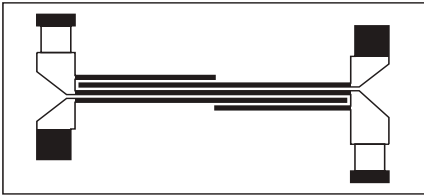


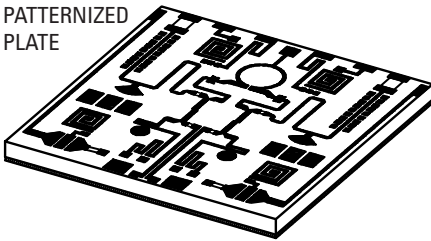
CUSTOM PATTERNED SUBSTRATES

Advanced manufacturing methods insure superior sheet Rho uniformity, gold thickness control, and metallization adhesion. Our custom manufacturing capabilities allow us to meet and exceed the most demanding custom applications.

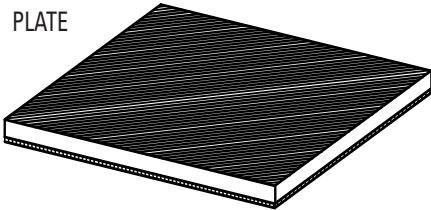
COUPLER



PATTERNIZED PLATE



METALLIZED PLATE



MECHANICAL DATA

SUBSTRATE SIZE	ALUMINA 99.6%, QUARTZ, ALUMINUM NITRIDE, BeO, GLASS, SILICON TO 4" x 4"
THICKNESS	0.010", 0.015", 0.020", 0.025"; STANDARD
SURFACE FINISH	AS FIRED 2 - 3 μ "; POLISHED < 2 μ "
LINE WIDTH DEFINITION	RESISTOR PATTERNING TO 2 MICRONS CONDUCTOR - 100 μ " OF GOLD; 0.5 MILS (20 MICRONS) \pm 0.05 MILS
SPECIALTY MATERIALS	ONE, TWO, OR SIX-SIDED METALLIZATIONS, THROUGH-HOLES, AND EDGE WRAPS, CUSTOM LASER CUTOUTS.

ELECTRICAL DATA

SHEET Rho	5 Ω / Sq. TO 200 Ω / Sq.	
TaN	5 Ω / Sq. TO 200 Ω / Sq.	
NiCr		
RESISTOR TOLERANCE	\pm 1% STANDARD	
RATIO	OPTIONAL TO \pm 0.01%	
	AVAILABLE TO \pm 0.01%	
T.C.R.	NICHROME	TANTALUM NITRIDE
SILICON, QUARTZ, GLASS, BeO, ALUMINUM NITRIDE	\pm 25ppm/ $^{\circ}$ C STANDARD OPTIONAL TO \pm 5ppm/ $^{\circ}$ C	\pm 25ppm/ $^{\circ}$ C STANDARD OPTIONAL TO \pm 10ppm/ $^{\circ}$ C
ALUMINA	\pm 25ppm/ $^{\circ}$ C STANDARD OPTIONAL TO \pm 5ppm/ $^{\circ}$ C	\pm 25ppm/ $^{\circ}$ C STANDARD OPTIONAL TO \pm 10ppm/ $^{\circ}$ C
T.C. TRACKING	TO \pm 2ppm/ $^{\circ}$ C STANDARD	
OTHER METALS	NICHROME, TANTALUM, NICKEL, PALLADIUM, TITUNGSTEN, GOLD, NICKEL, ALUMINUM	

Custom Part Numbers Will be Assigned.
Consult Engineering for further information.



MINI-SYSTEMS, INC.

THIN FILM DIVISION

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