N700X

PRODUCT SPECIFICATION GUIDE

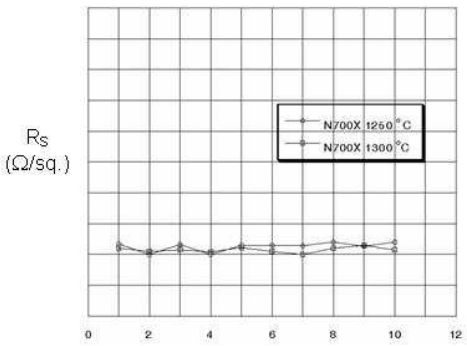
N - TYPE, PHOSPHOROUS FILM

- MID-RANGE, MEDIUM PHOSPHOROUS CONCENTRATION FILM
- FOR USE IN MANUFACTURING TRANSIENT SUPPRESSOR, ZENER, AND RECTIFIER DIODES
- FAST SEPERATION IN HF
- USABLE UP TO A TEMPERATURE OF 1300^{0}C
- EXCELLENT PERFORMANCE IN A VARIETY OF FURNACE TUBE ATMOSPHERES
- LESS DEPENDENT ON WAFER RESISTIVITY, COMPANION BORON FILMS, FURNACE TEMPERATURE, AND ATMOSPHERE CONDITIONS; RESULTING IN LOW VARIATION IN R_s VALUE
- SINGLE SIDED DIFFUSION USING NEUTRAL SPACERS TO MASK OTHER SIDE OF SI.WAFERS
- SIMULTANEOUS DIFFUSION WITH BORON, N700X PHOSPHOROUS FILM YIELDING LOW FORWARD VOLTAGE DROPS FOR MOST APPLICATIONS

WAFER DIFFUSION RESULTS USING N700X:

DIFFUSION ATMOSPHERE	DIFFUSION TIME	DIFFUSION TEMPERATURE	SILICON RESISTIVITY	Rs OBTAINED
80%N_2 - 20%O_2 AIR	15 HRS	1250°C	30 Ohm-cm n <111>	0.1 - 0.12 Ω/sq.
O_2	15 HRS	1300°C	30 Ohm-cm n <111>	0.1 - 0.115 Ω/sq.

R_s Measurements For 10 Wafers Diffused Using N700X Phosphorous 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^{0}C in Air or O_2

AVAILABLE IN 3" AND 4" DIAMETERS