

NPN Epitaxial Silicon Transistor

KSD1588

Low Frequency Power Amplifier

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

ABSOLUTE MAXIMUM RATINGS

($T_C = 25^\circ\text{C}$ 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 ($T_A = 25^\circ\text{C}$)	2	W
	Collector Dissipation ($T_C = 25^\circ\text{C}$)	30	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.

1. $PW \leq 300 \mu\text{s}$, Duty Cycle $\leq 10\%$.

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

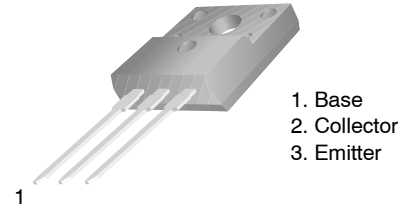
Symbol	Parameter	Test Conditions	Min	Max	Unit
I_{CBO}	Collector Cut-off Current	$V_{CB} = 80 \text{ V}$, $I_E = 0$	–	10	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = 5 \text{ V}$, $I_C = 0$	–	10	μA
h_{FE1} h_{FE2}	DC Current Gain (Note 2)	$V_{CE} = 1 \text{ V}$, $I_C = 3 \text{ A}$ $V_{CE} = 1 \text{ V}$, $I_C = 5 \text{ A}$	40 20	200 –	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage (Note 2)	$I_C = 5 \text{ A}$, $I_B = 0.5 \text{ A}$	–	0.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage (Note 2)	$I_C = 5 \text{ A}$, $I_B = 0.5 \text{ A}$	–	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: $PW \leq 350 \mu\text{s}$, Duty Cycle $\leq 2\%$.

h_{FE1} Classification

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



TO-220 Fullpack
CASE 221AT

MARKING DIAGRAM

D1588– Y AYWWZZ

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

TYPICAL CHARACTERISTICS

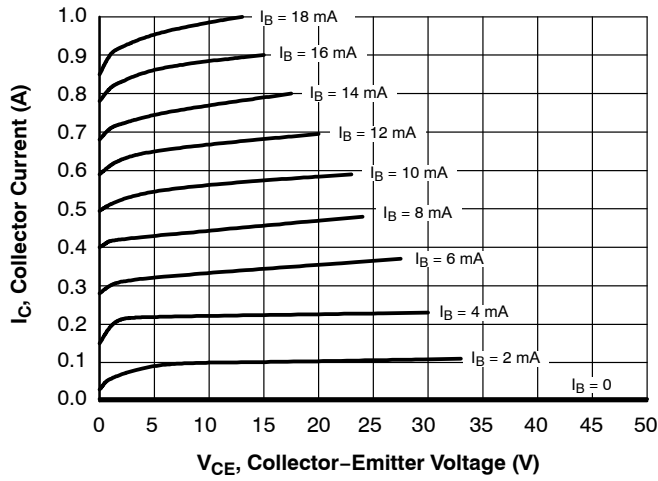


Figure 1. Static Characteristic

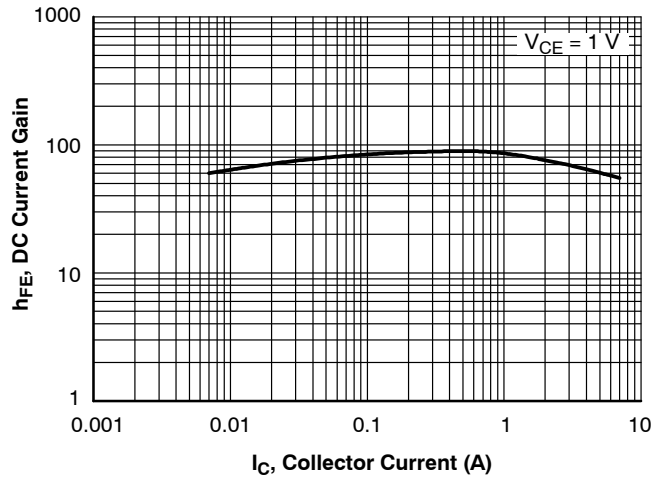


Figure 2. DC Current Gain

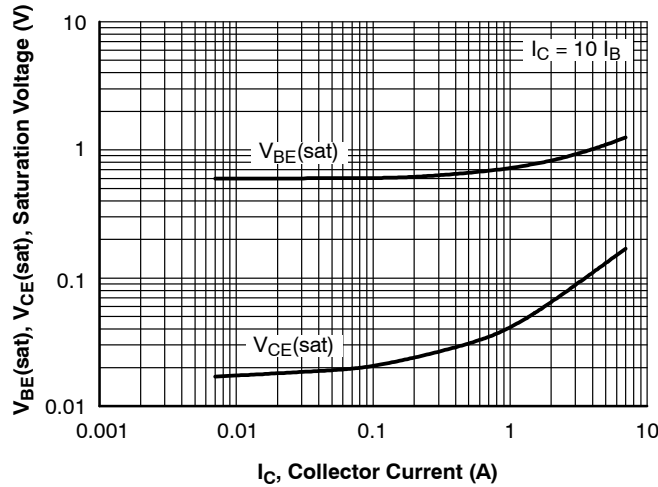


Figure 3. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

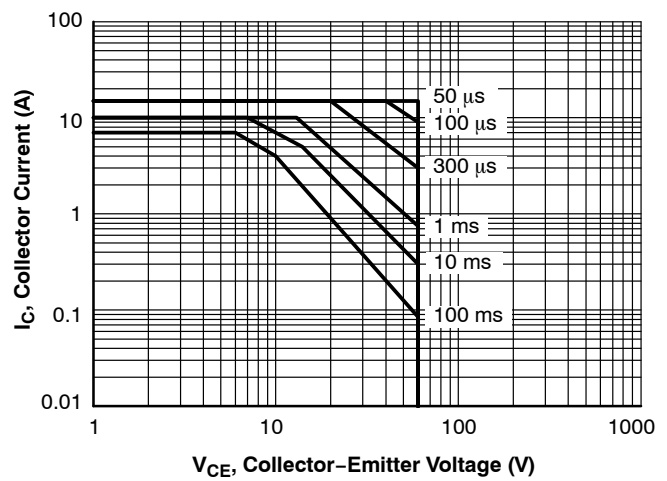


Figure 4. Safe Operating Area

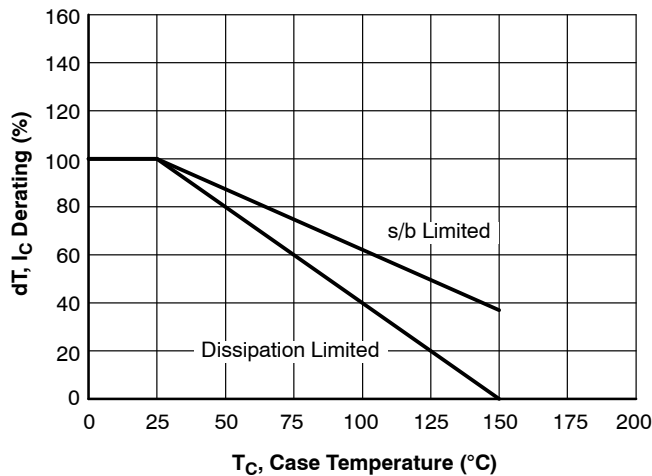


Figure 5. Derating Curve Safe Operating Area

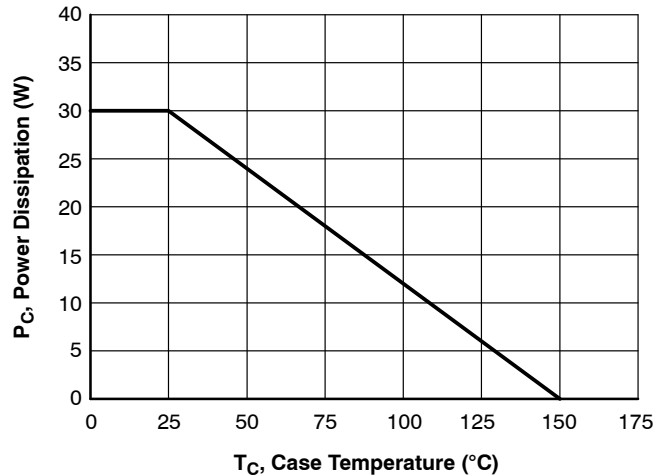
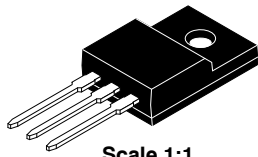


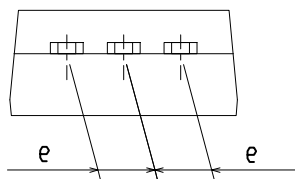
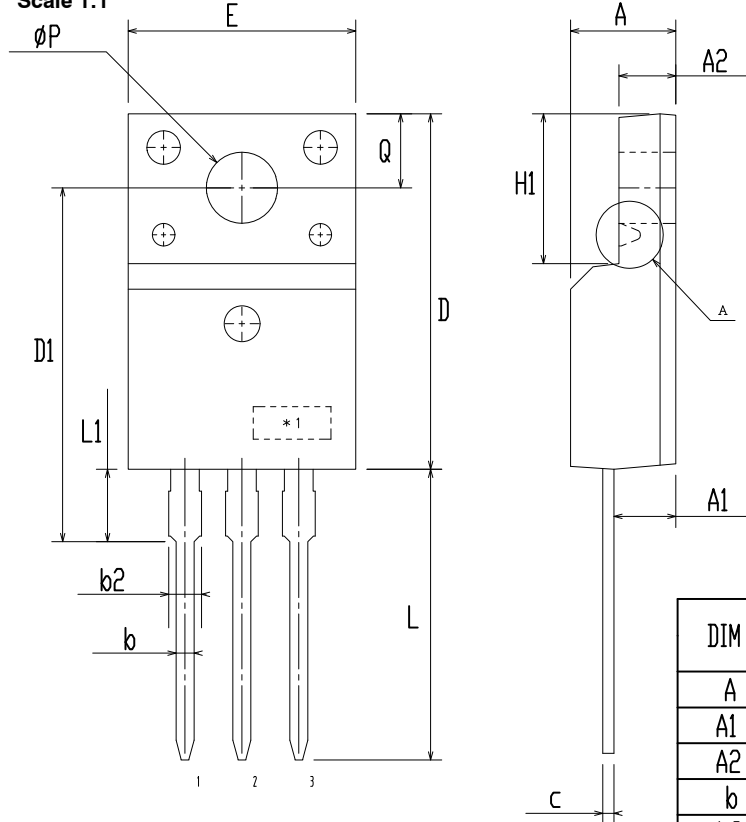
Figure 6. Power Derating

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

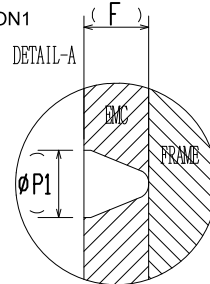
DATE 19 JAN 2021



Scale 1:1



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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