



**THE DATASHEET OF
Q6004L3TP**



Lead Form Dimensions

The TO-202AB, TO-220AB, and TO-92 package configurations, because of their unique design, can be mounted in a variety of methods, depending upon heat sink requirements and circuit packaging methods. Any of the derived types shown in this section are available as standard parts direct from the factory. Custom package variations are available. Consult the factory for more information.

To designate lead form options, simply indicate the type number at the end of the Teccor standard part number.

Example: Q2004F312 (Signifies Type 12)

Note: When ordering a TO-202 F package, include a 1 for standard full tab package. When ordering anything other than full tab, remove the 1 and add the Lead Form Type.

See "Description of Part Numbers" in the Product Selection Guide of this catalog for a complete description of Teccor part numbers.

Lead Bending Specifications

Leads may be bent easily and may be bent to any desired angle, provided that the bend is made at a minimum 0.063" (0.1 for TO-218) away from the package body with a minimum radius of 0.032". DO-15X device leads may be bent with a minimum radius of 0.050", and DO-35 device leads may be bent with a minimum radius of 0.028". Leads should be held firmly between the package body and the bend, so that strain on the leads is not transmitted to the package body.

When bending leads in the plane of the leads (spreading), bend only the narrow part.

Sharp angle bends should be done only once, as repetitive bending will fatigue and break the leads.

TO-202AB Type 11 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.080 | 0.120 | 2.03 | 3.05 |
| B | 0.301 | 0.361 | 7.65 | 9.17 |
| C | 0.080 | 0.120 | 2.03 | 3.05 |

TO-202AB Type 2 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.240 | 0.260 | 6.100 | 6.60 |
| B | 0.030 | 0.050 | 0.762 | 1.27 |

TO-202AB Type 12 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.435 | 0.495 | 11.05 | 12.57 |
| B | 0.120 | 0.160 | 3.05 | 4.06 |

TO-202AB Type 21 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.050 | 0.762 | 1.27 |
| B | 0.240 | 0.260 | 6.100 | 6.60 |
| C | 0.080 | 0.120 | 2.030 | 3.05 |
| D | 0.301 | 0.361 | 7.650 | 9.17 |
| E | 0.080 | 0.120 | 2.030 | 3.05 |

TO-202AB Type 23 — F Package

Sidac Only



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.240 | 0.260 | 6.100 | 6.60 |
| B | 0.030 | 0.050 | 0.762 | 1.27 |
| C | 0.030 | 0.050 | 0.762 | 1.27 |

TO-202AB Type 3 — F Package

Non-isolated



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.050 | 0.762 | 1.27 |
| B | 0.645 | 0.705 | 16.380 | 17.91 |

TO-202AB Type 26 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.240 | 0.260 | 6.100 | 6.60 |
| B | 0.030 | 0.050 | 0.762 | 1.27 |
| C | 0.050 | 0.070 | 0.127 | 1.78 |
| D | 0.095 | 0.105 | 2.410 | 2.67 |
| E | 0.172 | 0.202 | 4.370 | 5.13 |

TO-202AB Type 32 — F Package

Non-isolated



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.050 | 0.762 | 1.27 |
| B | 0.435 | 0.495 | 11.050 | 12.57 |
| C | 0.120 | 0.160 | 3.050 | 4.06 |

TO-202AB Type 4 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.240 | 0.260 | 6.100 | 6.600 |
| B | 0.114 | 0.134 | 2.900 | 3.400 |
| C | 0.023 | 0.029 | 0.584 | 0.737 |
| D | 0.030 | 0.050 | 0.762 | 1.270 |
| E | 0.297 | 0.327 | 7.540 | 8.310 |
| F | 0.030 | 0.050 | 0.765 | 1.270 |
| G | 0.297 | 0.327 | 7.540 | 8.310 |

TO-202AB Type 43 — F Package

Surface Mount



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|--------|
| | MIN | MAX | MIN | MAX |
| A | 0.030 | 0.050 | 0.762 | 1.270 |
| B | 0.680 | 0.760 | 17.270 | 19.300 |
| C | 0.110 | 0.130 | 2.800 | 3.300 |
| D | 0.080 | 0.100 | 2.030 | 2.540 |
| E | 0.080 | 0.100 | 2.030 | 2.540 |
| F | 0.110 | 0.130 | 2.800 | 3.300 |
| G | 0.000 | 0.013 | 0.000 | 0.330 |

TO-202AB Type 41 — F Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.380 | 0.420 | 9.65 | 10.67 |
| B | 0.180 | 0.220 | 4.57 | 5.59 |

TO-220 Type 51 — R or L Package

Replaces RCA 6249



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.320 | 0.340 | 8.13 | 8.64 |
| B | 0.190 | | 4.83 | |
| C | 0.795 | 0.850 | 20.19 | 21.59 |

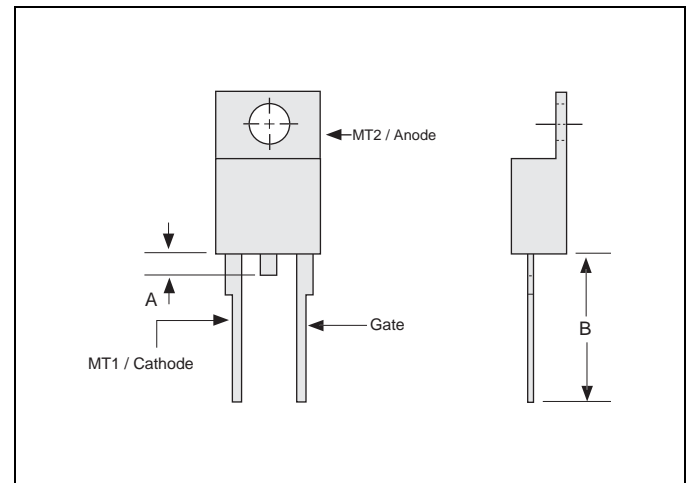
TO-220 Type 52 — R or L Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.169 | 0.189 | 4.29 | 4.80 |
| B | 0.040 | 0.060 | 1.02 | 1.52 |
| C | 0.250 | | 6.35 | |
| D | 0.110 | 0.170 | 2.79 | 4.32 |

TO-220 Type 54 — R Package

Replaces Motorola Form 4, G.E. Type 4, RCA 6206



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.040 | 0.070 | 1.02 | 1.78 |
| B | 0.500 | | 12.70 | |

TO-220 Type 53 — R or L Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.175 | | 4.45 | |
| B | 0.542 | 0.582 | 13.77 | 14.78 |
| C | 0.167 | 0.207 | 4.24 | 5.26 |
| D | 0.355 | 0.395 | 9.02 | 10.03 |

TO-220 Type 55 — R or L Package

Replaces G.E. Type 5



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.065 | 0.095 | 1.65 | 2.41 |
| B | 0.353 | 0.433 | 8.97 | 11.00 |
| C | 0.115 | 0.130 | 2.92 | 3.30 |

TO-220 Type 56 — R or L Package

Replaces G.E. Type 6, Motorola Lead Form 3, RCA 6221



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.570 | 0.590 | 14.48 | 14.99 |
| B | 0.120 | 0.130 | 3.05 | 3.30 |
| C | 0.172 | 0.202 | 4.37 | 5.13 |

TO-220 Type 58 — R or L Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.175 | | 4.45 | |
| B | 0.542 | 0.582 | 13.77 | 14.78 |
| C | 0.167 | 0.207 | 4.24 | 5.26 |
| D | 0.355 | 0.395 | 9.02 | 10.03 |

TO-220 Type 57 — R Package

Similar to TO-66, Gate-Cathode Reversed



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.040 | 0.070 | 1.02 | 1.78 |
| B | 0.570 | 0.590 | 14.48 | 14.99 |
| C | 0.340 | 0.422 | 8.64 | 10.72 |

TO-220 Type 59 — R or L Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.685 | 0.725 | 17.40 | 18.42 |
| B | 0.558 | 0.598 | 14.17 | 15.19 |
| C | 0.375 | | 9.53 | |
| D | 0.250 | | 6.35 | |

TO-220 Type 65 — R or L Package

Replaces RCA 6210



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.550 | 0.580 | 13.97 | 14.73 |
| B | 0.820 | 0.860 | 20.83 | 21.84 |
| C | 0.530 | 0.570 | 13.46 | 14.48 |
| D | 0.080 | 0.120 | 2.03 | 3.05 |

TO-220 Type 68 — R or L Package

Surface Mount



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.780 | 0.850 | 19.05 | 21.59 |
| B | 0.080 | 0.100 | 2.03 | 2.54 |
| C | 0.110 | 0.130 | 2.79 | 3.30 |
| D | | 0.013 | | 0.33 |

TO-220 Type 67 — R Package

Surface Mount



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.780 | 0.850 | 19.05 | 21.59 |
| B | 0.080 | 0.100 | 2.03 | 2.54 |
| C | 0.110 | 0.130 | 2.79 | 3.30 |
| D | | 0.013 | | 0.33 |

TO-92 Type 70 — E Package

Sidac Only



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | | 0.060 | | 1.52 |
| B | 0.50 | | 12.7 | |

TO-92 Type 73 — E Package

Surface Mount



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.000 | 0.010 | 0.000 | 0.254 |
| B | 0.052 | 0.067 | 1.320 | 1.700 |
| C | 0.295 | 0.315 | 7.490 | 8.000 |

TO-218 Type 81 — K, M, J, or W Packages



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.080 | 0.120 | 2.03 | 3.05 |
| B | 0.580 | 0.640 | 14.73 | 16.26 |

TO-92 Type 75 — E Package

Replaces TO-5 Pinout



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.400 | | 10.16 | |
| B | 0.500 | | 12.70 | |
| C | 0.080 | 0.120 | 2.03 | 3.05 |
| D | 0.045 | 0.085 | 1.14 | 2.16 |
| E | 0.180 | 0.220 | 4.57 | 5.59 |
| F | 0.080 | 0.120 | 2.03 | 3.05 |

TO-218 Type 82 — M and W Packages



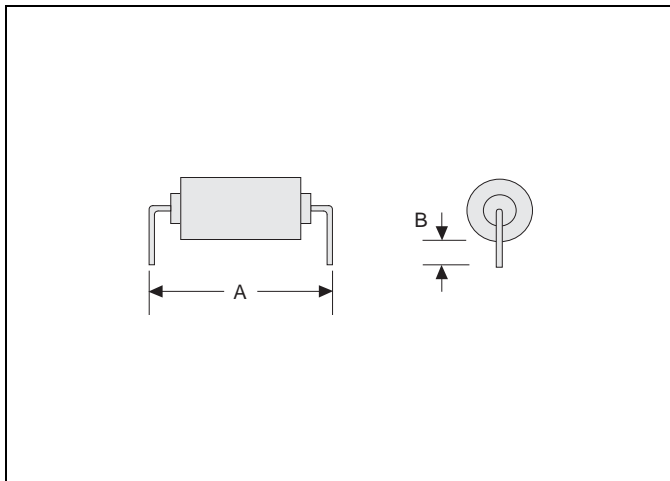
| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | | 0.095 | | 2.41 |
| B | 0.080 | 0.120 | 2.03 | 3.05 |
| C | 0.580 | 0.640 | 14.73 | 16.26 |

DO-35 Type 91 — Y Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.519 | 0.521 | 12.18 | 13.23 |
| B | 0.140 | 0.172 | 3.56 | 4.37 |

DO-35 Type 92 — Y Package



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.610 | 0.630 | 15.49 | 16.00 |
| B | 0.140 | 0.172 | 3.56 | 4.37 |

DO-35 Type 93 — Y Package

Surface Mount



| Dimension | Inches | | Millimeters | |
|-----------|--------|-------|-------------|-------|
| | MIN | MAX | MIN | MAX |
| A | 0.020 | 0.060 | 0.508 | 1.52 |
| B | 0.290 | 0.310 | 7.370 | 7.87 |
| C | 0.370 | 0.430 | 9.400 | 10.92 |
| D | 0.040 | 0.060 | 1.020 | 1.52 |

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