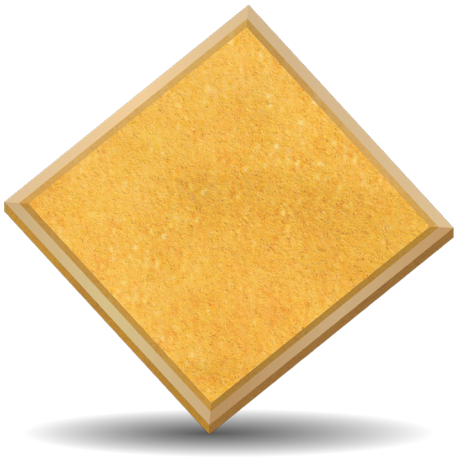
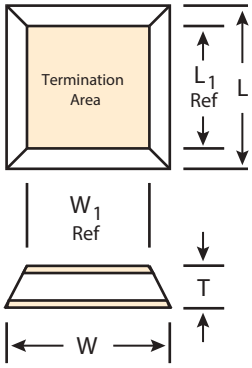
Microwave SLCs

GN Series – SLC's With Beveled Edges
Single Sided Recessed Metalization





Case Size	Ref. W1 or L1
S	.014 (.356)
T	.019 (.483)
U	.030 (.762)
X	.045 (1.14)
Y	.065 (1.65)
Z	.085 (2.16)

T depends upon capacitance value.

The GN Series – The beveled edges featured in the GN Series minimize the potential for cracking due to mechanical or thermal shock. The longer path along the beveled edge also provides additional protection against arc-over.

SELECTION GUIDE

Case Size		GN18			GN25			GN35			GN50			GN70			GN90		
Dimensions (L&W nom.)		0.018 (0.457) ± 0.003 (0.076)			0.025 (0.635) ± 0.005 (0.127)			0.035 (0.889) ± 0.005 (0.127)			0.050 (1.27) ± 0.010 (0.254)			0.070 (1.78) ± 0.010 (0.254)			0.090 (2.29) ± 0.010 (0.254)		
Min. Thickness (T)		0.0045 (0.114)			0.0045 (0.114)			0.0045 (0.114)			0.0045 (0.114)			0.0045 (0.114)			0.0045 (0.114)		
Max. Thickness (T)		0.012 (0.305)			0.012 (0.305)			0.012 (0.305)			0.012 (0.305)			0.012 (0.305)			0.012 (0.305)		
		Capacitance (pF)			Capacitance (pF)			Capacitance (pF)			Capacitance (pF)			Capacitance (pF)			Capacitance (pF)		
Dielectric	K	Min.	Max.	Tol.	Min.	Max.	Tol.	Min.	Max.	Tol.	Min.	Max.	Tol.	Min.	Max.	Tol.	Min.	Max.	Tol.
A	14	0.1	0.2	A, B	0.2	0.4	A, B	0.4	0.9	A, B, C	0.6	2.0	B, C	1.3	3.6	B, C	2.4	5.6	B, C
1	31	0.3	0.4	A, B, C	0.4	1.0	B, C	0.8	1.8	B, C, D	1.3	4.3	C, D	3.0	8.2	C, D	5.1	13	D, J, K, M
2	60	0.5	0.9	B, C, D	0.8	2.0	C, D	1.5	3.9	C, D	2.7	9.1	D, J, K, M	6.2	16	D, J, K, M	10	24	G, J, K, M
3	130	0.9	2	C, D	1.5	4.3	D, K, M	3.3	8.2	D, J, K, M	5.6	18	J, K, M	12	33	J, K, M	22	56	G, J, K, M
5	165	1.2	2.4	C, D	2	5.6	D, K, M	4.3	10	D, J, K, M	7.5	24	J, K, M	15	43	J, K, M	27	68	G, J, K, M
4	200	1.5	3	D, K, M	2.4	6.8	D, K, M	5.1	12	J, K, M	9.1	30	J, K, M	20	51	J, K, M	33	82	G, J, K, M
7	420	2.4	5.6	K, M	4.3	12	K, M	9.1	22	J, K, M	15	47	J, K, M	33	91	J, K, M	56	150	G, J, K, M
Y	650	4.7	10	K, M	7.5	22	K, M	16	39	J, K, M	27	91	J, K, M	62	160	J, K, M	110	270	G, J, K, M
6	650	4.7	10	K, M	7.5	22	K, M	16	39	J, K, M	27	91	J, K, M	62	160	J, K, M	110	270	G, J, K, M
J	1100	7.5	15	K, M	15	36	K, M	27	68	J, K, M	47	160	J, K, M	100	300	J, K, M	180	470	J, K, M
F	2000	15	27	K, M	27	68	K, M	51	120	J, K, M	91	300	J, K, M	200	510	J, K, M	330	820	J, K, M
C	4000	33	68	K, M	56	150	K, M	110	270	J, K, M	200	680	J, K, M	430	1200	J, K, M	750	1800	J, K, M
G	6000	47	91	M	75	180	M	150	360	M	270	820	M	560	1600	M	1000	2400	M
K	9000	62	120	M	110	270	M	220	510	M	390	1200	M	820	2200	M	1500	3300	M
L	16000	110	220	M	180	510	M	390	910	M	680	2200	M	1500	3900	M	2400	6200	M

HOW TO ORDER

GN — **Type Code**: GN = Beveled Edge

25 — **Case Code**: 18, 25, 35, 50, 70, 90

1 — **Rated Voltage Code**: 1 = 100WVDC

J — **Dielectric Code**: See Table

300 — **Capacitance Value**: See Table

M — **Capacitance Tolerance**: A = ±0.05pF, B = ±0.1pF, C = ±0.25pF, D = ±0.5pF, G = ±2%, J = ±5%, K = ±10%, M = ±20%

A — **Termination Code**: **N = Ti/W-Ni-Au** Au (100µ-in min) over Ni (1500Å nom) over Ti/W (500Å nom) **A = TiW-Au**

6N — **Packaging Code**: 6N = Waffle Pack

RoHS COMPLIANT

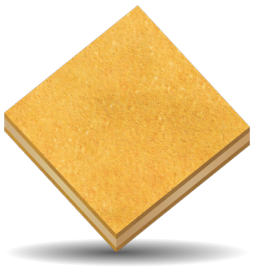
NOTE: "2" Dielectric is not RoHS Compliant

TABLE I - Dielectric Codes, Types & Product Styles

Dielectric Type & Code		Dielectric Constant	Temperature Coefficient	Temperature Range	Min Q at 1MHz	Max. DF (%)*		IR (Min) 25°C
						1 MHz	1 kHz	
NPO	A	14	+90±30PPM/°C	-55°C to +125°C	10,000	0.01	N/A	10^5 Mohms
	1	31	0±30PPM/°C		660	0.15	N/A	
	2**	60	0±30PPM/°C		660	0.15	N/A	
Temp Comp	3	130	-750±200PPM/°C	-55°C to +125°C	660	0.15	N/A	10^5 Mohms
	5	165	-1500±500PPM/°C		400	0.25	N/A	
	4	200	±7.5% (non-linear)		400	0.25	N/A	
	7	420	-2000±500PPM/°C		200	0.70	0.30	
	Y	650	-4700±1500PPM/°C		400	0.30	0.30	
	6	650	±10% (non-linear)		60	1.50	1.50	
X7R	J	1,100	+5% to -15% (non-linear)	-55°C to +125°C	40	2.50	2.00	10^5 Mohms
	F	2,000	±15% (non-linear)		40	2.50	2.00	
	C	4,000	±15%		25	4.00***	2.00***	
	G	6,000	+10% to -75% max. change (non-linear)		40	2.50	2.00	
	K	9,000	0% to -92% max. change (non-linear)		25	4.00	2.00	
	L	16,000	0/-92%		30	3.50	2.00	
X7S	Z	5,000-18,000	±22%	-55°C to +125°C	30	NA	2.5	10^4 Mohms
X7R	8	20,000	±15%	-55°C to +125°C	30	NA	2.5	10^4 Mohms
	9	30,000	±15%					
	0	60,000	±15%					

*Capacitance & DF are measured at 1MHz for values ≤100pF and 1 KHz for capacitance values >100pF
**NOTE: Code 2 DIELECTRIC IS NOT RoHS COMPLIANT
***DF for the GP, GM, and the GA series with C dielectric is 6.5%

GH SERIES



GB SERIES

GP SERIES

GN SERIES

TABLE II

MIL Reference	Parameter	Method or Paragraph
MIL-STD-883	Bond Strength	2011.7
MIL-STD-883	Shear Strength	2019
MIL-PRF-49464	Thermal Shock	4.8.3
MIL-PRF-49464	Voltage Conditioning	4.8.3
MIL-PRF-49464	Temperatue Coefficient	4.8.10
MIL-STD-202	Low Voltage Humidity	103 A
MIL-STD-202	Life Test	108

COTS

Commercial Off The Shelf

High Reliability Certification Program

The COTS Program provides a cost efficient approach to qualifying standard products for enhanced reliability applications. This flexible program offers standard screening packages with options to support specifics of customer-driven program requirements.

Applications:

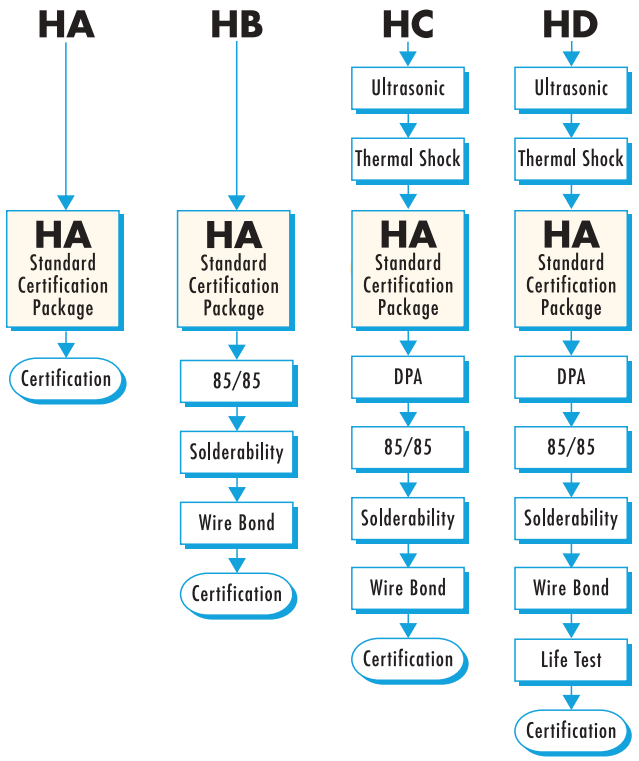
- **Ruggedized Commercial**

(Medical, Industrial, Telecommunications)

- **Military**

(Ground, Naval, Airborne)

- **Space/Satellite**



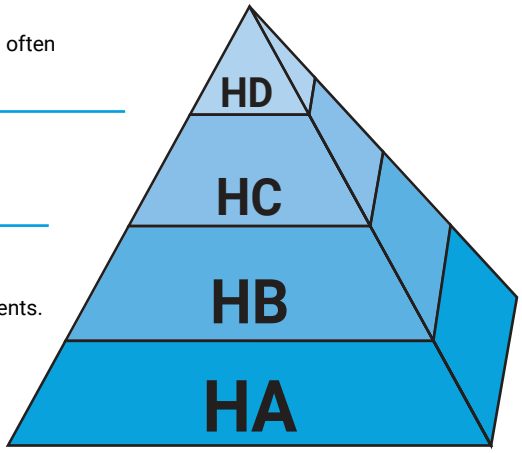
COTS Screening Options

HD: Highest Screening Level
The highest screening option adds life testing as an assurance in mission critical applications and is often used as an alternative in space qualified applications.

HC: Airborne Applications
Often used in airborne applications, this profile closely models the military specifications.

HB: Additional Sample Testing
Built upon our standard HA Screening, this program provides additional sample testing to certify the termination for attachment integrity and the ability to survive and perform in high humidity environments.

HA: Standard Upscreen Package
ATC's Standard Hi Rel certification screening profile is typically used as a lower cost means to certify product reliability. HA screening is used throughout the industry in ground based military applications as well as stringent commercial applications.



P/N Prefix				Evaluation Operation	Sample Size
HA	HB	HC	HD		
		X	X	Ultrasonic Screening†	100%
		X	X	Thermal Shock (5 Cycles for HC and 20 Cycles for HD)	100%
X	X	X	X	Standard Hi-Rel Certification Package (HA)	100%
		X	X	Destructive Physical Analysis	see table*
	X	X	X	85/85 (Low Voltage Moisture Humidity)	13 units*
	X	X	X	Solderability (Solderable or Solder Coated Only)	5 units*
	X	X	X	Wire Bond Test (Gold Terminated Chips Only)	13 units*
			X	Life Test (2000)	25 units*

* Additional sample units required that have passed the 100% testing along with the deliverable (flight) quantity.
† Ultrasonic Screening does not apply to SLC products.

DPA Sample Table	
Lot Size	Sample
1 - 500	14
501 - 10,000	32
10,001 - 35,000	50
35,001 and up	80