

# PIN Diodes

The SemiGen SGP7000 series of PIN Diodes are processed with a high-resistivity epi that have intrinsic layers that range in thickness from 4 micron to 200 micron depending on performance specifications. These devices are typically manufactured with either a robust thermal-oxide passivation or ceramic glass for durable high-power applications. These diodes are made with a grown junction P++ layer that yields abrupt junction structures that provide low punch through voltages and minimize autodoping. They are available as chips or in your choice of packages.

## Features:

- Low Capacitance and Resistance
- Easily Bondable with our F.A.C. Mesas
- High Reliability

## Applications:

For use in low- to high-power switch, attenuator, duplexer and phase-shifting applications from 2 to 20 GHz.

High-Voltage PINs					
Vb 10 $\mu$ A Volts MIN	CT V=100 V F = 1 MHz pf MAX	TL = 10 mA $\mu$ sec MIN	RS @ 100 mA, F = 100 MHz Ohms MAX	Thermal Resistance (C/W) Typical	Part Number
1000	0.10	1.00	1.50	30.00	SGP7070
1000	0.25	2.00	1.20	25.00	SGP7071
1000	0.50	3.00	1.00	20.00	SGP7072
1000	0.75	3.50	0.80	10.00	SGP7073
1000	1.30	4.00	0.40	8.00	SGP7074
1000	2.50	4.50	0.35	5.00	SGP7075

Medium-Power General-Purpose PINs							
Vb 10 $\mu$ A Volts MIN	Cj-10 MAX (PF)	TL TYP (nS)	$\Delta$ jc MAX deg C/W	TS, MAX NS	RS @ 75 mA OHMS MAX	RS @ 20mA OHMS TYP	Part Number
200	0.03	400	65	20	2.60	3.50	SGP7040
200	0.07	400	60	20	1.50	2.20	SGP7041
200	0.10	400	55	20	1.30	2.00	SGP7042
200	0.15	400	50	20	1.00	1.90	SGP7043
200	0.20	400	45	20	0.80	1.70	SGP7044
200	0.30	400	40	20	0.70	1.40	SGP7045
200	0.50	400	20	20	0.60	1.20	SGP7046
200	0.03	600	60	25	2.60	3.50	SGP7047
200	0.07	600	55	25	1.60	3.20	SGP7048
200	0.10	600	50	25	1.20	2.00	SGP7049
200	1.50	600	45	25	0.90	1.90	SGP7050
200	0.20	600	40	25	0.80	1.70	SGP7051
200	0.30	600	35	25	0.70	1.40	SGP7052
200	0.50	600	15	25	0.60	1.20	SGP7053

High-Power Switching and Attenuation PINs							
Vb 10 $\mu$ A Volts MIN	Cj-10 MAX (PF)	TL TYP ( $\mu$ S)	Rs @ 1 mA MAX (Ohms)	Rs @ 10 mA MAX (Ohms)	Rs @ 100 mA MAX (Ohms)	$\varnothing$ jc MAX deg C/W	Part Number
250	0.05	1.00	25.00	10.00	2.00	20.00	SGP7060
250	0.08	1.00	20.00	8.00	1.50	20.00	SGP7061
250	0.10	1.00	15.00	6.00	1.20	20.00	SGP7062
250	0.20	1.00	8.00	3.50	1.00	15.00	SGP7063
250	0.30	1.50	6.00	2.00	0.80	15.00	SGP7064
500	0.08	1.50	40.00	8.00	1.50	15.00	SGP7065
500	0.10	1.50	15.00	5.00	1.20	15.00	SGP7066
500	0.20	1.50	10.00	4.00	1.00	12.00	SGP7067
500	0.30	2.00	8.00	3.50	0.80	10.00	SGP7068
500	0.50	2.00	6.00	2.00	0.70	10.00	SGP7069

Ultra-Fast Switching PINs							
Vb 10 $\mu$ A Volts MIN	Cj-10 MAX (PF)	TL TYP (nS)	$\varnothing$ jc MAX deg C/W	TS. MAX NS	RS @ 50 mA OHMS MAX	RS @ 10mA OHMS TYP	Part Number
25	0.10	10	60	1.5	0.70	1.00	SGP7010
25	0.15	10	50	1.5	0.55	0.80	SGP7011
25	0.20	10	40	1.5	0.45	0.70	SGP7012
25	0.25	10	35	1.5	0.40	0.60	SGP7013

Fast-Switching, Low-Power PINs							
Vb 10 $\mu$ A Volts MIN	Cj-10 MAX (PF)	TL TYP (nS)	$\varnothing$ jc MAX deg C/W	TS. MAX NS	RS @ 75 mA OHMS MAX	RS @ 20mA OHMS TYP	Part Number
70	0.05	60	80	5	0.90	1.20	SGP7020
70	0.10	60	70	5	0.70	1.00	SGP7021
70	0.15	60	60	5	0.60	0.90	SGP7022
70	0.20	60	55	5	0.50	0.70	SGP7023
70	0.25	60	50	5	0.45	0.50	SGP7024
100	0.03	100	90	10	1.20	1.90	SGP7025
100	0.07	100	80	10	0.90	1.50	SGP7026
100	0.10	100	70	10	0.70	1.20	SGP7027
100	0.15	100	60	10	0.60	1.00	SGP7028
100	0.20	100	55	10	0.50	0.90	SGP7029
100	0.30	100	50	15	0.45	0.80	SGP7030
200	0.03	225	90	15	1.90	3.00	SGP7031
200	0.07	225	80	15	1.20	2.20	SGP7032
200	0.10	225	70	15	0.90	1.60	SGP7033
200	0.15	225	60	15	0.80	1.00	SGP7034
200	0.20	225	55	15	0.70	0.80	SGP7035
200	0.30	225	50	15	0.60	0.70	SGP7036

