



QMTS2.E123995 - Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

Polymeric Materials - Filament-wound Tubing, Industrial Laminates, Vulcanized Fiber, and Materials for Use in Fabricating Recognized Printed Wiring Boards - Component

KINGBOARD LAMINATES HOLDINGS LTD

E123995

23/F, Delta House
No. 3 On Yiu Street
Shatin, N T Hong Kong

Industrial laminates:

| Mtl Dsg | ANSI Type | Color | Build up | | R.T.I. | | | H | | | | Meets 746E Non-HAL | Meets 746E DSR |
|---|-----------|--------|--------------|-------------|-----------|-----------|-------|-------|-------|-------|---|--------------------|----------------|
| | | | Min Thk (mm) | Flame Class | Elec (°C) | Mech (°C) | H W I | H A I | V T R | C T I | | | |
| Industrial laminates furnished as sheets | | | | | | | | | | | | | |
| KB-150 | XPC | NC, BK | 0.71 | HB | 130 | 130 | 2 | 0 | 0 | - | - | Yes | |
| | | | 1.57 | HB | 130 | 130 | 1 | 0 | 1 | 4 | - | Yes | |
| KB-2150 | FR-2 | NC | 1.45 | V-0 | 105 | 105 | 4 | 3 | 1 | 4 | - | Yes | |
| KB-2150G | FR-2 | TN | 0.71 | V-0 | 75 | 75 | 0 | 3 | 6 | - | - | Yes | |
| | | | 1.45 | V-0 | 105 | 105 | 0 | 3 | 6 | 3 | - | Yes | |
| KB-2150GC | FR-2 | TN | 0.71 | V-0 | 75 | 75 | 0 | 4 | 6 | - | - | - | |
| | | | 1.45 | V-0 | 105 | 105 | 0 | 3 | 6 | 0 | - | Yes | |
| KB-3151S (with Adhesive) | | | | | | | | | | | | | |
| | FR-1 | NC | 1.45 | V-0 | 130 | 130 | 0 | 0 | - | 0 | - | Yes | |
| | | | 0.71 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes | |
| KB-3151S (without Adhesive) | | | | | | | | | | | | | |
| | FR-1 | NC | 1.45 | V-0 | 130 | 130 | 3 | 3 | 4 | 4 | - | Yes | |
| | | | 0.71 | V-0 | 130 | 130 | 3 | 3 | 4 | - | - | Yes | |
| KB-3152 | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes | |
| | | | 1.45 | V-0 | 130 | 130 | 0 | 0 | - | 0 | - | Yes | |
| KB-5150 | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | 4 | - | - | Yes | |

| | | | | | | | | | | | | |
|---------------------|--------|----|------|-----|-----|-----|---|---|---|---|-----|-----|
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | 4 | 3 | - | Yes |
| KB-5150& | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 1 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 3 | 4 | 0 | - | Yes |
| KB-5252 | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | - | 3 | - | Yes |
| KB-6150C | FR-4.0 | NC | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 0 | - | Yes |
| KB-6160A | FR-4.0 | YL | 0.38 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-6160C | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 0 | - | Yes |
| KB-6160F | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6165 | FR-4.0 | YL | 0.38 | V-0 | 130 | 130 | 2 | 0 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-6165G | FR-4.1 | NC | 0.05 | V-0 | 120 | 100 | 0 | 3 | - | - | Yes | Yes |
| | | | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6165GC | FR-4.1 | NC | 0.05 | V-0 | 120 | 100 | 0 | 3 | - | - | Yes | Yes |
| | | | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 0 | - | Yes |
| KB-6165LE | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6168 | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |

| | | | | | | | | | | | | |
|--|---------|--------|------|-----|-----|-----|---|---|---|---|-----|-----|
| KB-6169GT | FR-15.1 | NC | 0.38 | V-0 | 140 | 140 | 0 | 1 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 150 | 150 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 150 | 150 | 0 | 1 | - | 0 | - | Yes |
| KB-7150 | CEM-3.0 | NC | 0.63 | V-0 | 130 | 140 | 0 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-7150C | CEM-3.0 | NC | 0.63 | V-0 | 130 | 140 | 0 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 0 | - | Yes |
| Industrial laminates furnished as sheets or rolls | | | | | | | | | | | | |
| KB-5150A | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | 4 | 2 | - | Yes |
| KB-5150G | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | 4 | 0 | - | Yes |
| KB-5150H | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | 4 | 2 | - | Yes |
| KB-5150L | CEM-1 | NC | 0.63 | V-0 | 130 | 140 | 3 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 1 | 2 | 4 | 3 | - | Yes |
| KB-616(X) | FR-4.0 | YL | 0.38 | V-0 | 130 | 130 | 3 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-6163F | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 1 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6164F | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 4 | - | - | - | - |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 2 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6165F | FR-4.0 | NC(YL) | 0.38 | V-0 | 130 | 130 | 3 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-6167A | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 2 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | 4 | 4 | - | Yes |
| KB-6167F | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |

| | | | | | | | | | | | | |
|--|---------|----|------|-----|-----|-----|---|---|---|---|-----|-----|
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
| KB-6167G | FR-4.1 | NC | 0.05 | V-0 | 120 | 100 | 0 | 3 | - | - | Yes | Yes |
| | | | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 0 | - | Yes |
| KB-6167GMD | FR-4.1 | NC | 0.38 | V-0 | 130 | 130 | 0 | 1 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 0 | - | 0 | - | Yes |
| KB-6168LE | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 1 | 1 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-7150T | CEM-3.0 | NC | 0.63 | V-0 | 130 | 140 | 0 | 2 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 0 | - | Yes |
| Industrial laminates furnished as sheets, rods or tubes | | | | | | | | | | | | |
| HF-140 | FR-4.1 | NC | 0.38 | V-0 | 130 | 130 | 0 | 2 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 2 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | - | 3 | - | Yes |
| KB-3150N | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | - | - | - | 3 | - | Yes |
| KB-3150NU % | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 3 | 3 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 3 | 3 | 4 | 4 | - | Yes |
| KB-3151HS | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 0 | 0 | 4 | 0 | - | Yes |
| KB-3152C | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 0 | 0 | 4 | 0 | - | Yes |
| KB-3152S | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 0 | 0 | 4 | 0 | - | Yes |
| KB-3153* | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 0 | 0 | 4 | 0 | - | Yes |
| KB-5152 | No ANSI | NC | 0.60 | V-0 | - | - | - | - | - | - | - | - |
| | | | 1.40 | V-0 | - | - | - | - | - | - | - | - |
| KB-6150 | FR-4.0 | NC | 0.10 | V-0 | 120 | 125 | 0 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |

| | | | | | | | | | | | | |
|------------------------------------|---------|----|------|-----|-----|-----|---|---|---|---|-----|-----|
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 4 | - | Yes |
| | | | 0.38 | V-0 | 130 | 130 | 0 | 3 | - | - | - | Yes |
| KB-6162 | No ANSI | NC | 0.63 | V-0 | - | - | - | - | - | - | - | - |
| | | | 1.40 | V-0 | - | - | - | - | - | - | - | - |
| KB-6167GLD | FR-4.1 | NC | 0.38 | V-0 | 130 | 130 | 0 | 3 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | - | 3 | - | Yes |
| Industrial laminates | | | | | | | | | | | | |
| EEL-128 | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 3 | 0 | - | - | - | - |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | - | 3 | - | Yes |
| EEL-145 | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 3 | 0 | - | - | - | - |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | - | 3 | - | Yes |
| KB-3151C (with Adhesive) | | | | | | | | | | | | |
| | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | - | - | - | 0 | - | Yes |
| KB-3151C (without Adhesive) | | | | | | | | | | | | |
| | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 3 | 3 | 4 | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | 3 | 3 | 4 | 4 | - | Yes |
| KB-3151C175 (with Adhesive) | | | | | | | | | | | | |
| | FR-1 | NC | 0.71 | V-0 | 130 | 130 | 0 | 0 | - | - | - | Yes |
| | | | 1.45 | V-0 | 130 | 130 | - | - | - | 3 | - | Yes |
| KB-6155 | FR-4.0 | NC | 0.38 | V-0 | 130 | 130 | 0 | 3 | - | - | - | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 3 | 4 | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 4 | - | Yes |
| KB-6165GLD | FR-4.1 | NC | 0.38 | V-0 | 130 | 130 | 0 | 0 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 0 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 3 | - | Yes |
| KB-6165GMD | FR-4.1 | NC | 0.38 | V-0 | 130 | 130 | 0 | 0 | - | - | Yes | Yes |
| | | | 0.63 | V-0 | 130 | 140 | 0 | 1 | - | - | - | Yes |
| | | | 1.40 | V-0 | 130 | 140 | 0 | 1 | - | 2 | - | Yes |
| KB-7152 | CEM-3.0 | NC | 0.63 | V-0 | 130 | 140 | 0 | 2 | 4 | - | - | Yes |

| | | | | | | | | | | | | |
|--|--|--|------|-----|-----|-----|---|---|---|---|---|-----|
| | | | 1.40 | V-0 | 130 | 140 | 0 | 2 | 4 | 3 | - | Yes |
|--|--|--|------|-----|-----|-----|---|---|---|---|---|-----|

Ultrathin build ups:

| Build Up | | | | | Laminate | | | Prepreg | | |
|-------------------|-----------|--------------|---------|---------|------------------|-----------|---------|------------------|-----------|---------|
| Mtl Dsg | ANSI Type | Min Thk (mm) | TI Elec | TI Mech | Mtl Dsg | Thk (mic) | TI Elec | Mtl Dsg | Thk (mic) | TI Elec |
| EEL-128 | FR-4.0 | 0.38 | 130 | 130 | EEL-128 | 50 | 90 | EP | | 50 90 |
| EEL-145 | FR-4.0 | 0.38 | 130 | 130 | EEL-145 | 50 | 90 | ETP | | 50 90 |
| HF-140 | FR-4.1 | 0.38 | 130 | 130 | HF-140 | 50 | 90 | PP-HF140 | | 50 90 |
| KB-6155 | FR-4.0 | 0.38 | 130 | 130 | KB-6155 | 50 | 90 | KB-6055 | | 50 90 |
| KB-616(X) | FR-4.0 | 0.38 | 130 | 130 | KB-6160, KB-6164 | 100 | 120 | KB-6060, KB-6064 | | 50 90 |
| KB-6160A | FR-4.0 | 0.38 | 130 | 130 | KB-6160A | 50 | 90 | KB-6060A | | 50 90 |
| KB-6160C | FR-4.0 | 0.38 | 130 | 130 | KB-6160C | 50 | 90 | KB-6060C | | 50 90 |
| KB-6160F | FR-4.0 | 0.38 | 130 | 130 | KB-6160F | 50 | 90 | KB-6060F | | 50 90 |
| | | 0.45 | 130 | 130 | KB-6160F | 50 | 90 | KB-6060F | | 50 90 |
| | | 0.63 | 130 | 140 | KB-6160F | 50 | 90 | KB-6060F | | 50 90 |
| | | 1.40 | 130 | 140 | KB-6160F | 50 | 90 | KB-6060F | | 50 90 |
| KB-6163F | FR-4.0 | 0.38 | 130 | 130 | KB-6163F | 50 | 90 | KB-6063F | | 50 90 |
| | | 0.45 | 130 | 130 | KB-6163F | 50 | 90 | KB-6063F | | 50 90 |
| | | 0.63 | 130 | 140 | KB-6163F | 50 | 90 | KB-6063F | | 50 90 |
| | | 1.40 | 130 | 140 | KB-6163F | 50 | 90 | KB-6063F | | 50 90 |
| KB-6164F | FR-4.0 | 0.38 | 130 | 130 | KB-6164F | 50 | 90 | KB-6064F | | 50 90 |
| KB-6165 | FR-4.0 | 0.38 | 130 | 130 | KB-6165 | 50 | 90 | KB-6065 | | 50 90 |
| KB-6165F | FR-4.0 | 0.38 | 130 | 130 | KB-6165F | 50 | 90 | KB-6065F | | 50 90 |
| KB-6165G | FR-4.1 | 0.38 | 130 | 130 | KB-6165G | 50 | 90 | KB-6065G | | 50 90 |
| | | 0.63 | 130 | 140 | KB-6165G | 50 | 90 | KB-6065G | | 50 90 |
| KB-6165GC | FR-4.1 | 0.38 | 130 | 130 | KB-6165GC | 50 | 90 | KB-6065GC | | 50 90 |
| | | 0.63 | 130 | 140 | KB-6165GC | 50 | 90 | KB-6065GC | | 50 90 |
| KB-6165GLD | FR-4.1 | 0.38 | 130 | 130 | KB-6165GLD | 65 | 90 | KB-6065GLD | | 50 90 |
| KB-6165GMD | FR-4.1 | 0.38 | 130 | 130 | KB-6165GMD | 65 | 90 | KB-6065GMD | | 50 90 |
| KB-6165LE | FR-4.0 | 0.38 | 130 | 130 | KB-6165LE | 50 | 90 | KB-6065LE | | 50 90 |
| | | 0.45 | 130 | 130 | KB-6165LE | 50 | 90 | KB-6065LE | | 50 90 |
| | | 0.63 | 130 | 140 | KB-6165LE | 50 | 90 | KB-6065LE | | 50 90 |

| | | | | | | | | | | |
|-------------------|---------|------|-----|-----|------------|-----|-----|------------|----|----|
| | | 1.40 | 130 | 140 | KB-6165LE | 50 | 90 | KB-6065LE | 50 | 90 |
| KB-6167A | FR-4.0 | 0.38 | 130 | 130 | KB-6167A | 100 | 120 | KB-6067A | 50 | 90 |
| KB-6167F | FR-4.0 | 0.38 | 130 | 130 | KB-6167F | 100 | 90 | KB-6067F | 50 | 90 |
| KB-6167G | FR-4.1 | 0.38 | 130 | 130 | KB-6167G | 50 | 90 | KB-6067G | 50 | 90 |
| KB-6167GLD | FR-4.1 | 0.38 | 130 | 130 | KB-6167GLD | 65 | 90 | KB-6067GLD | 50 | 90 |
| KB-6167GMD | FR-4.1 | 0.38 | 130 | 130 | KB-6167GMD | 65 | 90 | KB-6067GMD | 50 | 90 |
| KB-6168 | FR-4.0 | 0.38 | 130 | 130 | KB-6168 | 50 | 90 | KB-6068 | 50 | 90 |
| KB-6168LE | FR-4.0 | 0.38 | 130 | 130 | KB-6168LE | 50 | 90 | KB-6068LE | 50 | 90 |
| | | 0.45 | 130 | 130 | KB-6168LE | 50 | 90 | KB-6068LE | 50 | 90 |
| | | 0.63 | 130 | 140 | KB-6168LE | 50 | 90 | KB-6068LE | 50 | 90 |
| | | 1.40 | 130 | 140 | KB-6168LE | 50 | 90 | KB-6068LE | 50 | 90 |
| KB-6169GT | FR-15.1 | 0.38 | 140 | 140 | KB-6169GT | 50 | 90 | KB-6069GT | 50 | 90 |
| | | 0.63 | 150 | 150 | KB-6169GT | 50 | 90 | KB-6069GT | 50 | 90 |

Metal clad industrial laminates:

| Metal Clad Dsg | Lam-inate Dsg | Pre-preg Dsg | ANSI Type | Bld up Clad Cond Thk | | | | Max Area Dia (mm) | Max Flame Class | Max Oper Temp (°C) | Max Solder Temp (°C) | Solder Lts Time (sec) |
|--|---------------|--------------|-----------|----------------------|---------------|---------------|---------------|-------------------|-----------------|--------------------|----------------------|-----------------------|
| | | | | Min Thk (mm) | Min Ext (mic) | Max Ext (mic) | Max Int (mic) | | | | | |
| Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, furnished as sheets | | | | | | | | | | | | |
| KB-6160A | KB-6160A | KB-6060A | FR-4.0 | 0.38 | 12 | 102 | 70 | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6160C | KB-6160C | KB-6060C | FR-4.0 | 0.38 | 12 | 102 | 60 | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6160F | KB-6160F | KB-6060F | FR-4.0 | 0.38 | 9 | 102 | 68 | 50.8 | V-0 | 130 | 288 | 30 |
| | | | | 0.45 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6163F | KB-6163F | KB-6063F | FR-4.0 | 0.38 | 9 | 102 | 68 | 50.8 | V-0 | 130 | 288 | 30 |
| | | | | 0.45 | 9 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6164F | KB-6164F | KB-6064F | FR-4.0 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165 | KB-6165 | KB-6065 | FR-4.0 | 0.38 | 12 | 102 | 54 | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165F | KB-6165F | KB-6065F | FR-4.0 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 60 |

| | | | | | | | | | | | | |
|---|--|--|---------|------|----|-----|-----|------|-----|-----|-----|----|
| | | | | 0.63 | 12 | 102 | 204 | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165G | KB-6165G | KB-6065G | FR-4.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6165GC | KB-6165GC | KB-6065GC | FR-4.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6165LE | KB-6165LE | KB-6065LE | FR-4.0 | 0.38 | 9 | 102 | 68 | 50.8 | V-0 | 130 | 288 | 30 |
| | | | | 0.45 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6167F | KB-6167F | KB-6067F | FR-4.0 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6167G/KB-6067G | | | | | | | | | | | | |
| | KB-6167G | KB-6067G | FR-4.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6168 | KB-6168 | KB-6068 | FR-4.0 | 0.38 | 12 | 102 | 70 | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6168LE | KB-6168LE | KB-6068LE | FR-4.0 | 0.38 | 9 | 102 | 68 | 50.8 | V-0 | 130 | 288 | 30 |
| | | | | 0.45 | 9 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6169GT | KB-6169GT | KB-6069GT | FR-15.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 20 |
| Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, furnished as sheets or rolls | | | | | | | | | | | | |
| KB-616(X) | KB-6160, KB-6164 | KB-6060, KB-6064 | FR-4.0 | 0.38 | 17 | 102 | 35 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6167A | KB-6167A | KB-6067A | FR-4.0 | 0.38 | 17 | 102 | 35 | 50.8 | V-0 | 130 | 288 | 30 |
| Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, furnished as sheets, rods or tubes | | | | | | | | | | | | |
| HF-140 | HF-140 | PP-HF140 | FR-4.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6167GLD/KB-6067GLD, KB-6165GMD/KB-6065GMD, KB-6165GLD/KB-6065GLD and KB-6167GMD/KB-6067GMD | | | | | | | | | | | | |
| | KB-6167GLD, KB-6165GMD, KB-6165GLD, KB-6167GMD | KB-6067GLD, KB-6065GMD, KB-6065GLD, KB-6067GMD | FR-4.1 | 0.38 | 12 | 102 | 102 | 50.8 | V-0 | 130 | 288 | 30 |
| Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, | | | | | | | | | | | | |
| EEL-128 | EEL-128 | EP | FR-4.0 | 0.38 | 17 | 102 | 68 | 38.1 | V-0 | 130 | 288 | 30 |
| | | | | 0.63 | 17 | 102 | 68 | 50.8 | V-0 | 130 | 288 | 30 |

| | | | | | | | | | | | | |
|--|------------------|-----|--------|------|----|-----|-----|------|-----|-----|-----|----|
| EEL-145 | EEL-145 | ETP | FR-4.0 | 0.38 | 17 | 102 | 170 | 50.8 | V-0 | 130 | 288 | 30 |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides, furnished as sheets | | | | | | | | | | | | |
| KB-2150G | KB-2150G | - | FR-2 | 0.71 | 35 | 102 | - | 50.8 | V-0 | 75 | 265 | 15 |
| | | | | 1.45 | 35 | 102 | - | 38.1 | V-0 | 105 | 265 | 15 |
| KB-2150GC | KB-2150GC | - | FR-2 | 0.71 | 35 | 102 | - | 50.8 | V-0 | 75 | 265 | 15 |
| | | | | 1.45 | 35 | 102 | - | 50.8 | V-0 | 105 | 265 | 15 |
| KB-3152 | KB-3152 | - | FR-1 | 0.71 | 35 | 102 | - | 50.8 | V-0 | 130 | 288 | 10 |
| KB-5150 | KB-5150 | - | CEM-1 | 0.63 | 17 | 102 | - | 38.1 | V-0 | 130 | 288 | 20 |
| KB-5252 | KB-5252 | - | CEM-1 | 0.63 | 17 | 102 | - | 13 | V-0 | 130 | 260 | 10 |
| KB-6150 | KB-6150 | - | FR-4.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6150C | KB-6150C | - | FR-4.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-616(X) | KB-6160, KB-6164 | - | FR-4.0 | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6160A | KB-6160A | - | FR-4.0 | 0.38 | 12 | 140 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6160C | KB-6160C | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6160F | KB-6160F | - | FR-4.0 | 0.38 | 9 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6163F | KB-6163F | - | FR-4.0 | 0.38 | 9 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6164F | KB-6164F | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165 | KB-6165 | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165F | KB-6165F | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6165G | KB-6165G | - | FR-4.1 | 0.05 | 17 | 102 | - | 50.8 | V-0 | 100 | 288 | 20 |
| | | | | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6165GC | KB-6165GC | - | FR-4.1 | 0.05 | 17 | 102 | - | 50.8 | V-0 | 100 | 288 | 20 |
| | | | | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |

| | | | | | | | | | | | | |
|---|---|---|---------|------|----|-----|---|------|-----|-----|-----|----|
| KB-6165LE | KB-6165LE | - | FR-4.0 | 0.38 | 9 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6167A | KB-6167A | - | FR-4.0 | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6167F | KB-6167F | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6167G | KB-6167G | - | FR-4.1 | 0.05 | 17 | 102 | - | 50.8 | V-0 | 100 | 288 | 20 |
| | | | | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-6168 | KB-6168 | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-6168LE | KB-6168LE | - | FR-4.0 | 0.38 | 9 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-6169GT | KB-6169GT | - | FR-15.1 | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-7150 | KB-7150 | - | CEM-3.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 290 | 20 |
| KB-7150C | KB-7150C | - | CEM-3.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-7150T | KB-7150T | - | CEM-3.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides, furnished as sheets, rods or tubes | | | | | | | | | | | | |
| HF-140 | HF-140 | - | FR-4.1 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| KB-3152C | KB-3152C | - | FR-1 | 0.71 | 34 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-3152S | KB-3152S | - | FR-1 | 0.71 | 34 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-3153* | KB-3153 | - | FR-1 | 0.71 | 34 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-6167GLD,KB-6165GMD,KB-6165GLD,KB-6167GMD | | | | | | | | | | | | |
| | KB-6167GLD, KB-6165GMD, KB-6165GLD, KB-6167GMD | - | FR-4.1 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides, | | | | | | | | | | | | |
| EEL-128 | EEL-128 | - | FR-4.0 | 0.38 | 17 | 102 | - | 38.1 | V-0 | 130 | 288 | 30 |
| | | | | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |
| EEL-145 | EEL-145 | - | FR-4.0 | 0.38 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 30 |

| | | | | | | | | | | | | |
|---|-------------|---------|---------|------|----|-----|----|------|-----|-----|-----|----|
| KB-3151C* | KB-3151C | - | FR-1 | 0.71 | 17 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-3151S | KB-3151S | - | FR-1 | 0.71 | 17 | 102 | - | 38.1 | V-0 | 130 | 260 | 10 |
| KB-5150A | KB-5150A | - | CEM-1 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-5150H | KB-5150H | - | CEM-1 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| KB-5150L | KB-5150L | - | CEM-1 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-6155 | KB-6155 | - | FR-4.0 | 0.38 | 12 | 102 | - | 50.8 | V-0 | 130 | 288 | 60 |
| KB-7152 | KB-7152 | - | CEM-3.0 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 20 |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one side only, furnished as sheets | | | | | | | | | | | | |
| KB-1150 | KB-150 | - | XPC | 0.71 | 35 | 117 | - | 25.4 | HB | 130 | 260 | 10 |
| KB-5150 | KB-5150 | - | CEM-1 | 0.63 | 35 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-5150G | KB-5150G | - | CEM-1 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 10 |
| KB-5252 | KB-5252 | - | CEM-1 | 0.63 | 17 | 102 | - | 50.8 | V-0 | 130 | 288 | 10 |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one side only, furnished as sheets, rods or tubes | | | | | | | | | | | | |
| KB-3150N | KB-3150NU % | - | FR-1 | 0.71 | 17 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| KB-3151HS | KB-3151HS | - | FR-1 | 0.71 | 34 | 102 | - | 50.8 | V-0 | 130 | 260 | 10 |
| Metal clad industrial laminates for use in multilayer printed wiring boards with copper on one or both sides, | | | | | | | | | | | | |
| KB-6155 | KB-6155 | KB-6055 | FR-4.0 | 0.38 | 12 | 102 | 70 | 50.8 | V-0 | 130 | 288 | 60 |

Metal clad industrial laminates (Flammability Only Recognition):

| Metal Clad Dsg | Lam-inate Dsg | Pre-preg Dsg | ANSI Type | Bld up | | | | Max Area Dia (mm) | Max Flame Class | Max Oper Temp (°C) | Solder Temp (°C) | Lts Time (sec) |
|--|---------------|--------------|-----------|--------------|---------------|---------------|---------------|-------------------|-----------------|--------------------|------------------|----------------|
| | | | | Min Thk (mm) | Min Ext (mic) | Max Ext (mic) | Max Int (mic) | | | | | |
| Metal clad industrial laminates for use in single layer printed wiring boards with copper on one or both sides, furnished as sheets | | | | | | | | | | | | |
| KB-5152 | KB-5152 | - | No ANSI | 0.60 | - | - | - | - | V-0 | - | 260 | 10 |

| | | | | | | | | | | | | |
|----------------|---------|---|---------|------|---|---|---|---|-----|---|-----|----|
| KB-6162 | KB-6162 | - | No ANSI | 0.63 | - | - | - | - | V-0 | - | 288 | 30 |
|----------------|---------|---|---------|------|---|---|---|---|-----|---|-----|----|

% - Corresponds to Unclad values without adhesive. For declad values (single sided) see corresponding grade "KB-3150N"

& - Corresponds to Declad values with adhesive. For Unclad values see corresponding grade designation.

* - With adhesive

X - may be 0, 4

Marking: Company name and model designation.

Last Updated on 2021-09-16

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