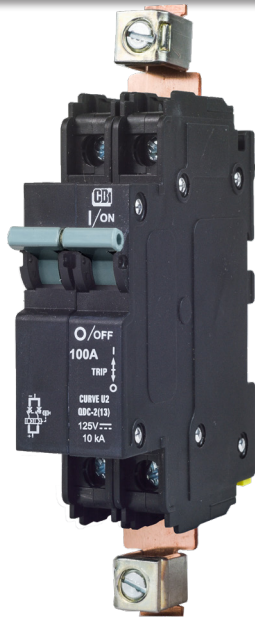


QDC - Series Miniature Circuit Breakers



1 Pole
Dual (DIN & mini rail) mount



2 Pole parallel
Dual (DIN & mini rail) mount



2 Pole + Auxiliary
Dual (DIN & mini rail) mount



3 pole parallel
DIN mount

Features

- DC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- VDE, EAC and CCC approved, CE certified
- Ratings 0.1 A to 63 A (1 & 2 pole), 3 pole parallel (150 A maximum)
- 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)
- 80 Vdc devices are reverse feedable
- 125 / 250 Vdc devices are polarity sensitive
- Suitable to use for electrical isolation

Optional Accessories

- Handle lock - QFAP001
- Surface mounting clips - SAAX000
- Busbar - SABBM54
- 57 mm escutcheon blank (Dual mount only) - 235608
- 57 mm safety blank (Dual mount only) - SAEB000

Applications

- DC branch circuit protection (DIN / EN 60947-2)
- Telecom / datacom equipment
- UPS equipment
- Alternative energy equipment
- Battery protection & switching
- Telecommunication DC power distribution
- Railway signalling equipment

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



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

QDC - Series Miniature Circuit Breakers

Technical Data

Approvals	DIN / EN 60947-2, VDE						
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	2 series	4 parallel
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 Vdc	250 Vdc	80 Vdc
Minimum Current Rating	0.1 A	0.1 A	30 A	30 A	110 A	0.1 A	200 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	50 A	200 A
Ultimate S/C Breaking Capacity (Icu)	10 kA						

Approvals	GB 14048.2						
Number of Poles	1	2	2 parallel	2 parallel	3 parallel	2 series	4 parallel
Operating Voltages	80 Vdc, 125 Vdc		80 Vdc	125 Vdc	80 Vdc	250 Vdc	80 Vdc
Minimum Current Rating	0.1 A	0.1 A	30 A	30 A	110 A	0.1 A	200 A
Maximum Current Rating	63 A	50 A	100 A	100 A	150 A	50 A	200 A
Ultimate S/C Breaking Capacity (Icu)	10 kA						

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

Product Type	QDC
Ambient Operating Temperature	-40 °C to +85 °C
Mounting Options	Dual (DIN & mini rail) mount & DIN rail mount
Time Delay Curves	1, 9, U2, U3, OP
Endurance	10000 operations - 1500 with current, 8500 without current (IEC 60947-2 Clause 7.2.4.2)*
Dielectric Strength	1000 - 2000 Vac for one minute (IEC 60947-2 Clause 8.3.3.3)*
Rated Impulse Withstand Voltage	4 kV (IEC 60947-2 Clause 8.3.3.2)*
Weight	102 g per pole, 160 g with auxiliary (unpacked)
Altitude	Certification tests done at altitude ≈ 2000 metres. Will operate at higher altitudes.
Shock	16 G (IEC 60068-2-27)
Vibration	2 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)	Torque (IEC)	Comments
1 Pole & 2 Pole	0.75 mm ² - 25 mm ²	2.5 Nm	Pozidriv #2 Combi head
2 Pole Parallel	50 mm ²	3.2 Nm	Bridge Terminal
3 Pole Parallel	95 mm ²	5.6 Nm	Bridge Terminal

QDC - Series Miniature Circuit Breakers

Long Code

Example Code: QDC--A-3(13)-D-U2-150A-B0---Z

Group	1	2	3	4	5	6	7	8	9	10	11	12	13
Requirement	QDC frame	Switch / neutral	Auxiliary	Triple pole	13 mm module width	DIN rail	Medium delay curve U2	Current rating 150 A	Voltage 80 Vdc	No shunt trip	Future use	Parallel bridged (by customer)	Customer specific
Long Code	QDC	-	A	3	(13)	D	U2	150A	B0	-	-	Z	-

Ordering Information

Group 1: Frame Type	Code	Description		Comments	
	QDC	Miniature circuit breaker		DIN / EN 60947-2, VDE, CE, UKCA, CCC	
Group 2: Switch/Neutral	Code	Description		Comments	
	-	Not applicable		Overload poles do not have any further coding	
Group 3: Auxiliary	Code	Description		Comments	
	-	Not applicable		If auxiliary is not 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 only)	
	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	Code	Description		Comments	
	1	Single pole			
	2	Double pole			
	3	Triple pole			
Group 5: Module Width	Code	Description		Comments	
	(13)	13 mm module width		13 mm per pole	
Group 6: Mounting	Code	Description		Comments	
	D	DIN rail mount		DIN mount supplied in grey only - 45 mm front escutcheon	
	DM	Dual (DIN & mini rail) mount		Dual mount supplied in black only - 57 mm front escutcheon	
Group 7: Time Delays	Code	Description		Instantaneous Trip Point (x In)	Comments
	1	Long time delay, high instantaneous trip		10 – 20	Orange handle
	9	Long time delay		7 – 12	Grey handle
	U2	Medium time delay		5 – 10	Grey handle
	U3	Short time delay		3 - 5	Grey handle
	OP	Instantaneous		None	White handle
Group 8: Current Ratings	Code / Description			Comments	
	0.1, 0.2, 0.3, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 20, 25, 30, 32, 35, 40, 45, 50, 60, 63, 70, 80, 90, 100, 120, 125, 150 A			Ratings available vary depending on certification, bridging configuration and voltage. (See comments in Group 9) * Other ratings are available as special orders. Check availability.	
Group 9: Voltage (see diagram on page 7)	Code	Voltage	Description		Comments
	B0	80 Vdc	Unpolarised		
	B1	125 Vdc	Polarised. Positive bottom.		
	B2	250 Vdc	Polarised. Positive bottom		Two poles intended to be bridged in series from the Top of (Pole 1) to the bottom of (Pole 2), bridging to be done by customer
	B3	250 Vdc	Polarised. Positive bottom / Positive top		Factory bridged at the top
	T1	125 Vdc	Polarised. Positive top		
	T2	250 Vdc	Polarised. Positive top		Two poles intended to be bridged in series from the bottom of (Pole 1) to top of (Pole 2), bridging to be done by customer
	T3	250 Vdc	Polarised. Positive top / Positive bottom		Factory bridged at the bottom
	B1 -T1	125 Vdc	Polarised		1 Pole positive bottom & 2 Pole positive top
	T3- B3	250 Vdc	Polarised		1 & 2 Pole bottom bridged & 3 & 4 Top bridged in series

Continues on page 4

QDC - Series Miniature Circuit Breakers

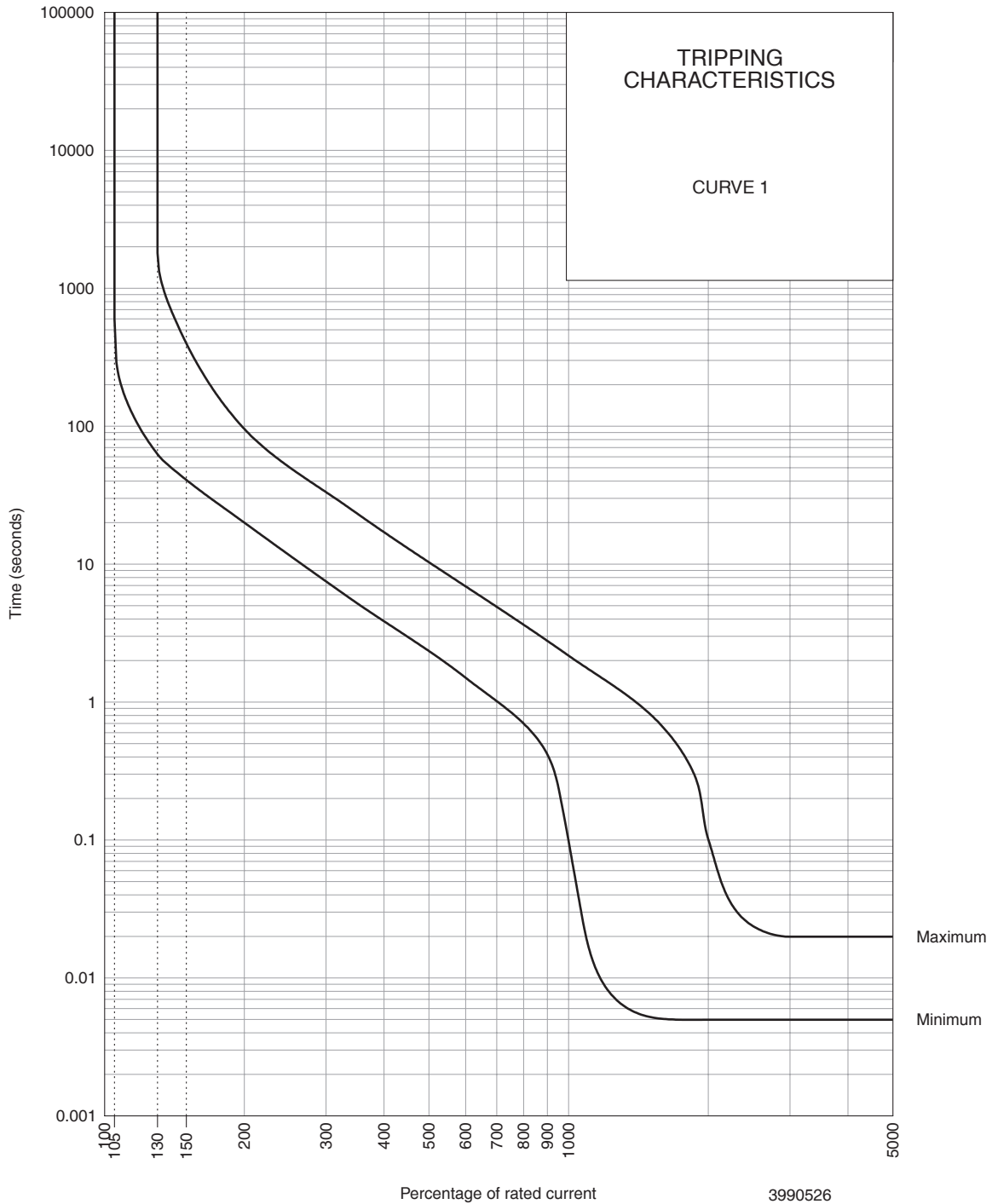
Ordering Information continues

Code	Description	Comments
Group 10: Shunt Trip		
-	Not applicable	If shunt trip is not required
U5	12 Vdc Shunt trip (Box terminal)	<p style="color: red;">Recommended pulse tolerance 100 ms - 60 s</p> <p style="color: red;">Note: Shunt trip option carries no approvals - available as a special order only</p>
U6	24 Vdc Shunt trip (Box terminal)	
U7	48 Vdc Shunt trip (Box terminal)	
U8	110 Vdc Shunt trip (Box terminal)	
U9	220 - 240 Vac Shunt trip (Box terminal)	
Group 11:		
Code	Description	Comments
-	Not applicable	For future use
Group 12: Special Termination		
Code	Description	Comments
-	Not applicable	
Z	Bridged unit (bridge to be fitted by customer)	
ZL	Bridged unit (factory fitted)	
Group 13: Customer Specific		
Code	Description	Comments
-	Not applicable	For future use

For options not listed, please contact CBI for assistance

QDC - Series Miniature Circuit Breakers

Time Delay Curve

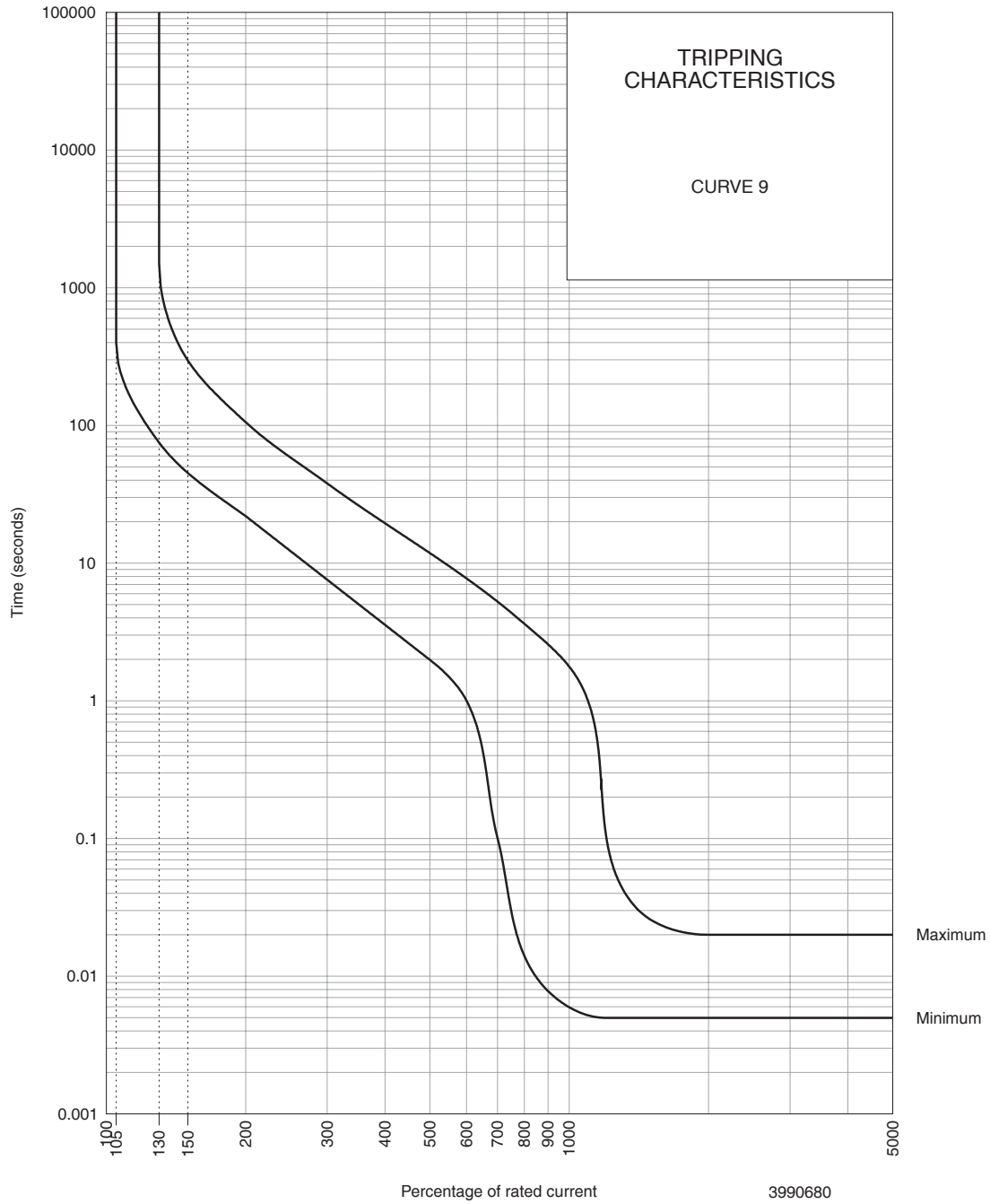


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REV G

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

QDC - Series Miniature Circuit Breakers

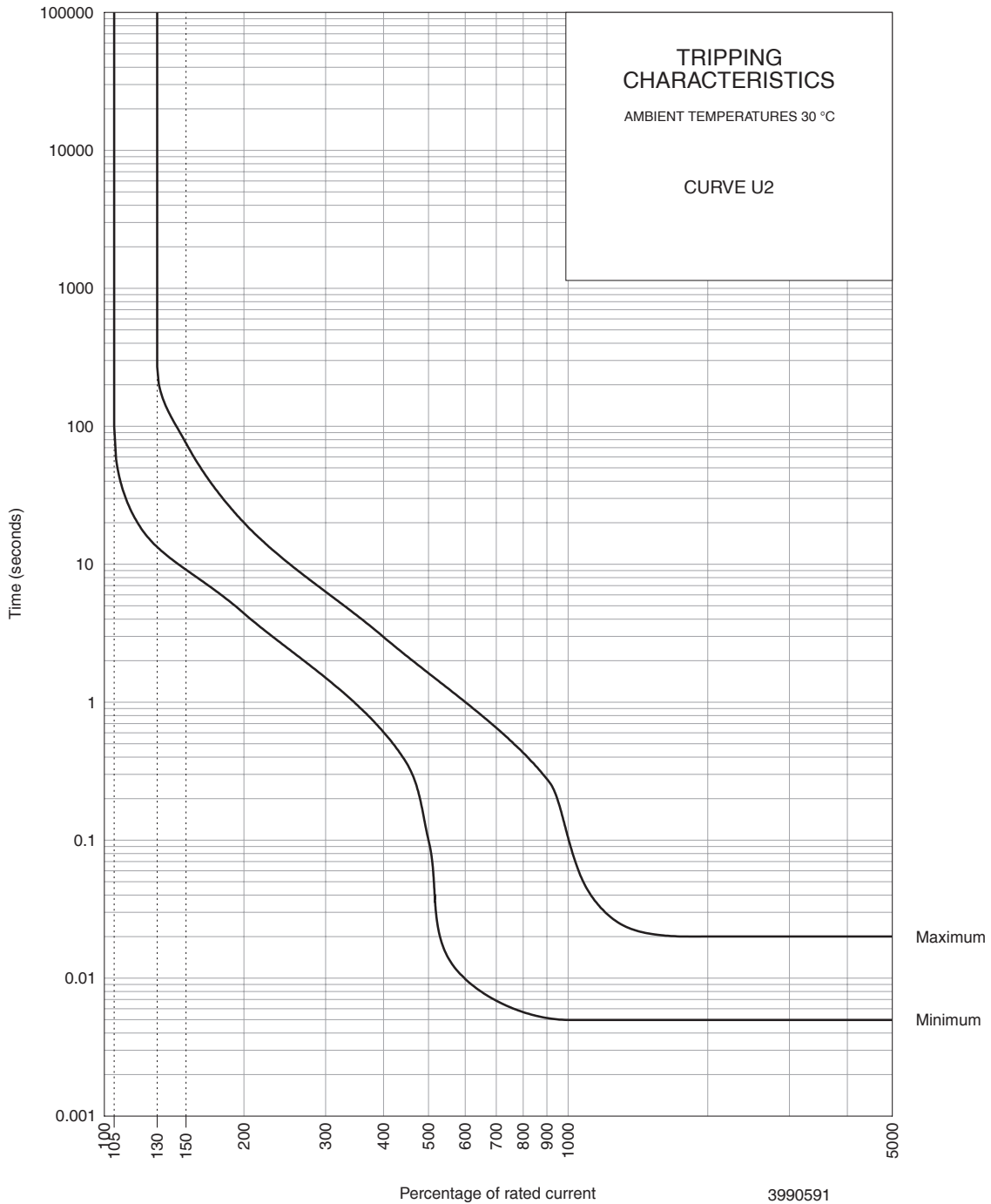
Time Delay Curve



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

QDC - Series Miniature Circuit Breakers

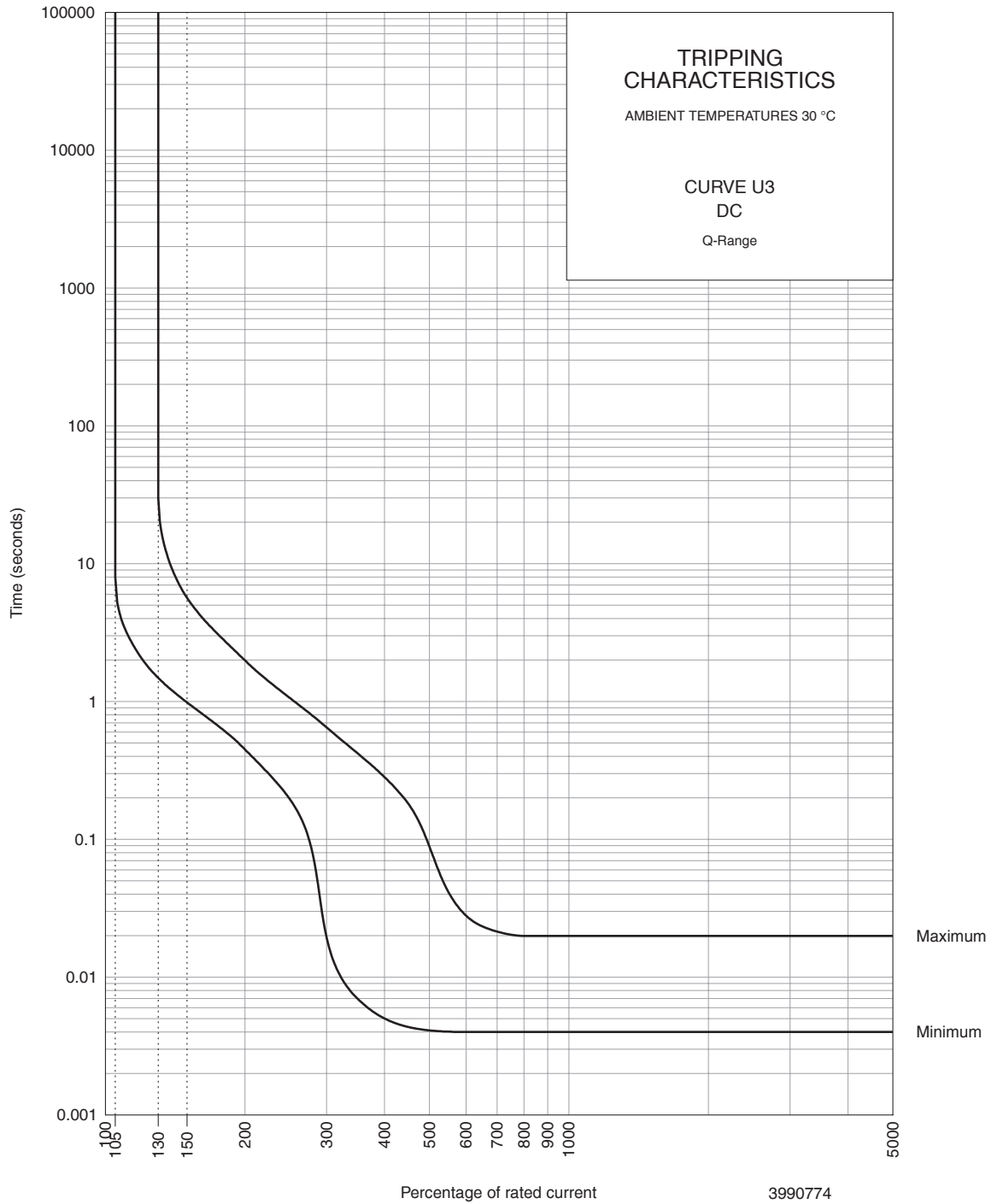
Time Delay Curve



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	13	9.9	9.1	4.4	1.5	0.6	0.1	0.01	0.007	0.006	0.005	0.005	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	270	92.3	75.5	20	6.3	3	1.6	1	0.65	0.43	0.28	0.1	0.02

QDC - Series Miniature Circuit Breakers

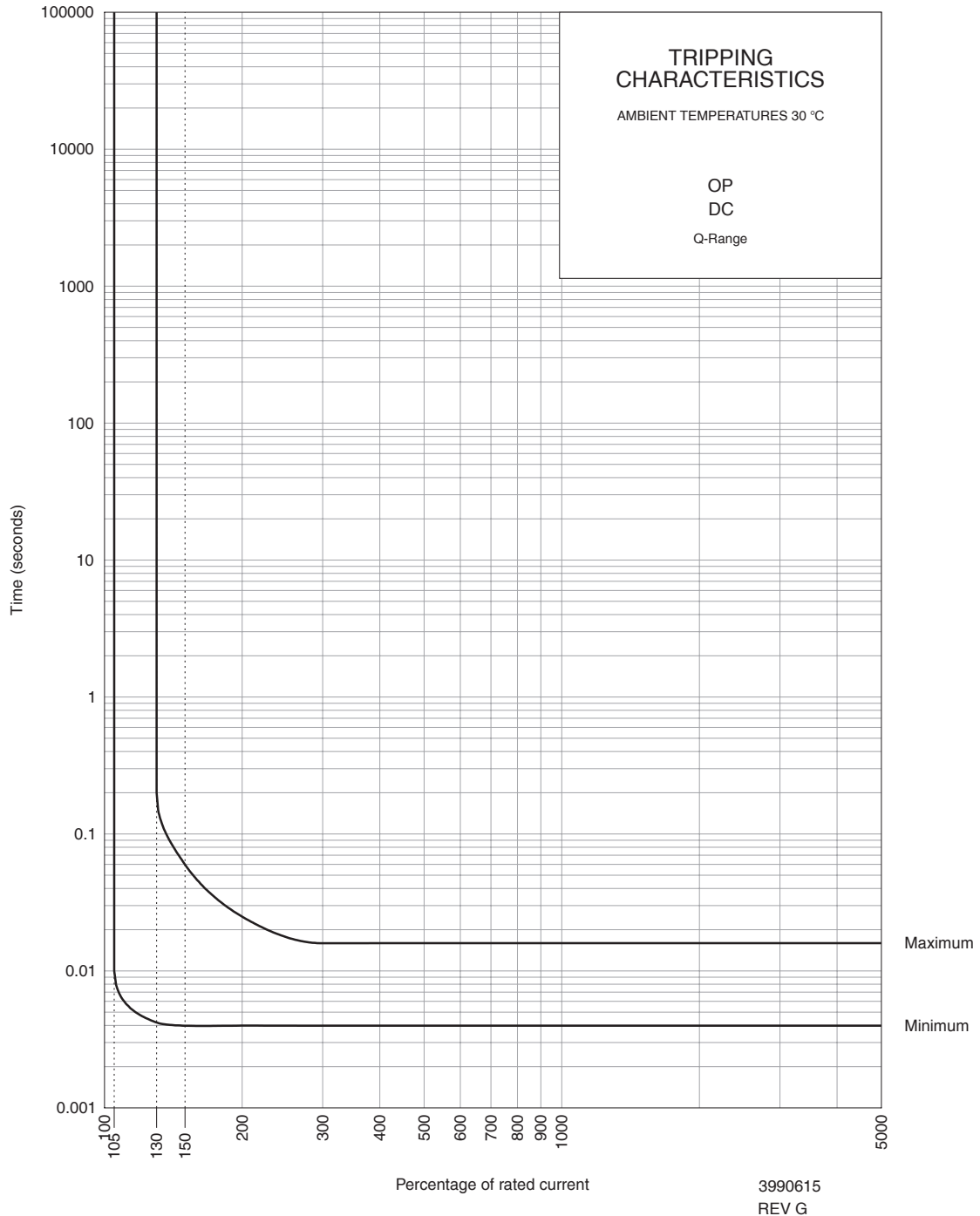
Time Delay Curve



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	1.5	1.08	1	0.45	0.02	0.005	0.0041	0.004	0.004	0.004	0.004	0.004	0.004
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	30	6.8	5.6	2	0.65	0.28	0.09	0.028	0.021	0.02	0.02	0.02	0.02

QDC - Series Miniature Circuit Breakers

Time Delay Curve

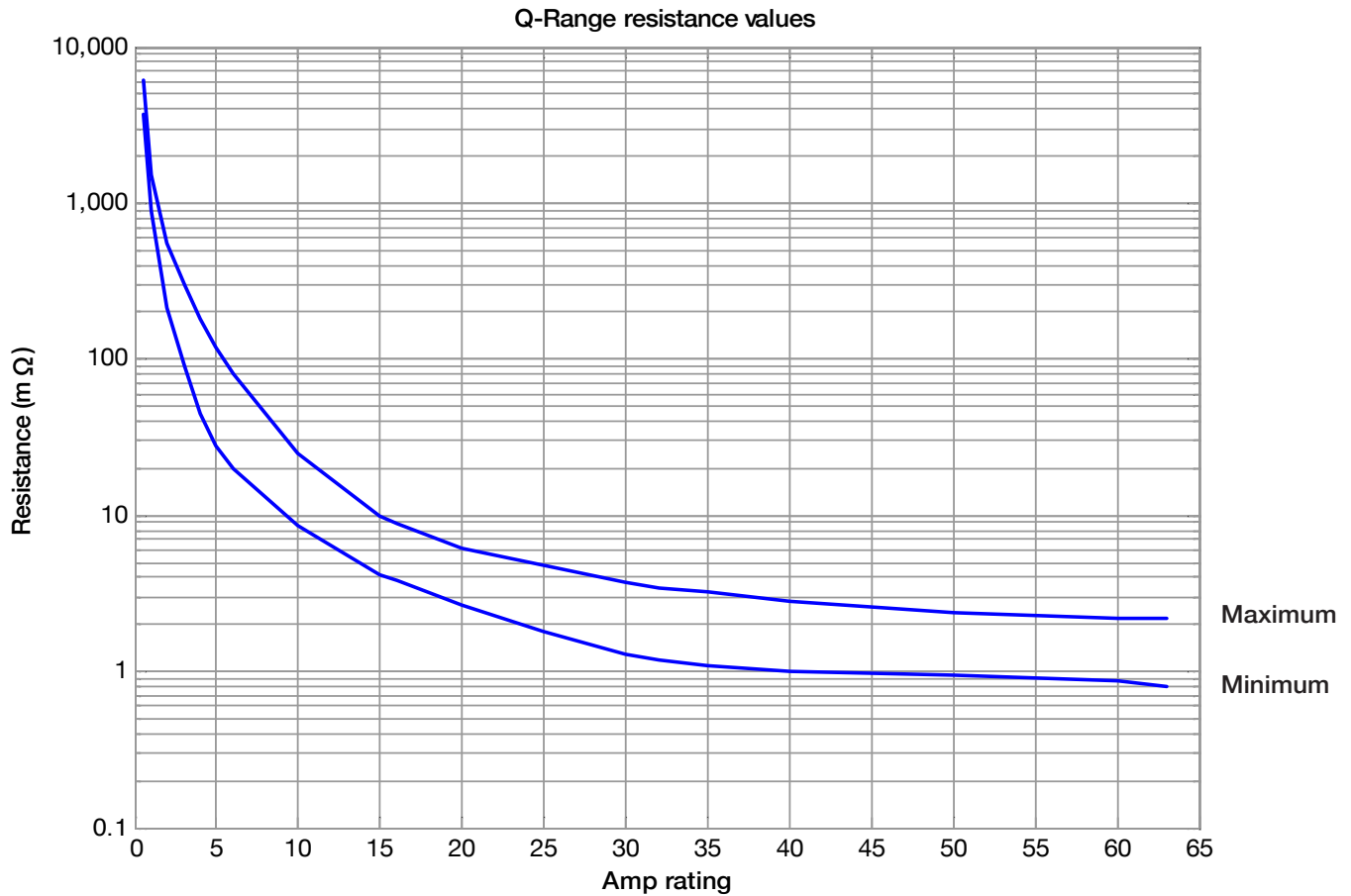


PERCENTAGE OF RATED CURRENT	105%	130%	145%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	2000%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	0.0042	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	0.2	0.07	0.06	0.025	0.016	0.016	0.016	0.016	0.016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

QDC - Series Miniature Circuit Breakers

Internal Resistance vs Current Rating



Auxiliary Switch / Trip Alarm

Auxiliary available (6.5 mm module width) to match the unit to which it is attached.

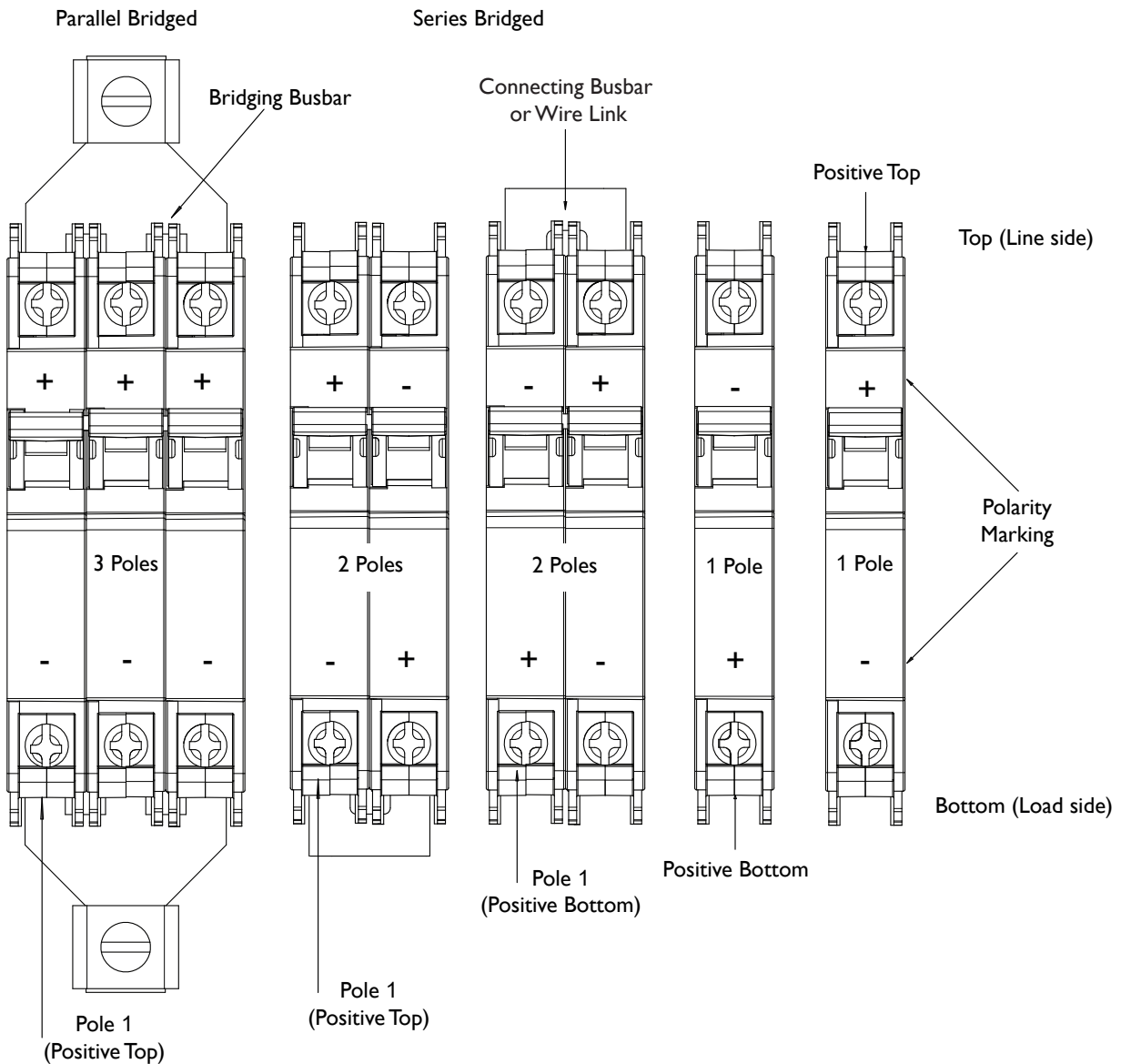
Available types as listed in Group 3:

- Type T - Trip alarm as shown in outline drawings (fitted on a dual mount product)
- Type AT - Auxiliary switch + trip alarm (as shown)
- Type A - Auxiliary switch

QDC - Series Miniature Circuit Breakers

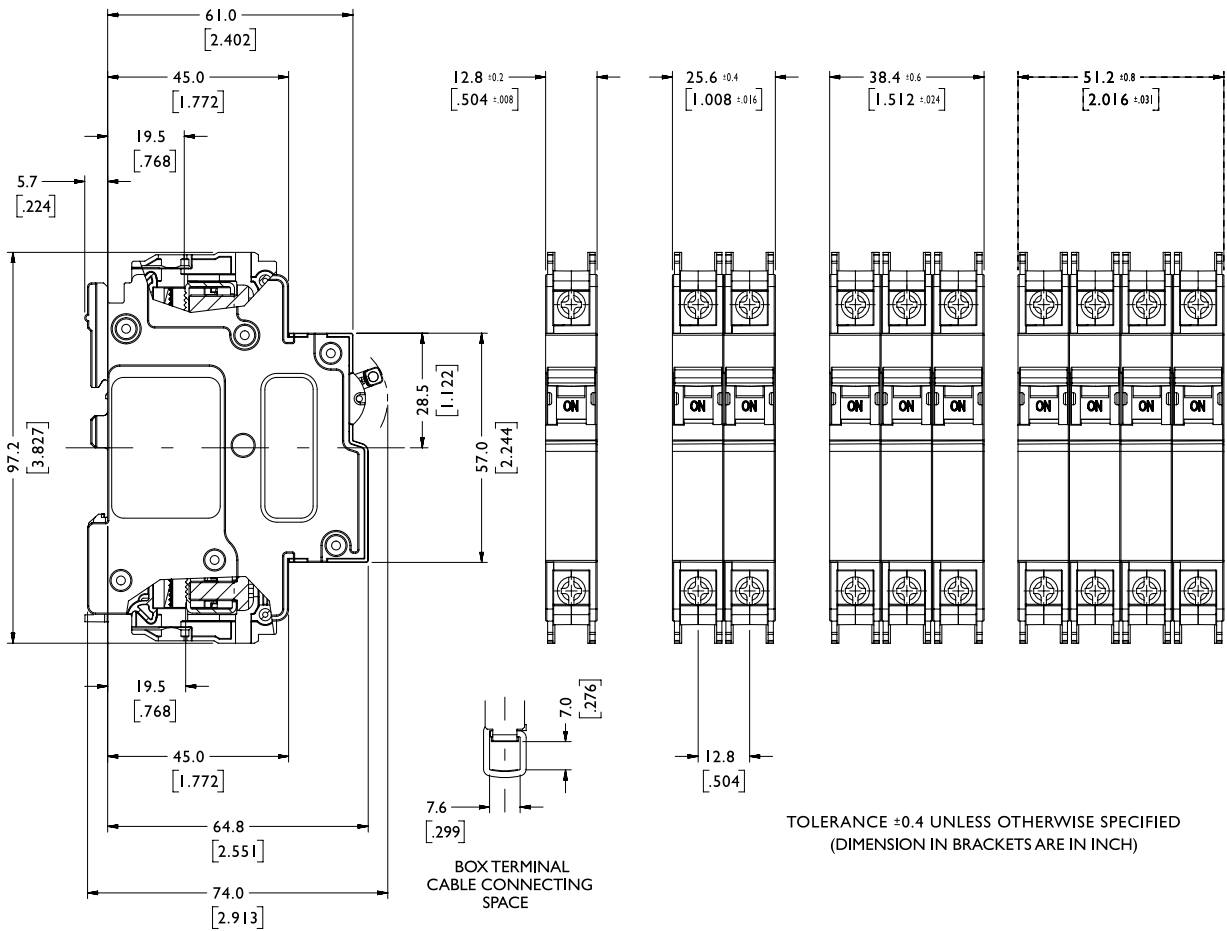
Polarity identification

Diagram identifying the polarity of 125 Vdc products in reference to Group 9 on page 3. Devices are shown viewed from the front. Series devices (standard) - each pole is opposite polarity from the next pole on the left (bridged "-" to "+"). Parallel devices - each pole has the same polarity (bridged "+" to "+", "-" to "-").



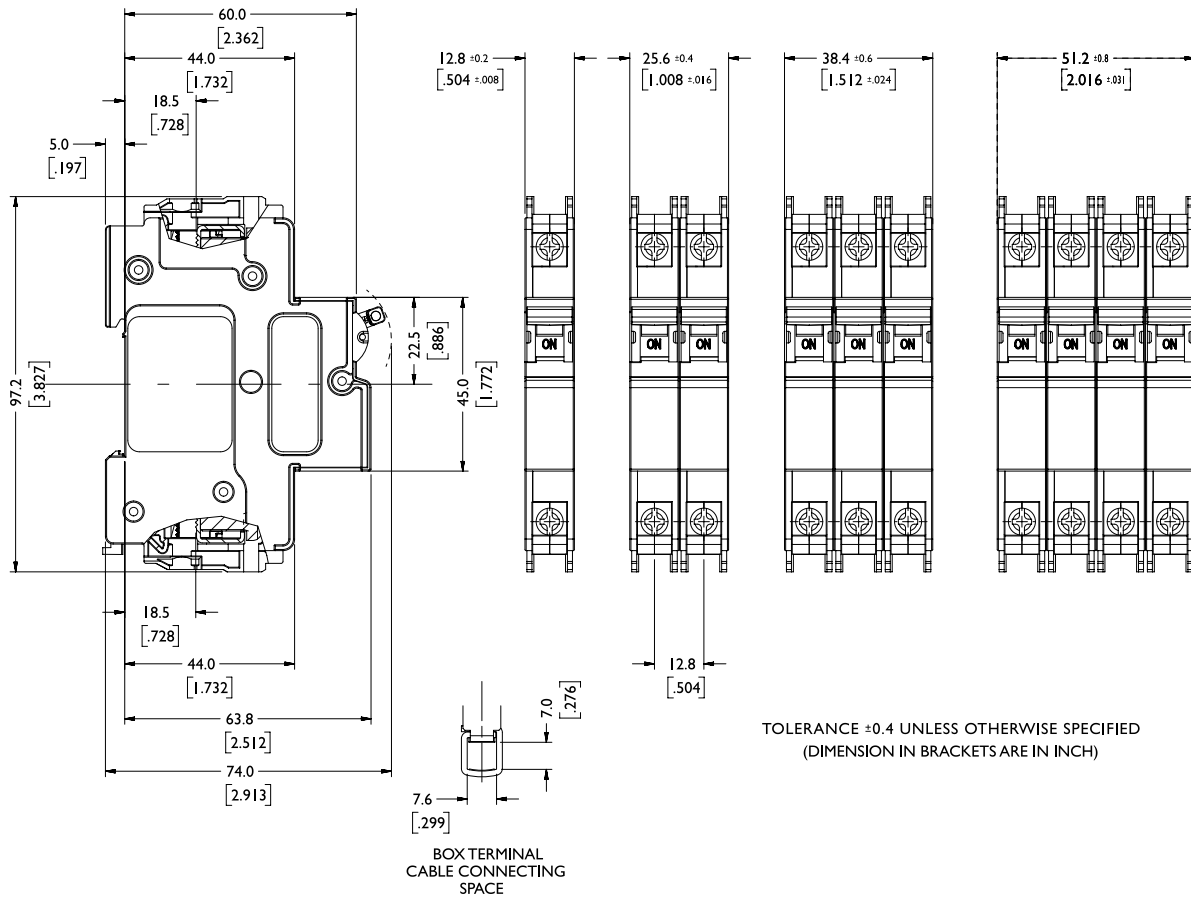
QDC - Series Miniature Circuit Breakers

Outline Dimensions: Dual (DIN & mini rail) mount



QDC - Series Miniature Circuit Breakers

Outline Dimensions: DIN mount



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