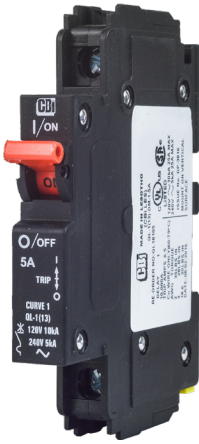
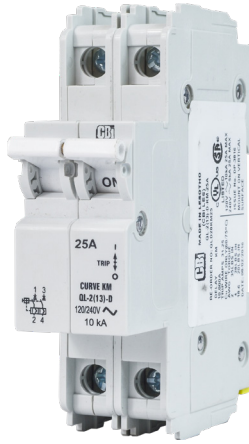


QL - Series Miniature Circuit Breakers



1 Pole
Dual (DIN & mini rail) mount



2 Pole
DIN mount



3 Pole
Dual (DIN & mini rail) mount

Features

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- One, two and three pole (UL). One, two, three pole and 1+N, 3+N (VDE).
- VDE, EAC and CCC approved, CE certified
- UL 489 Listed
- Ratings 0.5 A to 25 A
- Optional shunt trip (Approvals pending)
- Wide range of time delays and operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip handle
- Can be switched on immediately after tripping
- DIN mount, 45 mm front escutcheon (Grey)
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (Black)
- Ring terminal ready (Terminal screw is removable)

Auxiliary Switch, Trip Alarm & Combo: Features

- Factory fitted
- Attached to right hand side of circuit breaker
- Compact 6.5 mm width
- Auxiliary switch (DIN and Dual mount)
- Auxiliary switch + trip alarm (Dual mount only)
- Trip alarm (Dual mount only)
- UL 489 listed & IEC 60947-5-1
- 110 Vdc, 0.5 A; 240 Vac, 6 A

Applications

- AC branch circuit protection
- Telecom / datacom equipment
- Lighting control
- UPS equipment
- Energy equipment
- Mobile power generation equipment
- Power conditioning equipment

Optional Accessories

- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- 57 mm escutcheon blank (Dual mount only) - 235608
- 57 mm safety blank (Dual mount only) - SAEB000



(DIN / EN 60947-2)



(UL 489)



(GB 14048.2)



Hydraulic-Magnetic Circuit Breakers 100% rated, unaffected by ambient temperature

QL - Series Miniature Circuit Breakers

Technical Data

| Product Type | Circuit Breaker | | | |
|------------------------------------|-----------------|---------|---------------|---------|
| Approvals | UL 489 | | | |
| Number of Poles | 1 | 1 | 2 | 2 & 3 |
| Operating Voltages | 120 Vac | 240 Vac | 120 / 240 Vac | 240 Vac |
| Minimum Current Rating | 0.5 A | | | |
| Maximum Current Rating | 25 A | 20 A | 25 A | 25 A |
| Interrupting Capacity | 5 kA | 5 kA | 5 kA | 5 kA |
| Ampere Interrupting Capacity (AIC) | 10 kA | - | 10 kA | 10 kA |

| Product Type | Circuit Breaker | | | | |
|--------------------------------------|----------------------------|---------|---------|---|---------|
| Approvals | DIN / EN 60947-2, CE, UKCA | | | | |
| Number of Poles | 1 | 2 (1+N) | 2 | 3 | 4 (3+N) |
| Operating Voltages | 240 Vac | | 415 Vac | | |
| Minimum Current Rating | 0.5 A | | | | |
| Maximum Current Rating | 25 A | | | | |
| Ultimate S/C Breaking Capacity (Icu) | 6 kA | | | | |

| Product Type | Circuit Breaker | | | | |
|---|---|---------|---------|---|---------|
| Approvals | GB 14048.2 | | | | |
| Number of Poles | 1 | 2 (1+N) | 2 | 3 | 4 (3+N) |
| Operating Voltages | 240 Vac | | 415 Vac | | |
| Minimum Current Rating | 1 A | | | | |
| Maximum Current Rating | 25 A | | | | |
| Specific Ratings (Verify Certification) | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25 A | | | | |
| Ultimate S/C Breaking Capacity (Icu) | 6 kA | | | | |

Verify approvals for specific ratings in accordance with the relevant test certificates.

For other ratings, consult CBI

QL - Series Miniature Circuit Breakers

Technical Data

| | |
|--|---|
| Product Type | QL |
| Ambient Operating Temperature | -40°C to +85°C |
| Mounting Options | DIN rail mount, Dual (DIN & mini rail) mount, Surface mounting clip |
| Time Delay Curves | 1, 3, 9, KM, OP |
| Endurance | 10000 operations; 1500 electrical at rated current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)* 6000 electrical operations (UL 489 Clause 7.1.9)* |
| Dielectric Strength | 1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)* 1000 Vac plus twice the rated voltage for one minute (UL 489 Clause 7.1.9)* |
| Rated Impulse Withstand Voltage | 4 kV (IEC 60947-2) |
| Weight | 102 g per pole, 160 g with auxiliary (unpacked) |
| Altitude | Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes. |
| Shock | 8 G (IEC 60068-2-27) |
| Vibration | 0.5 G (IEC 60068-2-6) (sinusoidal wave) |
| Flammability | I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28 |
| Toxicity | F1 - Smoke index of ≤ 20 which determines the fume class |
| Pollution Degree | PD2 - Normally only non-conductive pollution occurs. Temporary conductivity caused by condensation is to be expected. |

* Refer to the standard for details

| Circuit breaker | Wire Size (IEC) | Wire Gauge (UL) | Torque (IEC) | Torque (UL) | Comments |
|-----------------------|---|-----------------|--------------|-------------|---------------------------|
| Main Terminals | 0.75 mm ² - 25 mm ² | 18 – 3 – AWG | 2.5 Nm | 20 in-lb | Pozidriv #2 Combi head |

Verify approvals for specific ratings in accordance with the relevant test certificates.

QL - Series Miniature Circuit Breakers

Long Code

Example Code: QL--AT-3(13)-DM-KM-15A-----R

| Group | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-------------|----------|------------------|-------------------------------|-------------|--------------------|------------|-----------------------|---------------------|------------|---------------|------------|---------------------|-------------------|
| Requirement | QL frame | Switch / neutral | Auxiliary switch + trip alarm | Triple pole | 13 mm module width | Dual mount | Medium delay curve KM | Current rating 15 A | Future use | No shunt trip | Future use | Ring terminal ready | Customer specific |
| Long Code | QL | - | AT | 3 | (13) | DM | KM | 15A | - | - | - | R | - |

Ordering Information

| Group | Code | Description | Comments |
|--------------------------|--|--|--|
| Group 1: Frame Type | QL | Miniature circuit breaker | DIN / EN 60947-2, UL 489 & GB 14048.2 |
| | - | Not applicable | |
| Group 2: Switch/Neutral | - | Not applicable | |
| | N | Neutral | Green handle |
| Group 3: Auxiliary | - | Not applicable | If no auxiliary is required |
| | A | Auxiliary switch (1 x Aux in 1 module) | 6.5 mm module fitted on right-hand side (DIN & Dual mount) |
| | T | Trip alarm (1 x Trip alarm in 1 module) | 6.5 mm module fitted on right-hand side (Dual mount) |
| | AT | Auxiliary switch + trip alarm combo (Combined in 1 module) | 6.5 mm module fitted on right-hand side (Dual mount) |
| Group 4: No of Poles | 1 | Single pole | |
| | 2 | Double pole | 2 pole or 1+N |
| | 3 | Triple pole | |
| | 4 | Four pole | 3+N |
| Group 5: Module Width | (13) | 13 mm module width | 13 mm per pole |
| | - | Not applicable | |
| Group 6: Mounting | D | DIN rail mount | DIN mount supplied in grey only - 45 mm front escutcheon, grey body |
| | DM | Dual (DIN & mini rail) mount | Dual mount supplied in black only - 57 mm front escutcheon, black body |
| Group 7: Time Delays | 1 | Long time delay, high instantaneous trip | 10 – 20 Orange handle |
| | 3 | Short time delay | 3 – 5 White handle |
| | 9 | Long time delay | 7 – 12 White handle |
| | KM | Medium time delay | 6 – 12 White handle |
| | OP | Instantaneous | None White handle |
| Group 8: Current Ratings | Code / Description | | Comments |
| | 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25 A | | For other ratings, consult CBI |
| Group 9: | - | Not applicable | For future use |
| | - | Not applicable | For future use |

QL - Series Miniature Circuit Breakers

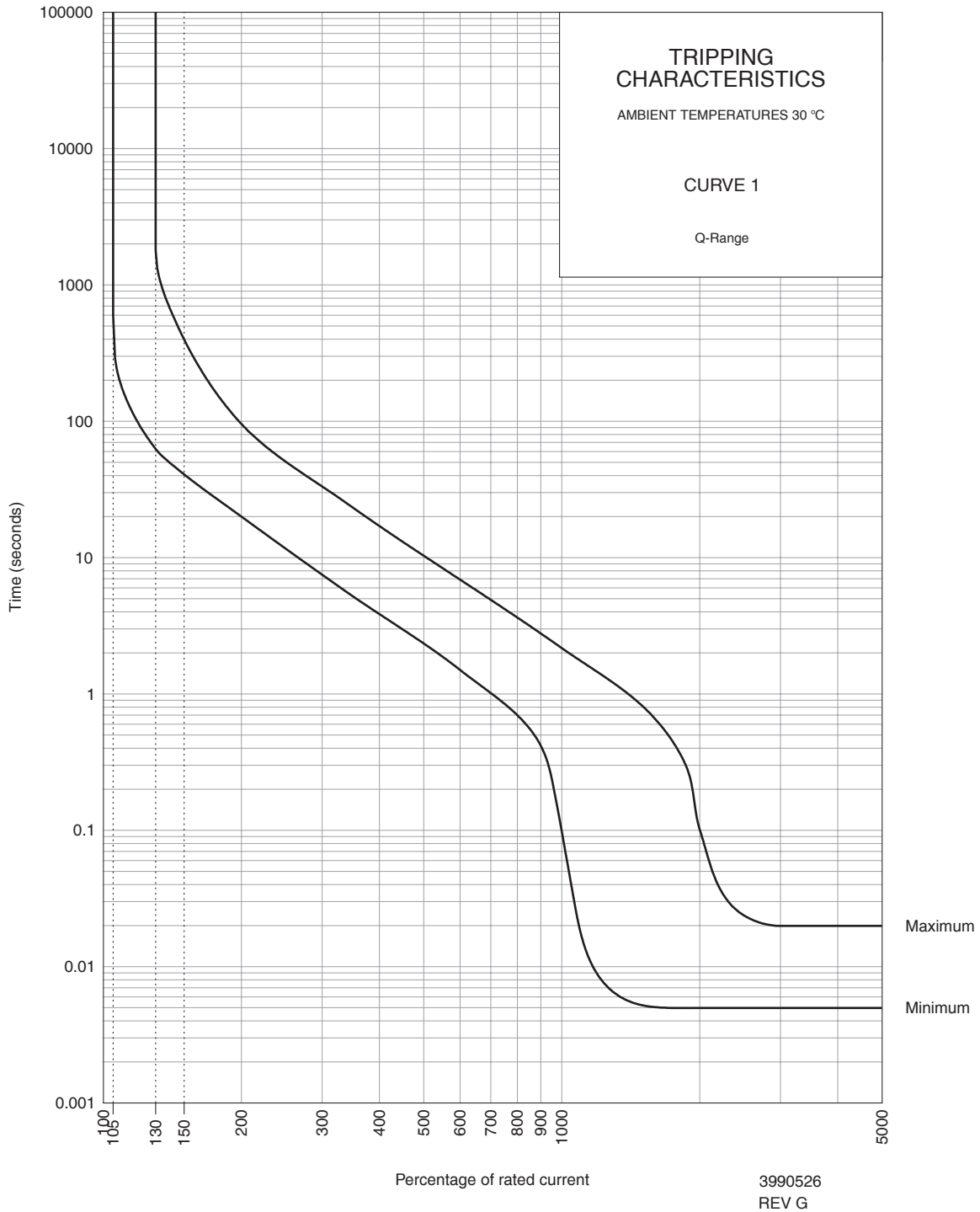
Ordering Information continues

| | | | |
|---|-------------|---------------------|--|
| Group 10: Shunt Trip (Not Certified only offered as a special offer) | Code | Description | Comments |
| | - | Not applicable | N / A |
| Group 11 | Code | Description | Comments |
| | - | Not applicable | For future use |
| Group 12: Special Termination | Code | Description | Comments |
| | R | Ring terminal ready | Terminal screw is removable. Ring lug (5 mm) |
| Group 13: Customer Specific | Code | Description | Comments |
| | - | Not applicable | For future use |

For options not listed, please contact CBI

QL - Series Miniature Circuit Breakers

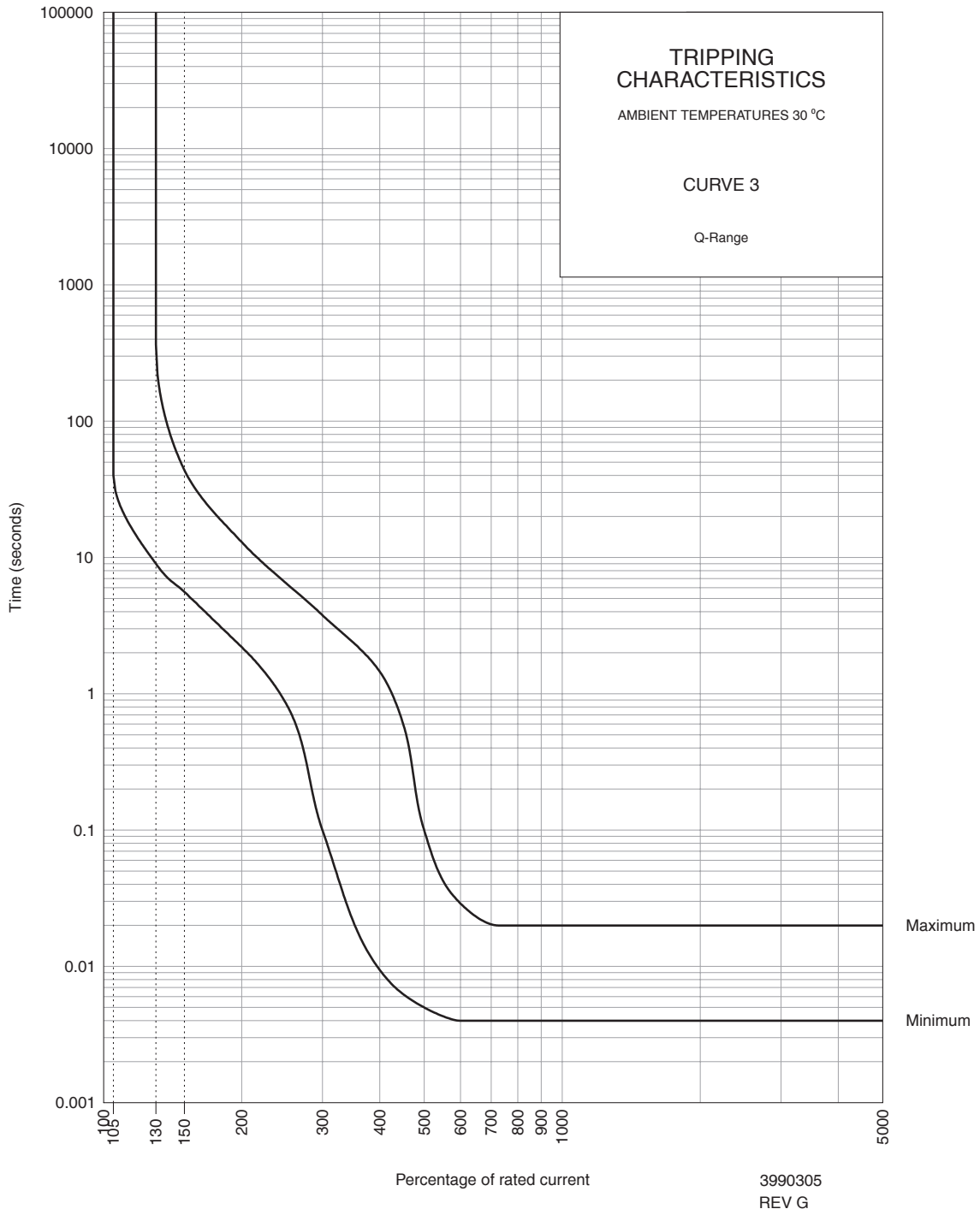
Time Delay Curve



| PERCENTAGE OF RATED CURRENT | 105% | 130% | 145% | 150% | 200% | 300% | 400% | 500% | 600% | 700% | 800% | 900% | 1000% | 2000% |
|------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| MINIMUM TRIP TIME IN SECONDS | NO TRIP | 63 | 45 | 41 | 20 | 7.5 | 3.8 | 2.3 | 1.5 | 1.01 | 0.7 | 0.42 | 0.1 | 0.005 |
| MAXIMUM TRIP TIME IN SECONDS | NO TRIP | 1800 | 503 | 400 | 96 | 34 | 17 | 10.3 | 6.8 | 4.9 | 3.6 | 2.8 | 2.2 | 0.1 |

QL - Series Miniature Circuit Breakers

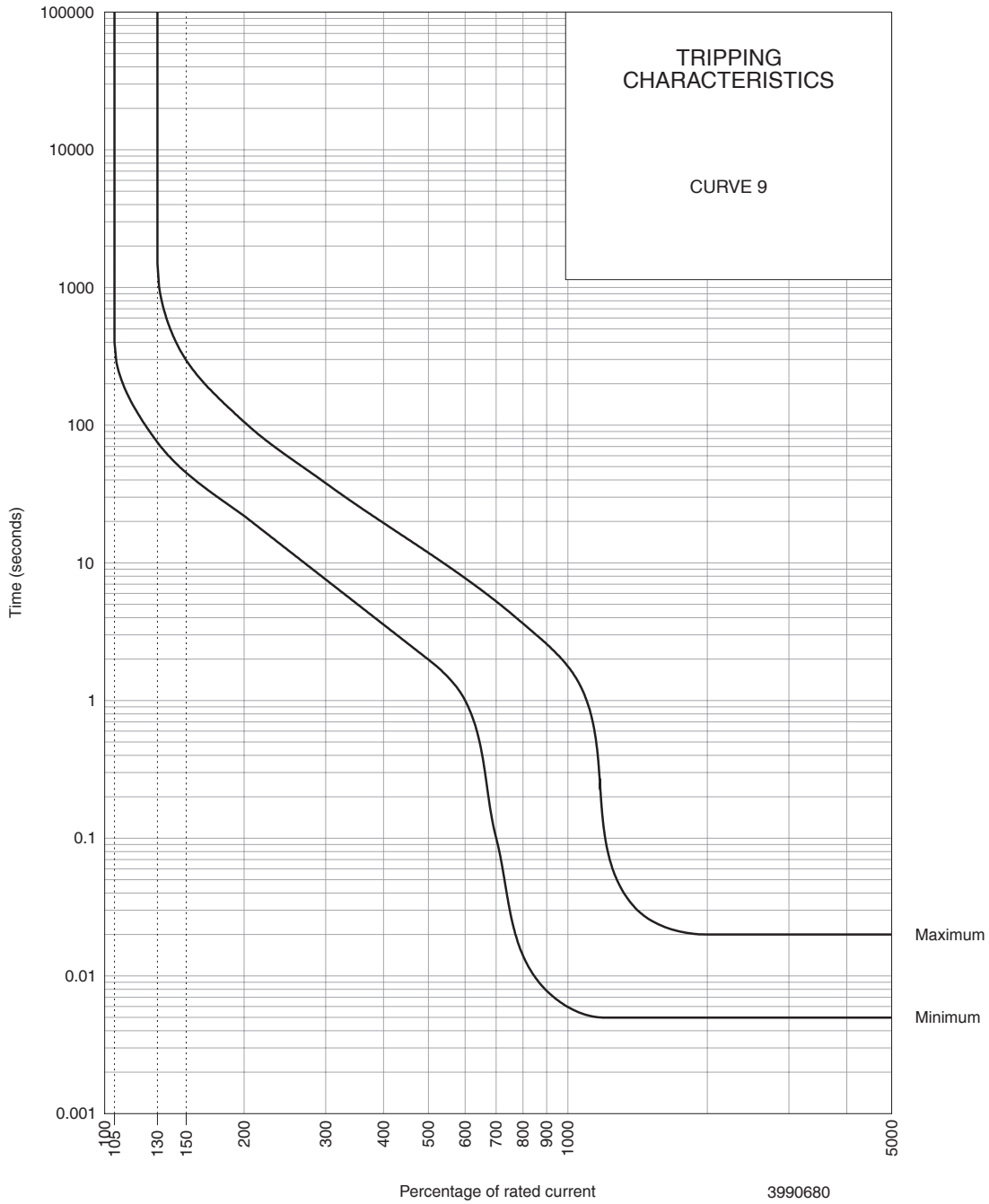
Time Delay Curve



| PERCENTAGE OF RATED CURRENT | 105% | 130% | 145% | 150% | 200% | 300% | 400% | 500% | 600% | 700% | 800% | 900% | 1000% | 2000% |
|------------------------------|---------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| MINIMUM TRIP TIME IN SECONDS | NO TRIP | 9 | 6 | 5.6 | 2.2 | 0.1 | 0.009 | 0.005 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| MAXIMUM TRIP TIME IN SECONDS | NO TRIP | 365 | 57 | 44 | 13 | 3.8 | 1.45 | 0.1 | 0.028 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |

QL - Series Miniature Circuit Breakers

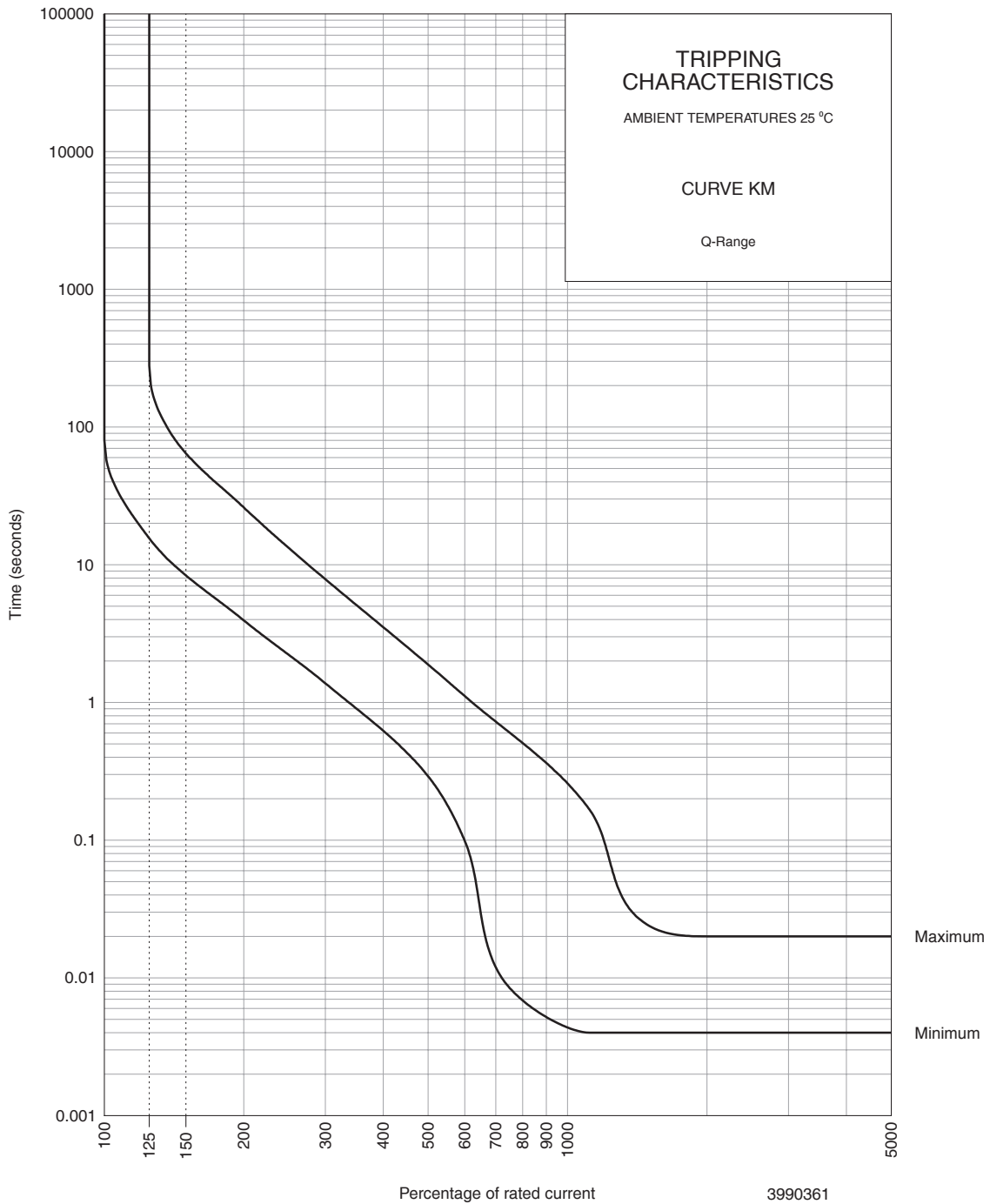
Time Delay Curve



| PERCENTAGE OF RATED CURRENT | 105% | 130% | 145% | 150% | 200% | 300% | 400% | 500% | 600% | 700% | 800% | 900% | 1200% | 2000% |
|------------------------------|---------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| MINIMUM TRIP TIME IN SECONDS | NO TRIP | 75 | 50 | 45 | 22 | 7.6 | 3.6 | 2 | 1 | 0.1 | 0.01 | 0.008 | 0.005 | 0.005 |
| MAXIMUM TRIP TIME IN SECONDS | NO TRIP | 1500 | 360 | 295 | 100 | 38 | 19 | 11.8 | 7.7 | 5.3 | 3.6 | 2.6 | 0.06 | 0.02 |

QL - Series Miniature Circuit Breakers

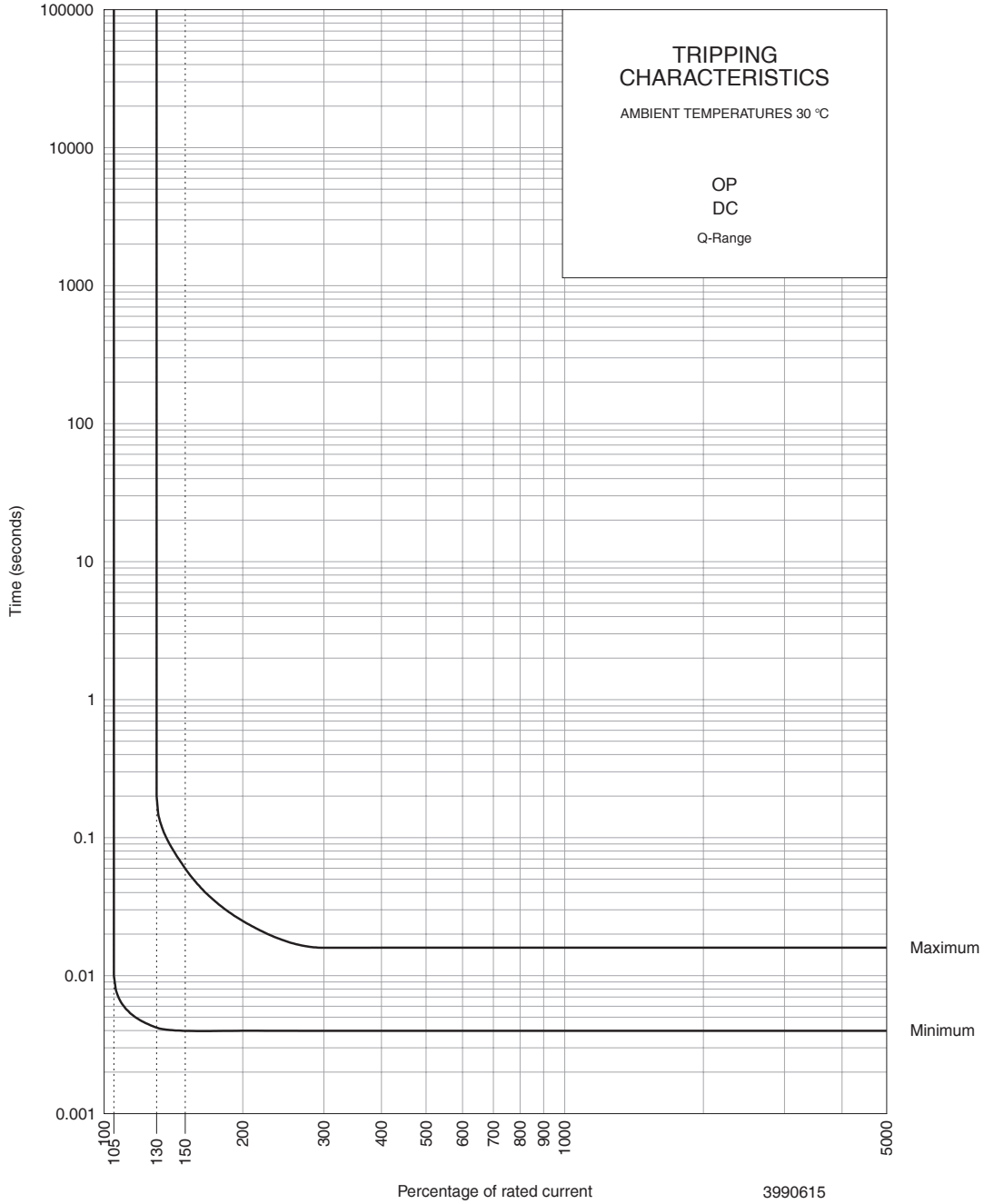
Time Delay Curve



| PERCENTAGE OF RATED CURRENT | 100% | 125% | 130% | 145% | 200% | 300% | 400% | 500% | 600% | 700% | 800% | 900% | 1000% | 2000% |
|------------------------------|---------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| MINIMUM TRIP TIME IN SECONDS | NO TRIP | 16 | 13.2 | 9.2 | 26 | 1.4 | 0.6 | 0.3 | 0.1 | 0.01 | 0.006 | 0.005 | 0.004 | 0.004 |
| MAXIMUM TRIP TIME IN SECONDS | NO TRIP | 279 | 140 | 74 | 4 | 7.8 | 3.5 | 1.9 | 1.1 | 0.7 | 0.5 | 0.36 | 0.25 | 0.02 |

QL - Series Miniature Circuit Breakers

Time Delay Curve

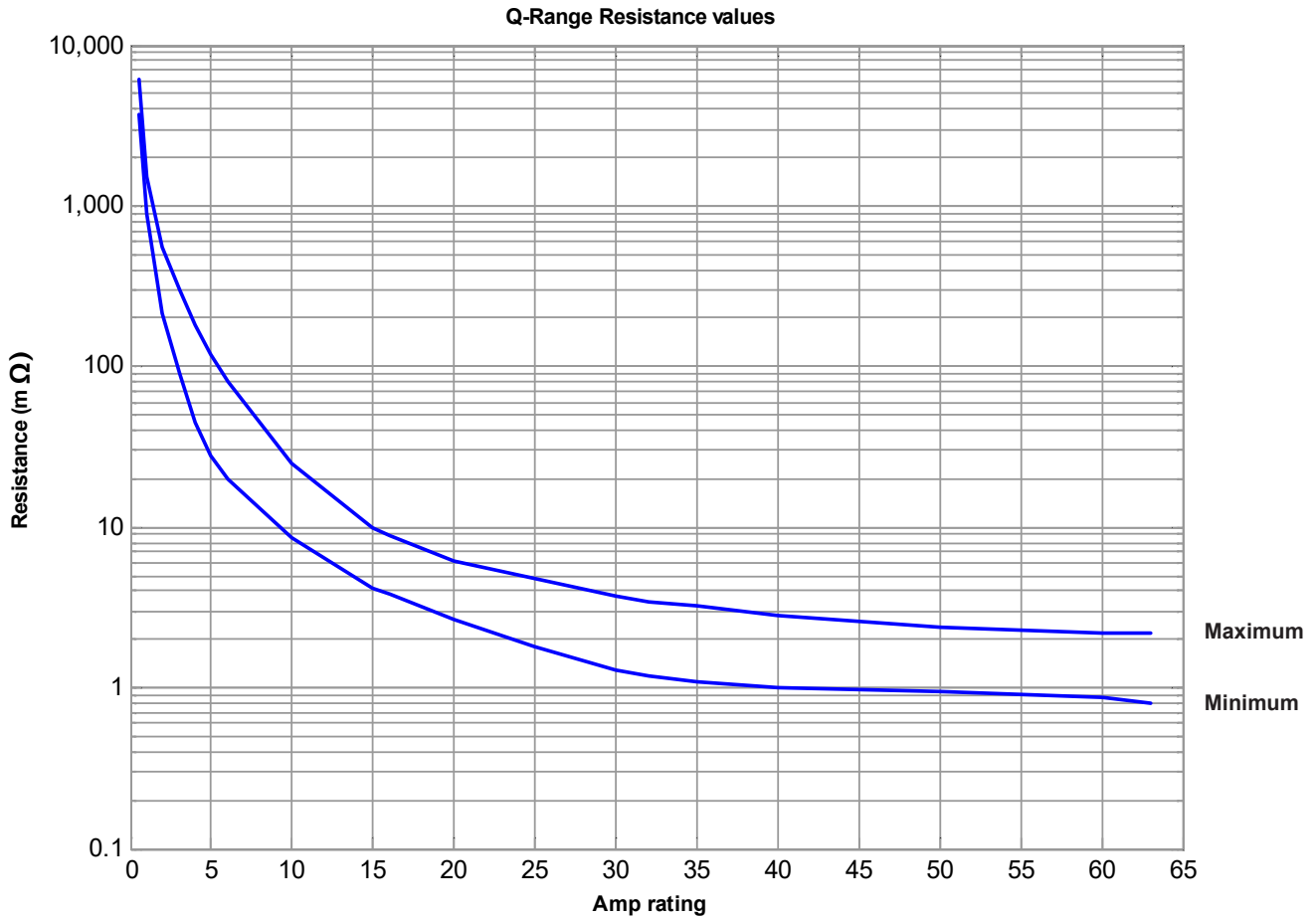


| PERCENTAGE OF RATED CURRENT | 105% | 130% | 145% | 150% | 200% | 300% | 400% | 500% | 600% | 700% | 800% | 900% | 1000% | 2000% |
|------------------------------|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| MINIMUM TRIP TIME IN SECONDS | NO TRIP | 0.0042 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| MAXIMUM TRIP TIME IN SECONDS | NO TRIP | 0.2 | 0.07 | 0.06 | 0.025 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 | 0.016 |

* The published time delay curves are generated at 30°C ambient temperature with the circuit breaker mounted in the up-right position. The “must hold”, “must trip” and “instantaneous trip” current values are not affected by temperature, although delay time for the other operating current values may have to be adjusted using the temperature compensation curve which is available on request.

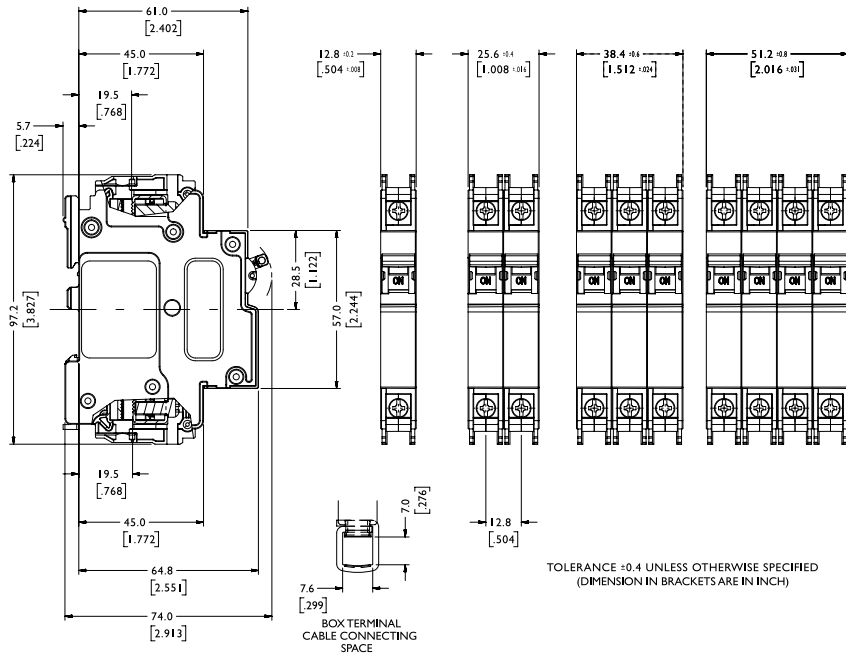
QL - Series Miniature Circuit Breakers

Internal Resistance vs Current Rating

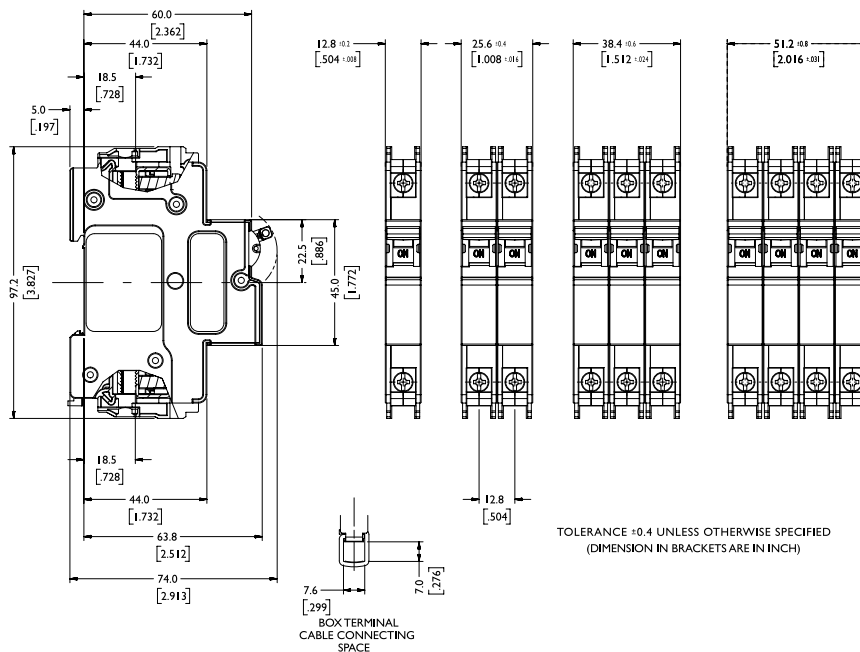


QL - Series Miniature Circuit Breakers

Outline Dimensions: Dual (DIN & mini rail) mount



Outline Dimensions: DIN mount



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