Standard Metallizations (Continued)

Metallizations Offered

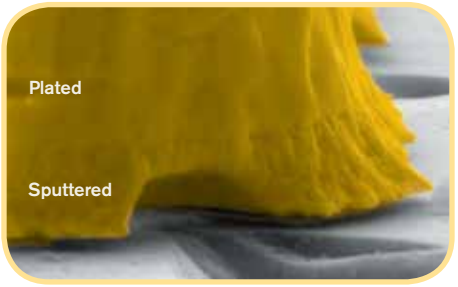
Al = 20–500µ" (0.5–12.7µm)
Ti = 300–800Å (0.03–0.08µm)
TiW 90/10 = 300–800Å (0.03–0.08µm)
Cu = 20–1000µ" (0.5–25.4µm)
Cr = 300–800Å (0.03–0.08µm)
TaN = 10–200 Ohms/square are available.
50–75–100 Ohms/square standard.
Typical TCR = -100 ±50ppm/°C

Ni = 1,000–10,000Å (0.1–1.0µm)
Pd = 1,000–10,000Å (0.1–1.0µm)
Pt = 1,000–10,000Å (0.1–1.0µm)
Au = 20–500µ" (0.5–12.7µm)
Au/Sn = 160–240µ" (4.0–6.0µm)

Other metallizations and thicknesses are available. Please contact our sales department for information.

SEM Profile

Metal Stack



Layers

Bondable Gold	TiW/Au or TaN/TiW/Au
Conductor and resistor applications that require traditional processing	Typical Applications
Cost effective standard assembly practices; can integrate TaN into the film; bondable	Advantages
Not Pb/Sn or SAC305 compatible	Disadvantages
Epoxies; Au/Ge eutectic; Au/Si eutectic; Au/Sn eutectic	Allowble Die Attach Method
-100 ±50ppm/°C	Typical TCR
Sputtered 10–200 Ohms/sq TaN if resistors are required Sputtered TiW: 300–800Å (0.03–0.08µm) Sputtered Au: 20µ"–200µ", typical = 120µ" (0.5–5µm, typical = 3µm) Plated Au: 20µ"–500µ", typical = 120µ" (0.5–12.7µm, typical = 3µm)	Recommended Front Side Metal
Same as front side without the TaN layer	Backside Metal

Bondable Gold and Best Au/Si Eutectic Attach	TiW/Pd/Au or TaN/TiW/Pd/Au
Conductor - resistor applications that allow bonding and soldering	Typical Applications
Best for Au/Si assemblies and limited eutectic leaching; can integrate TaN into the film	Advantages
Best	Au/Si Solderability
Good	Pb/Sn Solderability
Epoxies; Au/Si eutectic; Au/Sn eutectic; Au/Ge eutectic; Pb/Sn	Allowble Die Attach Method
-100 ±50ppm/°C	Typical TCR
Sputtered 10–200 Ohms/sq TaN if resistors are required Sputtered TiW: 300–800Å (0.03–0.08µm) Sputtered Pd: 1000–1500Å (0.10–0.15µm) Sputtered Au: 20µ"–200µ", typical = 120µ" (0.5–5µm, typical = 3µm) Plated Au: 20µ"–500µ", typical = 120µ" (0.5–12.7µm, typical = 3µm)	Recommended Front Side Metal
Same as front side without the TaN layer	Backside Metal

Standard Metallizations (Continued)

Bondable (TiW/Ni/Au only) or Solderable Gold (TiW/Ni/Au and TaN/TiW/Ni/Au)	TiW/Ni/Au or TaN/TiW/Ni/Au
Conductor applications that require Pb/Sn soldering	Typical Applications
Solderable for Pb/Sn assemblies; can be bondable as long as TaN is not present	Advantages
Wire bonding problems may be experienced due to Ni-Au diffusion when devices processed > 300°C; TaN is not recommended due to processing Ni-Au diffusion > 300°C	Disadvantages
Best for Pb/Sn assemblies	Pb/Sn Solderability
Epoxies; Au/Si eutectic; Au/Sn eutectic; Au/Ge eutectic; Pb/Sn	Allowble Die Attach Method
-100 ±50ppm/°C	Typical TCR
TaN is not recommended due to passivation above > 300°C, Ni diffusion Sputtered TiW: 300–800Å (0.03–0.08µm) Sputtered Ni: 1500–2000Å (0.15–0.2µm) Sputtered Au: 20µ"–40µ" (0.5–1.0µm) solderable (use thin gold; to prevent Au embrittlement, Au must be thin) Plated Au: 80–500µ" (2.0–12.7µm) bondable (use thick gold)	Recommended Front Side Metal
Same as front side without the TaN layer	Backside Metal

Solderable/Bondable Gold	TiW/Au/Cu/Ni/Au or TaN/TiW/Au/Cu/Ni/Au
Conductor-resistor applications with high conductivity film that requires Pb/Sn soldering	Typical Applications
High conductivity film; can integrate TaN into the film; Solderable Gold/Bondable Gold can be achieved on the same ciruit	Advantages
Best	Pb/Sn Solderability
Epoxies; Au/Si eutectic; Au/Sn eutectic; Au/Ge eutectic; Pb/Sn	Allowble Die Attach Method
-100 ±50ppm/°C	Typical TCR
Sputtered 10–200 Ohms/sq TaN if resistors are required Sputtered TiW: 300–800Å (0.03–0.08µm) Sputtered Au: 5µ" (0.127µm) Electroplated Cu: 20–1,000µ" (0.5–25.4µm) Electroplated Ni: 20–500µ" (0.5–12.7µm) Electroplated Au: 20–40µ" (0.5–1.0µm) solderable (use thin gold; to prevent Au embrittlement, Au must be thin) Electroplated Au: 80–500µ" (2.0–12.7µm) bondable (use thick gold)	Front Side Metal
Same as front side without the TaN layer	Backside Metal

Solderable/Bondable Gold	TiW/Au/Ni/Au[1] or TaN/TiW/Au/Ni/Au[1]
Conductor-resistor applications that require Pb/Sn soldering	Typical Applications
Best for Pb/Sn assemblies; can integrate TaN into the film; Solderable Gold/Bondable Gold can be achieved on the same ciruit	Advantages
Best	Pb/Sn Solderability
Epoxies; Au/Si eutectic; Au/Sn eutectic; Au/Ge eutectic; Pb/Sn	Allowble Die Attach Method
-100 ±50ppm/°C	Typical TCR
Sputtered 10–200 Ohms/sq TaN if resistors are required Sputtered TiW: 400–800 Ansgtroms Sputtered Au: 20µ"–40µ" (0.5–1.0µm) Electroplated Ni: 20–500µ" (0.5–12.7µm) Electroplated Au: 20µ"–40µ" (0.5–1.0µm) solderable (use thin gold; to prevent Au embrittlement, Au must be thin) Electroplated Au: 80–500µ" (2.0–12.7µm) bondable (use thick gold)	Front Side Metal
Same as front side without the TaN layer	Backside Metal

[1] Selective Ni/Au solder pads can be manufactured while leaving low loss TiW/Au in critical RF paths.