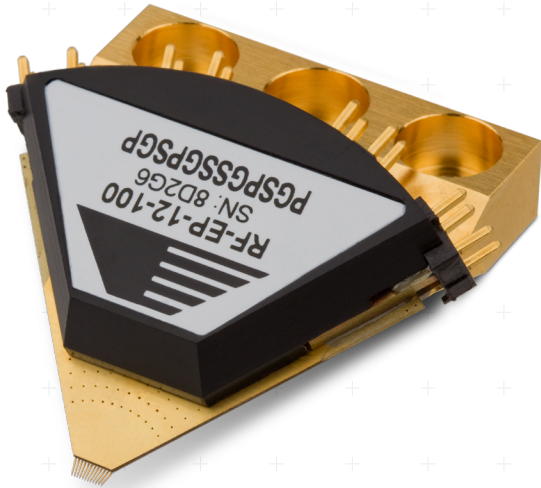


Cascade Microtech, Inc.

SPECIFICATION SHEET



Ultra-durable, highly scalable,
multi-contact RF probe streamlines
RFIC engineering test

UNITY

High-Performance, Multi-Contact RF Probe

Leveraging common-sense, test-structure design rules supplied by Cascade Microtech, the multi-contact Unity Probe™ provides unprecedented durability and ease-of-use for RFIC engineering test. Unlike “bent-to-order” needle-probe solutions, Unity Probes are quickly “built to order” with a precision tip cluster featuring multiple independently compliant fingers to isolate chip components from probing stresses — maximizing probe life and durability. Scalable for multiple contact types and frequencies, the Unity Probe delivers on the legendary quality you’ve come to expect from Cascade Microtech’s comprehensive suite of probing solutions.

FEATURES & BENEFITS

Wide bandwidth	20+ GHz signal paths for RF/Microwave or high-speed digital connections
Power bypassing	High-performance power bypassing for low-impedance and oscillation-free testing to more than 20 GHz
Flexible configuration	Mix multiple contact types: Ground, Power (Standard or Eye-Pass), Logic/AC Signal, High-Speed RF Signal
Contact resistance	Low and repeatable contact resistance on aluminum pads (< 0.1Ω)
Compatibility	Fully compatible with existing Cascade Microtech probes and probe stations
Durability	Long probe life with more than 250k cycles for moderate volume production test
Precision tip cluster	Monolithic design provides more consistent product quality
Delivery time	One week

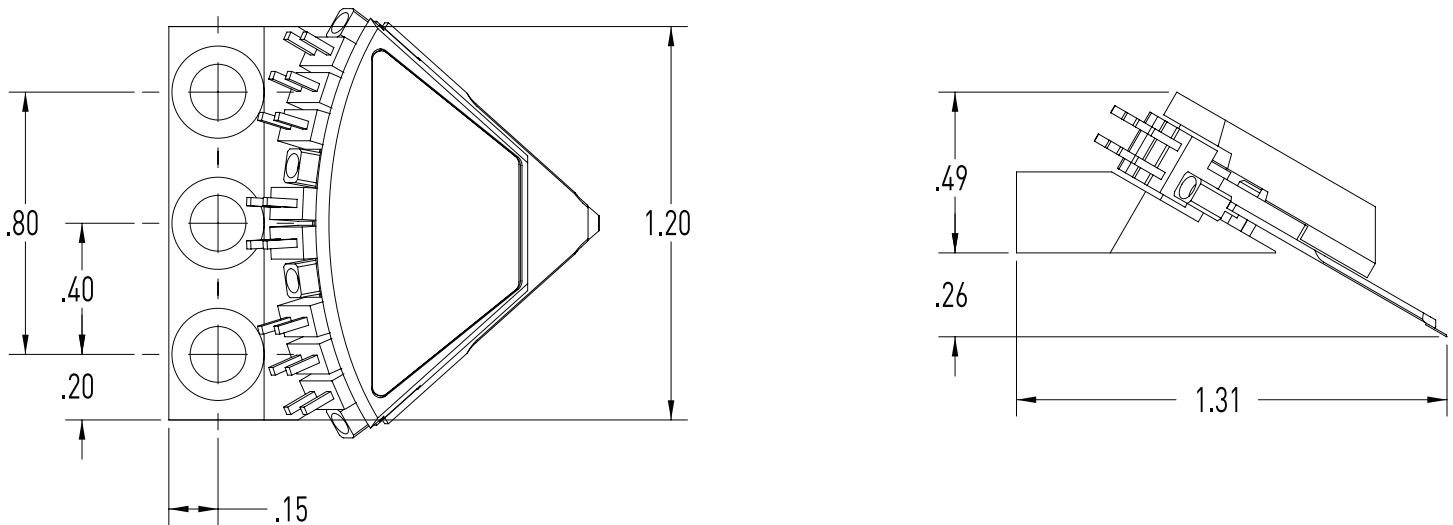
MECHANICAL

Number of contacts	3 to 12 (Missing contacts count toward max.)
Available contact pitch	100-250µm (25µm steps)
Tip material	Beryllium copper (BeCu) or tungsten (W)
Single-contact max total positional error	~10µm radius
Contact area	50µm ² (nominal)
Operating temperature	-55°C to +150°C
Elec./Mech. specification temp. range	-30°C to +100°C
Contact life	> 250k cycles on aluminum pads, > 500k cycles on gold pads
Recommended overtravel	75-125µm
Max. safe overtravel	> 250µm

ELECTRICAL

Maximum DC current	1A
Maximum DC voltage	50V
Series resistance (not including contact)	< 0.2Ω
RF connector	Gore 100 series
DC/Logic connector	Two 0.025" square pins on 0.100" pitch
Rc on aluminum at 25°C	< 0.1Ω

PHYSICAL SPECIFICATIONS



CONTACT TYPES

RF & High-Speed Digital	Insertion loss	PITCH μm	GSG (20 GHz)	GS (12 GHz)
		100 ~ 150	2dB	2dB
		175 ~ 250	3dB	3dB
	Return loss	PITCH μm	GSG (20 GHz)	GS (12 GHz)
		100 ~ 150	14dB	10dB
		175 ~ 250	10dB	10dB
Signal-to-signal isolation	PITCH μm	GSGSG/GSG (20 GHz)	GSSG (12 GHz)	
	100 ~ 250	25dB	12dB	
Delay mismatch	PITCH μm	GSG (20 GHz)	GS (12 GHz)	
	100 ~ 250	< 5ps	< 5ps	
AC & Logic	Maximum frequency: ~500 MHz			
	Rise-time: ~500ps			
Standard Power	10nF capacitor in series with 2.7Ω			
Eye-Pass Power	Additional 450pF to adjacent contact			
	High-frequency inductance: $L_{eff} = < 0.6nH$			
	Resonance-free bandwidth: > 20 GHz			
	Total capacitance: 10nF			
Ground	Inductance: 0.5nH			

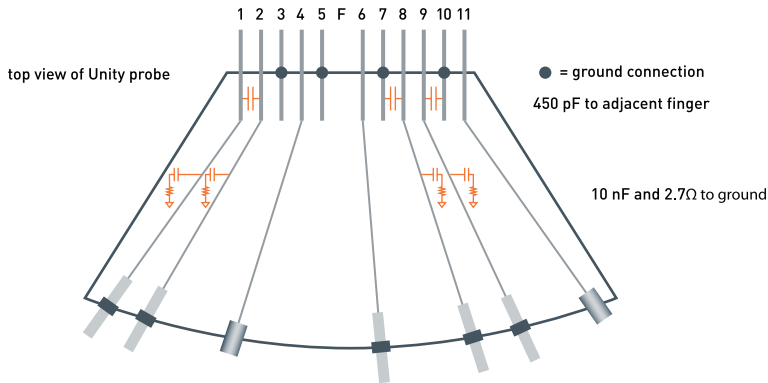
OPTIONAL ACCESSORIES

PART NUMBER

SMA Female to Square pin 6" (15cm) flex cable 147-295

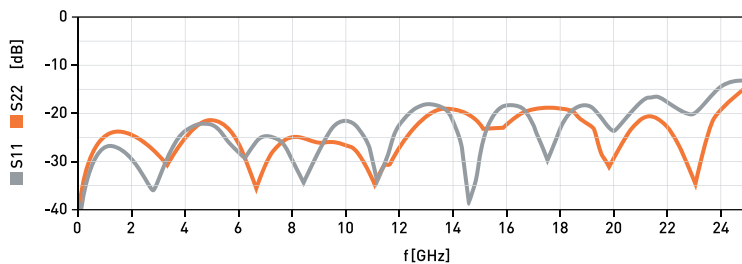
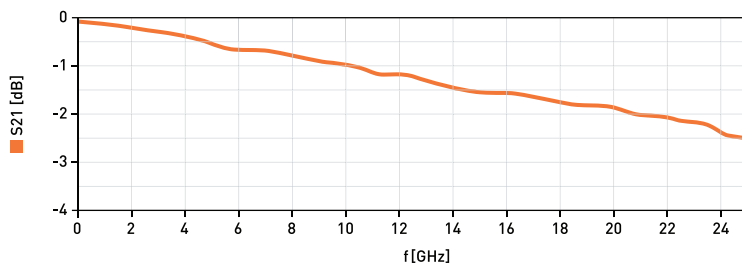
2.92mm(f) to Gore 100 6" (15cm) flex cable 147-364

PROBE CONFIGURATION



RF CHARACTERIZATION

GSG 100μm PITCH



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