KX101-26

Preliminary 10/2013

KCB SOLUTIONS
RF DESIGN & MANUFACTURING

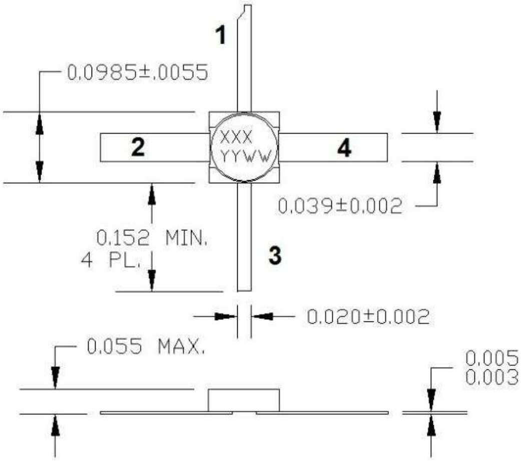
NPN SILICON HIGH FREQUENCY TRANSISTOR

Description

KX101-26 NPN epitaxial silicon transistor is designed to replace the NE85635 transistor. It offers low noise figure, high gain, and high current capability which equates to wide dynamic range and excellent linearity. The KX101-26 offers excellent performance and reliability for hi-rel applications. This device is provided in a hermetic micro-x package for high frequency performance.

Features

- ☐ High Gain Bandwidth Product: f_T= 7 GHz
- ☐ Low Noise Figure: 1.1 dB at 1 GHz
- ☐ High Collector Current:100 mA
- ☐ High Reliability Metallization
- ☐ Screening to JANTX, JANTXV and JANS available



Pinout

1	**Base**
2	**Emitter**
3	**Collector**
4	**Emitter**

Absolute Maximum Rating (+25°C)

Parameter	Symbol	Rating	Units
Collector to Base Voltage	V_{CBO}	20	V
Collector to Emitter Voltage	V_{CEO}	12	V
Emitter to Base Voltage	V_{EBO}	3.0	V
Collector Current	I_C	100	mA
Junction Temperature	T_J	200	˚C
Storage Temperature	T_{STG}	-65 to +150	˚C

Electrical Characteristics (+25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Gain Bandwidth Product	f_T	V_{CE} = 10 V, I_C = 20 mA		7.0		GHz
Noise Figure	NF	V_{CE} = 10 V, I_C = 7 mA, f = 2 GHz		2.1	3.4	dB
Associated Gain	G_A	V_{CE} = 10 V, I_C = 7 mA, f = 2 GHz		10		dB
Insertion Power Gain	$\|S_{21E}\|^2$	V_{CE} = 10 V, I_C = 20 mA, f = 2 GHz	7	9		dB
Forward Current Gain	h_{FE}	V_{CE} = 10 V, I_C = 20 mA	50	120	300	dBm
Collector Cutoff Current	I_{CBO}	V_{CB} = 15 V, I_E = 0 mA			1.0	µA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 1 V, I_C = 0 mA			1.0	µA
Feedback Capacitance	C_{re}	V_{CB} = 10 V, I_E = 0 mA, f = 1 MHz		0.55	1.0	pF

Typical Performance Curves (+25°C)

Typical performance curves currently being evaluated. Contact KCB Solutions for further Information.

MIL-PRF-19500 Screening Flow

Test Inspection	MIL-STD-750 Method	Condition	JANS	JANTXV	JANTX
Internal Visual Inspection	2070	B	100%	100%	100%
Temperature Cycling	1051	20 cycles	100%	100%	100%
Thermal Impedance	3131		100%	100%	100%
Constant Acceleration	2006	Y1 direction	100%	NA	NA
PIND	2052	A (5 Cycles)	100%	NA	NA
Seal: Fine Leak	1071	A	100%	100%	100%
Gross Leak		C	100%	100%	100%
Serialization	Per Product Specification		100%	NA	NA
Initial Electrical Test	Per Product Specification	+25^{O}C	100%	NA	NA
High Temp Reverse Bias	1039	A	100%	100%	100%
Interim Electrical Test	Per Product Specification	+25^{O}C	100%	100%	100%
Power Burn In	1039	B	100% 240 hrs min	100% 160 hrs min	100% 160 hrs min
Final Electrical	Per Product Specification	+25^{O}C	100%	100%	100%
PDA Calculation	Per Product Specification		100%	100%	100%
Seal: Fine Leak	1071	A	100%	100%	100%
Gross Leak		C	100%	100%	100%
Radiography	2076		100%	NA	NA
External Visual	2071		100%	NA	NA
Case Isolation	1081		100%	100%	100%

Ordering Information

KCB Solutions Part Number	Screening Level
KX101-26	Unscreened
KX101-26V	JANTXV Screening
KX101-26X	JANTX Screening
KX101-26S	JANS Screening