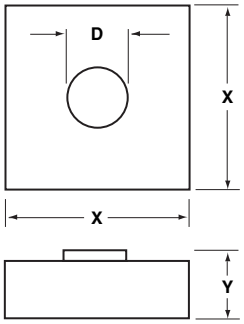
5082-0012
PIN Diode Chip for Hybrid MIC Switches/Attenuators

AVAGO TECHNOLOGIES

Data Sheet

Description
This PIN diode chip is silicon dioxide or nitride passivated. The 5082-0012 has a planar construction. The fabrication processes are optimized for long term reliability and tightly controlled for uniformity in electrical performance.

Outline



DIMENSIONS	
D ±0.03 (1)	0.10 (4)
X ±0.05 (2)	0.38 (15)
Y ±0.03 (1)	0.23 (9.0)
Top Contact	Au. Cathode
Bottom Contact	Au. Anode

Dimensions in millimeters (1/1000 inch)

Features
- Low Series Resistance: 1.0 Ω Typical

Applications
This general purpose PIN diode is intended for low power switching applications such as duplexers, antenna switching matrices, digital phase shifters, time multiplex filters, TR switches, pulse and amplitude modulators, limiters, leveling circuits, and attenuators.

Maximum Ratings
Junction Operating and Storage
Temperature Range ..... -65°C to +150°C
Soldering Temperature ..... +425°C for 1 min. max.

Electrical Specifications at T_A = 25°C

Typical Parameters

Chip Part Number 5082-	Nearest Equivalent Packaged Part No. 5082-	Minimum Breakdown Voltage V_{BR} (V)	Maximum Junction Capacitance C_j (pF)	Typical Series Resistance R_S (Ω)	Typical Lifetime τ (ns)	Typical Reverse Recovery Time t_{rr} (ns)
0012	3001	150	0.12	1.0	400	100
Test Conditions		$V_R = V_{BR}$ Measure $I_R \leq 10$ mA	V_R = 50 V f = 1 MHz	I_F = 100 mA f = 100 MHz	I_F = 50 mA I_R = 250 mA	I_F = 20 mA V_R = 10 V 90% Recovery

Assembly and Handling Procedures for PIN Chips

1. Storage

Devices should be stored in a dry nitrogen purged dessicator or equivalent.

2. Cleaning

If required, surface contamination may be removed with electronic grade solvents. Typical solvents, such as freon (T.F. or T.M.C.), acetone, deionized water, and methanol, or their locally approved equivalents, can be used singularly or in combinations. Typical cleaning times per solvent are one to three minutes. DI water and methanol should be used (in that order) in the final cleans. Final drying can be accomplished by placing the cleaned dice on clean filter paper and drying with an infrared lamp for 5-10 minutes. Acids such as hydrofluoric (HF), nitric (HNO_3) and hydrochloric (HCl) should not be used.

The effects of cleaning methods/solutions should be verified on small samples prior to submitting the entire lot.

Following cleaning, dice should be either used in assembly (typically within a few hours) or stored in clean containers in a reducing atmosphere or a vacuum chamber.

3. Die Attach

a. Eutectic

AuSn preform with stage temperature of 310°C for one minute max. AuGe preform with stage temperature of 390°C for one minute max.

b. Epoxy

For epoxy die-attach, conductive silver-filled or gold-filled epoxies are recommended. This method can be used for all Avago PIN chips.

4. Wire Bonding

Either ultrasonic or thermocompression bonding techniques can be employed. Suggested wire is pure gold, 0.7 to 1.5 mil diameter.

For product information and a complete list of distributors, please go to our web site:
www.avagotech.com

Obsoletes 5965-8880E
5989-4778EN February 23, 2006