



fuse-links & fuse holders

**PHOTOVOLTAIC**



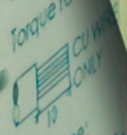


**sdf**  
NH1 gPV  
**160 A**  
1000V DC  
  
I<sub>n</sub> = 30 kA  
IEC 60269-6  
373255  
RoHS COMPLIANT  
CE  
Made in Spain



**sdf** PMF  
10x38  
32A  
1000V DC  
481233  


IEC/EN 60269  
IEC/EN 60947  
1000V DC DC208  
690V AC AC218  
Max. 4W  
Torque rating: 2-2.5 Nm



Wire range:  
- Solid: 0.75...2.5mm<sup>2</sup>  
- Stranded: 0.75...

DO NOT OPERATE UNDER  
Load  
Made in Spain

**sdf** PMF  
10x38  
32A  
1000V DC  
4810331  




160 A  
gPV  
481945  
CE  
Made in Spain



10x38  
32A  
1000V DC  
I<sub>n</sub> = 30 kA  
sdf

# PHOTOVOLTAIC

## FUSE-LINKS

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## FUSE HOLDERS & BASES

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IEC/EN 60269  
IEC/EN 60947  
1000V DC DC200  
690V AC AC215  
Max. 4W  
Torque rating: 2...2.5 Nm  
Cu Wire  
Only  
Wire range:  
- Solid: 0.75...2.5mm<sup>2</sup> AWG 18...14  
- Stranded: 0.75...1.6mm<sup>2</sup> AWG 18...16  
DO NOT OPERATE UNDER LOAD  
Made in Spain

20 A  
1000 V DC  
I<sub>n</sub> = 30 kA

491635  
gPV  
CE

# PHOTOVOLTAIC FUSE-LINKS

## gPV FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS

10x38

PV fuse-links for photovoltaic installations from DF Electric have been developed to offer a compact, safety and economic protection solution in photovoltaic installations where, due to the increase of the power and technologic evolution, no-load voltages above 800V DC are reached. Also meet the requirements for instruments (multimeters) and traction equipment auxiliary circuits. The range comprises 10x38 fuse-links with rated currents between 1A and 20A. Rated voltage is 600V DC or 1000V DC (direct current). Provide protection against overloads as well as short-circuits. Made with ceramic tube with high withstand to internal pressure and thermal shock, that allows a high breaking capacity in a reduced physical space. Contacts are made of silver plated copper and melting elements are made of pure silver in order to avoid the aging and thus keep unalterable the electric characteristics. For these fuse-links we recommend the utilization of PMF 1000V fuse holders in single pole version (ref. 481033) or two-pole version (ref.481233).

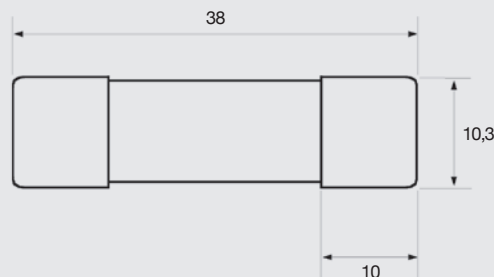
[www.df-sa.es/photovoltaic/fuses/](http://www.df-sa.es/photovoltaic/fuses/)

	$I_n$ (A)	REFERENCE	BREAKING CAPACITY (kA)	PACKING Uni./BOX
<b>1000V DC</b>	1	<b>491601</b>	30	10/100
	2	<b>491602</b>	30	10/100
	3	<b>491604</b>	30	10/100
	4	<b>491605</b>	30	10/100
	5	<b>491606</b>	30	10/100
	6	<b>491610</b>	30	10/100
	8	<b>491615</b>	30	10/100
	10	<b>491620</b>	30	10/100
	12	<b>491625</b>	30	10/100
	15	<b>491629</b>	30	10/100
	16	<b>491630</b>	30	10/100
	20	<b>491635</b>	30	10/100
	<b>600V DC</b>	1	<b>491901</b>	30
2		<b>491902</b>	30	10/100
3		<b>491904</b>	30	10/100
4		<b>491905</b>	30	10/100
5		<b>491906</b>	30	10/100
6		<b>491910</b>	30	10/100
8		<b>491915</b>	30	10/100
10		<b>491920</b>	30	10/100
12		<b>491925</b>	30	10/100
15		<b>491929</b>	30	10/100
16		<b>491930</b>	30	10/100
20		<b>491935</b>	30	10/100
25		<b>491940</b>	30	10/100
30	<b>491944</b>	30	10/100	
32	<b>491945</b>	30	10/100	



## gPV FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS DIMENSIONS

10x38



STANDARDS  
**IEC 60269-6**

APPROVALS  
**Cd-Pb FREE**  
**RoHS compliant**

TECHNICAL  
t-I CHARACTERISTICS

PAGE **08**

COMPATIBLE  
PV FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS

PAGE **06**



# PHOTOVOLTAIC FUSE-LINKS

## gPV FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS

**NH1** NH1 gPV 1000V DC fuse-links for photovoltaic installations have been developed to offer a compact, safety and economic protection solution in second level panels of photovoltaic installations. The range comprises NH1 fuse-links with rated currents between 25A and 160A. Rated voltage is 1000V DC (direct current). They provide protection against overloads as well as short-circuits (gpV class according to IEC 60269 Standard), with a minimum fusing current of  $1,35 \cdot I_n$ . Made with ceramic body with high withstand to internal pressure and thermal shock. Contacts are made of silver plated copper and melting elements are made of pure silver in order to avoid the aging and thus keep unalterable the electric characteristics. For these fuse-links we recommend the utilization of 1000V NH1 ST fuse bases.

[www.df-sa.es/photovoltaic/fuses/NH/](http://www.df-sa.es/photovoltaic/fuses/NH/)

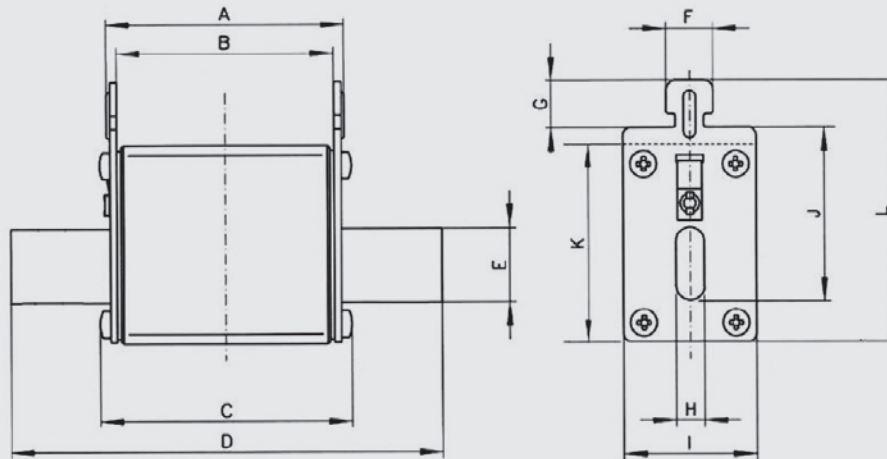
	$I_n$ (A)	REFERENCE	BREAKING CAPACITY (kA)	PACKING Uni./BOX
<b>1000V DC</b>	25	<b>373210</b>	30	3/30
	32	<b>373215</b>	30	3/30
	40	<b>373225</b>	30	3/30
	50	<b>373230</b>	30	3/30
	63	<b>373235</b>	30	3/30
	80	<b>373240</b>	30	3/30
	100	<b>373245</b>	30	3/30
	125	<b>373250</b>	30	3/30
	160	<b>373255</b>	30	3/30



373255

## TECHNICAL gPV FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS DIMENSIONS

**NH1**



SIZE	A	B	C	D	E	F	G	H	I	J	K	L
NH1	68	62	71,5	135	20	10	9,5	6	39	40	52	64

STANDARDS  
IEC 60269-1  
IEC 60269-6

APPROVALS  
Cd-Pb FREE  
RoHS compliant



TECHNICAL  
t-I CHARACTERISTICS

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TECHNICAL  
AMBIENT TEMPERATURE  
DERATING FACTOR

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COMPATIBLE  
NH FUSE BASES FOR  
PHOTOVOLTAIC  
APPLICATIONS

PAGE 07

# PHOTOVOLTAIC FUSE HOLDERS

## PMF 1000V DC 10x38 FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS

PMF  
1000V  
DC

10x38

The first feature that PV Modular fuse holders offers, is the 1000V DC rated voltages. They have been developed to offer a compact, safety and economic protection solution in photovoltaic installations where due to the increase of the power and technologic evolution, no-load voltages above 800V DC can be achieved. Modular fuse holders for 10x38 gPV fuses according IEC/EN 60269 standard. Compact design, with reduced distances. Manufactured with a high quality materials: Silver plated copper contacts and plastic materials with high temperature resistance and selfextinguishable. All the materials are according to the European Directive 2002/95/EC RoHS (Restriction of the use of certain hazardous substances in electrical material).

[www.df-sa.es/photovoltaic/fuseholders-and-fusebases/fuseholders/](http://www.df-sa.es/photovoltaic/fuseholders-and-fusebases/fuseholders/)

WITHOUT  
INDICATOR

POLES	MODULES	REFERENCE	DESCRIPTION	I <sub>n</sub> (A)	U (V DC)	PACKING Uni./BOX
1	1	<b>481033</b>	SINGLE-POLE	32	1000	12/192
2	2	<b>481233</b>	TWO-POLES	32	1000	6/96



481233

WITH  
INDICATOR

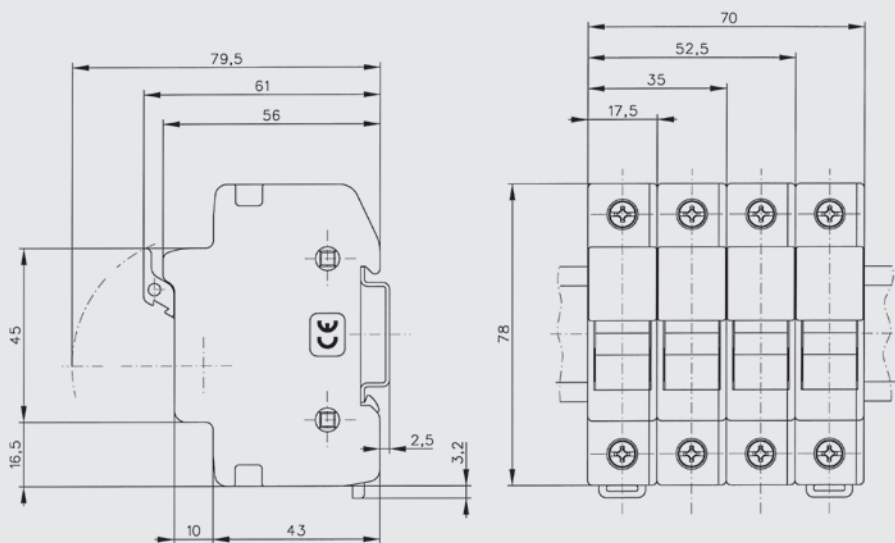
1	1	<b>481033 I</b>	SINGLE-POLE	32	1000	12/192
2	2	<b>481233 I</b>	TWO-POLES	32	1000	6/96



481033 I

## TECHNICAL PV FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS DIMENSIONS

10x38



### STANDARDS

IEC 60269-1  
IEC 60269-2  
IEC 60947-3  
EN 60269-1  
EN 60269-2  
EN 60947-3

### APPROVALS



### COMPATIBLE

gPV FUSE-LINKS FOR  
PHOTOVOLTAIC  
APPLICATIONS

PAGE  
**04**

### COMPATIBLE

CONNECTION  
ACCESSORIES:  
PHASE BUSBARS AND  
ACCESSORIES

SEE  
**CYLINDRICAL**  
PAGE 13

# PHOTOVOLTAIC FUSE BASES

## ST NH FUSE BASES FOR PHOTOVOLTAIC APPLICATIONS

ST  
1000V  
DC

Fuse bases for NH fuse-links. Manufactured with a high quality materials. Silver plated copper contacts. Plastic materials with high temperature resistance and self-extinguishable. All the materials are according to the European Directive 2002/95/EC RoHS. For DIN rail mounting or with screw fixing. Single-phase type. Connection by screws. Contacts with double spring in order to obtain an optimum operation. Wide range of accessories that enables IP20 protection index: contact covers, fuse link covers and partition walls. Multi-pole units can be made with connection accessories. Manufactured according IEC, VDE and DIN standards.

[www.df-sa.es/photovoltaic/fuseholders-and-fusebases/fusebases/](http://www.df-sa.es/photovoltaic/fuseholders-and-fusebases/fusebases/)

DESCRIPTION	REFERENCE	U (V DC)	PACKING
<b>SINGLE POLE</b>			
DIN RAIL-SCREW FIXING / SCREW CONNECTION	354170	1000	3

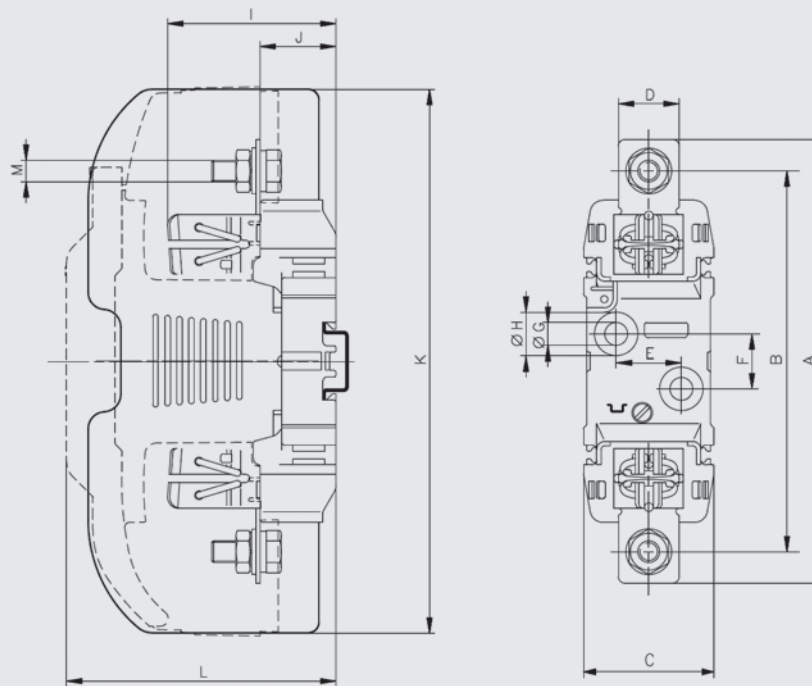
NH1  
250A



## ST NH FUSE BASES FOR PHOTOVOLTAIC APPLICATIONS DIMENSIONS

TECHNICAL  
ST  
1000V  
DC

NH1  
250A



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M
NH1	200	175	60	28	30	25	10,5	20,5	77,5	35	250	123	M10

STANDARDS  
IEC 60269-1  
IEC 60269-2  
IEC 60269-2-1  
EN 60269-1  
EN 60269-2

STANDARDS  
VDE 0636  
DIN 43620

APPROVALS  
RoHS  
compliant

COMPATIBLE  
gPV NH1 FUSE-LINKS  
FOR PHOTOVOLTAIC  
APPLICATIONS  
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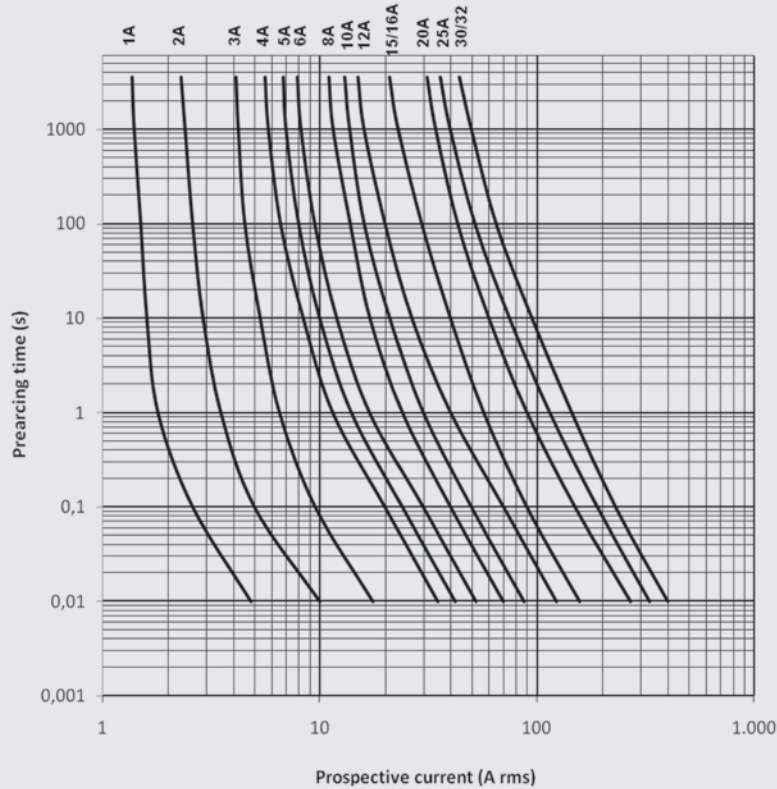
COMPATIBLE  
TERMINAL COVERS,  
FUSE-LINKS COVERS  
AND IP20 PROTECTION  
KITS  
SEE  
NH PAGE 17

# PHOTOVOLTAIC FUSE-LINKS



TECHNICAL  
**gPV**  
**10x38**

## FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS t-I CHARACTERISTICS & POWER DISSIPATION

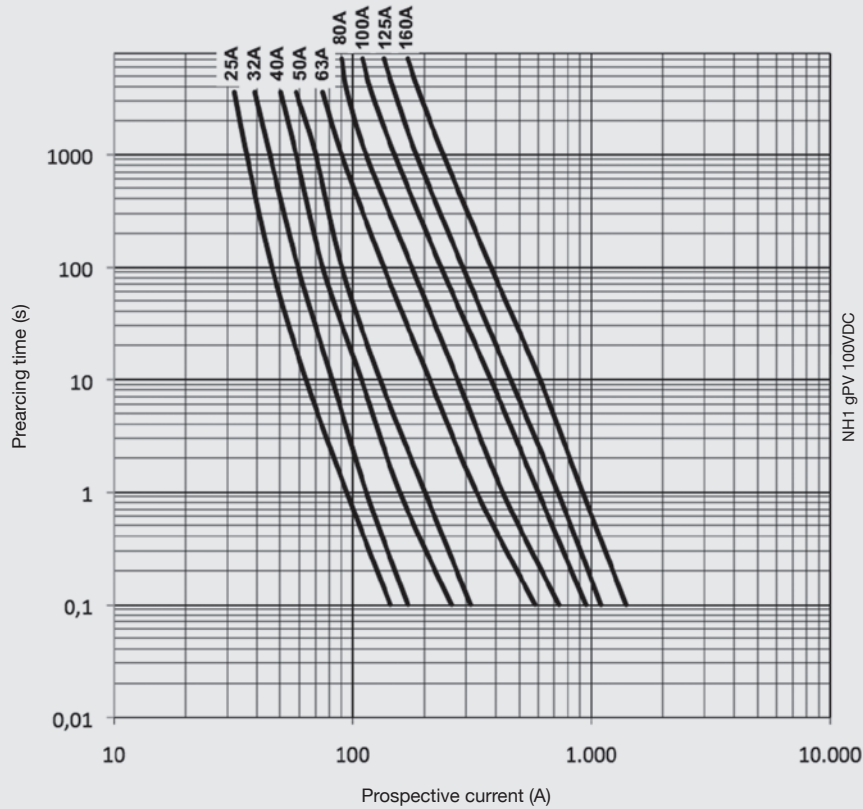


RATED CURRENT (A)	REFERENCE		POWER DISSIPATION (W @ 0.7 In)		POWER DISSIPATION (W @ In)		PREARcing I <sup>2</sup> t (A <sup>2</sup> s)		OPERATING I <sup>2</sup> t (A <sup>2</sup> s)	
	1000V DC	600V DC	1000V DC	600V DC	1000V DC	600V DC	1000V DC	600V DC	1000V DC	600V DC
1	491601	491901	0,31	0,31	0,76	0,76	0,35	0,35	1,3	0,8
2	491602	491902	0,62	0,62	1,54	1,54	1,78	1,78	6,5	3,9
3	491604	491904	0,54	0,54	1,35	1,35	9,0	9,0	33	19,6
4	491605	491905	0,73	0,73	1,84	1,84	3,0	3,0	11	6,6
5	491606	491906	0,93	0,93	2,22	2,22	4,4	4,4	13	9,6
6	491610	491910	0,96	0,96	2,40	2,40	8,5	8,5	32	18,8
8	491615	491915	1,02	1,02	2,55	2,55	25	25	93	55,0
10	491620	491920	1,03	1,03	2,58	2,58	11	11	52	27,9
12	491625	491925	1,04	1,04	2,60	2,60	25	25	116	62,8
15	491629	491929	1,07	1,07	2,44	2,44	25	25	116	82,8
16	491630	491930	1,08	1,08	2,70	2,70	33	33	152	82,8
20	491635	491935	1,16	1,16	2,90	2,90	85	85	390	212
25	-	491940	-	1,10	-	2,74	-	280	-	460
30	-	491944	-	1,70	-	4,00	-	400	-	650
32	-	491945	-	1,76	-	4,40	-	400	-	650



TECHNICAL **gPV** FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS  
t-I CHARACTERISTICS & POWER DISSIPATION

NH1



RATED CURRENT (A)	REFERENCE	POWER DISSIPATION (W @ 0,7In)	POWER DISSIPATION (W @ In)	PRE-ARCING I <sup>2</sup> t (A <sup>2</sup> s)	OPERATING I <sup>2</sup> t (A <sup>2</sup> s)
	<b>1000V DC</b>	<b>1000V DC</b>	<b>1000V DC</b>	<b>1000V DC</b>	<b>1000V DC</b>
25	<b>373210</b>	5,2	12,5	62	94
32	<b>373215</b>	6,3	15,5	122	184
40	<b>373225</b>	6,7	16,6	302	454
50	<b>373230</b>	7,5	18	562	844
63	<b>373235</b>	8,2	20	1210	1815
80	<b>373240</b>	10	27	2250	3375
100	<b>373245</b>	11	28	4000	6000
125	<b>373250</b>	12,5	32	6500	9700
160	<b>373255</b>	13,5	34,0	9200	16600

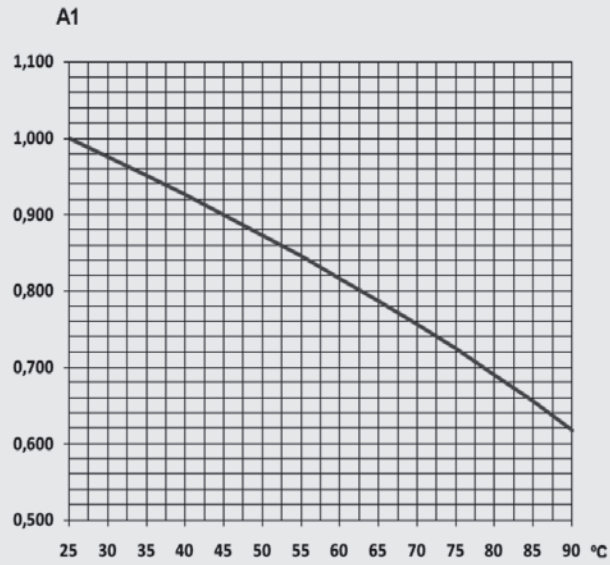
# PHOTOVOLTAIC FUSE-LINKS

TECHNICAL

gPV

## FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS AMBIENT TEMPERATURE DERATING FACTOR

NH1



$t_a$ (°C)	A <sub>1</sub>
40	0,92
45	0,90
50	0,87
55	0,85
60	0,82
65	0,79
70	0,76
75	0,72
80	0,69



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