Vitreous Wirewound Resistors with Lugs

FEATURES

- Complete welded construction
- Ceramic core
- High quality vitreous coating
- Available in adjustable = “E” or non inductive design = “Ni”
- Lugs with various termination styles suitable for soldering or bolt connection
- TCR 100 ppm/K to 180 ppm/K
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

HALOGEN FREE

STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40\,°C}$ W	LIMITING VOLTAGE	TERMINAL	DIMENSIONS DIN 41432	RESISTANCE RANGE (1) Ω	TOLERANCE ± %
GWS 15	15	250	SL	8 x 45	4.3 to 20K	5, 10
					30 to 15K	3
					220 to 20K	2
GWS 15 E	10				4.3 to 620	5, 10
GWS 15 Ni					5.1 to 910	
GWS 20	20	300	SL, SS	10 x 50	3.6 to 30K	5, 10
					180 to 30K	2
GWS 20 E	15				4.3 to 1K	5, 10
GWS 20 Ni					5.1 to 1.3K	
GWS 25	25			13 x 55	3.6 to 39K	5, 10
					30 to 20K	3
					91 to 39K	2
GWS 25 E	18				5.1 to 1.3K	5, 10
GWS 25 Ni					6.8 to 1.8K	
GWS 35	30	400		13 x 62	5.1 to 47K	5, 10
					56 to 47K	2
GWS 35 E	22				6.8 to 1.6K	5, 10
GWS 35 Ni					8.2 to 2.4K	
GWS 50	40		SL, SS, SB, FST	16 x 63	3.3 to 62K	5, 10
					33 to 24K	3
					100 to 62K	2
GWS 50 E	30				8.2 to 2K	5, 10
GWS 50 Ni					10 to 3K	
GWS 75	65	800		16 x 100	7.5 to 130K	5, 10
					15 to 39K	3
					30 to 130K	2
GWS 75 E	45				18 to 3.9K	5, 10
GWS 75 Ni					22 to 6.2K	
GWS 100	80	600	SS, SSB, SB, FST	24 x 100	6.8 to 110K	5, 10
					20 to 51K	3
					75 to 110K	2
GWS 100 E	60				13 to 5.1K	5, 10
GWS 100 Ni					24 to 6.8K	

For technical questions, contact: ww1resistors@vishay.com

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STANDARD ELECTRICAL SPECIFICATIONS

MODEL	POWER RATING $P_{40\,°C}$ W	LIMITING VOLTAGE	TERMINAL	DIMENSIONS DIN 41432	RESISTANCE RANGE (1) Ω	TOLERANCE ± %
GWS 220	160	1250	SS, SSB, SB, FST	24 x 165	13 to 160K	5, 10
					30 to 100K	3
					56 to 160K	2
GWS 220 E	120				30 to 10K	5, 10
GWS 220 Ni					51 to 16K	
GWS 300	300	2500		24 x 265	24 to 300K	5, 10
					51 to 150K	3
					110 to 300K	2
GWS 300 E	200				56 to 20K	5, 10
GWS 300 Ni					100 to 30K	
GWS 500	500	3000		34 x 330	39 to 270K	5, 10
					100 to 240K	3
					75 to 270K	2
GWS 500 E	300				100 to 36K	5, 10
GWS 30/100	150	1600		34 x 100	9.1 to 100K	5, 10
					27 to 100K	2
GWS 30/100 E	110				22 to 8.2K	5, 10
GWS 30/133	200	2300		34 x 133	13 to 160K	5, 10
					27 to 160K	2
GWS 30/133 E	130				36 to 13K	5, 10

Notes

(1) Resistance value to be selected for ± 10 % tolerance from E12 and for ± 5 %, ± 3 %, and ± 2 % from E24

- For available “Mounting Accessories for Resistors”, please see: www.vishay.com/doc?21015

PART NUMBER AND PRODUCT DESCRIPTION

Part Number: GWS01531009KLX000

G	W	S	0	1	5	3	1	0	0	9	K	L	X	0	0	0

MODEL	VARIANT/ TERMINAL	VALUE	TOLERANCE CODE	PACKAGING CODE	SPECIAL
GWS015 = GWS 15 **GWS020** = GWS 20 **GWS025** = GWS 25 **GWS035** = GWS 35 **GWS050** = GWS 50 **GWS075** = GWS 75 **GWS100** = GWS 100 **GWS220** = GWS 220 **GWS300** = GWS 300 **GWS500** = GWS 500 **GWSN84** = GWS 30/100 **GWSN91** = GWS 30/133	**3** = SL **4** = SS **5** = SB **6** = SSB **7** = FST **8** = E SL **9** = E SS **A** = E SB **B** = E SSB **C** = E FST **D** = Ni SL **E** = Ni SS **F** = Ni SB **G** = Ni SSB **H** = Ni FST **I** = SWI SL **J** = SWI SS **K** = SWI SB **L** = SWI SSB **M** = SWI FST **Z** = Value overflow (BV)	**3 digit value** **1 digit multiplier** MULTIPLIER **8** = $*10^{-2}$ **9** = $*10^{-1}$ **0** = $*10^{0}$ **1** = $*10^{1}$ **2** = $*10^{2}$ **3** = $*10^{3}$	**G** = ± 2.0 % **H** = ± 3.0 % **J** = ± 5.0 % **K** = ± 10.0 %	**LX** = Loose pack, without quantity **ZX** = Special pack (with BV #), without quantity	**000** = Standard **3 digit code** = Special version (2)

Product Description: GWS 15 SL 10R 10 % LX

GWS 15	SL	10R	10 %	LX
MODEL (3)	VARIANT/TERMINAL (3)	VALUE (3)	TOLERANCE CODE (3)	PACKAGING DESCRIPTION(4)

Notes

(2) For special variants, special winding, or NI version, please contact: ww1resistors@vishay.com

(3) See “Part Number” above

(4) See “Packaging Code” above

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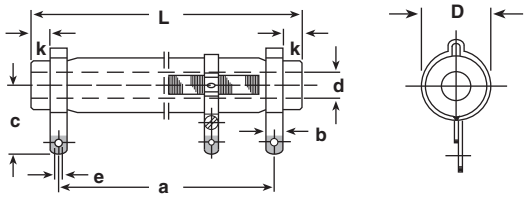
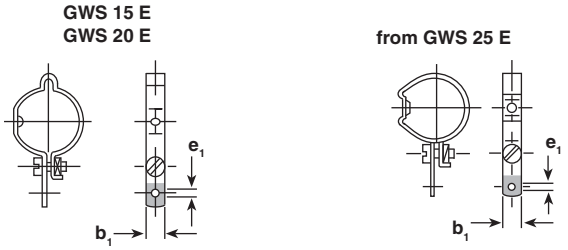
DIMENSIONS in millimeters [inches]

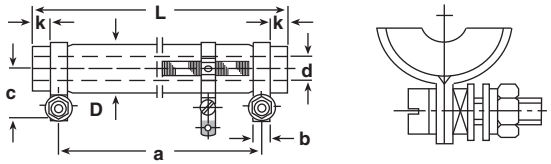
SL TERMINALS



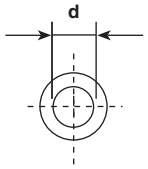
ADJUSTABLE LUGS



SS TERMINALS



CORE SECTION



MODEL	GWS 15 GWS 15 E GWS 15 Ni	GWS 20 GWS 20 E GWS 20 Ni		GWS 25 GWS 25 E GWS 25 Ni		GWS 35 GWS 35 E GWS 35 Ni	
TERMINAL	**SL**	**SL**	**SS**	**SL**	**SS**	**SL**	**SS**
D	7.5 ± 0.5 [0.295 ± 0.020]	9.5 ± 0.5 [0.374 ± 0.020]		11.8 ± 0.8 [0.465 ± 0.031]		11.8 ± 0.8 [0.465 ± 0.031]	
L	45 ± 1.5 [1.772 ± 0.059]	50 ± 1.5 [1.969 ± 0.059]		55 ± 1.5 [2.165 ± 0.059]		62 ± 2 [2.441 ± 0.079]	
a ± 2 [a ± 0.079]	36 [1.417]	39 [1.535]	40 [1.575]	43 [1.693]	44 [1.732]	50 [1.969]	51 [2.008]
b	4 [0.157]	4 [0.157]	5 [0.197]	4 [0.157]	5 [0.197]	4 [0.157]	5 [0.197]
b_1	4 [0.157]	4 [0.157]	4 [0.157]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]
c	15.5 [0.610]	18 [0.709]	10.5 [0.413]	19 [0.748]	11.5 [0.453]	19 [0.748]	11.5 [0.453]
d	2.6 [0.102]	3.5 [0.138]	3.5 [0.138]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]
e	1.5 [0.059]	2 [0.079]	M3 x 16	2 [0.079]	M3 x 16	2 [0.079]	M3 x 16
e_1	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]	2.8 [0.110]
k	2.5 [0.098]	3.5 [0.138]	2.5 [0.098]	4 [0.157]	3 [0.118]	4 [0.157]	3 [0.118]
Mass (g)	6	8		13		15	

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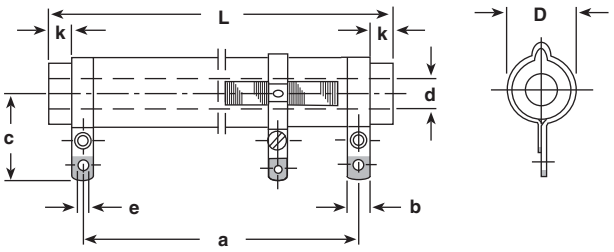
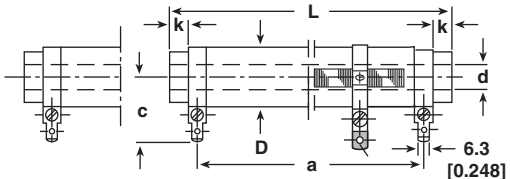
DIMENSIONS in millimeters [inches]

SL TERMINALS



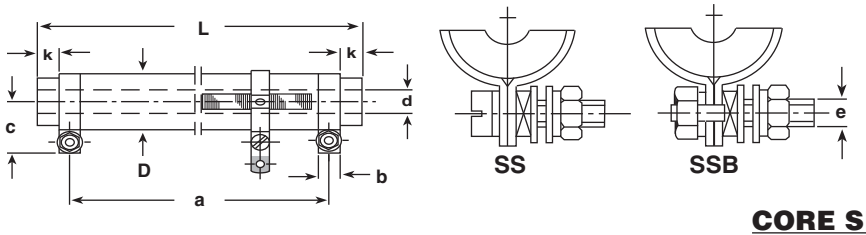
FST TERMINALS



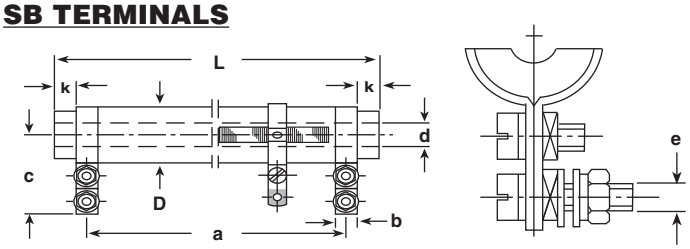
GWS 50
GWS 75

from GWS 100
FST A 6.3 mm [0.248]/DIN 46244
(at end terminals only)

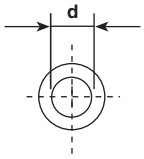
SS AND SSB TERMINALS



SB TERMINALS



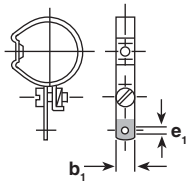
CORE SECTION



GWS 15 ... GWS 500

ADJUSTABLE LUGS

from GWS 25 E



MODEL	GWS 50 GWS 50 E GWS 50 Ni				GWS 75 GWS 75 E GWS 75 Ni				GWS 100 GWS 100 E GWS 100 Ni				GWS 220 GWS 220 E GWS 220 Ni			
TERMINAL	SL	SS	SB	FST	SL	SS	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST
D	14.8 ± 0.8 [0.583 ± 0.031]				14.8 ± 0.8 [0.583 ± 0.031]				22.3 ± 1.3 [0.878 ± 0.051]				22.3 ± 1.3 [0.878 ± 0.051]			
L	62 ± 2 [2.441 ± 0.079]				100 ± 2 [3.937 ± 0.079]				100 ± 2 [3.937 ± 0.079]				165 ± 2 [6.496 ± 0.079]			
a ± 2 [a ± 0.079]	50 [1.969]	51 [2.008]	51 [2.008]	48 [1.890]	86 [3.386]	87 [3.425]	87 [3.425]	84 [3.307]	72 [2.835]				136 [5.354]			
b	4 [0.157]	5 [0.197]	5 [0.197]	6.3 [0.248]	4 [0.157]	5 [0.197]	5 [0.197]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]
b_1	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]
c	20.5 [0.807]	13 [0.512]	23 [0.906]	23.5 [0.925]	20.5 [0.807]	13 [0.512]	23 [0.906]	23.5 [0.925]	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]
d	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	5.5 [0.217]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]
e	2 [0.079]	M3 x 16		-	2 [0.079]	M3 x 16		-	M4 x 20			-	M4 x 20			-
e_1	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]
k	4 [0.157]	3 [0.118]	3 [0.118]	3 [0.118]	5 [0.197]	4 [0.157]	4 [0.157]	4 [0.157]	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	10.5 [0.413]	10.5 [0.413]	10.5 [0.413]	10.5 [0.413]
Mass (g)	25				40				92				135			

For technical questions, contact: ww1resistors@vishay.com

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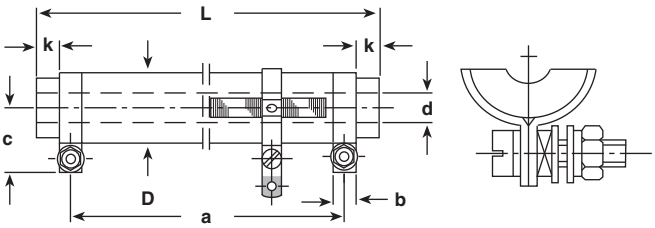
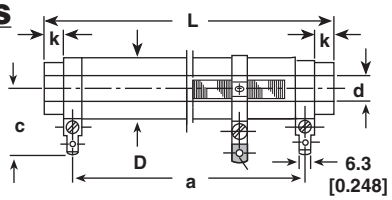
DIMENSIONS in millimeters [inches]

SS TERMINALS

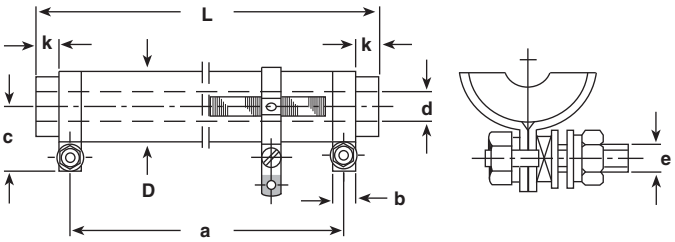


FST TERMINALS

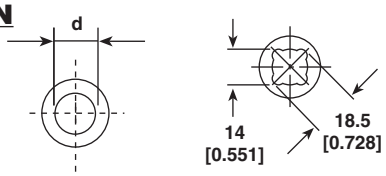


FST A 6.3 mm [0.248]/DIN 46244
(at end terminals only)

SSB TERMINALS

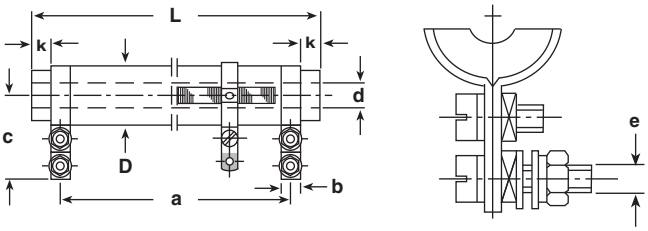


CORE SECTION



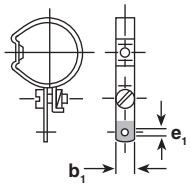
GWS 15 ... GWS 500 GWS 30/ ...

SB TERMINALS



ADJUSTABLE LUGS

from GWS 25 E



MODEL	GWS 300 GWS 300 E GWS 300 Ni				GWS 500 GWS 500 E				GWS 30/100 GWS 30/100 E				GWS 30/133 GWS 30/133 E			
TERMINAL	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST	SS	SSB	SB	FST
D	22.3 ± 1.3 [0.878 ± 0.051]				32.5 ± 1.5 [1.280 ± 0.059]				32.5 ± 1.5 [1.280 ± 0.059]				32.5 ± 1.5 [1.280 ± 0.059]			
L	265 ± 4 [10.433 ± 0.157]				330 ± 5 [12.992 ± 0.197]				100 ± 2.5 [3.937 ± 0.098]				133 ± 3 [5.236 ± 0.118]			
a ± 2 [a ± 0.079]	235 [9.252]				280 [11.024]				85 [3.346]				118 [4.646]			
b	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]	8 [0.315]	8 [0.315]	8 [0.315]	6.3 [0.248]
b1	5 [0.197]	5 [0.197]	5 [0.197]	5 [0.197]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]	8 [0.315]
c	18.5 [0.728]	18.5 [0.728]	29.5 [1.161]	27 [1.063]	23.5 [0.925]	23.5 [0.925]	35 [1.378]	31.5 [1.240]	23.5 [0.925]	23.5 [0.925]	35 [1.430]	31.5 [1.240]	23.5 [0.925]	23.5 [0.925]	35 [1.378]	31.5 [1.240]
d	10 [0.394]	10 [0.394]	10 [0.394]	10 [0.394]	18.5 [0.728]	18.5 [0.728]	18.5 [0.728]	18.5 [0.728]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]	14 [0.551]
e	M4 x 20				M4 x 20				M4 x 20				M4 x 20			
e1	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	3.2 [0.126]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]	4.2 [0.165]
k	11 [0.433]	11 [0.433]	11 [0.433]	11 [0.433]	21 [0.827]	21 [0.827]	21 [0.827]	21 [0.827]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]	3.5 [0.138]
Mass (g)	238				425				183				265			

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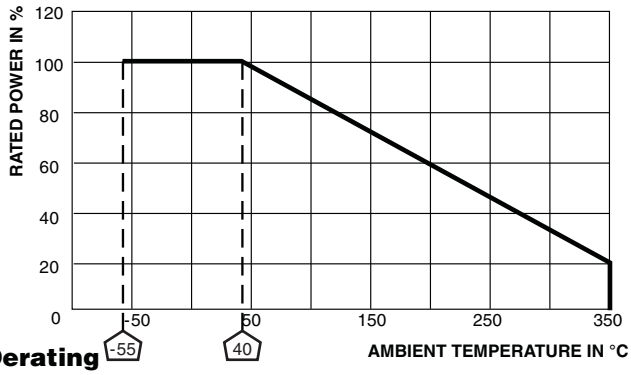
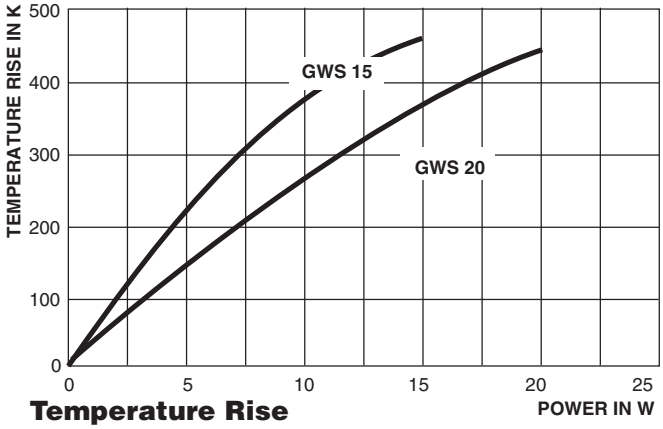
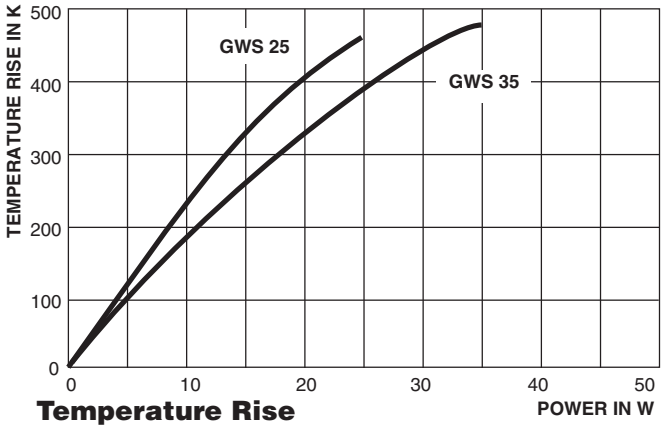


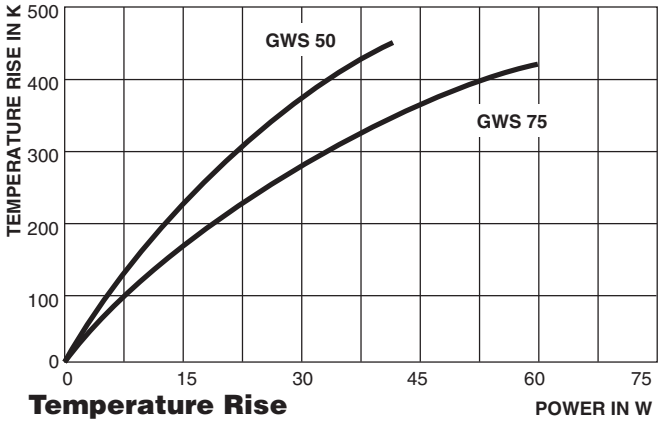
Derating



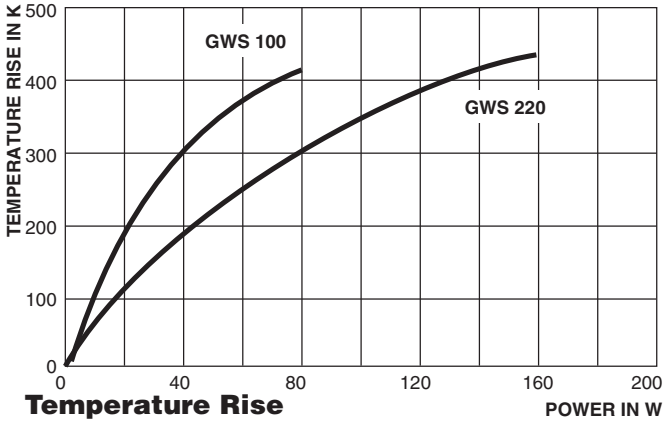
Temperature Rise



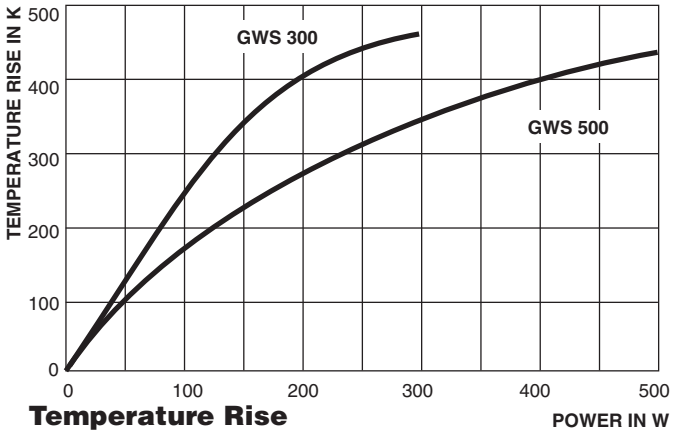
Temperature Rise



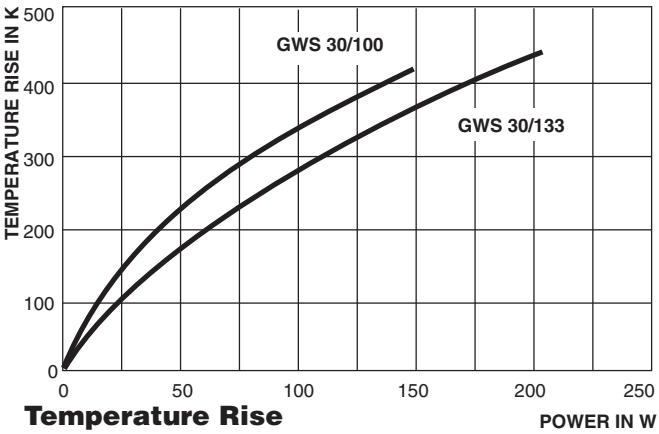
Temperature Rise



Temperature Rise



Temperature Rise



Temperature Rise

For technical questions, contact: ww1resistors@vishay.com

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