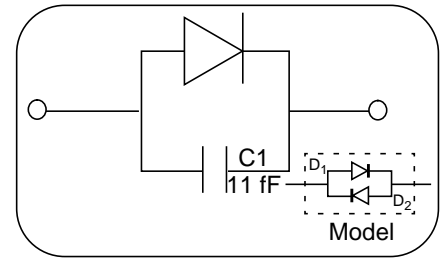


Product Note #002

HSCH-9161 Diode Model

Revision A

HSCH-9161



September 1998

1. Introduction to Product Note

This Product Note provides supplemental information not included in the product data sheet. The purpose of supplemental data is to provide the end user with useful product-specific information to aid in the design process. The information provided does not represent or imply additional product specifications. Every attempt has been made to provide accurate data on typical products. When measured data is provided, the data is meant to represent *typical performance* results in a measurement test circuit, as described.

2. Description

This product note provides a Spice model and a Libra model of the HSCH-9161 discrete beam lead GaAs diode. This diode is a modified barrier Schottky diode which features very low forward voltage and a soft reverse breakdown characteristic. The forward characteristics are modeled using a standard diode model (DMOD1). The reverse characteristics are best modeled using an antiparallel diode with modified characteristic (DMOD2). The 11 femto-farad parallel capacitor represents the parasitic capacitance of the bond pads.

3. Spice Model:

- VSOURCE 1 0
- VMON 1 2 DC 0
- D1 2 0 DMOD1
- D2 0 2 DMOD2
- C1 2 0 .011P
- TEMP 25 65
- MODEL DMOD1 D IS = 12U
RS=50 CJO=30F EG=1.42 N=1.2 PB=.26
- MODEL DMOD2 D IS = .084M
RS=10 CJO=30F EG=1.42 N=40 PB=.26
- DCV VSOURCE -4 1 .1
- PLOT DC I(VMON)
- END

4. Libra DCTR Model:

```

DIM
  IND NH
  CAP PF
  FREQ GHZ
  PWR DBM
  CUR MA
CKT
  RES_1 1 2 R=0.1 !current measuring element
  DIODE_D1 2 0 [MODEL=DMOD1]
  DIODE_D2 0 2 [MODEL=DMOD2]
  CAP_1 2 0 c=0.011
  DEF1P 1 HPD
MODEL
  DMOD1 D IS=12E-6 RS =50 CJO=30E-15
  EG=1.42 N=1.2 VJ=0.26
  DMOD2 D IS=84E-6 RS =10 CJO=30E-15
  EG=1.42 N=40 VJ=0.26
SOURCE
  HPD VS_D1 1 0 DC=1
DCTR
  DCTR1 VS_D1
  SWEEP -4 1 0.1
OUT
  HPD I_HP9161 RES_1 GR1
GRID
  DCTR1 -4 1 1
  GR1 -10 25 5
  
```

Libra DCTR Simulation - Result

