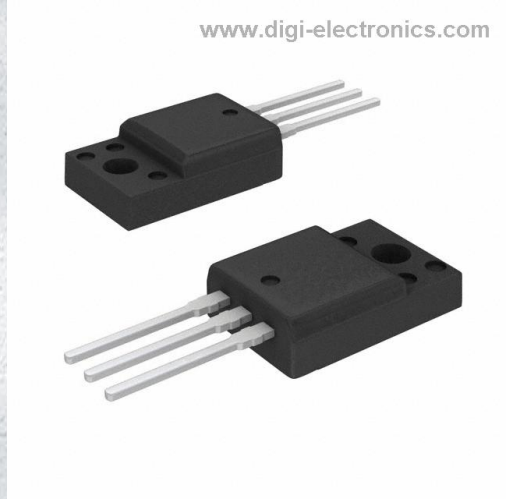
KSD2012YTU Datasheet



DiGi Electronics Part Number	KSD2012YTU-DG
Manufacturer	onsemi
Manufacturer Product Number	KSD2012YTU
Description	TRANS NPN 60V 3A TO220F-3
Detailed Description	Bipolar (BJT) Transistor NPN 60 V 3 A 3MHz 25 W Through Hole TO-220F-3

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
KSD2012YTU	onsemi
Series:	Product Status:
-	Obsolete
Transistor Type:	Current - Collector (Ic) (Max):
NPN	3 A
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
60 V	1V @ 200mA, 2A
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
100µA (ICBO)	100 @ 500mA, 5V
Power - Max:	Frequency - Transition:
25 W	3MHz
Operating Temperature:	Mounting Type:
150°C (TJ)	Through Hole
Package / Case:	Supplier Device Package:
TO-220-3 Full Pack	TO-220F-3
Base Product Number:	
KSD2012	

Environmental & Export classification

Moisture Sensitivity Level (MSL):	REACH Status:
1 (Unlimited)	REACH Unaffected
ECCN:	HTSUS:
EAR99	8541.29.0095

onsemi

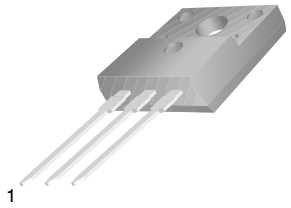
DATA SHEET
www.onsemi.com

NPN Epitaxial Silicon Transistor

Low Frequency Power Amplifier

KSD2012

- Complementary to KSB1366
- This is a Pb−Free Device



1. Base
2. Collector
3. Emitter

TO−220 Fullpack
CASE 221AT

MARKING DIAGRAM

D2012 = Specific Device Code
G = h_{FE} Grade
A = Site Code
YWW = Date Code (Year & Week)
ZZ = Assembly Lot Code

ORDERING INFORMATION

Device	Package	Shipping†
KSD2012GTU	TO−220 Fullpack (Pb−Free)	1000 Units / Tube

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Symbol	Parameter	Value	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	3	A
I_B	Base Current	0.3	A
P_C	Collector Power Dissipation (T_C = 25°C)	25	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.

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

Symbol	Parameter	Test Condition	Value			Unit
			Min	Typ	Max	
BV_{CEO}	Collector−Emitter Breakdown Voltage	I_C = 50 mA, I_B = 0	60	–	–	V
I_{CBO}	Collector Cut−off Current	V_{CB} = 60 V, I_E = 0	–	–	100	μA
I_{EBO}	Emitter Cut−off Current	V_{EB} = 7 V, I_C = 0	–	–	10	μA
h_{FE1} h_{FE2}	DC Current Gain	V_{CE} = 5 V, I_C = 0.5 A V_{CE} = 5 V, I_C = 3 A	100 20	–	320	–
V_{CE}(sat)	Collector−Emitter Saturation Voltage	I_C = 2 A, I_B = 0.2 A	–	0.4	1	V
V_{BE}(on)	Base−Emitter ON Voltage	V_{CE} = 5 V, I_C = 0.5 A	–	0.7	1	V
f_T	Current Gain Bandwidth Product	V_{CE} = 5 V, I_C = 0.5 A	–	3	–	MHz

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	Y	G
h_{FE1}	100 ~ 200	150 ~ 320

KSD2012

TYPICAL CHARACTERISTICS

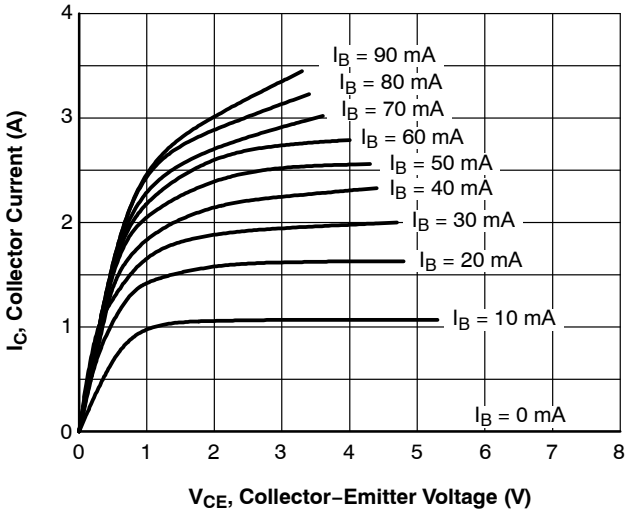


Figure 1. Static Characteristic

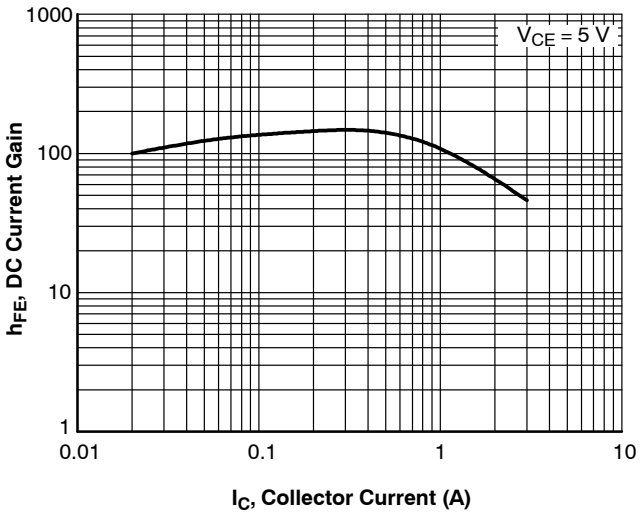


Figure 2. DC Current Gain

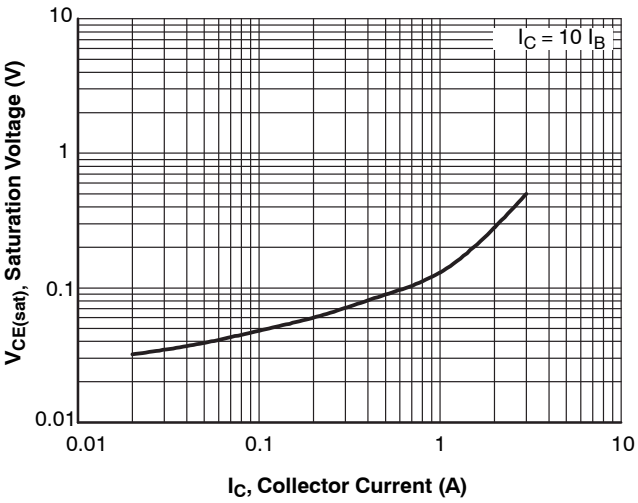


Figure 3. Collector−Emitter Saturation Voltage

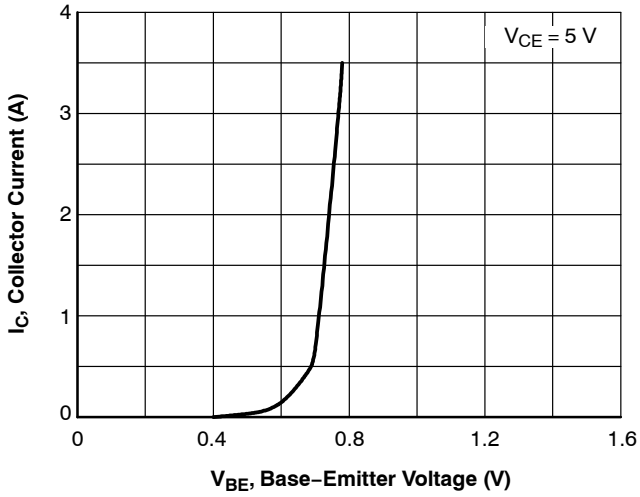


Figure 4. Base−Emitter On Voltage

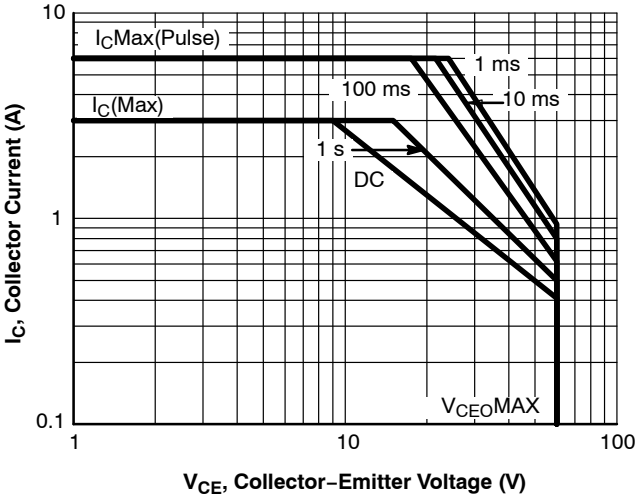


Figure 5. Safe Operating Area

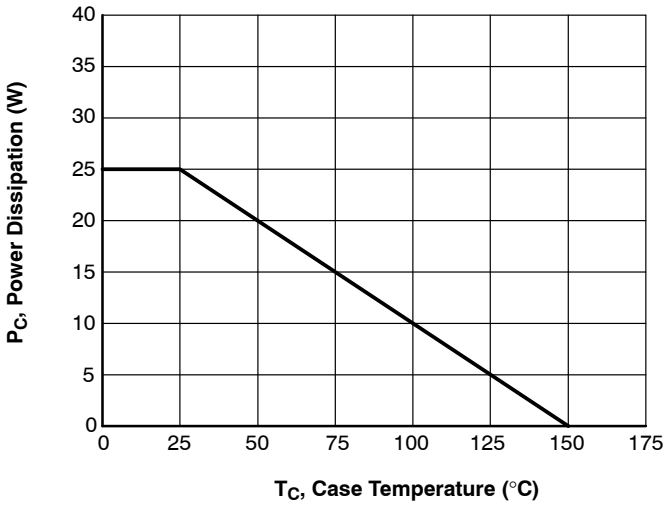


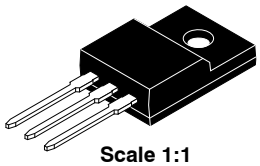
Figure 6. Power Derating

onsemi

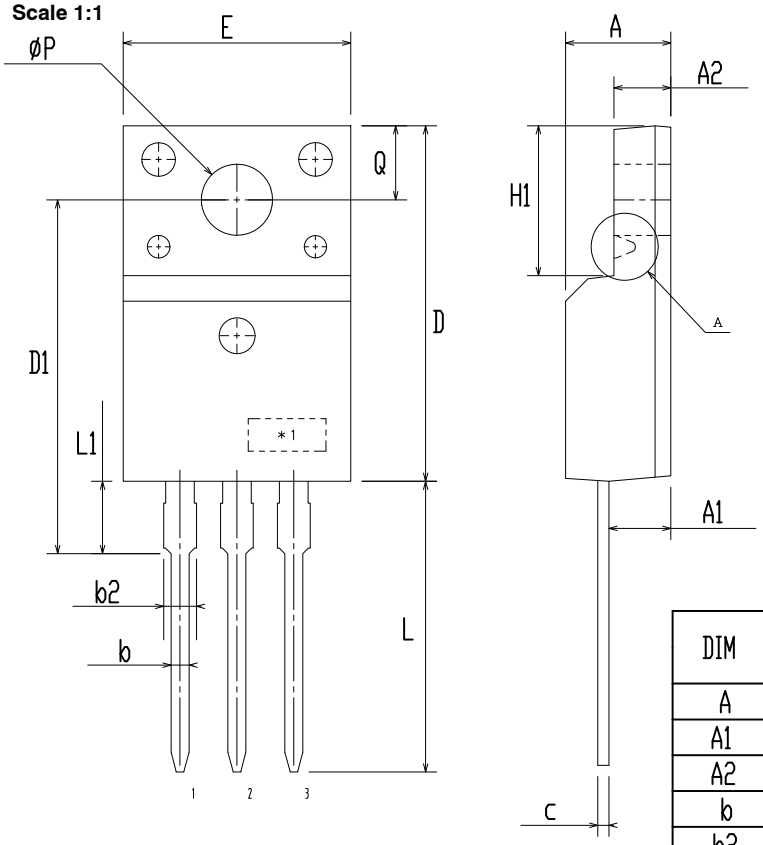
MECHANICAL CASE OUTLINE
PACKAGE DIMENSIONS

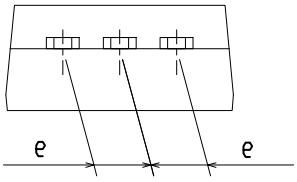
TO−220 Fullpack, 3−Lead / TO−220F−3SG
CASE 221AT
ISSUE B

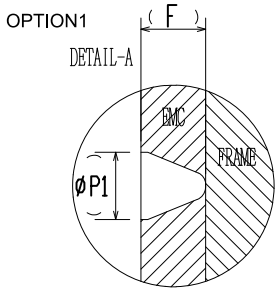
DATE 19 JAN 2021



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

DOCUMENT NUMBER:	**98AON67439E**	Electronic versions are uncontrolled except when accessed directly from the Document Repository. Printed versions are uncontrolled except when stamped "CONTROLLED COPY" in red.	
DESCRIPTION:	**TO−220 FULLPACK, 3−LEAD / TO−220F−3SG**		**PAGE 1 OF 1**

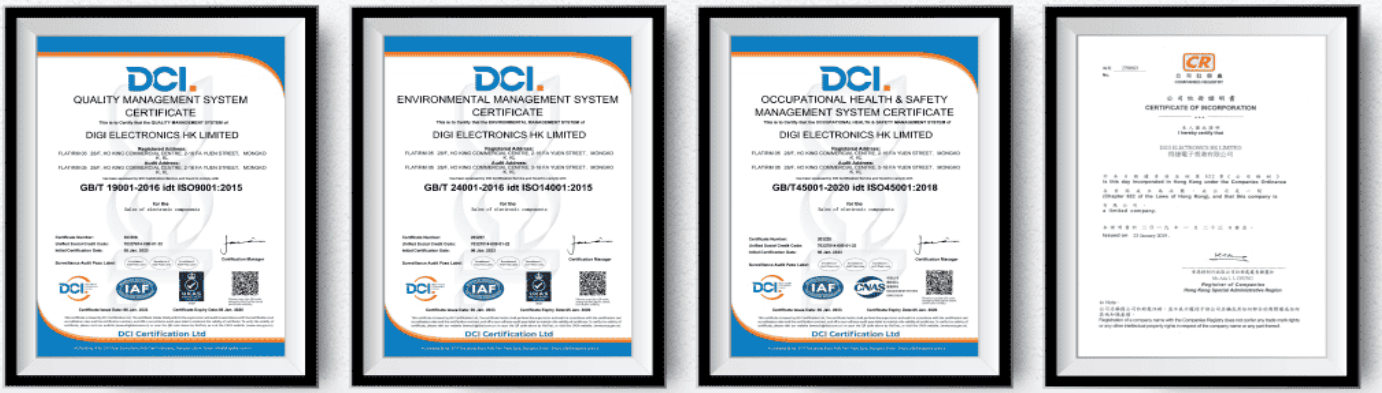
ADDITIONAL INFORMATION

TECHNICAL PUBLICATIONS:
Technical Library: www.onsemi.com/design/resources/technical−documentation
onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.