

## TU-883 Typical Dk/Df Value

## Laminate Standard Construction List

| Nominal Thickness |       | Standard Construction | Dk@  |      |      |       |         |       |       | Df@    |        |        |        |         |        |        |
|-------------------|-------|-----------------------|------|------|------|-------|---------|-------|-------|--------|--------|--------|--------|---------|--------|--------|
| (mils)            | (mm)  |                       | 1GHz | 3GHz | 5GHz | 10GHz | 12.5GHz | 15GHz | 20GHz | 1GHz   | 3GHz   | 5GHz   | 10GHz  | 12.5GHz | 15GHz  | 20GHz  |
| 2.0               | 0.051 | 1067x1                | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 2.5               | 0.064 | 1067x1                | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |
| 2.5               | 0.064 | 1078x1                | 3.78 | 3.77 | 3.76 | 3.75  | 3.74    | 3.73  | 3.72  | 0.0030 | 0.0034 | 0.0038 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 3.0               | 0.076 | 1078x1                | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 3.5               | 0.089 | 1078x1                | 3.49 | 3.49 | 3.48 | 3.47  | 3.46    | 3.45  | 3.44  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0047  | 0.0048 | 0.0050 |
| 3.5               | 0.089 | 1037x2                | 3.54 | 3.54 | 3.53 | 3.52  | 3.51    | 3.50  | 3.49  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 4.0               | 0.102 | 1078x1                | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |
| 4.0               | 0.102 | 1067x2                | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 4.0               | 0.102 | 3313x1                | 3.83 | 3.82 | 3.81 | 3.80  | 3.79    | 3.78  | 3.77  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 4.5               | 0.114 | 1067x2                | 3.54 | 3.54 | 3.53 | 3.52  | 3.51    | 3.50  | 3.49  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 4.5               | 0.114 | 3313x1                | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 5.0               | 0.127 | 1078x2                | 3.78 | 3.77 | 3.76 | 3.75  | 3.74    | 3.73  | 3.72  | 0.0030 | 0.0034 | 0.0038 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 5.0               | 0.127 | 2116x1                | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 5.5               | 0.140 | 2116x1                | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 6.0               | 0.152 | 1078x2                | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 8.0               | 0.203 | 3313x2                | 3.83 | 3.82 | 3.81 | 3.80  | 3.79    | 3.78  | 3.77  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 9.0               | 0.229 | 3313x2                | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 10.0              | 0.254 | 2116x2                | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 11.0              | 0.279 | 2116x2                | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 15.0              | 0.381 | 2116X3                | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 20.0              | 0.508 | 2116X4                | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 25.0              | 0.635 | 2116X5                | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |

## Laminate Optional Construction Upon Request

| Nominal Thickness |       | Standard Construction | Dk@  |      |      |       |         |       |       | Df@    |        |        |        |         |        |        |
|-------------------|-------|-----------------------|------|------|------|-------|---------|-------|-------|--------|--------|--------|--------|---------|--------|--------|
| (mils)            | (mm)  |                       | 1GHz | 3GHz | 5GHz | 10GHz | 12.5GHz | 15GHz | 20GHz | 1GHz   | 3GHz   | 5GHz   | 10GHz  | 12.5GHz | 15GHz  | 20GHz  |
| 3.5               | 0.089 | 3313x1                | 3.96 | 3.95 | 3.94 | 3.93  | 3.92    | 3.91  | 3.90  | 0.0031 | 0.0035 | 0.0038 | 0.0047 | 0.0048  | 0.0050 | 0.0052 |
| 5.0               | 0.127 | 1067x2                | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |

SPC Method

The electric performance and characteristics shown in the table is for reference only.  
For incoming inspection, please refer to the consigned contract between TUC and customer.

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## TU-883P Typical Dk/Df Value

## Prepreg Standard Construction List

| Prepreg type | RC (%) | Thickness (for reference) |       | Dk@  |      |      |       |         |       |       | Df@    |        |        |        |         |        |        |
|--------------|--------|---------------------------|-------|------|------|------|-------|---------|-------|-------|--------|--------|--------|--------|---------|--------|--------|
|              |        | (mils)                    | (mm)  | 1GHz | 3GHz | 5GHz | 10GHz | 12.5GHz | 15GHz | 20GHz | 1GHz   | 3GHz   | 5GHz   | 10GHz  | 12.5GHz | 15GHz  | 20GHz  |
| 1067         | 63     | 2.0                       | 0.051 | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 1067         | 70     | 2.5                       | 0.064 | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |
| 1078         | 63     | 3.0                       | 0.076 | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| 1078         | 67     | 3.5                       | 0.089 | 3.49 | 3.49 | 3.48 | 3.47  | 3.46    | 3.45  | 3.44  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0047  | 0.0048 | 0.0050 |
| 3313         | 54     | 4.0                       | 0.102 | 3.83 | 3.82 | 3.81 | 3.80  | 3.79    | 3.78  | 3.77  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 3313         | 57     | 4.5                       | 0.114 | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |
| 2116         | 53     | 5.0                       | 0.127 | 3.85 | 3.85 | 3.84 | 3.82  | 3.82    | 3.81  | 3.79  | 0.0031 | 0.0034 | 0.0038 | 0.0047 | 0.0048  | 0.0049 | 0.0052 |
| 2116         | 57     | 5.5                       | 0.140 | 3.75 | 3.74 | 3.74 | 3.72  | 3.71    | 3.71  | 3.69  | 0.0030 | 0.0034 | 0.0037 | 0.0046 | 0.0048  | 0.0049 | 0.0051 |

## Prepreg Optional Construction List Upon Request

| Prepreg type | RC (%) | Thickness (for reference) |       | Dk@  |      |      |       |         |       |       | Df@    |        |        |        |         |        |        |
|--------------|--------|---------------------------|-------|------|------|------|-------|---------|-------|-------|--------|--------|--------|--------|---------|--------|--------|
|              |        | (mils)                    | (mm)  | 1GHz | 3GHz | 5GHz | 10GHz | 12.5GHz | 15GHz | 20GHz | 1GHz   | 3GHz   | 5GHz   | 10GHz  | 12.5GHz | 15GHz  | 20GHz  |
| *106         | 75     | 2.5                       | 0.064 | 3.29 | 3.28 | 3.28 | 3.26  | 3.26    | 3.25  | 3.23  | 0.0029 | 0.0032 | 0.0036 | 0.0045 | 0.0046  | 0.0047 | 0.0050 |
| 1067         | 73     | 2.8                       | 0.071 | 3.34 | 3.33 | 3.33 | 3.32  | 3.31    | 3.30  | 3.29  | 0.0029 | 0.0032 | 0.0036 | 0.0045 | 0.0046  | 0.0047 | 0.0050 |
| 1067         | 75     | 3.0                       | 0.076 | 3.29 | 3.28 | 3.28 | 3.26  | 3.26    | 3.25  | 3.23  | 0.0029 | 0.0032 | 0.0036 | 0.0045 | 0.0046  | 0.0047 | 0.0050 |
| *1080        | 63     | 3.0                       | 0.076 | 3.60 | 3.59 | 3.58 | 3.57  | 3.56    | 3.55  | 3.54  | 0.0030 | 0.0033 | 0.0037 | 0.0046 | 0.0047  | 0.0048 | 0.0051 |
| *1080        | 67     | 3.5                       | 0.089 | 3.49 | 3.49 | 3.48 | 3.47  | 3.46    | 3.45  | 3.44  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0047  | 0.0048 | 0.0050 |
| 1078         | 70     | 4.0                       | 0.102 | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |
| *1078        | 72     | 4.3                       | 0.109 | 3.36 | 3.36 | 3.35 | 3.34  | 3.34    | 3.33  | 3.31  | 0.0029 | 0.0032 | 0.0036 | 0.0045 | 0.0046  | 0.0047 | 0.0050 |
| *1080        | 70     | 4.0                       | 0.102 | 3.42 | 3.41 | 3.41 | 3.39  | 3.38    | 3.38  | 3.36  | 0.0029 | 0.0033 | 0.0036 | 0.0045 | 0.0046  | 0.0048 | 0.0050 |

\*Extreme High RC Prepreg for 2oz(up) Inner Layer Resin Fill, recommend 1080 / 106 type for multi-ply inner layer design.

\*Extreme high RC might cause cosmetic issue if use at outer layer.

## SPC Method

## Note

2020.02 Add Laminate 3.5mil 1078x1

2021.11 Optimized construction

2024.01 Dk difference reference for Impedance simulation Dk around -0.52