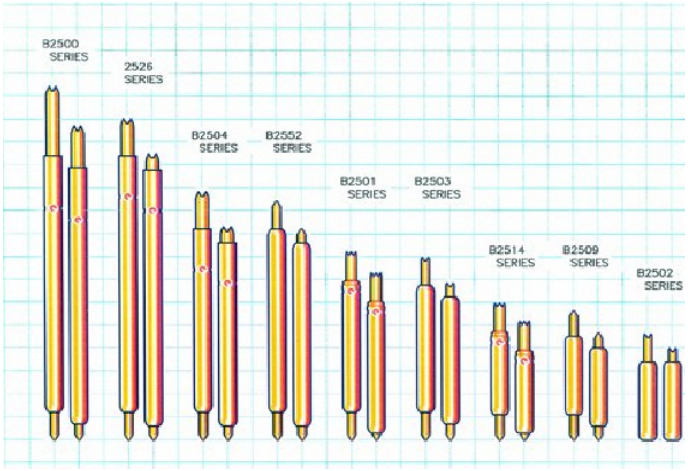
B2500
B Series
0.5mm (.0197inch) Pitch

FEATURES

- **<-1db insertion loss to 6.4GHz**
- **<2:1VSWR to 5.6GHz**
- **28g operating spring force**
- **Z0 = 33.1Ω**
- **<40.5ps risetime**
- **80milliOhms contact resistance**
- **2.6A max drive current**



GENERAL DESCRIPTION

The B2500 series spring probes from Signal Integrity Inc. are designed to meet the rigorous test requirements driven by the fast risetimes and increased need for RF and wireless bandwidth in the high volume, very fine pitch test socket market. Along with speed and accuracy, these probes are designed to operate at pitches down to 0.5mm, specifically tailored to the ultra fine packaging these markets demand.

The high bandwidth of these probes provides very low insertion loss up to 6.4GHz. These probes will provide transparent operation on Bluetooth, 802.11b and 3G wireless protocol devices and exceed the test probe requirements for fine pitch SOC devices, ASIC devices, microwave communications devices and system interconnects.

With an impulse risetime of less than 40.5ps and a propagation delay of 39ps, the B2500 Series is designed for building transparent test channels or interconnect solutions that must address the signal performance needed in data communications and source synchronous memory busses up to 5Gb/s.

SERIES B2500 ORDERING INFORMATION

B Series 0.5mm (.0197inch) Pitch				
Model	**Length Operating /Initial Inches [mm]**	**DUT Plunger and Plating**	**Spring**	**Operating Spring Force**
B2500-A1	**.275 [6.99] / .304[7.72]**	**4 Point Serrated - Gold – Tool Steel**	**Stainless Steel**	**28 Grams**
B2500-F6		**Conic - Gold - BeCu**	**Stainless Steel**	**28 Grams**
B2500-H8		**Spherical - Gold - BeCu**	**Stainless Steel**	**28 Grams**
B2500-J1		**Red Crown – Palladium – Tool Steel**	**Stainless Steel**	**28 Grams**
B2500-K2		**Reduced Crown – Gold – Tool Steel**	**Stainless Steel**	**28 Grams**
B2500-L3		**Spherical – Palladium - BeCu**	**Stainless Steel**	**28 Grams**
B2500-N5		**Spherical – Gold - BeCu**	**Stainless Steel**	**21 Grams**

FUNCTIONAL SPECIFICATIONS

Model	B2500-K2			
Time Domain	**Min.**	**Typ.**	**Max.**	**Units**
TDT Risetime into 50Ω			40.5	ps
TDR Risetime open circuit			60.0	ps
TDR Risetime short circuit			102.0	ps
Signal Delay into 50Ω		39.0		ps
Frequency Domain				
Insertion Loss				
<-1db	6.4			GHz
<-3db	26.1			GHz
Return Loss, S11				
<-10db	6.9			GHz
<-20db	1.5			GHz
VSWR				
<2:1	21.5			GHz
Equivalent Circuit Parameters				
Pin Inductance		1.73		nH
Pin Capacitance to ground		0.51		pF
Mutual Inductance		0.29		nH
Mutual Capacitance		0.21		pF
Transmission Line				
Zo		33.1		Ω
Tl		39.0		ps
DC Parameters				
Contact Resistance		80		mΩ
Maximum Rating				
Drive Current		2.6		A

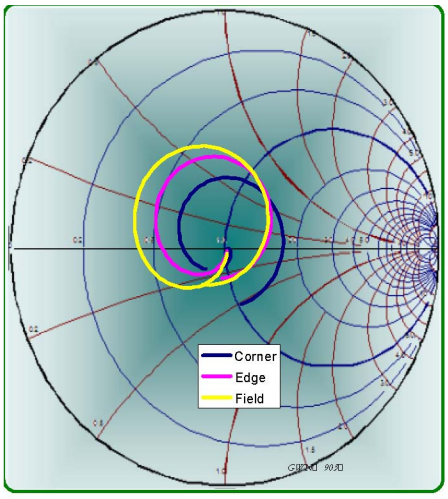


Figure 2: Measurement into 50Ω, B2500-K2

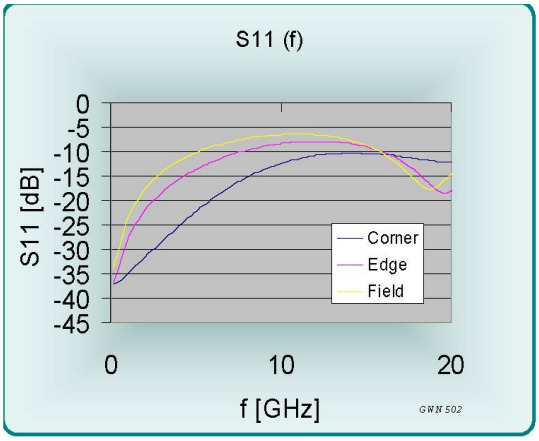


Figure 3: Return Loss, S11, B2500-K2

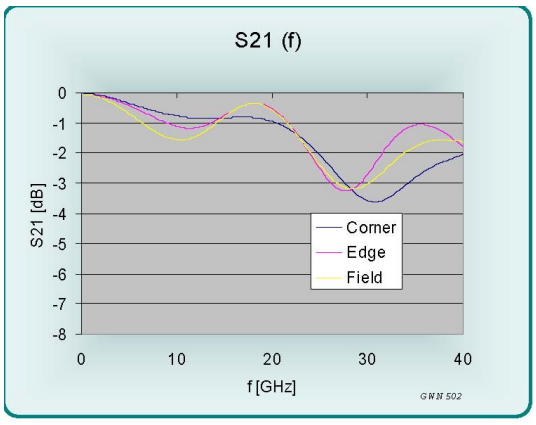


Figure 1: Insertion Loss, S21, B2500-K2

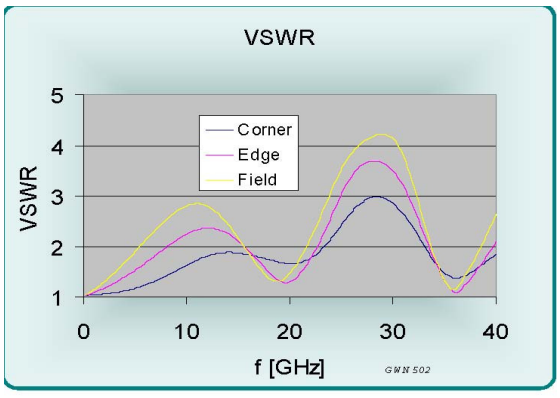


Figure 4: VSWR, B2500-K2

EQUIVALENT CIRCUITS / SPICE MODELS

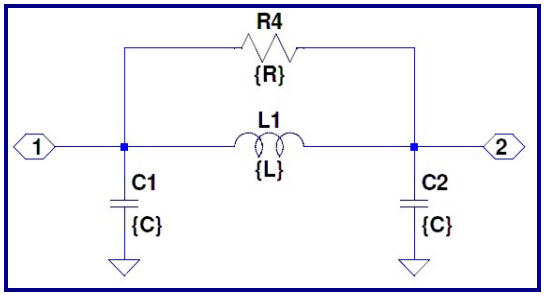


Figure 5: Pi Equivalent, Valid to <5GHz

C1, C2	0.510	pF
L1	1.73	nH
R4	700	Ohms

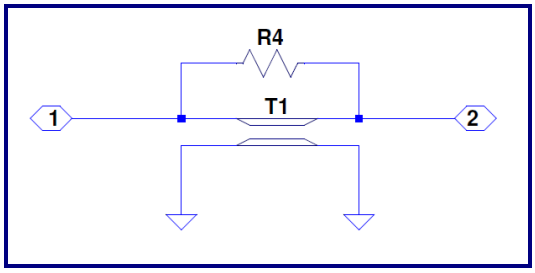


Figure 6: Transmission Line Model, Valid to >20GHz

ZO	44.2	Ohms
T1	45.08	ps
R4	1000	Ohms

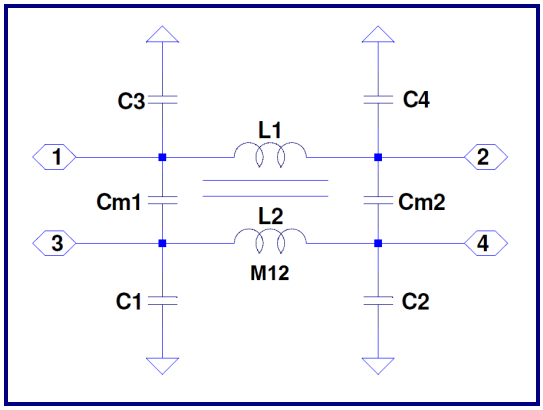


Figure 7: Lumped, Mutual Elements

C1,2,3,4	0.510	pF
Cm1, Cm2	0.210	pF
L1, L2	1.73	nH
M12	0.293	nH

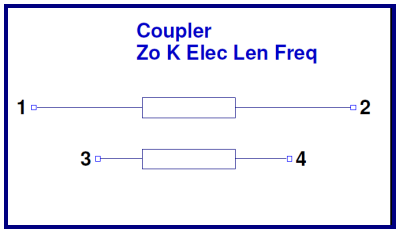


Figure 8: Transmission Line Equivalent for Crosstalk

Z0	33.1	Ohms
Tl	39.0	ps

SIGNAL INTEGRITY

B2500

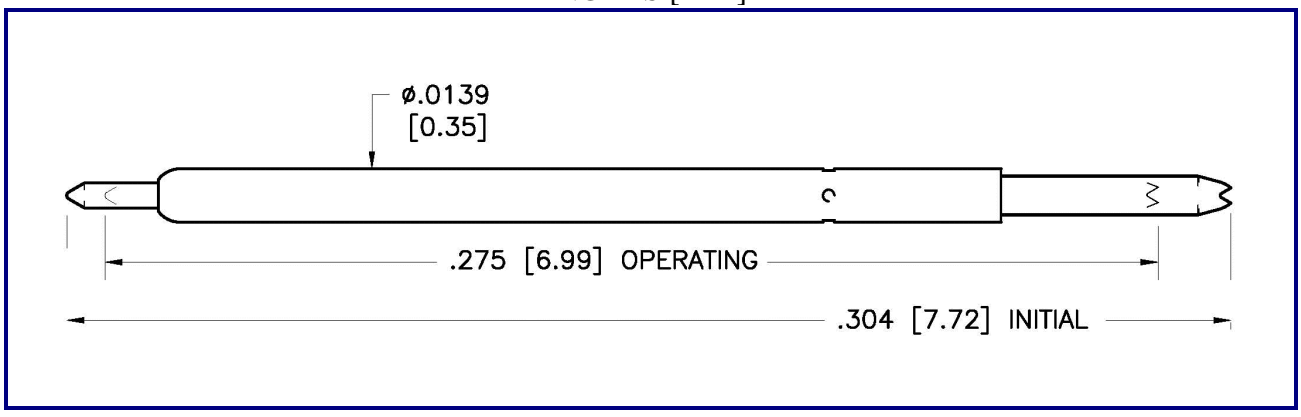
B SERIES MODELS

B Series 0.5mm (.0197 inch) Pitch									
Probe Series	Initial Length inch / mm		Operating Position inch / mm		Spring Force	Self Inductance	Insertion Loss <-1db to	Typical Contact Resistance	Maximum Current
B2500	.304”	7.72	.275”	6.99	28 g	1.73 nH	6.4 GHz	80 mOhms	2.6 A
B2501	.162”	4.11	.150”	3.81	20-35 g	0.97 nH	11.2 GHz	50 mOhms	2.8 A
B2502	.091”	2.31	.085”	2.16	32 g	0.54 nH	17.0 GHz	30 mOhms	1.5 A
B2503	.157”	3.99	.142”	3.61	26-32 g	0.71 nH	13.0 GHz	60 mOhms	1.7 A
B2504	.214”	5.42	.190”	4.82	24-34 g	1.12 nH	8.8 GHz	60 mOhms	2.9 A
B2509	.108”	2.74	.094”	2.39	26 g	0.60 nH	13.2 GHz	90 mOhms	2.0 A
B2514	.116”	2.95	.104”	2.64	26 g	0.63 nH	12.2 GHz	90 mOhms	2.0 A
B2535	.217”	5.50	.199”	5.05	26-31 g	~	~	55 mOhms	2.3 A

RoHS

MECHANICAL DIMENSIONS

INCHES [MM]



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