

YSD040SLPP01 YSD080SLBD01 YSD110SLBD01

New Products

Features

- Low Series Resistance
- Low Capacitance
- High Cut-off frequency

Description

YOKOWO's YSD Series diodes are gallium arsenide Schottky barrier diodes designed for use through K, U, V, E and W-bands.

Typical applications are :

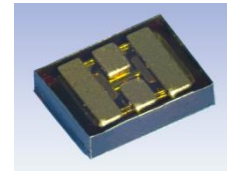
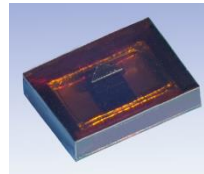
- Mixers in communication equipment
- Detectors in sensors and ITS radars
- Switches for millimeter-wave signal control in transceivers.

The diodes can be assembled easily by flip-chip bonding.

SMT packaged part is available.

Photo

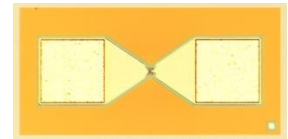
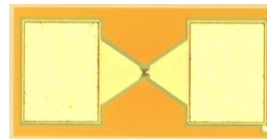
YSD040SLPP01



Package Outline

YSD080SLBD01

YSD110SLBD01



Chip Outline

Absolute Maximum Ratings, $T_j=25^\circ\text{C}$, Single Diode

Parameter	Symbol	Unit	Rating
Junction Temperature	T_j	$^\circ\text{C}$	125
Storage Temperature	T_{stg}	$^\circ\text{C}$	-55 to +125
Thermal Resistance	R_{th}	$^\circ\text{C}/\text{W}$	500
Reverse Voltage	V_r	V	5

ESD Attention

Attention:
Observe precautions for
handling electrostatic
sensitive devices.

ESD Machine Model : ClassM1
ESD Human Body Model : Class0

RoHS compliant



Lead (Pb) Free
RoHS 6 fully
compliant

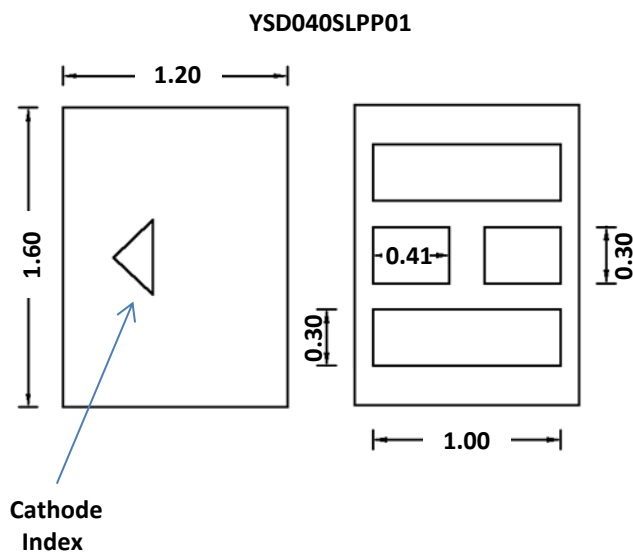
**Electrical Specifications $T_j=25^\circ\text{C}$, Single Diode**

Parameter	Test Conditions	Symbol	Units	Parts No.	Specification		
					Min.	Typ.	Max.
Total Capacitance	$V = 0\text{V}$ at 1 MHz	C_T	fF	YSD040	45	60	75
				YSD080	30	45	60
				YSD110	25	40	55
Junction Capacitance	$V = 0\text{V}$ at 1 MHz	C_j	fF		---	30	---
Forward Turn-on Voltage	$I_F = 1\text{mA}$	V_F	mV	YSD040	600	700	800
Series Resistance	$I_{\text{max}} = 10\text{mA}$	R_S	Ω	YSD080	---	5	8
				YSD110	---	5	8
Reverse Breakdown Voltage	$I_R = 10\ \mu\text{A}$	V_R	V		7	10	---

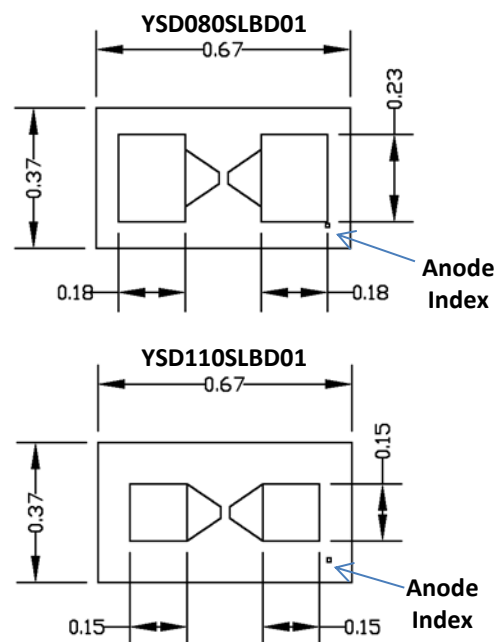
YSD040SLPP01 YSD080SLBD01 YSD110SLBD01

Outline Drawings

Package Outline Unit : mm

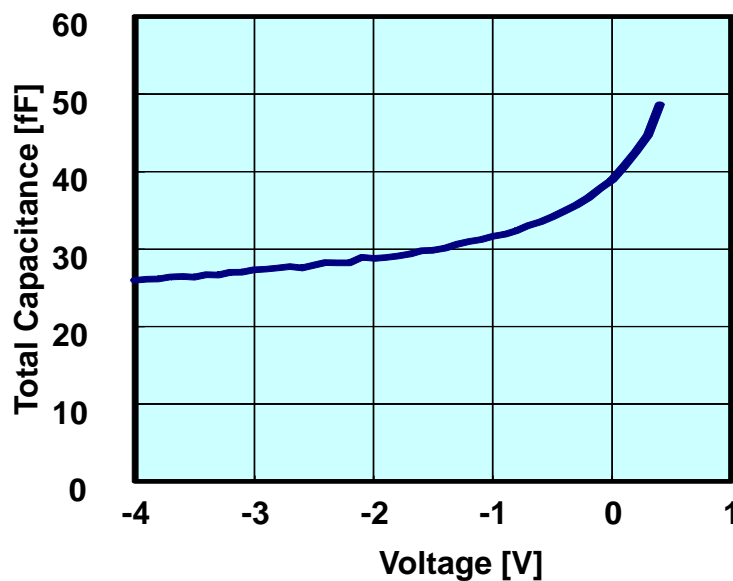


Chip Dimensions Unit : mm



CV Curve

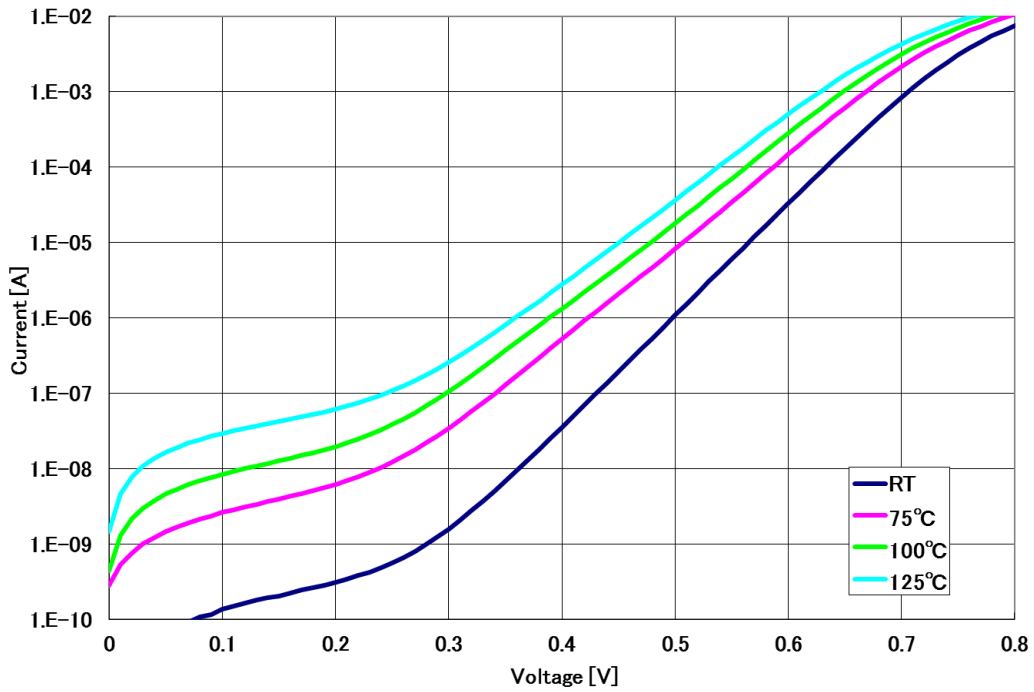
YSD110SLBD01



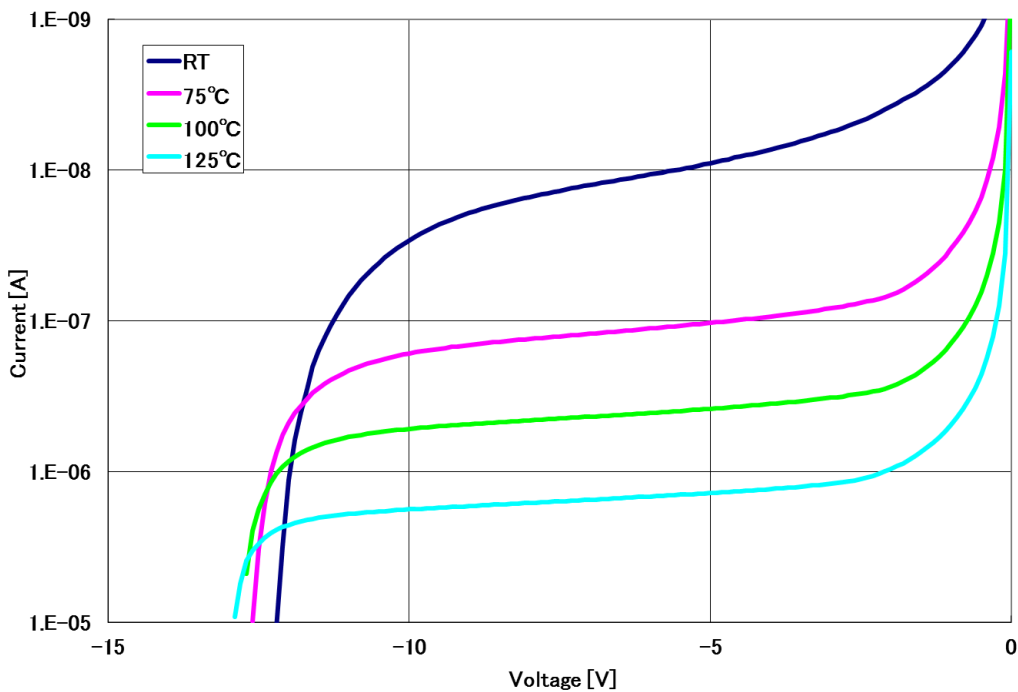


Parts Number : YSD040SLPP01 YSD080SLBD01 YSD110SLBD01

Forward Current vs. Forward Voltage Parameter : Temperature



Reverse Current vs. Reverse Voltage Parameter : Temperature



Parts Number : YSD040SLPP01

S-Parameters : Single Diode, Packaged Device

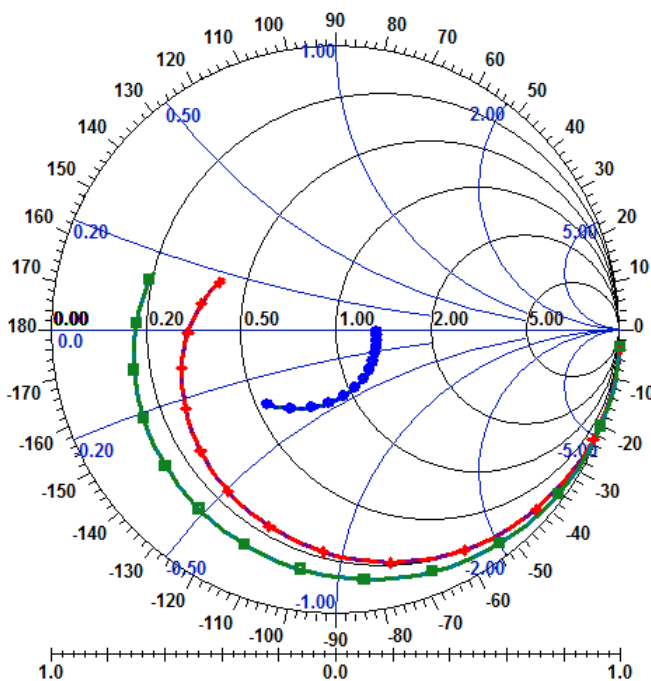


Port 1 Port 2

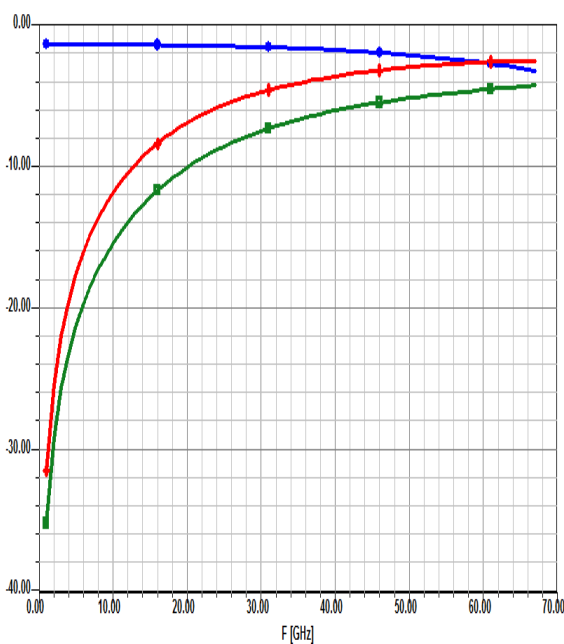
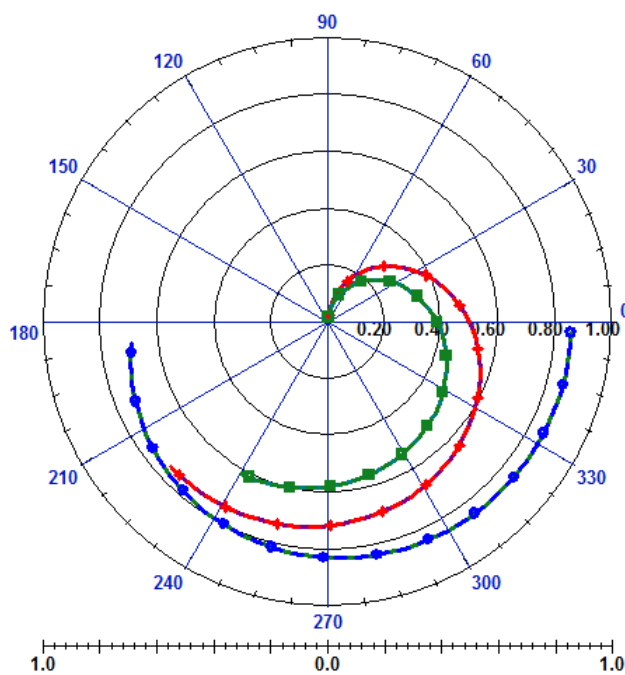
- $V_a = +0.75\text{ V}$
- 0.0 V
- -4.0 V

$f = 1 \sim 67\text{GHz}$, 5GHz step

S-Parameters : S11



S-Parameters : S21



Parts Number : YSD080SLBD01

S-Parameters : Single Diode, Bare Chip

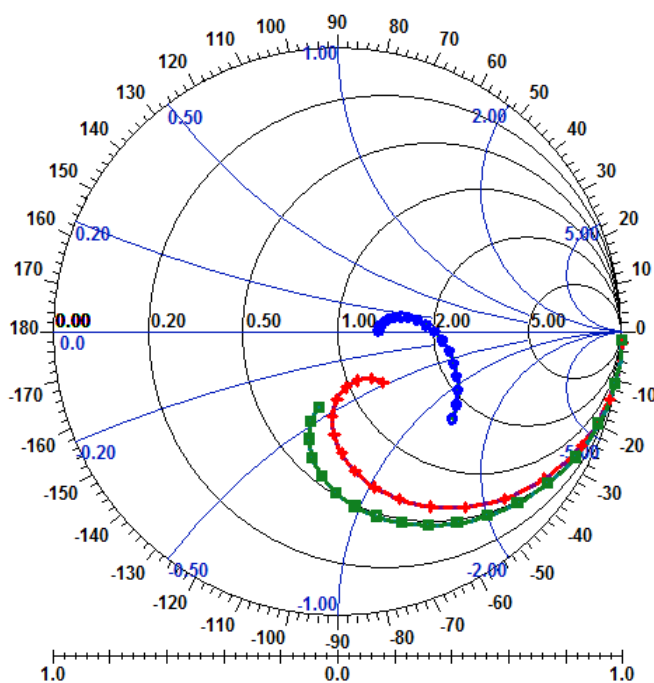


Port 1 Port 2

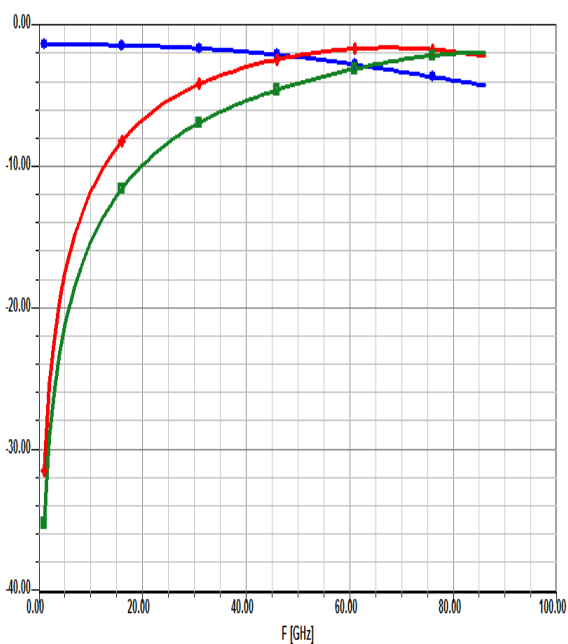
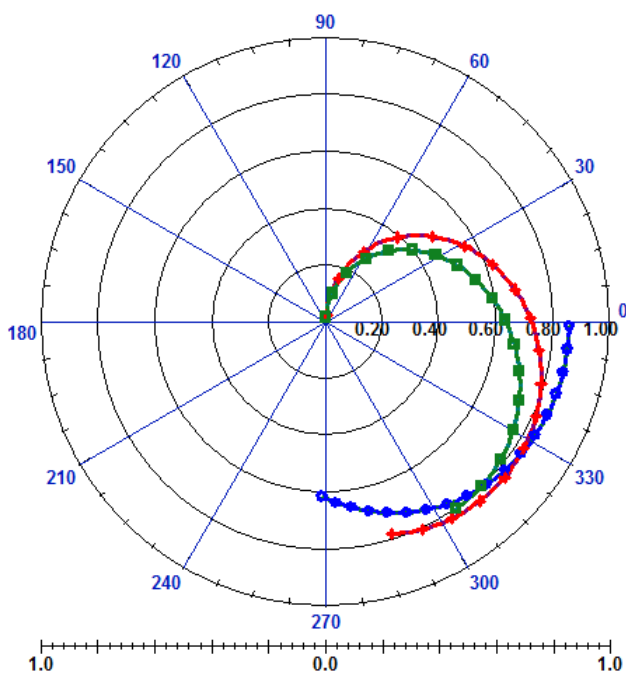
- $V_a = +0.75\text{ V}$
- 0.0 V
- -4.0 V

$f = 1 \sim 86\text{GHz}$, 5GHz step

S-Parameters : S11



S-Parameters : S21



Parts Number : YSD110SLBD01

S-Parameters : Single Diode, Bare Chip

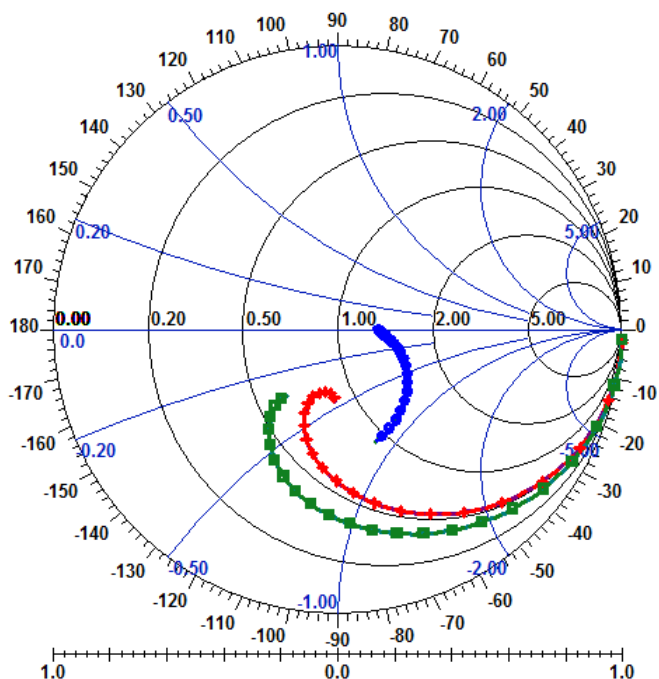


Port 1 Port 2

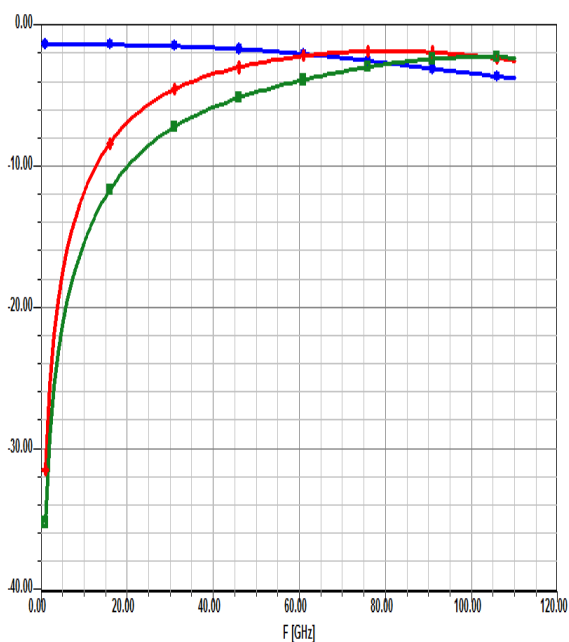
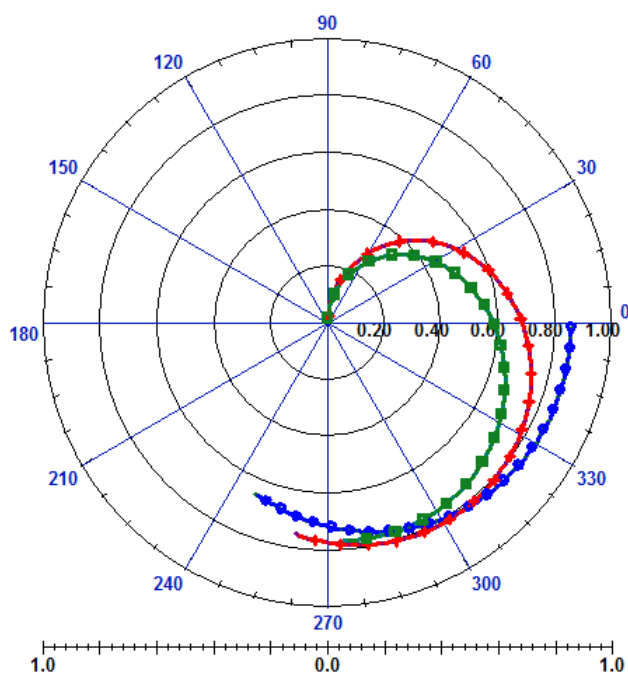
- $V_a = +0.75\text{ V}$
- 0.0 V
- -4.0 V

$f = 1 \sim 110\text{GHz}$, 5GHz step

S-Parameters : S11

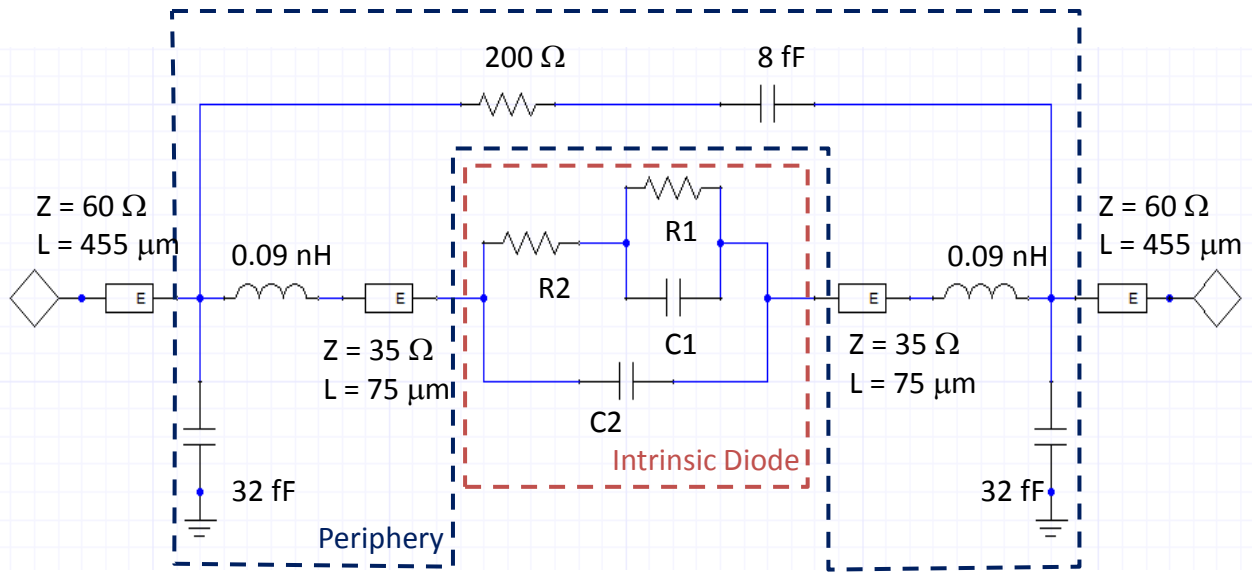


S-Parameters : S21



Parts Number : YSD040SLPP01

Equivalent Circuit : Valid up to 67 GHz



Va (V)	C1 (fF)	C2 (fF)	R1 (Ω)	R2 (Ω)
-4	15	5	100k	40
0	30	5	100k	25
+0.75	50	5	5	12

Typical SPICE Parameters (Intrinsic Diode)

I _S (A)	R _S (Ω)	N	C _{JO} (fF)	M	V _j (V)	F _C	B _V (V)	I _{BV} (A)
4.0E-14	4.9	1.13	39	0.22	0.70	0.40	10	1.0E-05

I _{SR} (A)	N _R	C _P (fF)	T _T (psec)	X _{ti}	E _g (eV)	Area
2.0E-09	2	2	0.005	2	0.85	1

Parts Number : YSD040SLPP01

Recommended PCB Layout

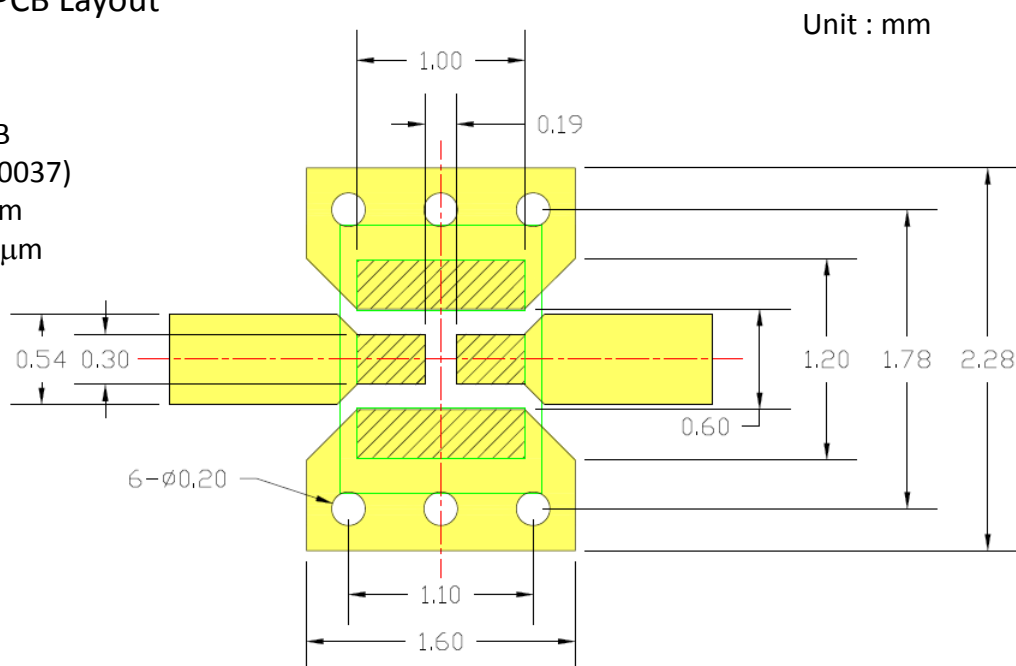
PCB: MSL

Material: RO4350B

($\epsilon=3.48$, $\tan\delta=0.0037$)

Thickness:0.254mm

Metalize: Cu t=18 μ m



Part Number Rule

YSD 110 SL BD 01

Model Number

Highest Usable Frequency in GHz

Configuration (Single type)

Technology Generation Number

Outline Code

BD : Bare Die

PP : Polymer Package

Ordering Contact

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