a Reinert company

Q-SERIES

QF(13)-FRAME MINIATURE CIRCUIT BREAKERS

1 Pole DIN mount | 2 Pole DIN mount | 3 Pole Dual (DIN & mini rail) mount | 4 (3 Pole + Neutral) Dual (DIN & mini rail) mount

FEATURES

- AC circuit breaker
- Hydraulic-magnetic technology
- 100% rating capability, independent of ambient temperature
- One, two, three and four pole
- VDE, UL and CQC certified
- CCC, UKCA, CE, VC 8036 (SANS 556-1) and AS/NZS 3111 compliant
- Ratings 0.1 A to 25 A
- Optional shunt trip (approvals pending)
- Wide range of time delays & operating currents
- Precision tripping characteristics
- Ultra compact – 13 mm wide module
- Trip indication with mid-trip position
- Can be switched on immediately after tripping
- DIN mount, 45 mm front escutcheon (grey)
- Dual (DIN & mini rail) mount, 57 mm front escutcheon (black)
- Suitable to use for electrical isolation
- Shell designed for easier installation onto busbar

APPLICATIONS

- AC branch circuit protection (DIN/EN 60947-2)
- Switch disconnector (DIN/EN 60947-3)
- Telecom/datacom equipment
- Lighting control
- UPS equipment
- Alternative energy equipment
- Mobile power generation equipment
- Railway signalling equipment
- Residential equipment
- Industrial equipment

AUXILIARY SWITCH, TRIP ALARM & COMBO: FEATURES

- Factory fitted
- Attached to right hand side of the circuit breaker
- Compact 6.5 mm width
- 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, 6A

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

APPROVALS

(UL 1077; CSA C22.2 NO.235-04) | VC 8036 | AS/NZS 3111 | (DIN/EN 60947-2/3) | (GB/T 14048.2) | (EN/IEC 60947- 2/3)

TECHNICAL DATA

ELECTRICAL	
Dielectric Strength	1 000 - 2 000 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)
Time Delay Curves	1, 2

MECHANICAL	
Endurance	10 000 operations; 1 500 with current, 8 500 without current (IEC 60947-2 Clause 7.2.4.2)*

ENVIRONMENTAL	
Operating Temperature Range	-40°C to +85°C
Altitude	Certification tests done at altitude ≈ 2 000 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Flammability	I3 - Ignition does not persist at 850°C after glow wire is withdrawn with an oxygen index of ≥ 28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.

PHYSICAL	
Mounting Options	DIN rail mount, dual (DIN & mini rail) mount, surface mount
Number of poles	1, 2, 2 (1+N),3, 4 (3+N)
Weight	102 g per pole, 160 g with auxiliary (depending on rating) (unpacked)
Standard Colours	Shell - black (dual) or grey (DIN) Handle - white, orange or green

* Refer to the standard for details

Circuit Breaker	Wire Size (IEC)	Wire Gauge (UL)	Torque (IEC)	Torque (UL)	Comments
Main Terminals	0.75 mm² - 25 mm²	18 – 3 AWG	2.5 N.m	20 lbf.In	Pozidriv #2 Combi head

Auxiliary Module	
Auxiliary Switch	Dual mounting & DIN mounting
Trip Alarm	Dual mounting
Auxiliary Switch / Trip Alarm Combo	Dual mounting

TECHNICAL DATA

Approvals	VC 8036 (SANS 556-1)				
Product Type	Circuit Breaker				
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				
Ultimate S/C Breaking Capacity (Icu)	5 kA				

Approvals	DIN/EN 60947-2, VDE, CE, UKCA, EAC, GB/T 14048.2				
Product Type	Circuit Breaker				
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				
Ultimate S/C Breaking Capacity (Icu)	6 kA				

Approvals	AS/NZS 3111			
Product Type	Circuit Breaker			
Number of Poles	1	2	3	4 (3+N)
Operating Voltages	240 Vac	415 Vac		
Minimum Current Rating	1 A			
Maximum Current Rating	25 A			
Ultimate S/C Breaking Capacity (Icu)	6 kA			

Approvals	SANS 60947-3, DIN/EN 60947-3			
Product Type	Switch Disconnector			
Number of Poles	1	2	3	4 (3+N)
Operating Voltages	240 Vac	415 Vac		
Current Rating	63 A			
Rated S/C Withstand Capactiy (Icw)	6 kA, 50 ms			

Approvals	UL 1077		
Product Type	Supplementary Protector		
	Tested without series fuse		
Number of Poles	1	2	
Operating Voltages	120 Vac	120/240 Vac	120/240 Vac
Minimum Current Rating	0.1 A		10 A
Maximum Current Rating	25 A		20 A
Short Circuit Capacity	5 kA		

LONG CODE

Example Code: QF---AT-3(13)-DM-2-15A-----

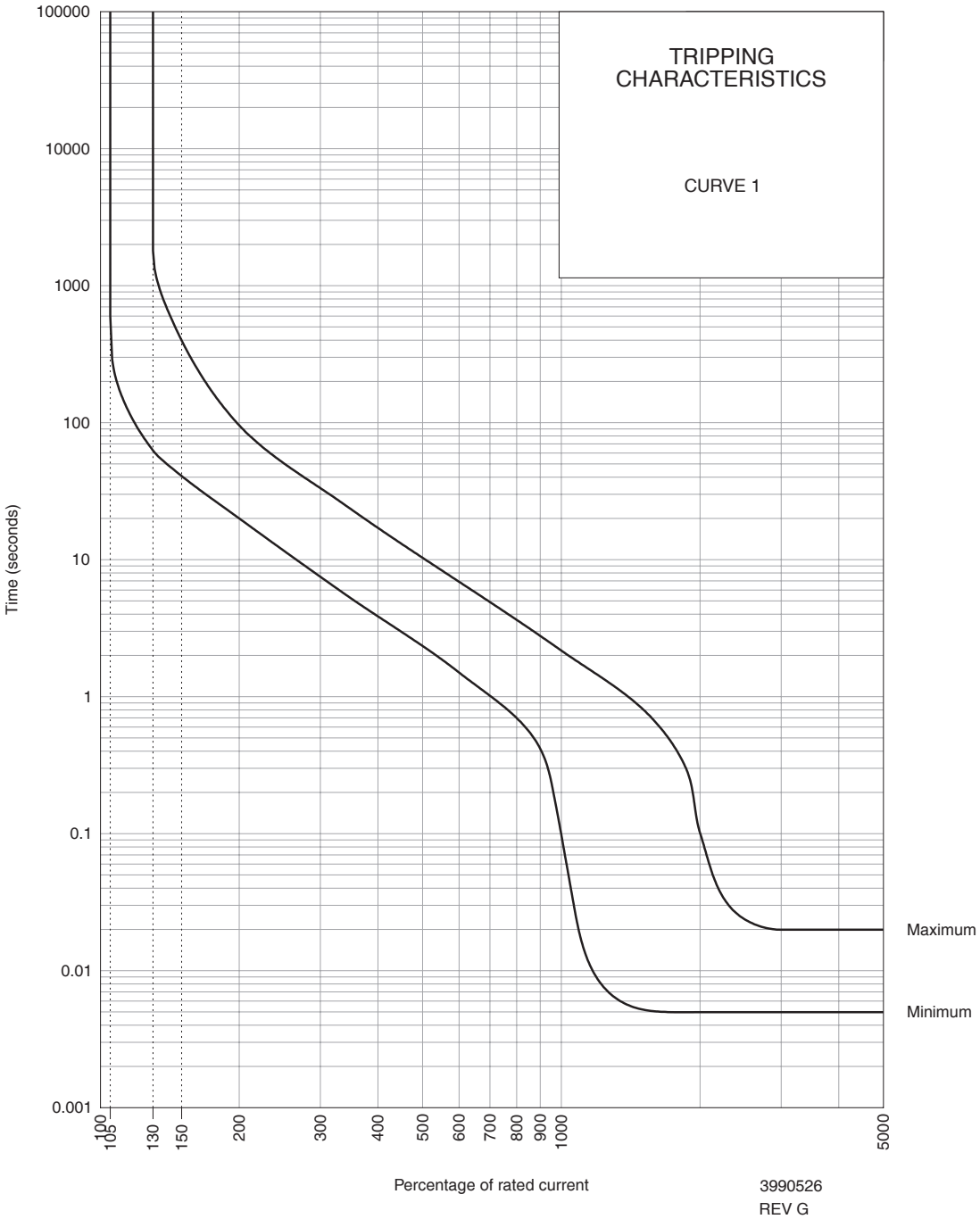
Group	1	2	3	4	5	6	7	8	9	10	11	12	13
Requirement	QF frame	Switch / neutral	Auxiliary switch + trip alarm	Triple pole	13 mm module width	Dual mount	Medium delay curve 2	Current rating 15 A	Future use	Shunt trip	Special require-ment	Special termina-tion	Cus-tomer specific
Long Code	**QF**	**-**	**AT**	**3**	**(13)**	**DM**	**2**	**15 A**	**-**	**-**	**-**	**-**	**-**

ORDERING INFORMATION

Group 1: Frame Type	**Code**	**Description**	**Comments**	
	QF	Miniature circuit breaker		
Group 2: Switch/Neutral	**Code**	**Description**	**Comments**	
	-	Not applicable	Overload poles do not have any further coding	
	S	Switch	Green handle	
	N	Neutral	Green handle	
Group 3: Auxiliary	**Code**	**Description**	**Comments**	
	-	Not applicable	Use this code if no auxiliary used	
	A	Auxiliary switch (1 x auxiliary in 1 module)	6.5 mm module fitted on right-hand side	
	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 only)	
Group 4: No of Poles	**Code**	**Description**	**Comments**	
	1	Single pole		
	2	Double pole	2 pole or 1+N	
	3	Triple pole		
	4	Four pole	3+N	
Group 5: Module Width	**Code**	**Description**	**Comments**	
	(13)	13 mm per pole		
Group 6: Mounting	**Code**	**Description**	**Comments**	
	D	DIN mount	DIN mount supplied in grey shell only - 45 mm front escutcheon	
	DM	Dual (DIN & mini rail) mount	Dual mount supplied in black shell 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
	2	Medium time delay	5 – 10	White handle
	3	Short tome delay	3 – 5	White handle
	9	Long time delay	7 – 12	White handle
Group 8: Current Ratings	**Code / Description**		**Comments**	
		1 - 25 A		
Group 9 Future use	**Code**	**Description**	**Comments**	
	-	Not applicable	For future use	
Group 10: Shunt Trip (approvals pending)	**Code**	**Description**	**Comments**	
	-	Shunt trip not fitted		
Group 11 Special Requirement	**Code**	**Description**	**Comments**	
	-	Not applicable	For future use	
Group 12: Special Termination	**Code**	**Description**	**Comments**	
	-	Not applicable	For future use	
Group 13: Customer Specific	**Code**	**Description**	**Comments**	
	-	Not applicable	For future use	

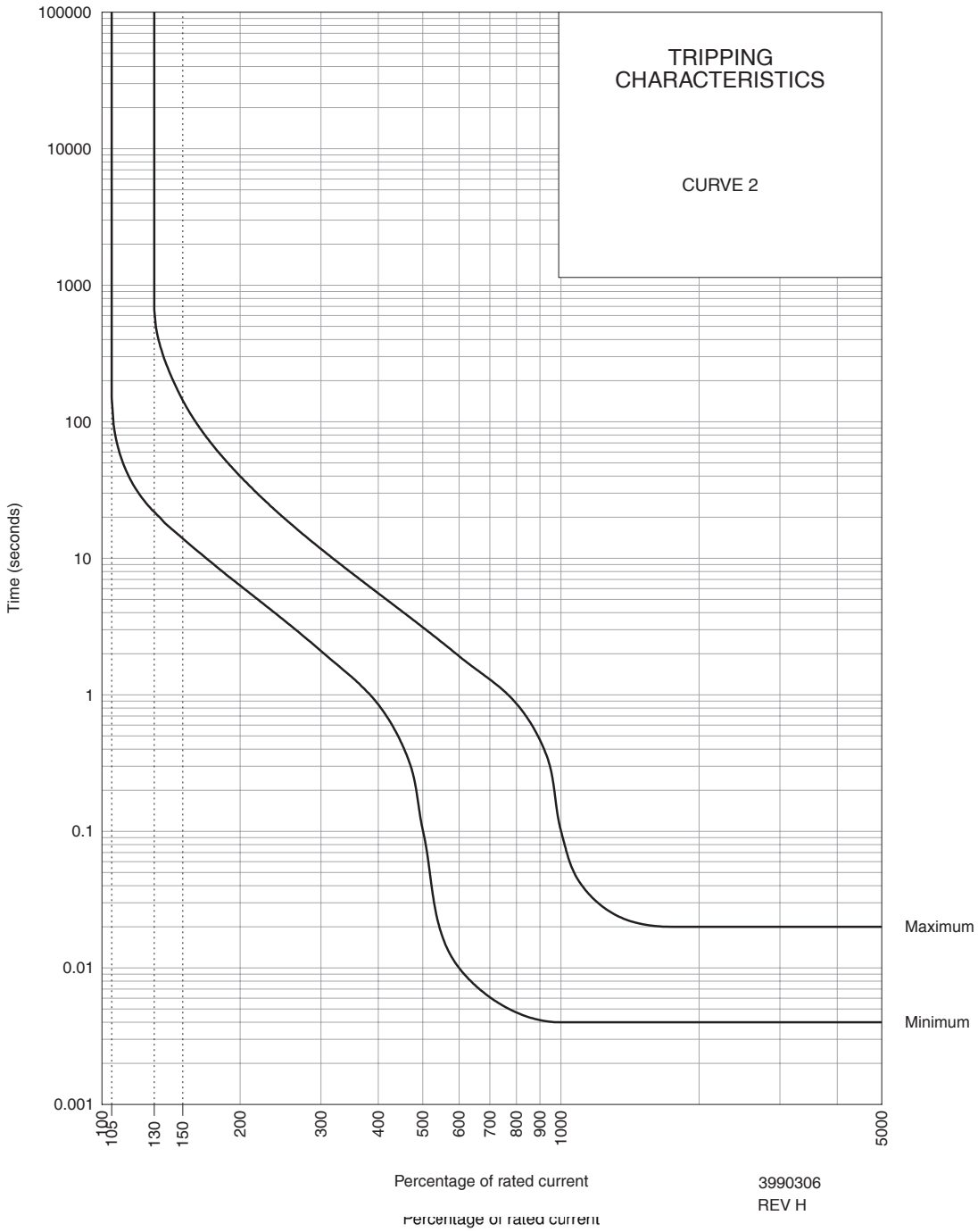
For options not listed, please contact CBi

TIME DELAY CURVES



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

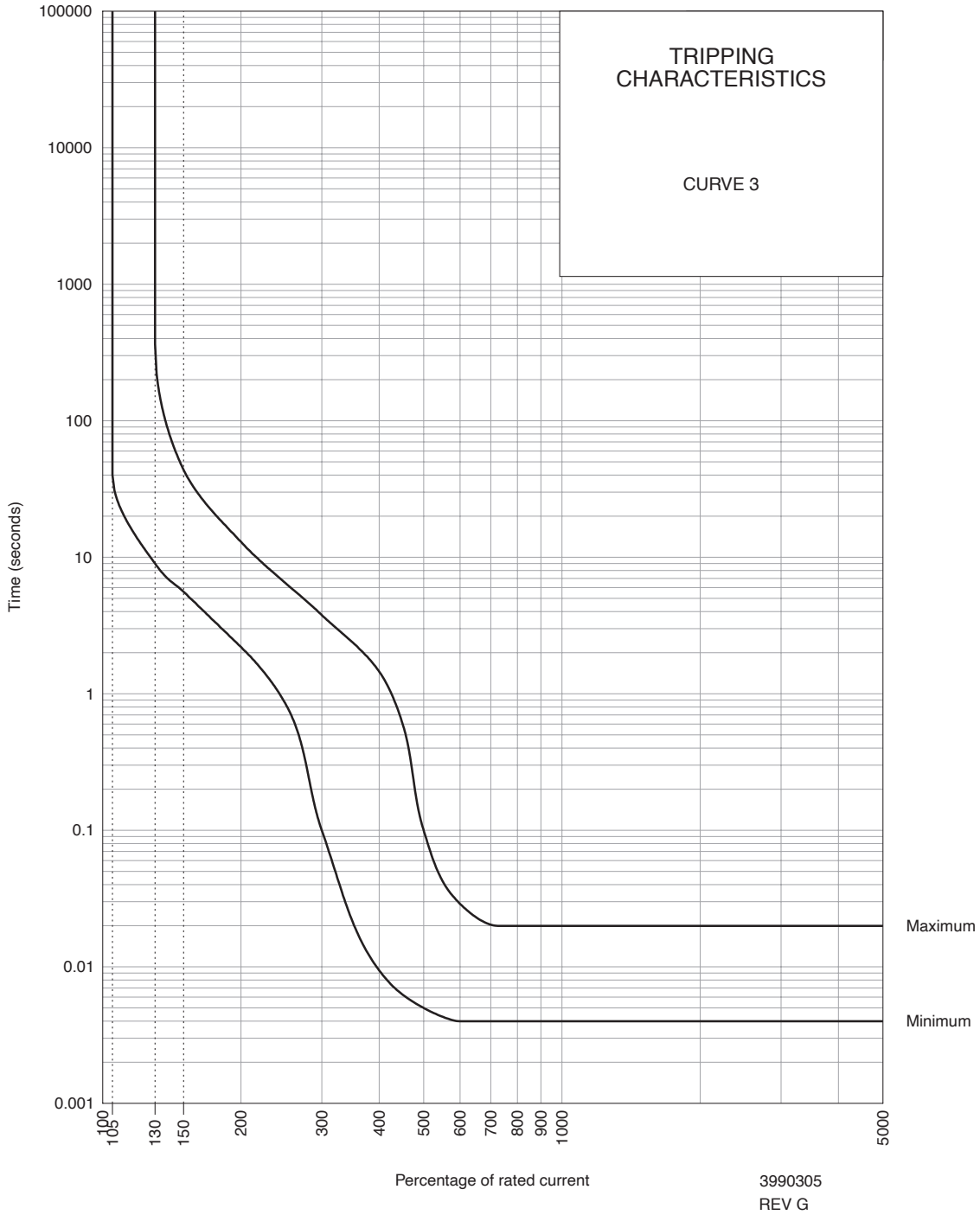
TIME DELAY CURVES



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	22	15.4	14	6.3	2.1	0.85	0.1	0.001	0.006	0.005	0.041	0.004	0.004
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	660	180	144	40	12	5.5	3	1.92	1.3	0.86	0.47	0.1	0.02

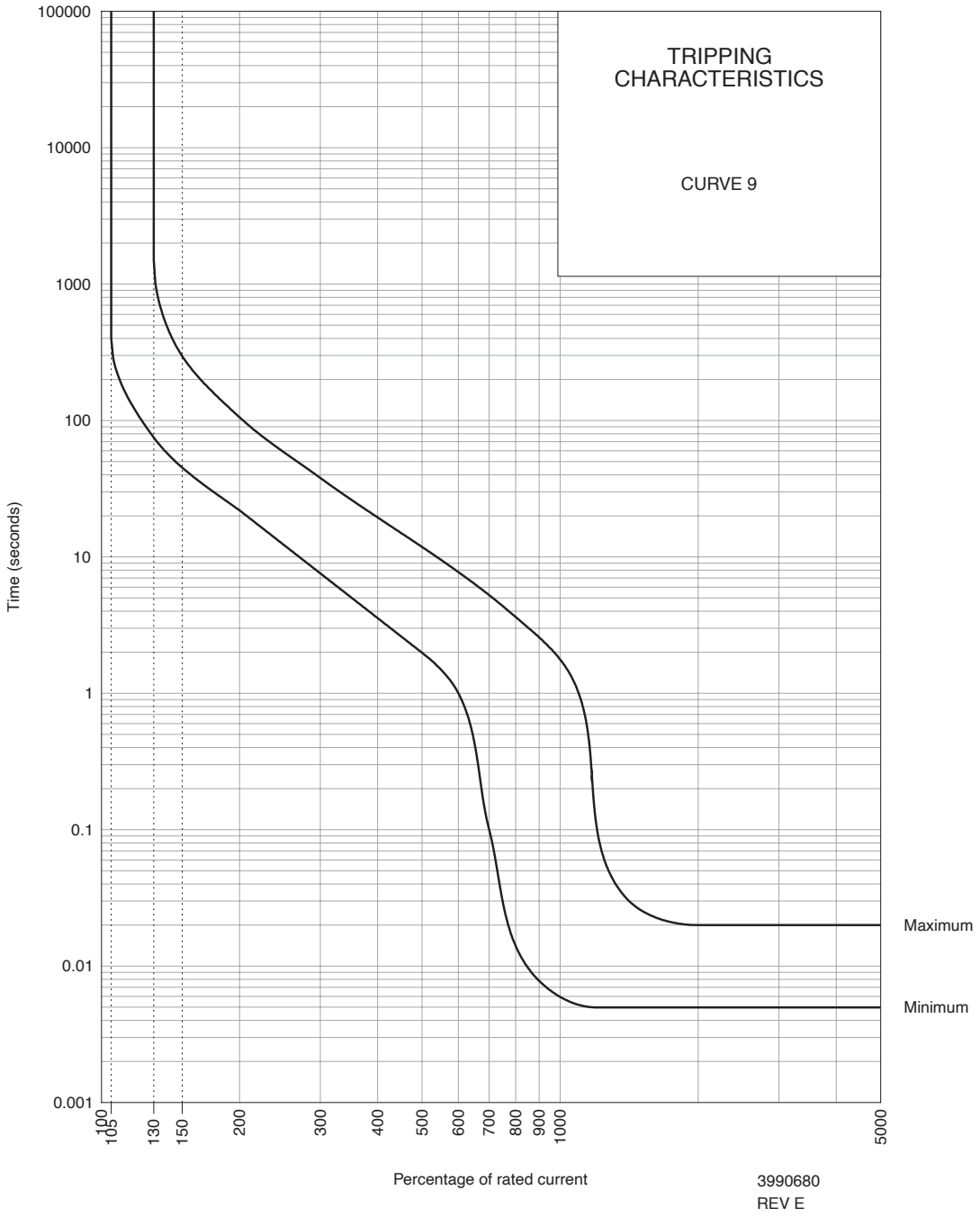
* The published time delay curves are generated at 30°C ambient temperature with the circuit breaker mounted in the up-right position. The “must hold”, “must trip” and “instantaneous trip” current values are not affected by temperature, although delay time for the other operating current values may have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

TIME DELAY CURVES



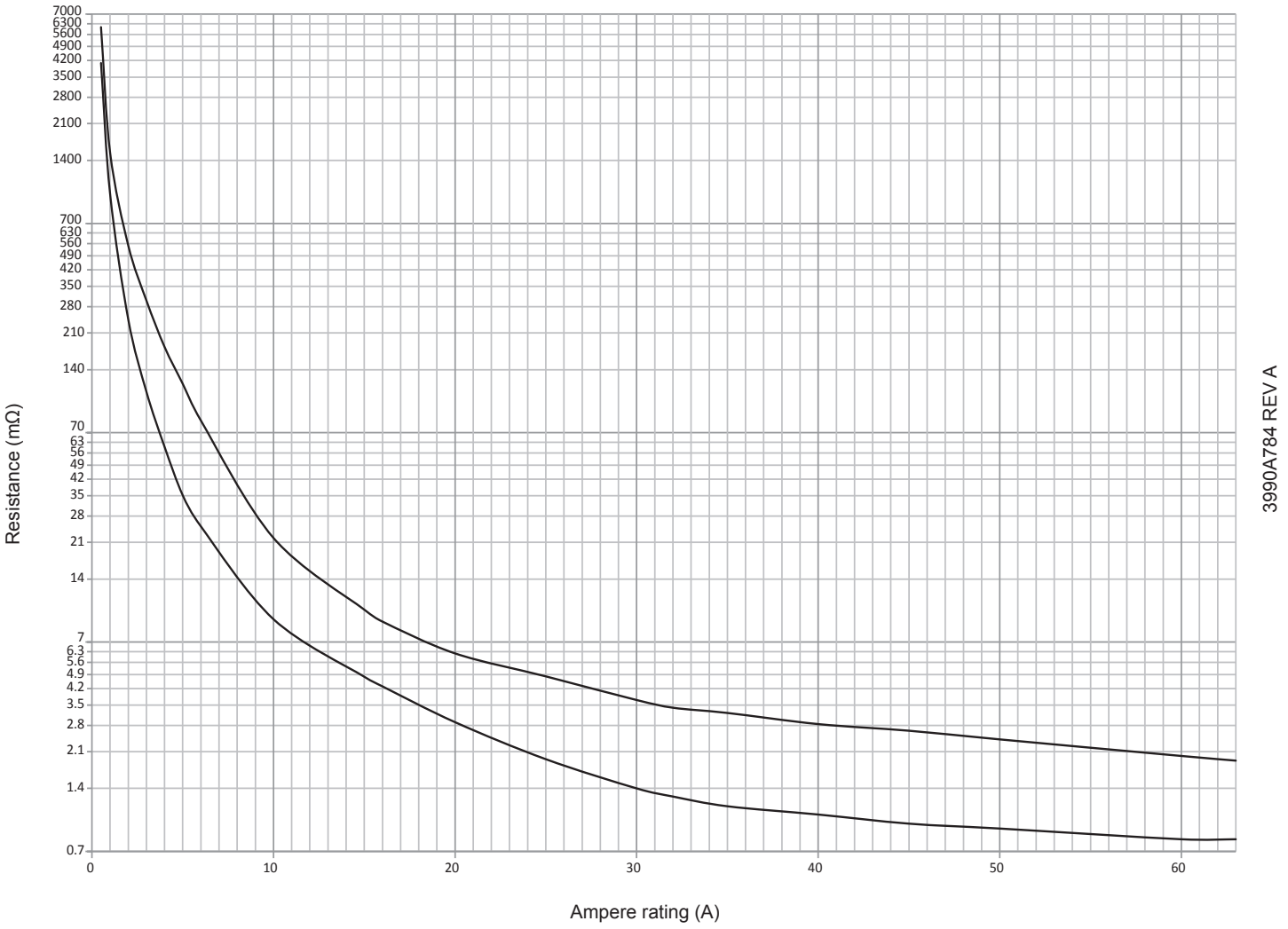
PERCENTAGE OF RATED CURRENT	105%	130%	145%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1000%	2000%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	9	6	5.6	2.2	0.1	0.009	0.005	0.004	0.004	0.004	0.004	0.004	0.004
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	365	57	44	13	3.8	1.45	0.1	0.028	0.02	0.02	0.02	0.02	0.02

TIME DELAY CURVES



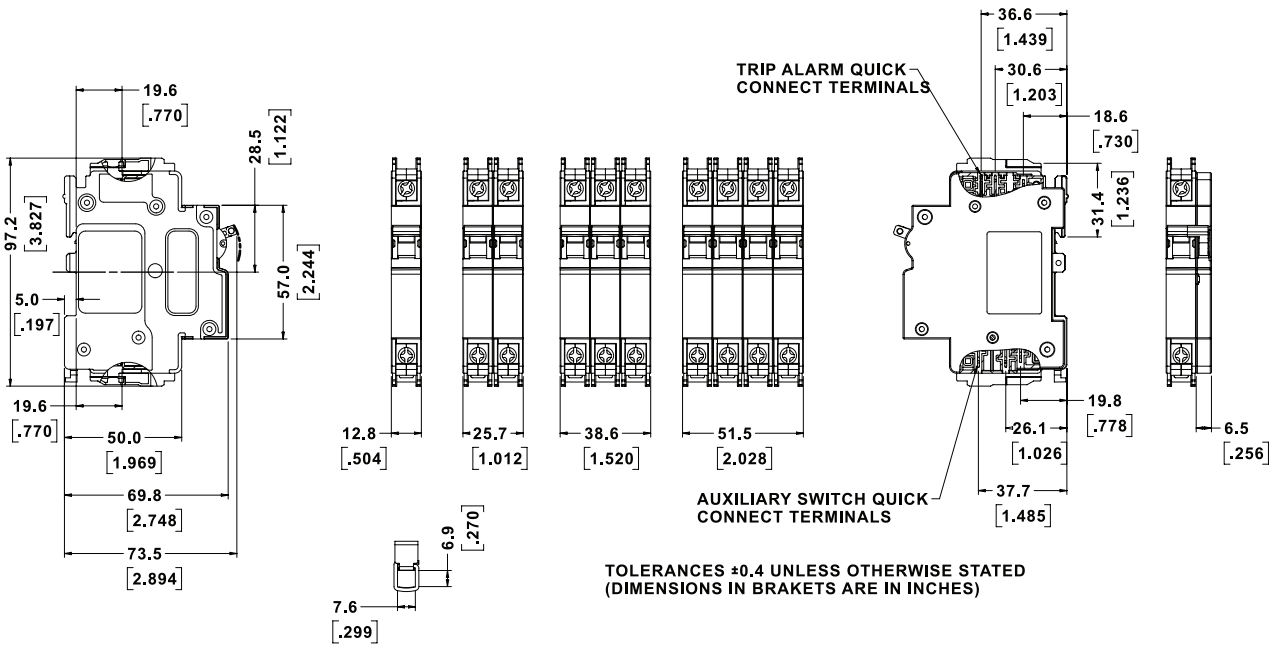
PERCENTAGE OF RATED CURRENT	105%	130%	145%	150%	200%	300%	400%	500%	600%	700%	800%	900%	1200%	2000%
MINIMUM TRIP TIME IN SECONDS	NO TRIP	75	50	45	22	7.6	3.6	2	1	0.1	0.01	0.008	0.005	0.005
MAXIMUM TRIP TIME IN SECONDS	NO TRIP	1500	360	295	100	38	19	11.8	7.7	5.3	3.6	2.6	0.06	0.02

RESISTANCE CURVE

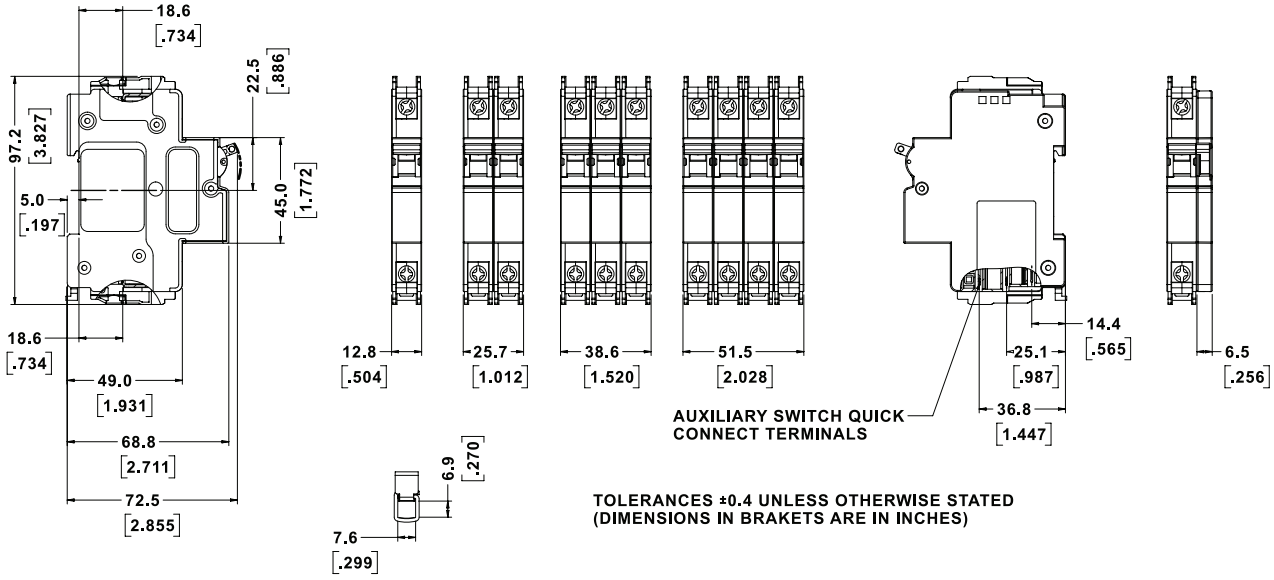


Amp RATING	0.5	1	2	5	6	10	15	20	25	30	32	40	50	60	63
MINIMUM (mΩ)	4085	970	244	35	25	9.0	4.8	2.9	1.9	1.4	1.3	1.1	0.9	0.8	0.8
MAXIMUM (mΩ)	6065	1527	550	120	80	22	10	6.2	4.8	3.7	3.4	2.8	2.4	2.0	1.9

OUTLINE DIMENSIONS: DUAL (DIN & MINI RAIL) MOUNT



OUTLINE DIMENSIONS: DIN MOUNT



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