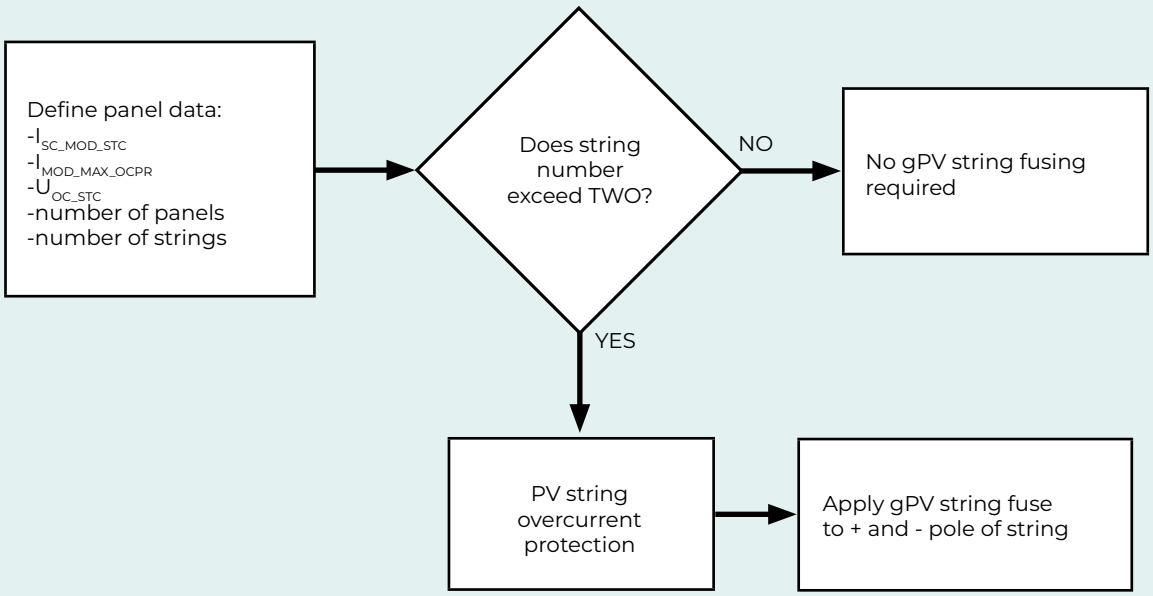
Photovoltaic String Protection

CH 10 gPV fuse selection



PV string overcurrent protection:
$I_n > 1,5 \times I_{SC_MOD_STC}$ – the short circuit current of a PV module or PV string at STC
$I_n < 2,4 \times I_{SC_MOD_STC}$
$I_n \leq I_{MOD_MAX_OCPR}$ – the PV module max. overcurrent protection rating

$U_n \geq 1,2 \times U_{OC_STC} \times$ No. of PV modules

I_n – nominal overcurrent protection rating
U_n – nominal overcurrent protection voltage

Use temperature derating factor.

ETI as one of the most important European producer of overcurrent protection equipment and devices participating in many working groups for standards developement at International Electrotechnical Commission (IEC). ETI is member of maintenance team MT9 belonging to the 32B group, working on the part 6 of the IEC 60269 dealing with supplementary requirements for fuse-links for the overcurrent protection of solar photovoltaic energy systems.

gPV fuse-link must be selected acc. standard IEC 62548

CH10 gPV 1000V - Fuse-links

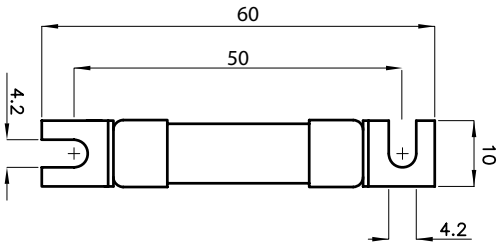
General characteristics	UL file: E347771
Rated voltage	1000V d.c. L/R=2ms
Rated current	0,5 - 25A
Breaking capacity	10kA d.c. UL / 30kA d.c. IEC
Standards	IEC 60269-6, UL 248-19
Application	For protection of photovoltaic modules.

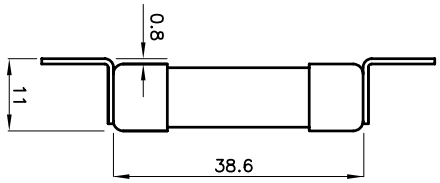
lead-free

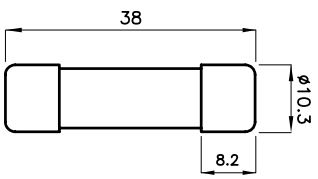
RoHS 2011/65/EU

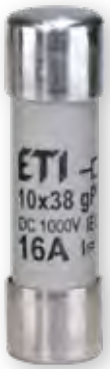
CH10x38 gPV 1000V d.c.

Size	Breaking capacity [kA]	I_n [A]	Code No. "standard contacts" 10kA UL	Code No. "standard contacts" 30kA IEC	Code No. "type SU contacts" 30kA IEC	Pre-arcing Joule integral [A^2s] L/R=2ms	Operating Joule integral [A^2s] L/R=2ms	Power dissipation [0,7 x I_n] Pd [W]	Power dissipation [I_n] Pd [W]	g	
10 x 38	UL 10kA IEC 30kA	0,5	/	002625134	002625131	0,02	0,07	0,2	0,5	10 SU: 12	10/500 SU:10/380
		1	/	002625138	002625129	1,5	3	0,4	1,0		
		2	002625101	002625065	002625115	1,7	2,3	0,5	1,1		
		3	002625100	002625067	002625113	2,8	5,4	0,7	1,6		
		3,5	002625135	002625068	002625127	2,5	7	0,6	1,4		
		4	002625102	002625069	002625116	3,9	11,7	0,5	1,3		
		5	002625111	002625070	002625124	8	21	0,6	1,5		
		6	002625103	002625071	002625117	10,6	34,6	0,7	1,8		
		7	002625110	002625072	002625114	16	60	0,7	1,7		
		8	002625104	002625073	002625118	17	65	0,8	1,9		
		10	002625105	002625075	002625119	8,3	33	1,0	2,4		
		12	002625106	002625077	002625120	22	73	0,8	1,9		
		13	002625137	002625078	002625128	21	70	1,0	2,3		
		14	002625136	002625079	002625126	28	92	1,3	3,0		
		15	002625112	002625080	002625125	49	145	1,0	2,2		
		16	002625107	002625081	002625121	48	147	1,1	2,6		
		20	002625108	002625085	002625122	86	245	1,3	3,2		
		25	/	002625139	002625140	110	470	1,7	4,1		

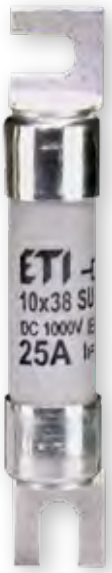






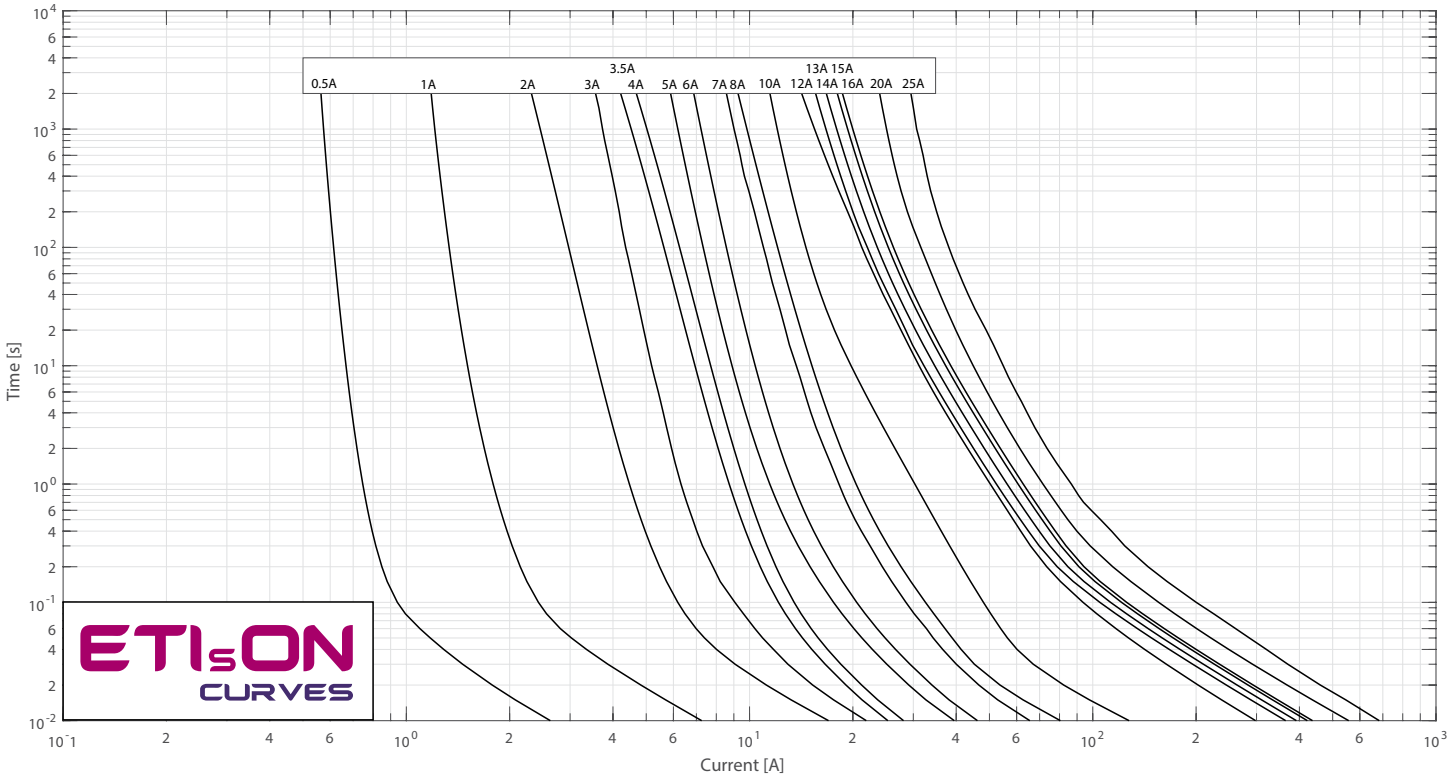


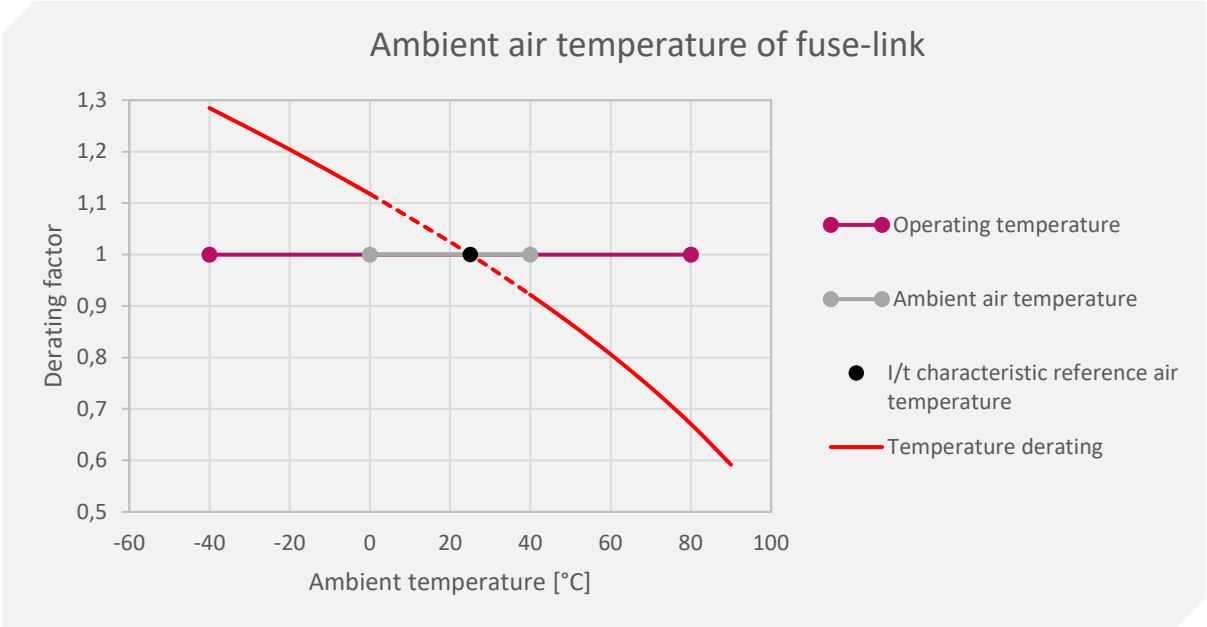
Standard Contacts



Type SU Contacts

Time current characteristics I/t





Legend:

T_{amb} – Ambient Temperature

TDF – Temperature Derating Factor

I_N – Nominal Current of Fuse-link

I_{TDF} – Nominal Current Including Temperature Derating Factor

Current calculation: $I_{TDF} = I_N \times TDF$

1500V Cylindrical gPV Fuse-links

ETI developed a new generation of PV cylindrical fuse-links with nominal currents up to 63A and rated voltage up to 1500V, with gPV characteristic for protecting solar panels against the reverse current. New fuse-links have a lower power dissipation and higher breaking capacity up to 50 kA. Size 10/14x85 has a patented design for interrupting in case of short circuit conditions. All current range of fuse-links can be mounted in EFH 10/14x85 fuse-holder.

VERSION UP TO 40A 1500V



UL certified with breaking capacity 50kA

VERSION UP TO 63A 1500V



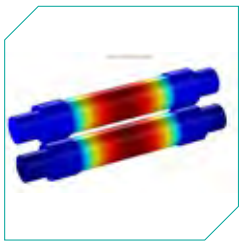


Pure silver melting-element

Silver plated contacts



Parallel connection - lower temperature rise

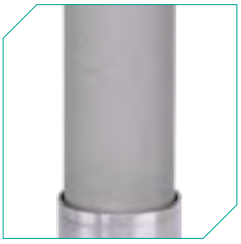


Perfect length for 1500V, enough of space for 63A

Entire 1500V current range can be mounted in the same fuse-holder.



Environment-frendly ceramic fuse-link body



Patented design for interuppting in case of short circuit conditions



CH10 gPV 1500V - Fuse-links

General characteristics	UL file: E347771
Rated voltage	1500V d.c. L/R=2ms
Rated current	2 - 63A
Breaking capacity	50kA d.c.
Standards	IEC 60269-6, UL 248-19
Application	For protection of photovoltaic modules

lead-free

RoHS 2011/65/EU

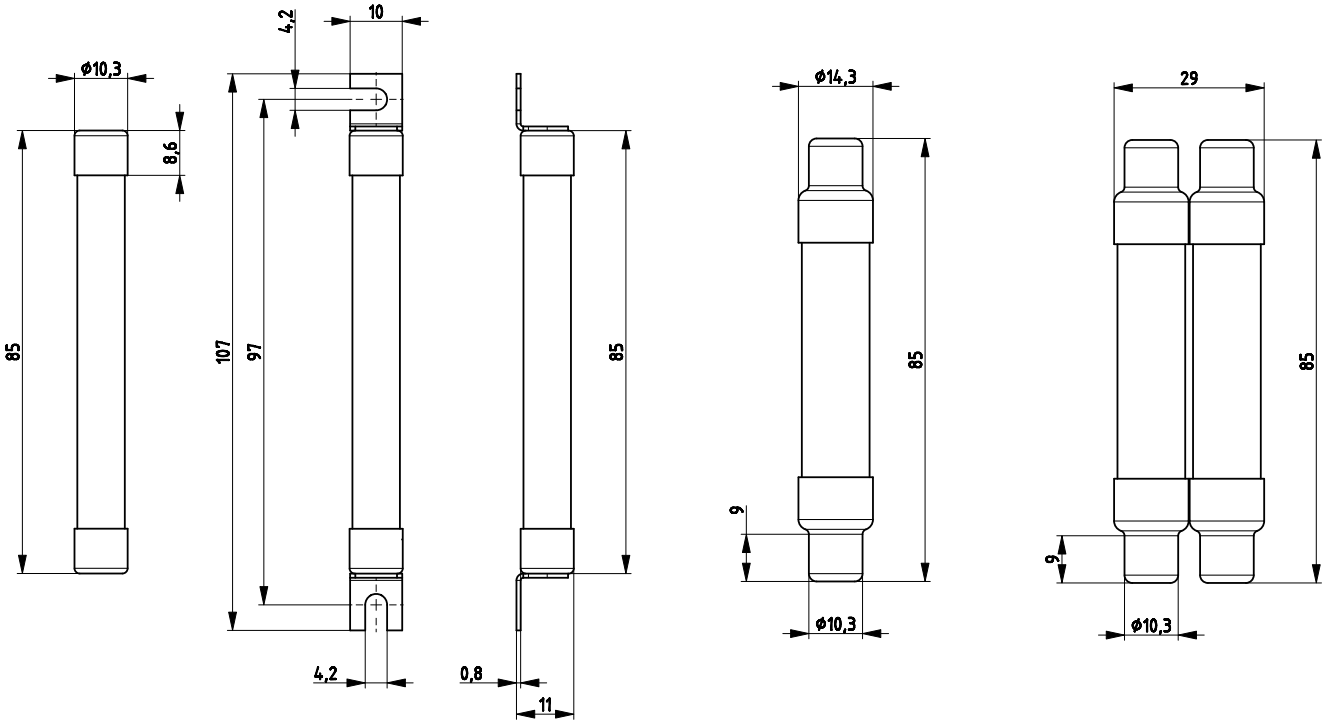
CH10x85 & CH10/14x85 gPV 1500V d.c.

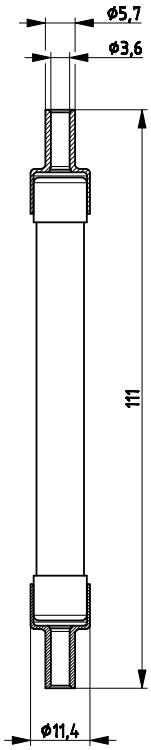
Size	Breaking capacity [kA]	I_n [A]	Code No. "standard contacts" UL	Code No. "type SU contacts"	Code No. "In-Line"	Pre-arcing Joule integral [A^2s] L/R=2ms	Operating Joule integral [A^2s] L/R=2ms	Power dissipation [0,7 x I_n] Pd [W]	Power dissipation [I_n] Pd [W]	g	
10 x 85	50kA	2	002625200	002625210	002626300	0,8	2,3	1,0	2,4	15 SU:17 IN: 22	10/210 SU:10/160 IN: 9/144
		3	002625241	002625245	002626301	2,9	5,2	1,1	2,7		
		4	002625274	002625211	002626302	11,4	16,9	1,1	2,7		
		5	002625276	002625209	002626303	7,0	25,9	1,2	3,0		
		6	002625277	002625212	002626304	14,5	50,6	1,2	3,0		
		8	002625279	002625213	002626306	36,1	106,9	1,5	3,6		
		10	002625280	002625214	002626307	7,0	116,6	1,2	2,8		
		12	002625282	002625215	002626308	10,3	152,0	1,4	3,3		
		15	002625285	002625219	002626309	28,2	307,4	1,5	3,6		
		16	002625286	002625216	002626310	34,2	352,1	1,5	3,6		
		20	002626234	002625217	002626311	48,4	462,2	2	4,8		
		25*	002625500	/	/	100,0	750,0	2,4	5,7		
10/14 x 85		25	002626235	/	/	72,3	633,1	2,3	5,6	28	10/230
		30	002626236	/	/	143,8	959,2	2,6	6,4		
		32	002626237	/	/	158,5	938,7	3,0	7,4		
		35*	002626238	/	/	260	1.500	2,9	7		
		40*	002626239	/	/	400	2.500	3,2	7,7		
10/14 x 85 T		50	002626240	/	/	350	2.000	5,3	13	56	5/115
		63	002626241	/	/	770	4.300	5,6	13,7		

* Self certified



10x85 | SU contacts | In-Line | 10/14x85 | 10/14x85 T



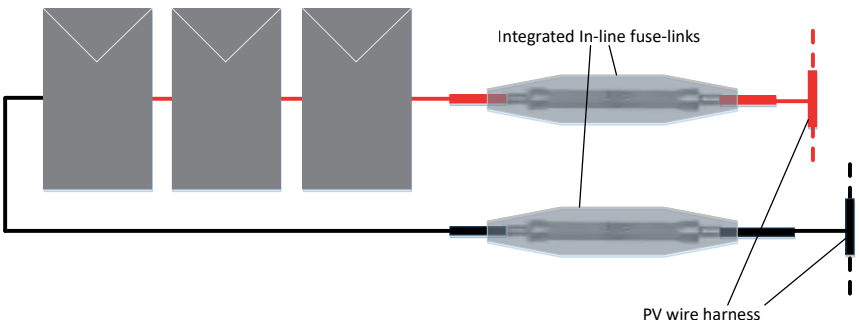


CH In-Line

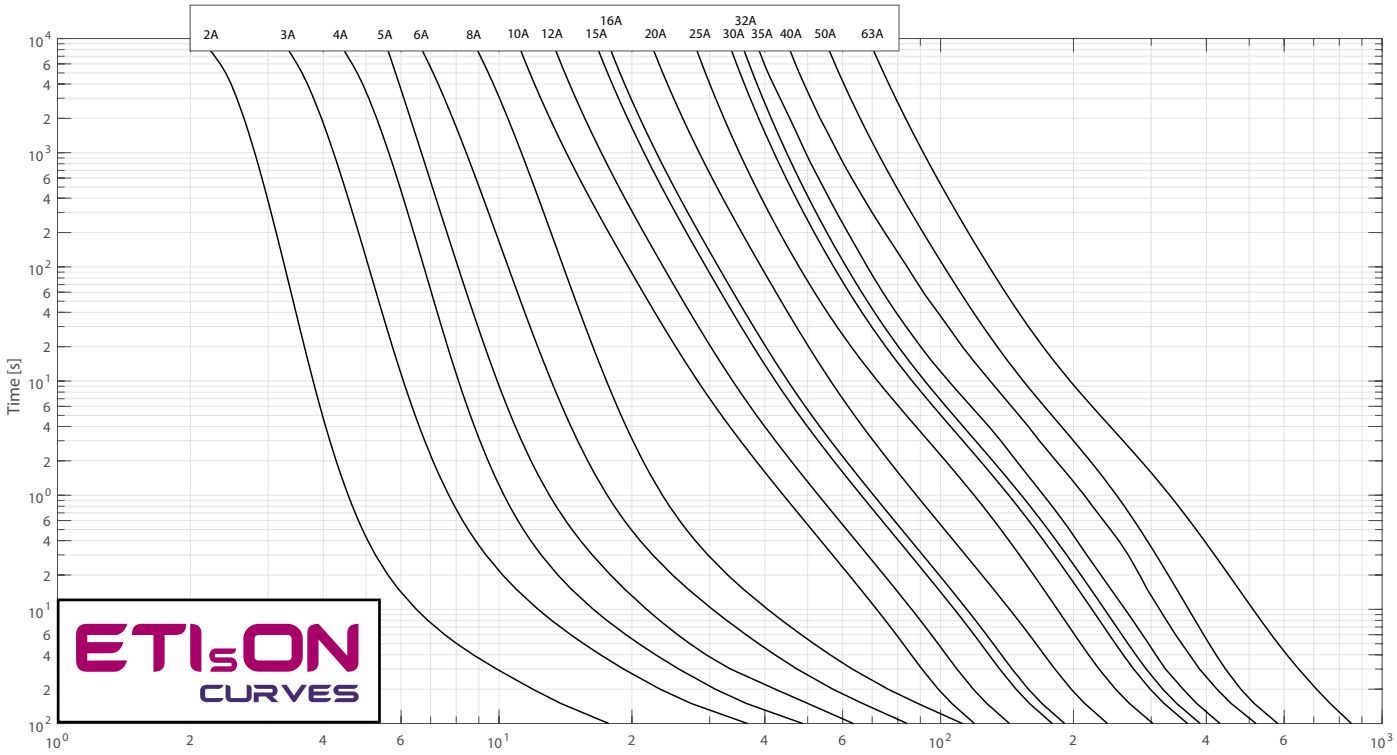
Fuse-links in accordance with TUV 2 PfG 2380:2014-02

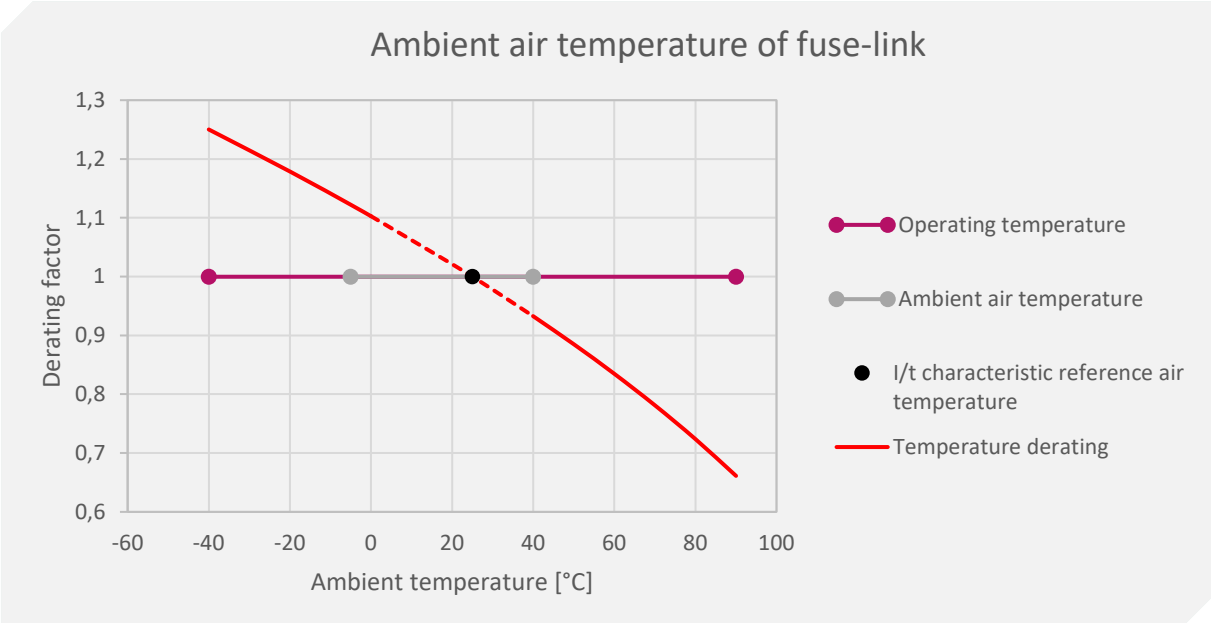
Crimp connection: 4-6mm^2

Recommended crimping tool: Amphenol Helios H4



Time current characteristics I/t





Legend:

T_{amb} – Ambient Temperature

TDF – Temperature Derating Factor

I_N – Nominal Current of Fuse-link

I_{TDF} – Nominal Current Including Temperature Derating Factor

Current calculation: $I_{TDF} = I_N \times TDF$

CH14 gPV 1000V, 1100V - Fuse-links

General characteristics

Rated voltage	1000V d.c. L/R=2ms (1100V d.c. for 002637185)
Rated current	15-36A
Breaking capacity	30kA d.c.
Standards	IEC 60269-6
Application	For protection of photovoltaic modules

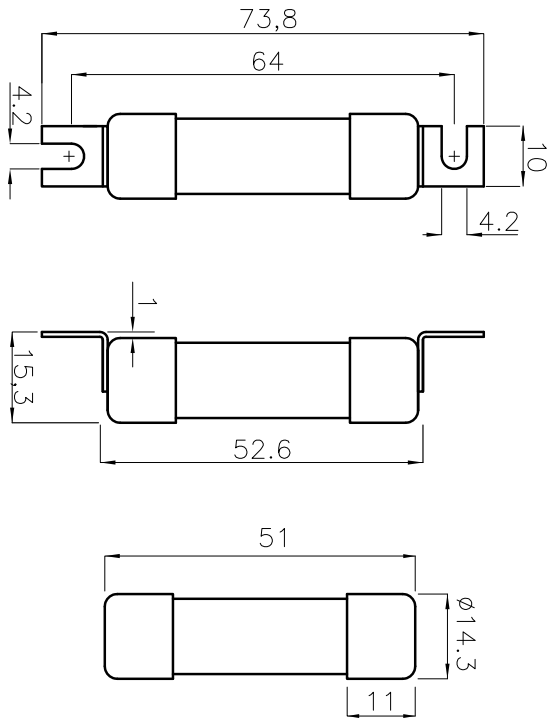
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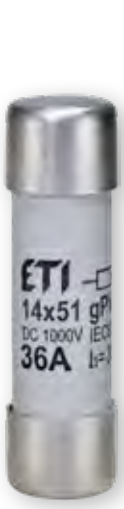
RoHS 2011/65/EU

CH14x51 gPV 1000V d.c.

Size	Breaking capacity [kA]	I_n [A]	Code No. "standard contacts" 30kA IEC	Code No. "type SU contacts" 30kA IEC	Pre-arcing Joule integral [A^2s] L/R=2ms	Operating Joule integral [A^2s] L/R=2ms	Power dissipation [0,7 x I_n] Pd [W]	Power dissipation [I_n] Pd [W]	g	
14x51	30kA	15	002637140	002637340	22	237	1,4	3,1	19 SU: 21	10/200 SU:10/260
		16	002637105	002637305	55	155	1,4	3,1		
		16*	002637185	/	55	220	1,4	3,1		
		20	002637107	002637307	130	330	1,5	3,2		
		25	002637109	002637309	180	360	2	4		
		32	002637111	002637311	297	1.290	2,1	5,1		
		36	002637115	002637315	450	1.190	2,3	5,6		

*Rated voltage 1100V d.c.



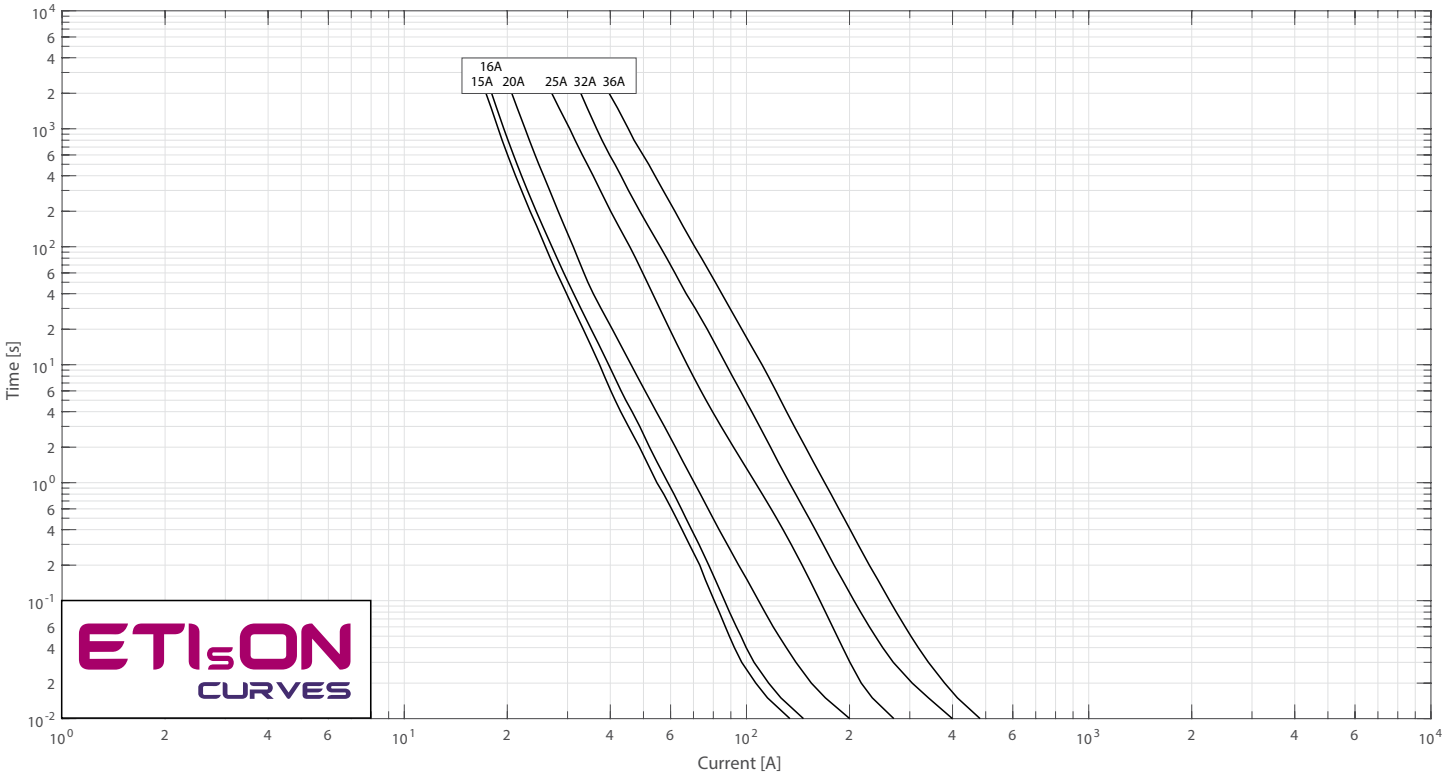


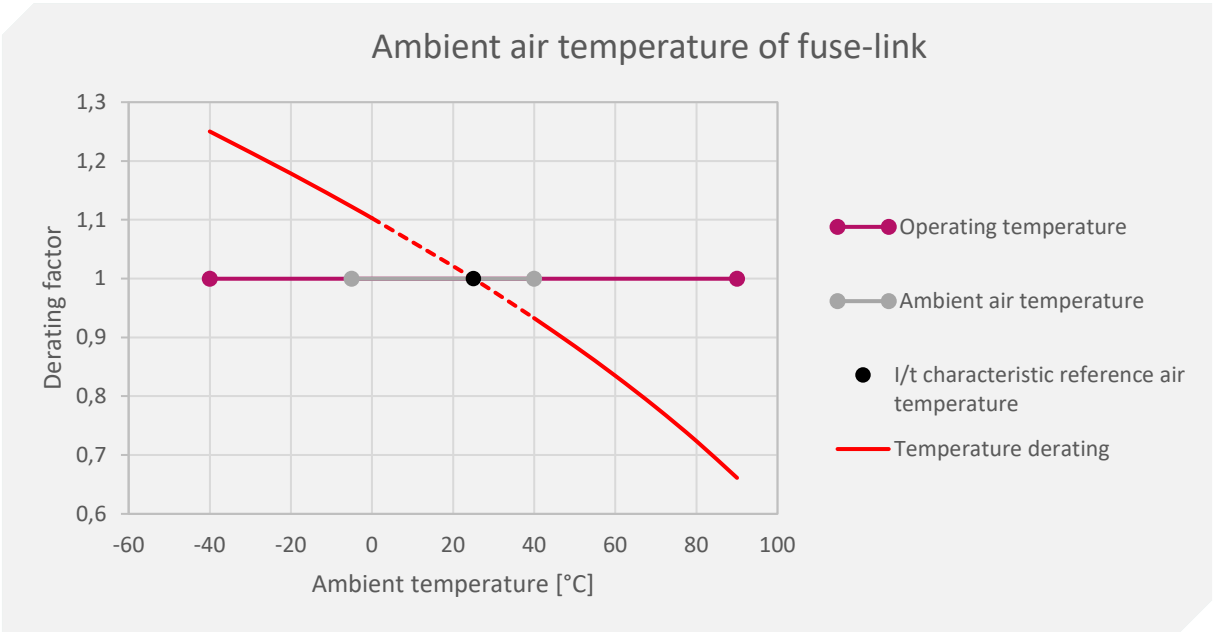
Standard Contacts



Type SU Contacts

Time current characteristics I/t





Legend:

T_{amb} – Ambient Temperature

TDF – Temperature Derating Factor

I_N – Nominal Current of Fuse-link

I_{TDF} – Nominal Current Including Temperature Derating Factor

Current calculation: $I_{TDF} = I_N \times TDF$