



# P200X

## PRODUCT SPECIFICATION GUIDE

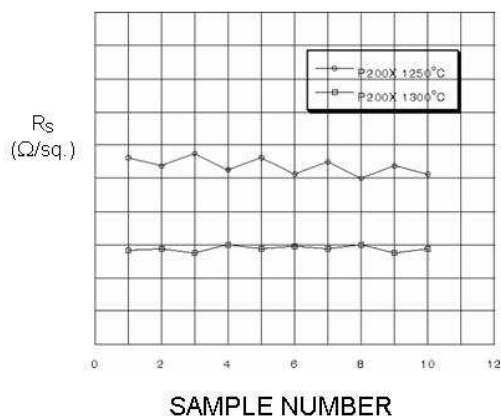
### P - TYPE, BORON FILM

- MID-RANGE, HIGH CONCENTRATION LEVEL FILM
- FOR USE IN MANUFACTURING TRANSIENT SUPPRESSOR, ZENER, AND RECTIFIER DIODES
- FAST SEPERATION IN HF
- USABLE UP TO A TEMPERATURE OF 1300°C
- EXCELLENT PERFORMANCE IN A VARIETY OF FURNACE TUBE ATMOSPHERES
- LESS DEPENDENT ON WAFER RESISTIVITY, COMPANION PHOSPHEROUS FILMS, FURNACE TEMPERATURE, AND ATMOSPHERE CONDITIONS; RESULTING IN LOW VARIATION IN  $R_s$  VALUE

#### WAFER DIFFUSION RESULTS USING P200X:

DIFFUSION ATMOSPHERE	DIFFUSION TIME	DIFFUSION TEMPERATURE	SILICON RESISTIVITY	$R_s$ OBTAINED
80%N <sub>2</sub> - 20%O <sub>2</sub> AIR	15 HRS	1250°C	30 Ohm-cm n <111>	0.2 - 0.23 $\Omega$ /sq.
O <sub>2</sub>	15 HRS	1300°C	30 Ohm-cm n <111>	0.11 - 0.12 $\Omega$ /sq.

#### $R_s$ Measurements For 10 Wafers Diffused Using P200X Boron Film



- ♦ Sample wafers pulled from a diffusion boat holding 100 wafers.
- ♦ To improve separation times in the HF, use small amounts of water vapor during the last stage of diffusion.
- ♦  $R_s = V/I \times 4.53$
- ♦ Recommended burn out temperature for organic binders in the film 400°C in Air or O<sub>2</sub>

**AVAILABLE IN 3" AND 4" DIAMETERS**