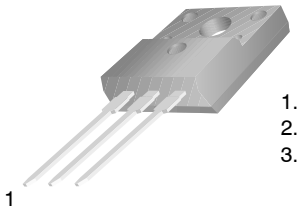
NPN Epitaxial Silicon Transistor

KSD1588



1. Base
2. Collector
3. Emitter

TO−220 Fullpack
CASE 221AT

Low Frequency Power Amplifier

- Low Speed Switching
- This is a Pb−Free Device

ABSOLUTE MAXIMUM RATINGS

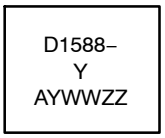
(T_C = 25°C unless otherwise noted.)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector−Base Voltage	100	V
V_{CEO}	Collector−Emitter Voltage	60	V
V_{EBO}	Emitter−Base Voltage	7	V
I_C	Collector Current (DC)	7	A
I_{CP}	Collector Current (Pulse) (Note 1)	15	A
I_B	Base Current	3.5	A
P_C	Collector Dissipation (T_A = 25°C)	2	W
	Collector Dissipation (T_C = 25°C)	30	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	−55 ~ 150	°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.

1. PW ≤ 300 μs, Duty Cycle ≤ 10%.

MARKING DIAGRAM



D1588 = Specific Device Code
Y = h_{FE} Grade
A = Site Code
YWW = Date Code (Year & Week)
ZZ = Assembly Lot Code

ORDERING INFORMATION

Device	Package	Shipping
KSD1588YTU	TO−220 Fullpack (Pb−Free)	1,000 Units / Tube

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted.)

Symbol	Parameter	Test Conditions	Min	Max	Unit
I_{CBO}	Collector Cut−off Current	V_{CB} = 80 V, I_E = 0	−	10	μA
I_{EBO}	Emitter Cut−off Current	V_{EB} = 5 V, I_C = 0	−	10	μA
h_{FE1} h_{FE2}	DC Current Gain (Note 2)	V_{CE} = 1 V, I_C = 3 A V_{CE} = 1 V, I_C = 5 A	40 20	200 −	
V_{CE}(sat)	Collector−Emitter Saturation Voltage (Note 2)	I_C = 5 A, I_B = 0.5 A	−	0.5	V
V_{BE}(sat)	Base−Emitter Saturation Voltage (Note 2)	I_C = 5 A, I_B = 0.5 A	−	1.5	V

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.

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

h_{FE1} Classification

Classification	R	O	Y
h_{FE1}	40 ~ 80	80 ~ 120	100 ~ 200

TYPICAL CHARACTERISTICS

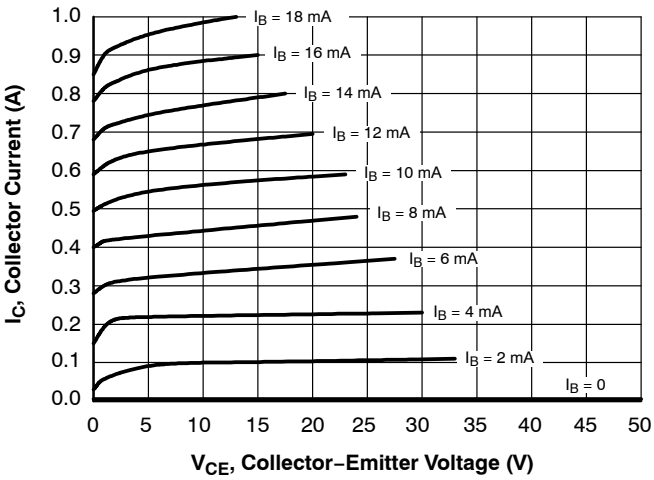


Figure 1. Static Characteristic

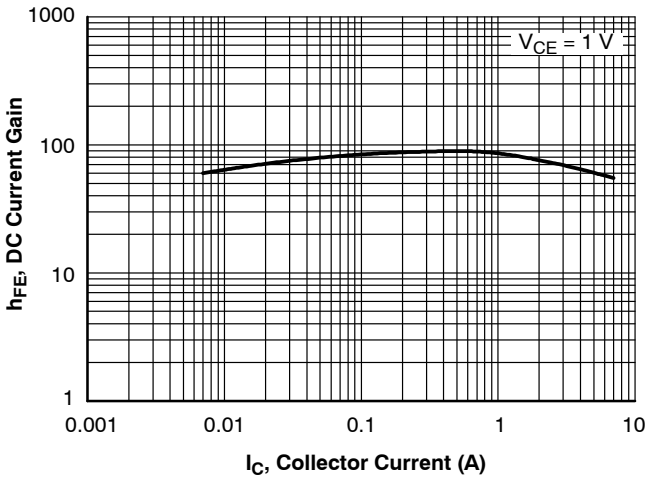


Figure 2. DC Current Gain

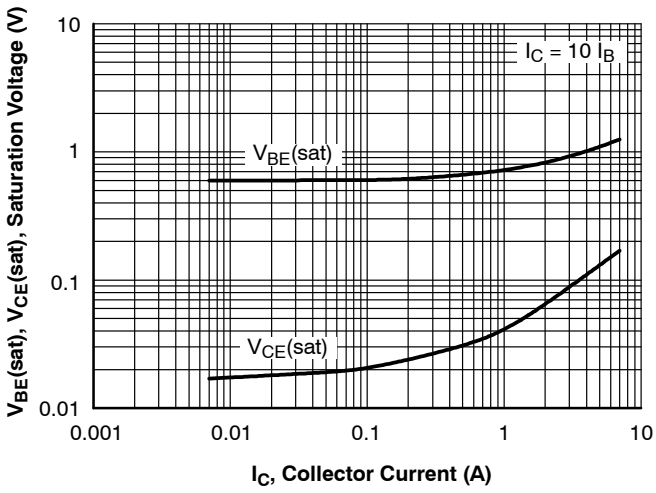


Figure 3. Base−Emitter Saturation Voltage and Collector−Emitter Saturation Voltage

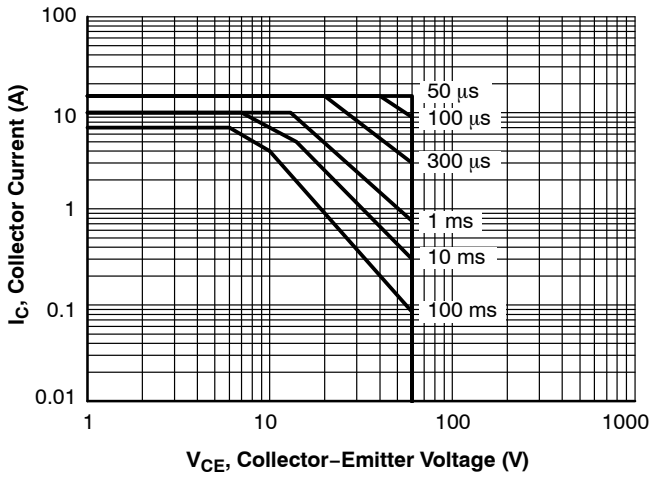


Figure 4. Safe Operating Area

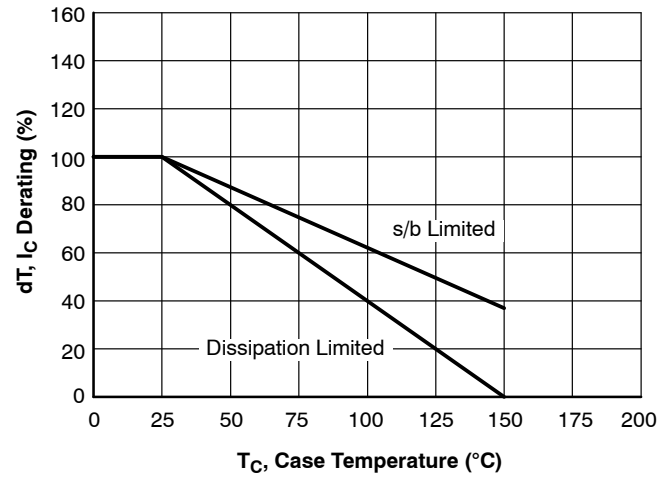


Figure 5. Derating Curve Safe Operating Area

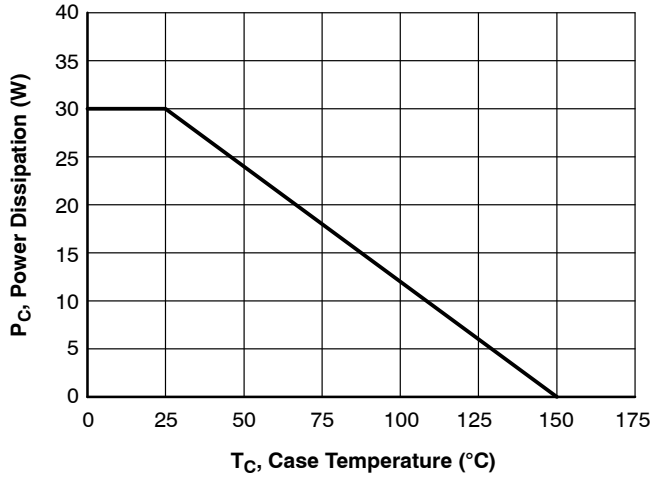
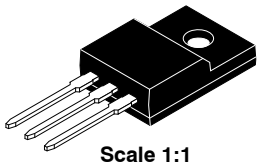


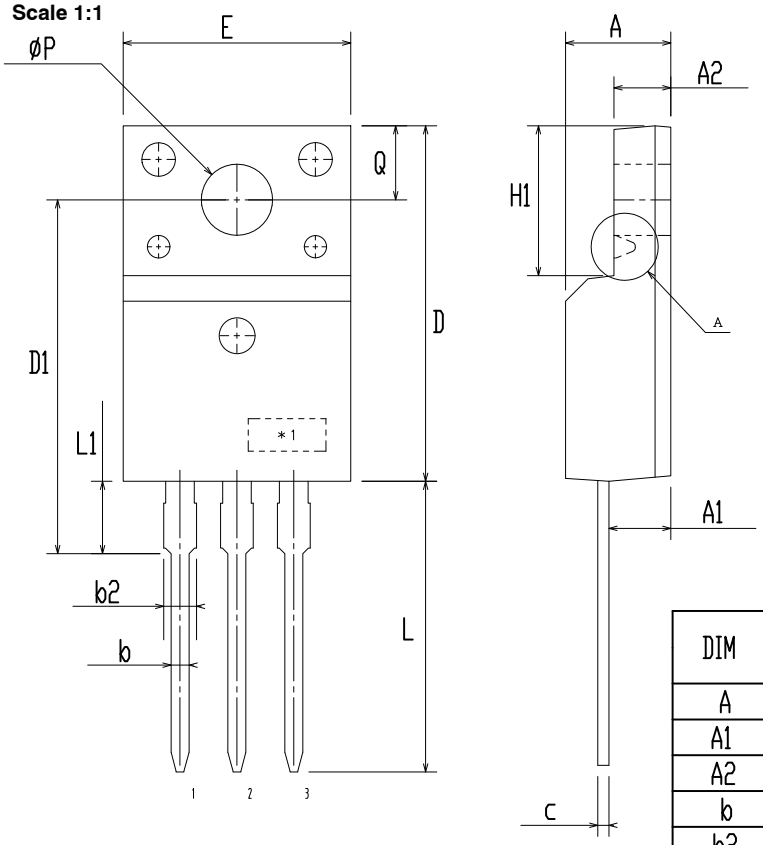
Figure 6. Power Derating

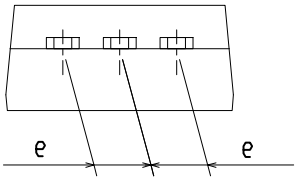
TO−220 Fullpack, 3−Lead / TO−220F−3SG
CASE 221AT
ISSUE B

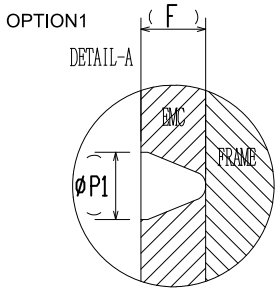
DATE 19 JAN 2021



Scale 1:1







DIM	MILLIMITERS		
	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 PROTRUCSIONS.
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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