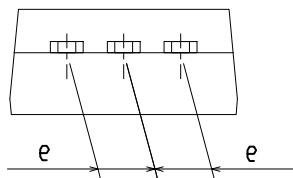
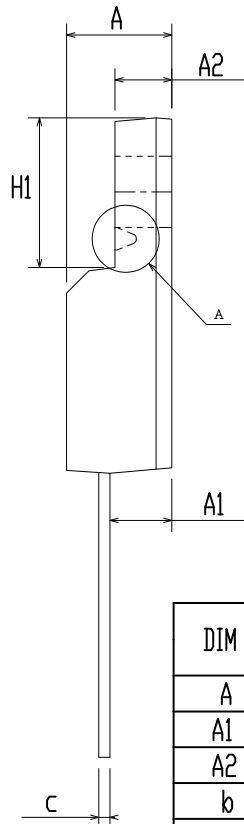
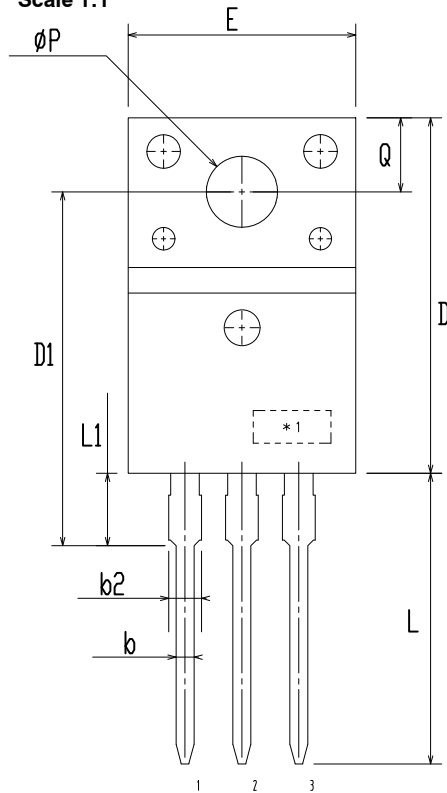
CASE 221AT

ISSUE B

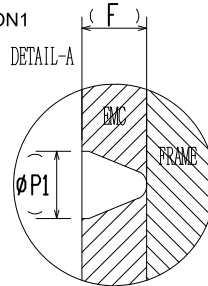
DATE 19 JAN 2021



Scale 1:1



OPTION1



DIM	MILLIMETERS		
	MIN	NOM	MAX
A	4.50	4.70	4.90
A1	2.56	2.76	2.96
A2	2.34	2.54	2.74
b	0.70	0.80	0.90
b2	~	~	1.47
c	0.45	0.50	0.60
D	15.67	15.87	16.07
D1	15.60	15.80	16.00
E	9.96	10.16	10.36
e	2.34	2.54	2.74
F	~	0.84	~
H1	6.48	6.68	6.88
L	12.78	12.98	13.18
L1	3.03	3.23	3.43
Ø P	2.98	3.18	3.38
Ø P1	~	1.00	~
Q	3.20	3.30	3.40

NOTES:

A. DIMENSION AND TOLERANCE AS ASME Y14.5-2009

B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR PROTRUCTIONS.

C. OPTION 1 - WITH SUPPORT PIN HOLE

OPTION 2 - NO SUPPORT PIN HOLE

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DESCRIPTION:	TO-220 FULLPACK, 3-LEAD / TO-220F-3SG	PAGE 1 OF 1

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