EBG

RESISTORS

A Miba Group Company

AEC-Q200 IATF16949:2016

Professional

RESISTORS FOR ELECTRIC VEHICLES

High pulse energy capability

- Pre-charge resistors for EV applications
- Dis-charge resistors for EV applications

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CATALOG

Remark: All dimensions are in mm

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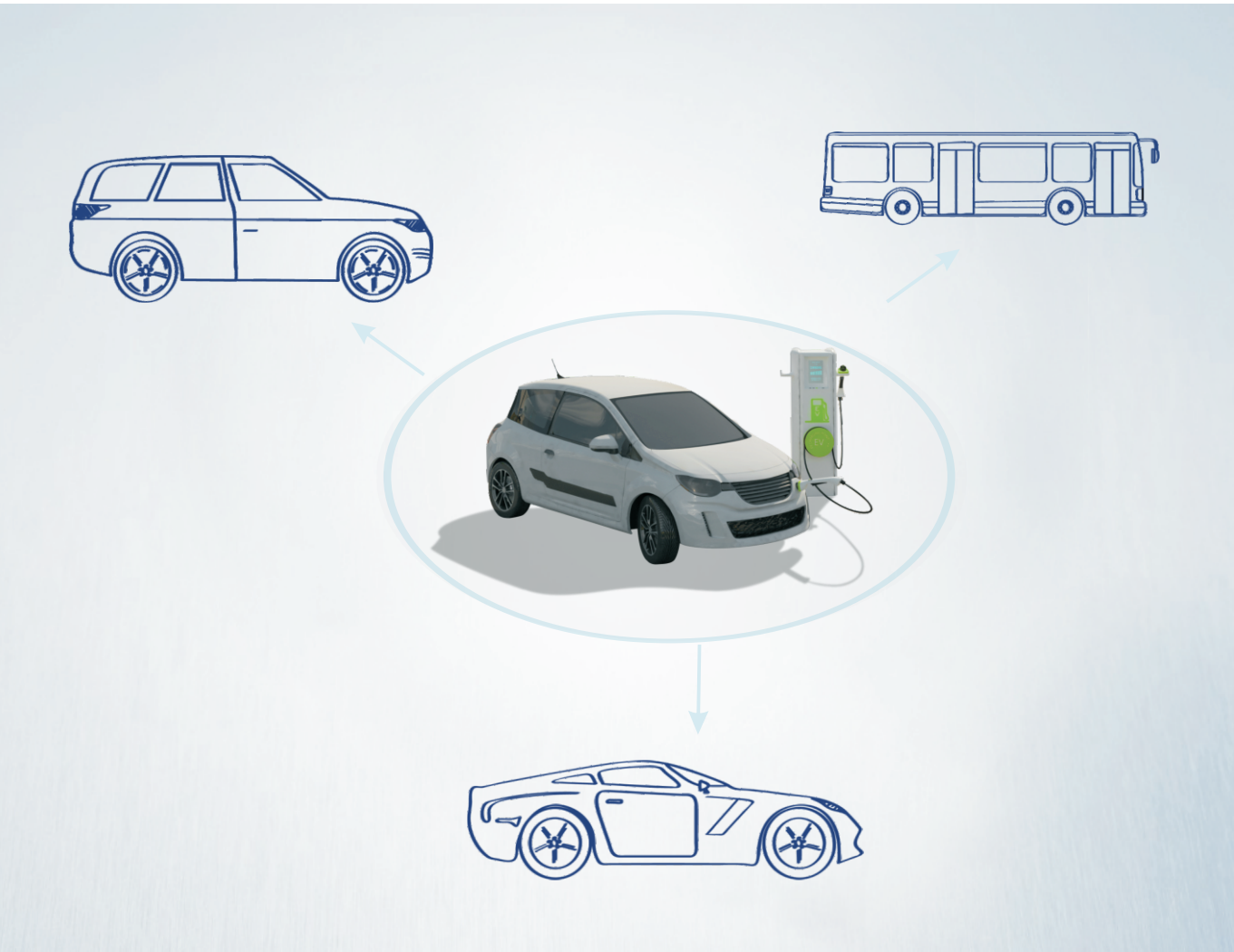
INTRODUCTION

EBG Resistors focuses it´s attention on the cutting edge of resistor technology, while working hand in hand with your engineers to solve pre-charge, dis-charge and other applications in the EV industry.
EBG Resistors EV product catalog is an introduction to our current products, but we thrive on working with you, our customers, to provide custom soluctions for your individual applications.
Join the many companies already using EBG for their EV resistors needs. We welcome the opportunity to participate in new product development for engineers with a vision for the future.



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EBG CHINA – AUTOMOTIVE CERTIFICATIONS

- ISO9001 & IATF16949

Certificate of Registration

nqa.

This is to certify that the Quality Management System of

EBG-Shenzhen Electronics Co., Ltd.

Organisation Code : 61881548-X
Operation Address : North of Floor 5 & 6, Building 23, Standard Factory, Science & Tech. Park Area, No. 1, West of Kezhi Road, Nanshan District, Shenzhen City, Guangdong Province, 518057, China.
Registered Address : North of Floor 5 & 6, Building 23, Standard Factory, Science & Tech. Park Area, No. 1, West of Kezhi Road, Nanshan District, Shenzhen City, Guangdong Province, 518057, China.

applicable to

The manufacture of fixed resistors

has been assessed and registered by NQA against the provisions of

ISO 9001:2008

This registration is subject to the company maintaining a quality management system, to the above standard, which will be monitored by NQA.
The information of this certificate can be checked on CNCA's website (www.cnca.gov.cn)
SNQA's website : www.snqa.com.cn

Managing Director

Certificate Number **41825**

Date: 22 February 2016
Valid Until: 14 September 2018
EAC Code: 19

UKAS MANAGEMENT SYSTEMS 055

IAF

This use of the UKAS Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 055 held by NQA.
NQA is a trading name of NQA Certification Limited, Registration No 3509178. Registered Office: Warwick House, Houghton Hall Park, Houghton Regis, Dunstable, LU5 5ZX, UK.
This certificate is the property of NQA and must be returned on request.

Certificate of Registration

nqa.

This is to certify that the Quality Management System of

EBG-Shenzhen Electronics Co., Ltd.
North of Floor 5 & 6, Building 23, Standard Factory, Science & Tech. Park Area, No. 1, West of Kezhi Road, Nanshan District, Shenzhen City, Guangdong Province, 518057, China.

applicable to

The manufacture of fixed resistors

has been assessed and registered by
NQA, Warwick House, Houghton Hall Park, Houghton Regis, Dunstable LU5 5ZX, Bedfordshire, England

against the provisions of

IATF 16949 : 2016

(Clause 8.3 product design of IATF 16949 : 2016 is justifiably excluded)

This registration is subject to the company maintaining a quality management system, to the above standard, which will be monitored by NQA

Managing Director

NQA Certificate No: T 9951
IATF Certificate No: 0300842
Date: 20 April 2018
Valid Until: 19 April 2021
Version: 5

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Revision Date: Feb 2017 Page 1 of 1 Issue 5

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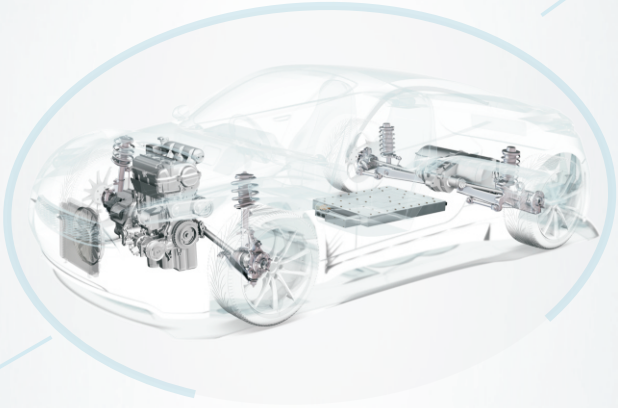
OVERVIEW – EBG RESISTORS FOR EVs

Pre-charge resistors: PDU / BDU / Battery PACK

Style: UXP-250 / ESP 62/20 / ECP 52/18 / AXP-120 resistors

Dis-charge resistors: VCU / MCU

Style: HXP-200 / HPS-120 / GXP-120 / AXP-120 / LXP-100 B / MHP-35 / RSH25 resistors



EBG Technology features: thick film resistors, high pulse withstand capability, wide resistance range, compact size, high insulation performance

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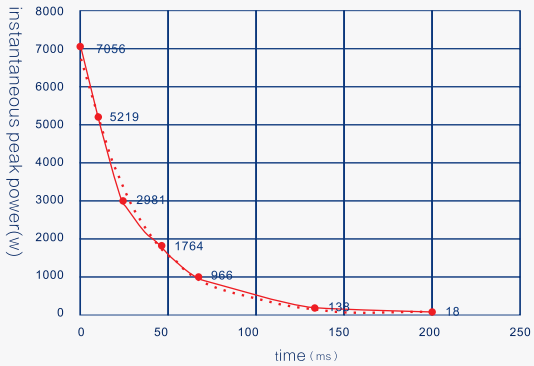
How to select the pre-charge resistor?

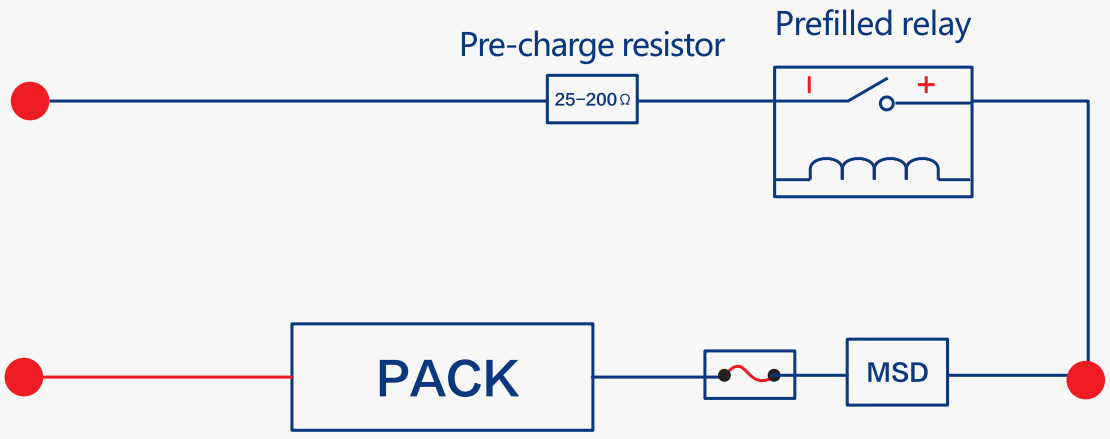
Traditional selection:

Based on the single pre-charge energy and the pre-charge completion time, the resistance power is calculated. The pre-charge instantaneous impact energy is not consided.

Consequence:

The influence of peak impulse power on resistance is not considered. The power selected by this method is typcially too large.





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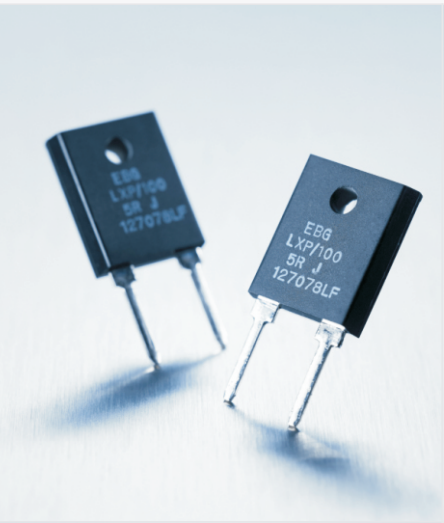
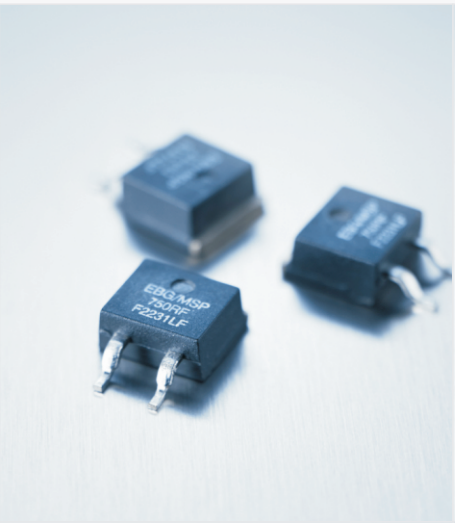
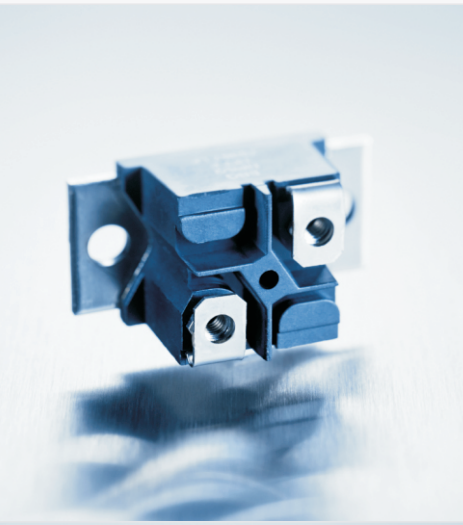
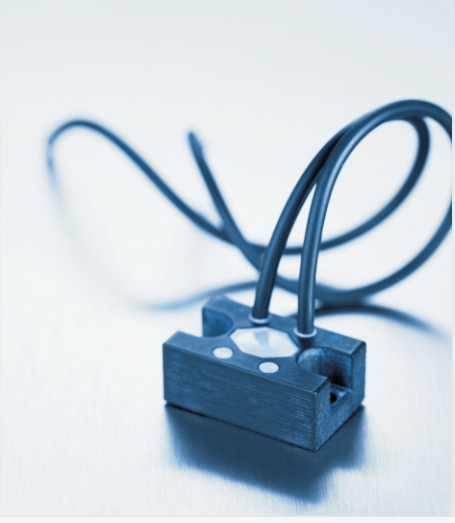
Passive dis-charge resistor









Examples of passive dis-charge application conditions:

DC voltage class: 300 / 380 / 400 / 650 VDC
Dis-charge time: < 120 s / 300 s
Dis-charge capacitance: 600 - 2400 uf
Common resistance: 20k / 27k / 47k / 50k / 100k, etc
Selection power: 25W/35W/100W/120W/150W

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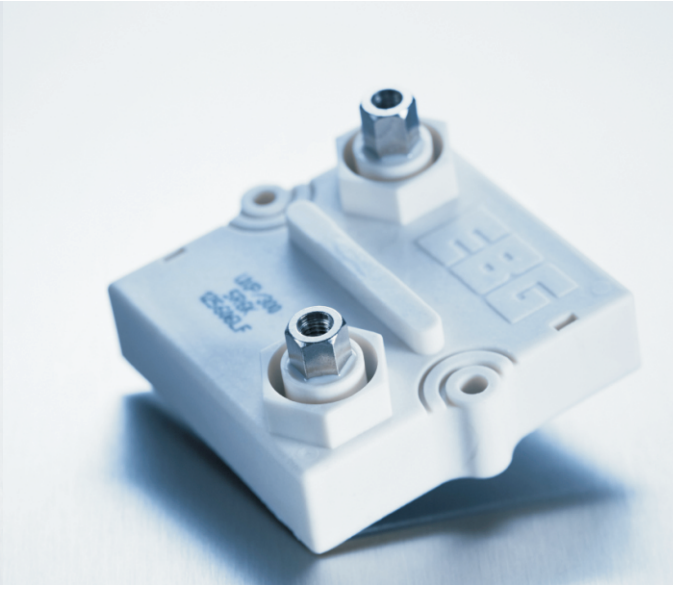
Active dis-charge resistor



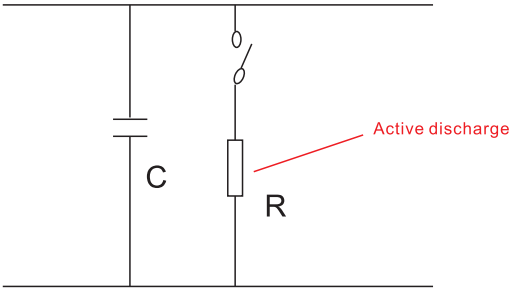
Example of active dis-charge application conditions:

DC voltage: 500 - 750V DC

Dis-charge time: < 3s / 5s

Dis-charge capacitance: 1400 uf

Dis-charge resistor: 390 Ω



EBG RESISTORS

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ESP/ECP Series High Pulse Load Resistors

- Can absorb high pulse energy within short period
- High thermal capacity, suitable for applications without air cooling (better performance with cooling)
- Non-inductive design with compact size, can withstand high temperature, show good stability
- Used in dumping, braking circuit etc.

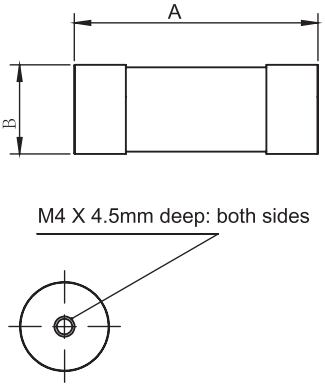
Technical characteristics:

- Use RC circuit for the resistor pulse load test, see below table for the parameters.
- High quality ceramic cylinder body with brass terminals for M4 screw mounting.
- Good pulse load capability.
- Materials in accordance with UL94-V0

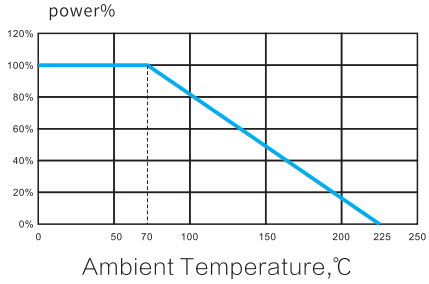
Specifications:

- Resistance: 10Ω～1KΩ（other values on request）
- Tolerance: ±5%～±10%
- TCR: ±250ppm/℃（25℃～105℃）
- Max impact voltage: 1500V
- Rated power: 70℃
- ESP62/20: 40W ESP62/14: 30W
- ECP52/18: 35W ECP52/14: 25W
- Installation: M4 screw, Max torque 3Nm

Model	Power 70°C（W）	Time constant=0.5S	Dim.（unit: mm）	
			A±0.5	φ B±0.5
ESP62/20	40	E=2800J	62.0	21.0
ESP62/14	30	E=2000J	62.0	15.0
ECP52/18	35	E=2200J	52.0	19.0
ECP52/14	25	E=1700J	52.0	15.0



Power derating curve



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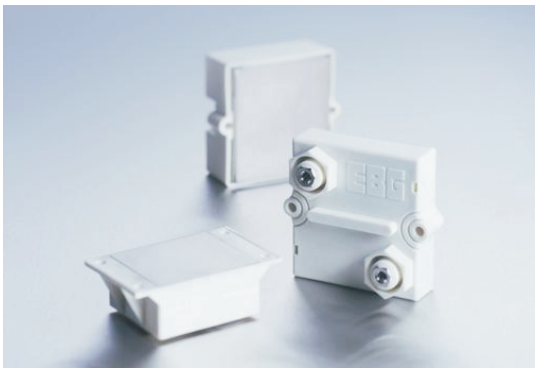
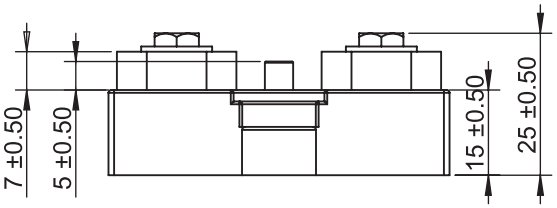
UXP250 High Power Resistors

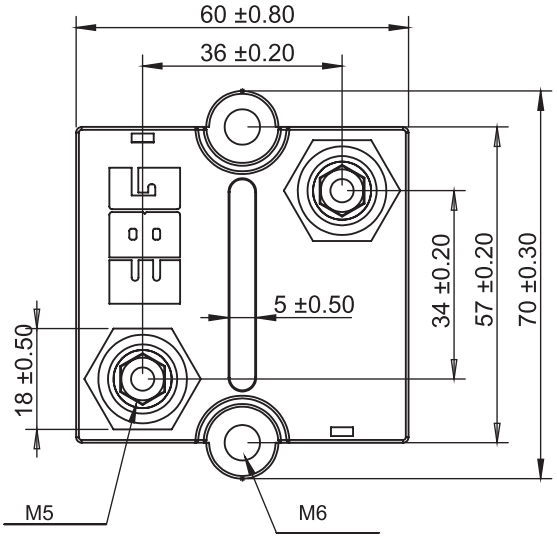
EBG standard type of high power resistors, for variable speed drive, power supply, control device, robotics, motor control applications etc.



Technical characteristics:

- 250W power rating, at BCT ≤85℃
- High alumina ceramic metallized on the top side with EBG Metoxfilm placed on a solid Al heat distribution plate for perfect connection to the main heat sink.
- Special resin filled epoxy casing with large creeping distance to mass, large air distance between the terminals and high insulation resistance (CTI 600)..
- Pulse load capability needs to be clarified with EBG
- Materials in accordance with UL94-V0

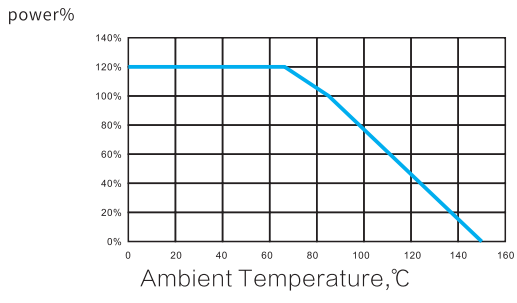




Specifications:

- Resistance: 0.5Ω ~ 1MΩ
- Tolerance: ±5% ~ ±10%
- TCR:±150ppm/°C (25°C ~ 105°C)
- 250W power rating at 85°C
- Max operating voltage: 5,000VDC.
- Short time overload: 400W,70°C,10S,ΔR≤ ±(0.4%R + 0.001Ω).
- Peak current: up to 1500Amp. Depending on pulse length and frequency.
- Dielectric strength: 6KVrms,50Hz,1min,8KVrms on request.
- Partial discharge: 3KVrms, <10pC;5KVrms on request.
- Insulation resistance: 10GΩ, Min at 500V.
- Creeping distance: 42mm, Min.
- Air distance: 14mm, Min.
- Cycle Life charge and discharge: ≥50K
- Moisture resistance: 56 days/40℃,RH≥95%,ΔR≤ ± (0.25%R + 0.001Ω).
- Thermal cycling: -55°C/+125°C(0.5h each), 5 cycles,ΔR≤ ±(0.2%R + 0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204, Cond.D, ▵R ≤ ±(0.2%R+ 0.001Ω).
- Working temperature: -55°C ~ +150°C
- Contact terminal: M4 screw, Max torque 2Nm.
- Resistor installation: M6 screw, Max torque 1.8Nm.

Power derating curve (power VS BCT)



Remark：derating slope (thermal resistance) :3.84W/°K (0. 26°K/W)
Refer to "EBG power resistor cooling requirements"

EBG RESISTORS

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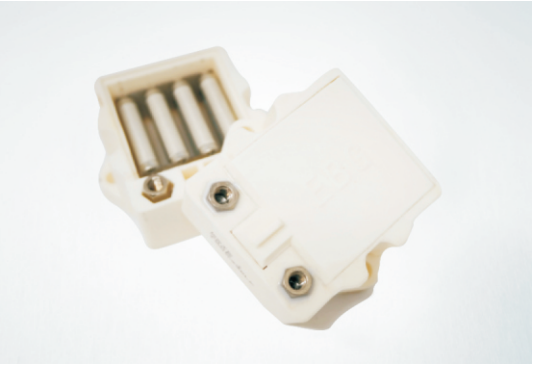
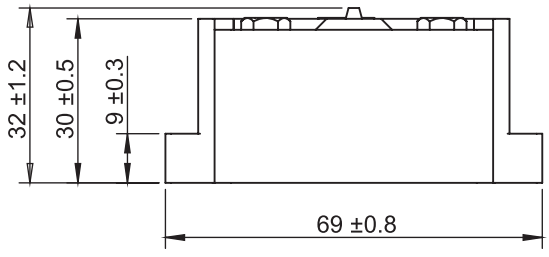
RST5 Pre-charge Resistance

This special pre-charge resistor is developed and certified according to automotive standards and can meet the pre-charing conditions of various voltage grades. It has the advantage of large heat capacity, small package and high reliability. It is used in the pre-charge of busses and passenger cars.



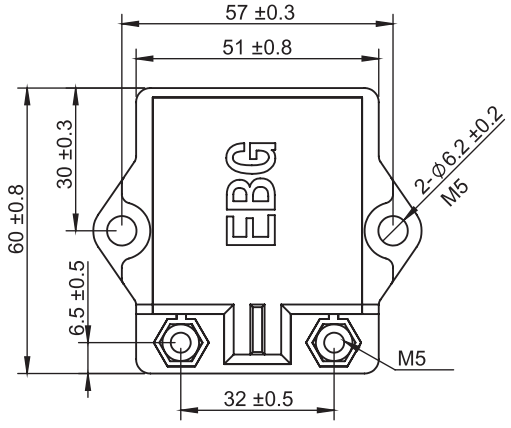
Technical characteristics:

- 100W power rating, at BCT ≤85℃
- Good pulse load capability and can withstand short circuit overload and short circuit in a short time
- Good pre-charge characteristics

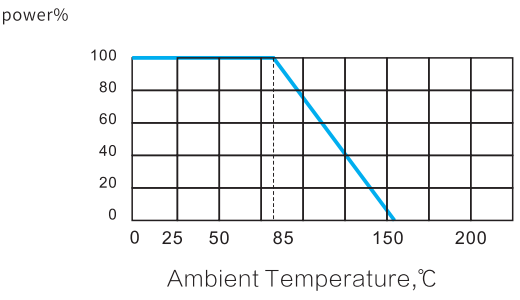


Specifications:

- Resistance: 25Ω ~ 200Ω
- Tolerance: ±5% ~ ±10%
- TCR:≤ ±150ppm/°C (25°C～105°C)
- 100W power rating at 85°C
- Working voltage: ≤1,000VDC (pre-charging voltage) .
- Short time overload: 2800W,70°C,5s
- Dielectric strength: 5KVrms,50Hz,1min
- Insulation resistance: 1000V, Min at 1GΩ.
- Working temperature: -55°C ~ +150°C
- Contact terminal: M5 screw, Max torque 2Nm.
- Resistor installation: M5 screw, Max torque 3Nm.



Power derating curve (power VS BCT)



Remark: derating slope (thermal resistance) :3.84W/°K (0. 26°K/W)
Refer to"EBG power resistor cooling requirements"

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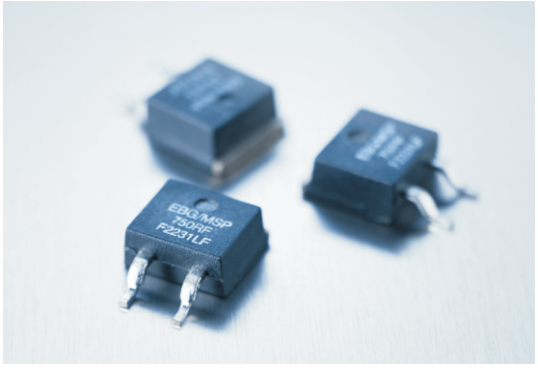
MHP35 SMD TO-220 Power Resistors

35 Watt thick film power resistor, non-inductive design



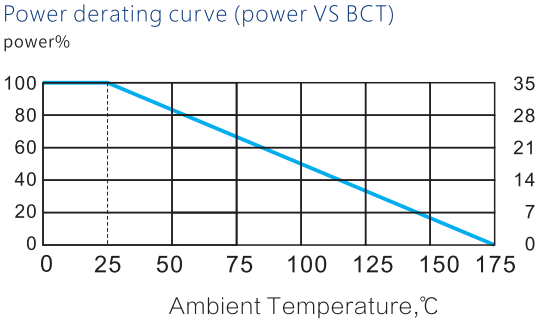
Technical characteristics:

- 35W power rating at 25°C
- SMD TO-220 package
- Thermal resistance to cooling plate , Rth< 4.28 °K/W.
- Resistor element is electrically insulated from the metal heat sink.
- Pulse load capability needs to be clarified with EBG

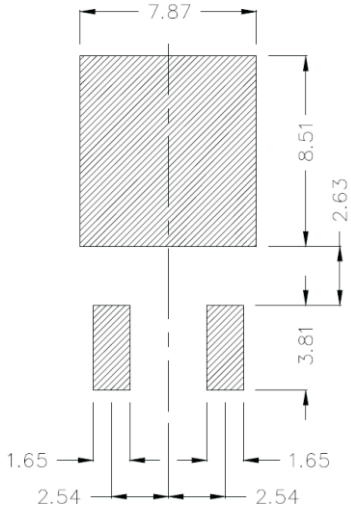
Specifications:

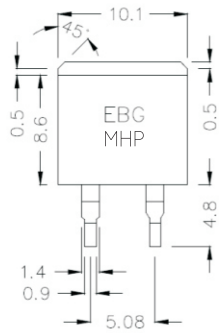
- Resistance: 0.2Ω~1MΩ
- Tolerance: ±1%~±10%
- TCR: ±50ppm/°C (25°C~105°C)
- 35W power rating at 25°C
- Max operating voltage: 350VDC.
- Dielectric strength: 1,800VAC
- Insulation resistance: 10GΩ, min.
- Momentary overload: 2 times rated power, but no more than 1.5 times Max continuous operating voltage, last 5s,ΔR≤±(0.3%R+0.001Ω).
- Load life: 2,000 hours at rated power,MIL–R–39009D ΔR≤±(1.0%R+0.001Ω).
- Moisture resistance: MIL–Std–202, method 106, ΔR≤±(0.5%R+0.001Ω).
- Thermal shock: MIL–Std–202, method 107, Cond.F, ΔR≤±(0.3%R+0.001Ω).
- Terminal strength: MIL–Std–202,method 211,Cond.A, (pull test)2.4N, ΔR≤±(0.2%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204, Cond.D,ΔR ≤±(0.2%R+0.001Ω).
- Working temperature: -55°C~+175°C
- Lead material: nickel-plated copper, dip-tinned.

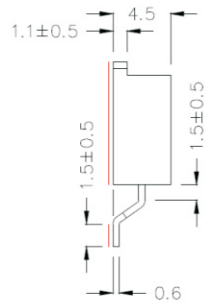
Power derating curve (power VS BCT)



Remark: 1, derating slope (thermal resistance) : 0.23W/°K(4.28°K/W)
Refer to "EBG power resistor cooling requirements"







EBG RESISTORS

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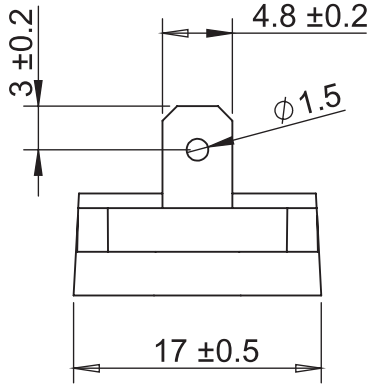
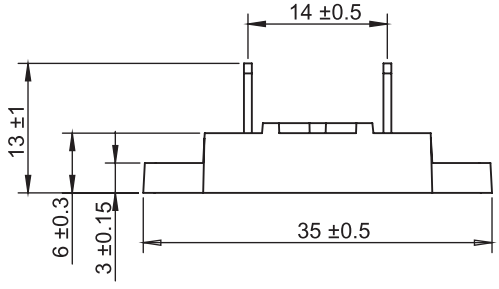
ACP 25 Low Power Resistors

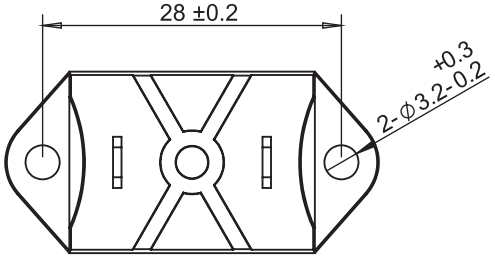
This thick-film EBG resistor is suited for lower power applications and comes in a molded package. Suitable for variable speed drives, control devices, communications, automatic control, etc.

Technical characteristics:

- 25W rated power, BCT≤50°C
- Insert the port with the 187 standard
- M3 screw flange plate。





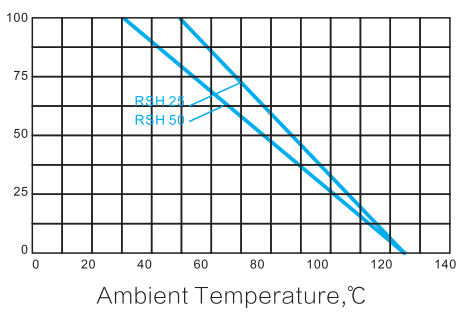


Specifications:

- Resistance: 0.24Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/°C(25°C ~ 105°C)
- Rated power: 25W at50°C
- Max. Oper.voltage: 1000VDC,
- Dielectric strength: 3,500VDC
- Load life: 1000 hours at rated power, BCT at 85℃, ▵R≤±(0.5%R+0.001Ω).
- Moisture resistance: 56 days /40℃,RH≥95%，△R≤±(0.5%R+0.001Ω).
- Thermal shock: MIL-Std-202, method 107,Cond.F,▵R≤±(0.3%R+0.001Ω).
- Terminal strength: MIL–Std–202,method 211,Cond.A,(pull test)2.4N, ΔR≤±(0.2%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204,Cond.D, ▵R≤±(0.2%R+0.001Ω).
- Working temperature: -55°C ~ +125°C
- Base plate installation: M3 screw, Max. torque 0.7Nm.

Power derating curve (power VS BCT)

power%



Remark:Derating slope (thermal resistance): 2.22W/°K (0.45°K/W), refer to "EBG power resistor cooling requirements"

EBG RESISTORS

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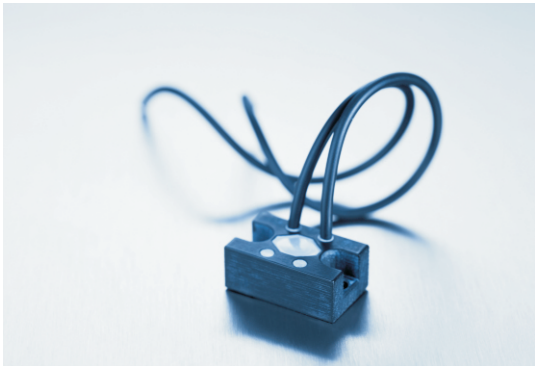
Series AXP-50

50 W Power Resistor with four wire terminals

The new design with its non-inductive thick film Metal Oxide Technology prevents potential problems with clearance and creepage distance from terminal to base plate by means of flexible connecting leads.

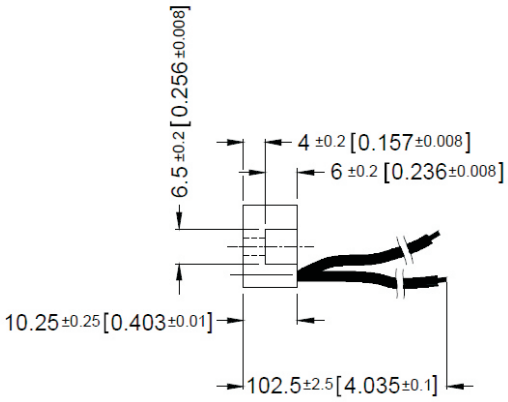
This unique design allows you to use this elements in the following areas:variable speed drives, power supplies, control devices,telecommunications,robotics,motor controls and other switching devices.

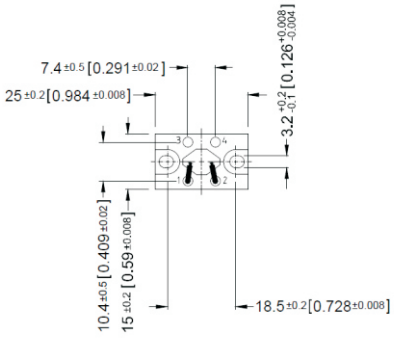


Features :

- Multiple resistors in 1 package
- Non-Inductive design
- ROHS compliant
- Materials in accordance with UL 94 V-0

- Resistance value：1Ω~1MΩ
- Resistance tolerance: ±1%~±10%
- TCR: ±50ppm/℃~±250ppm/℃ (25℃~105℃)
- Power rating：up to 50 W at 85℃ bottom case temperature(see configurations)
- Maximum working voltage: 500 V
- Electric strength voltage: 5 kV DC between terminal and case
- Internal electric strength between Ri&R2: 5kVDC
- Isolation voltage between R1&R2: 500 V (higher on special request)
- Working temperature: -55°C~+155°C
- Mounting—torque: 1.0 Nm to 1.2 Nm
- Standard cable length: 100 mm (other lengths on special request)
- Standard cable type: 4GKW, 0.5 mm², black
- Weight: ~22 g

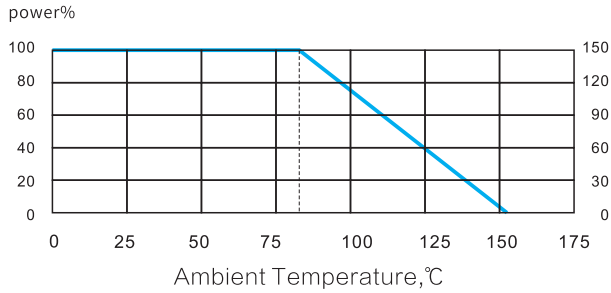




Suggested Mounting Procedure:

1.) Position component and press down by hand
2.) Fix both mounting screws (M3) with 0.1 to 0.2 Nm torque
3J Apply final torque to mounting screws of 1.0 to 1.2 Nm

Power derating curve (power VS BCT)



Derating (thermal resist.) AXP-50:
0.995 W/K (1.005 K/W) (for conf. 1, 2 and 3)

EBG RESISTORS

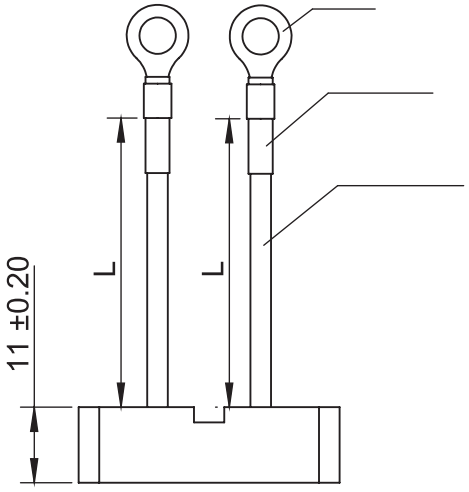
A Miba Group Company

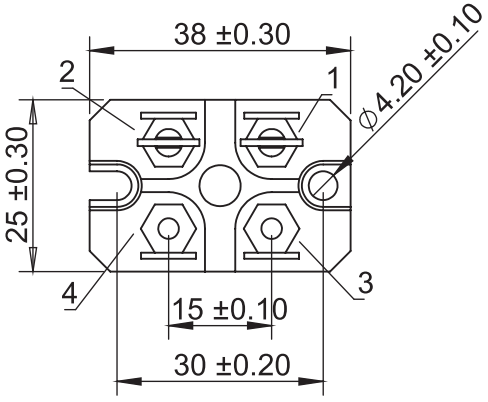
AXP 120 Flat Power Resistors

EBG general medium power resistance. Main applications are: Variable speed Drives, Power Supplies, Control Devices, Telecom, Robotics, Motor Controls and other switching designs.Specials and custom designed components on request.

Technical characteristics:

- 120W rated power, BCT≤85°C, single resistor configuration.
- SOT227 mould package, M4 screw flange plate。
- 4 terminals, 6 configurations available.
- Pulse load capability needs to be clarified with EBG

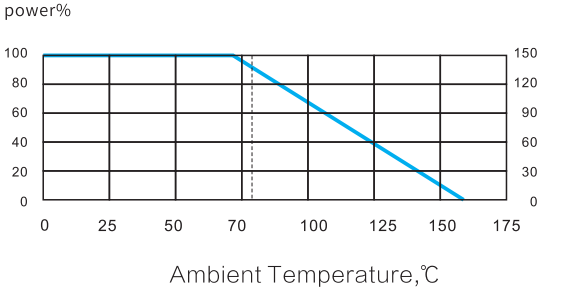




Specifications:

- Resistance: 0.5Ω~1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/℃ ~ ±250ppm/℃ (25℃~105℃)
- Max. working voltage: 1500V
- Rated power: 120W, at 70℃ BCT.
- Dielectric strength: 5KVDC, 3KVAC
- Load life: 1000 hours at rated power, BCT at 85℃, ▵R≤± (1.0%R+0.001Ω).
- Moisture resistance: 56 days /40℃,RH≥95%, ▵R≤± (0.25%R+0.001Ω).
- Thermal shock: MIL-Std-202, method 107,Cond.F,▵R≤± (0.25%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204,Cond.D, ▵R≤±(0.2%R+0.001Ω).
- Working temperature: -55°C ~ +155°C
- Base plate installation: M4 screw, Max. torque 1.3Nm.
- Contact terminal: M4 screw, Max. torque 1.0Nm.

Power derating curve (power VS BCT)



Remarks: power derating curve slope (thermal resistance):1.42W/°K (0.70°K/W) (for conf. 1, 2 and 3)
Refer to "EBG power resistor cooling requirements"

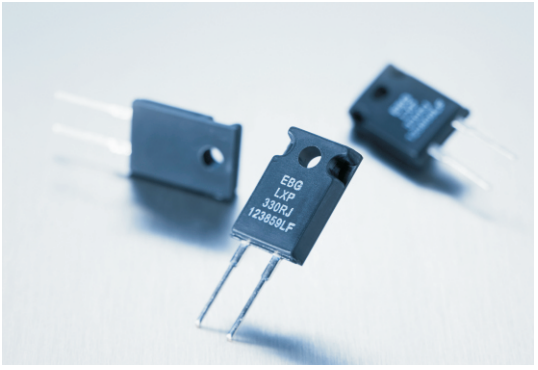
EBG RESISTORS

A Miba Group Company

LXP30 TO-220 Package Power Resistors

30 Watt Thick Film Power Resistors for High Frequency and Pulse Loading Applications

EBG offers the totally encapsulated and insulated TO-220 package for low ohmic value and non-inductive design for high frequency and pulsing applications. Ideal use is for power supplies. This series is rated at 30 Watts mounted to a heat sink.



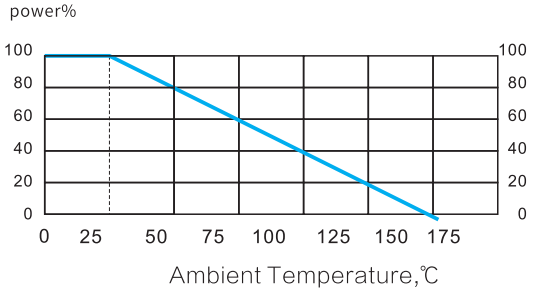
Technical characteristics:

- 30 Watt power rating at 25°C case temperature.
- Standard TO-220 mould package, Single screw mounting simplifies
- Non-inductive design..
- Fully isolated heat sink
- Pulse load capability needs to be clarified with EBG

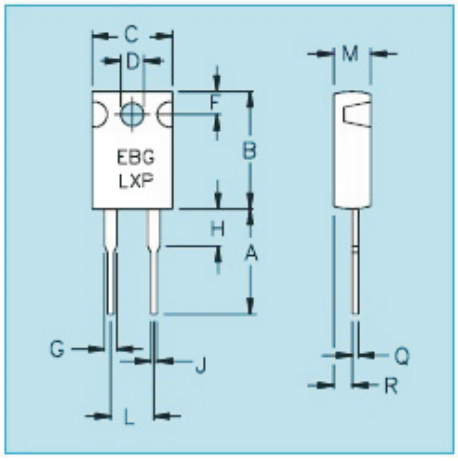
Specifications:

- Resistance: 0.2Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10% (±0.5% on request)
- TCR: ±50ppm/°C （25°C ~ 105°C）
- Rated power: 30W at 25°C
- Max operating voltage: 420VDC。
- Dielectric strength: 1,800VAC
- Insulation resistance: 10GΩ, min
- Momentary overload: 2 times rated power, but no more than 1.5 times Max continuous operating voltage, last 5s,ΔR≤±(0.3%R+0.001Ω).
- Load life: 2000 hours at rated power, MIL–R–39009D ΔR≤±(1.0%R+0.001Ω).
- Moisture resistance: MIL–Std–202, method 106， ΔR≤±(0.5%R+0.001Ω).
- Thermal shock: MIL–Std–202， method 107, Cond.F,ΔR≤±(0.3%R+0.001Ω).
- Terminal strength: MIL–Std–202， method 211,Cond.A,(pull test)2.4N, ΔR≤±(0.2%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202,method 204,Cond.D, ΔR ≤±(0.2%R+0.001Ω).

Power derating curve (power VS BCT)



Remark：1,derating slope (thermal resistance): 0.24W/°K(4.17°K/W)Refer to"EBG power resistor cooling requirements"
2,without heat sink, at 25°C, LXP30 rated power is 2.25W，derating at 0.018W/°K above 25°C.



Dim.	Min (mm)	Max(mm)
A	11.43	13.97
B	16.00	16.52
C	10.15	10.67
D	3.08	3.28
F	2.92	3.44
G	1.14	1.40
H	2.54	4.06
J	0.66	0.86
L	4.82	5.34
M	2.92	3.44
Q	0.40	0.60
R	1.52	2.04

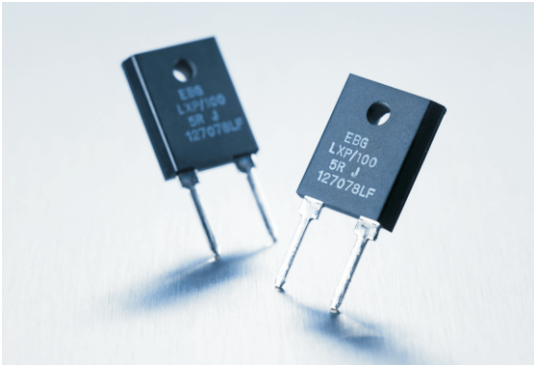
EBG RESISTORS

A Miba Group Company

LXP100 TO-247 Package Power Resistors

100 Watt Thick Film Power Resistors for High Frequency and Pulse Loading Applications

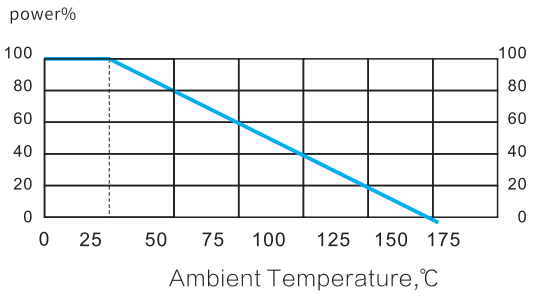
EBG offers the totally encapsulated and insulated TO-247 package for low ohmic value and non-inductive design for high frequency and pulsing applications. Ideal use is for power supplies. This series is rated at 100 Watts mounted to a heat sink.



Technical characteristics:

- 100 Watt power rating at 25°C case temperature.
- Standard TO-247 model package, Single screw mounting simplifies
- Non-inductive design..
- Fully isolated heat sink
- Pulse load capability needs to be clarified with EBG

Power derating curve (power VS BCT)

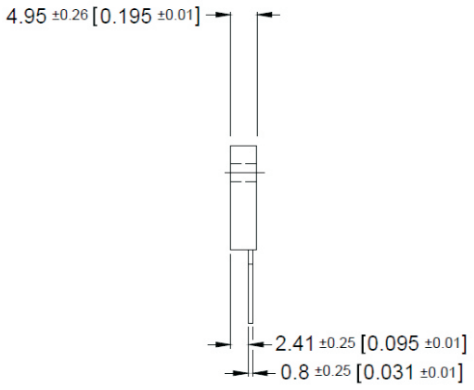


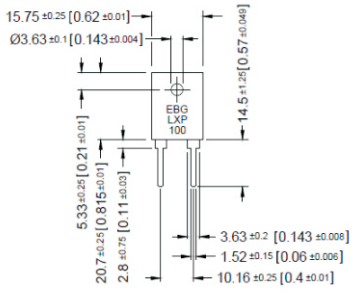
1.derating slope (thermal resistance) : 0.6667W/°K(1.5°K/W)Refer to "EBG power resistor cooling requirements"
2.without heat sink at 25°C, LXP100 rated power is 3.5W,above 25°C derating is 0.02W/°K.

Specifications:

- Resistance:0.2Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10% (±0.5% on request)
- TCR: ±50ppm/°C (25°C ~ 105°C)
- Rated power: 100W at 25°C
- Max operating voltage: 700VDC.
- Dielectric strength: 1,800VAC
- Insulation resistance: 10GΩ, min.
- Momentary overload: 2 times rated power, but no more than 1.5 time Max continuous operating voltage, last 5s,ΔR≤±(0.3%R+0.001Ω).
- Load life: 2,000 hours at rated power, MIL–R–39009D ΔR≤±(1.0%R+0.001Ω).
- Moisture resistance: MIL–Std–202, method 106,ΔR≤±(0.5%R+0.001Ω).
- Thermal shock: MIL–Std–202, method 107,Cond.F,ΔR≤±(0.3%R+0.001Ω).
- Terminal strength: MIL–Std–202, method211,Cond.A,(pull test)2.4N, ΔR≤±(0.2%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204,Cond.D, ΔR≤±(0.2%R+0.001Ω).
- Working temperature: -55°C ~ +175°C
- Lead material: tinned copper
- Installation: M3 screw, Max torque 0.9Nm.

[ ] : Dimensions in inches





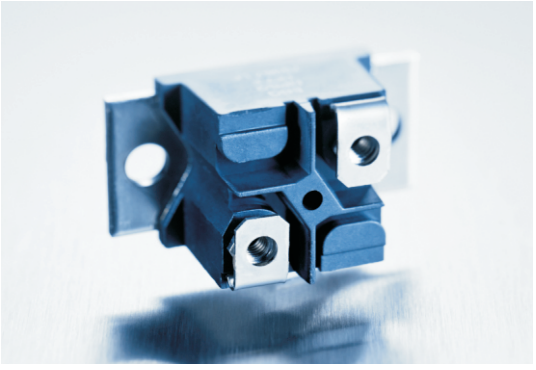
EBG RESISTORS

A Miba Group Company

HPS 150 Series – Increased Creepage Distance

Non-Inductive 150 Watt Power Resistor according to VDE 0160 and UL 94V-0

EBG's series HPS is rated at 150 Watts mounted to a heat sink. The increased height of the package makes this resistor ideal in applications where creeping distance must meet VDE 0160 and UL 094-V0 standards.

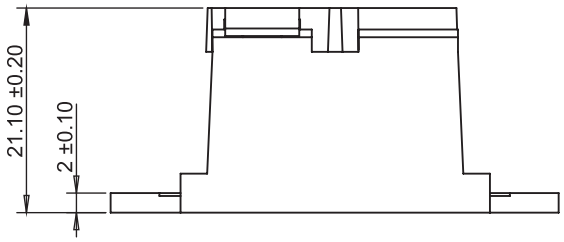


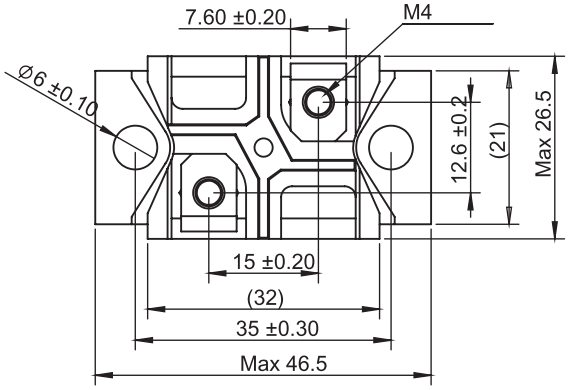
Technical characteristics:

- Rated power: 150W, BCT ≤85°C.
- Long creeping distance (refer to below).
- 2 terminal contacts, M4 screw installation.
- Pulse load capability needs to be clarified with EBG

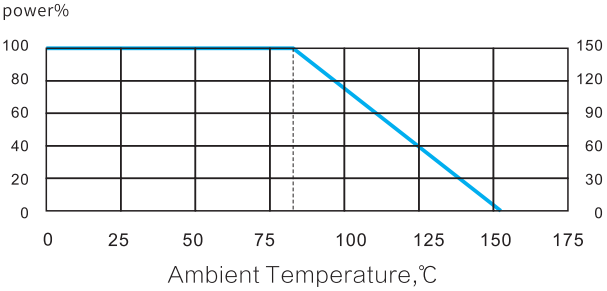
Specifications:

- Resistance: 1Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/°C(25°C ~ 105°C)
- Rated power: 150W at 85°CMax. operating voltage: 500VDC,(1000VDC on request)
- Dielectric strength: 5,000VDC 3,000VAC
- Load life: 1000 hours at rated power,BCT=85℃, ▵R≤±(1.0%R+0.001Ω).
- Moisture resistance: 56 days /40℃,RH≥95%, △R≤±(0.25%R+0.001Ω)。
- Thermal shock: MIL-Std-202,method 107,Cond.F,△R≤±(0.3%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204,
- Condition D, ▵R≤±(0.2%R+0.001Ω)。
- Contact terminal installation:M4 screw, Max. torque 1.3Nm.
- Base plate installation: M5 screw, Max.torque 1.5Nm
- Working temperature range: -55°C～+155°C





Power derating curve (power VS BCT)



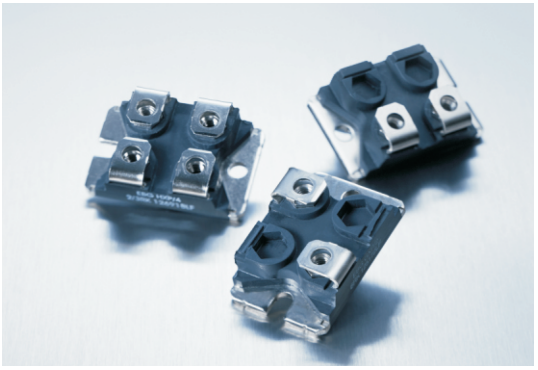
Remark: derating curve slope (thermal resistance): 2.14W/°K(0.47°K/W)
Refer to "EBG power resistor cooling requirements"

EBG RESISTORS

A Miba Group Company

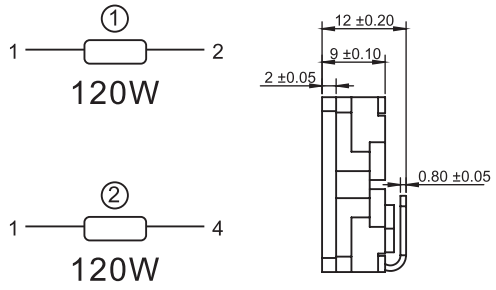
GXP 120 SOT-227 Flange Plate Power Resistors

EBG general medium power resistance . Main applications are: Variable speed Drives, Power Supplies, Control Devices, Telecom, Robotics, Motor Controls and other switching designs.Specials and custom designed components on request.



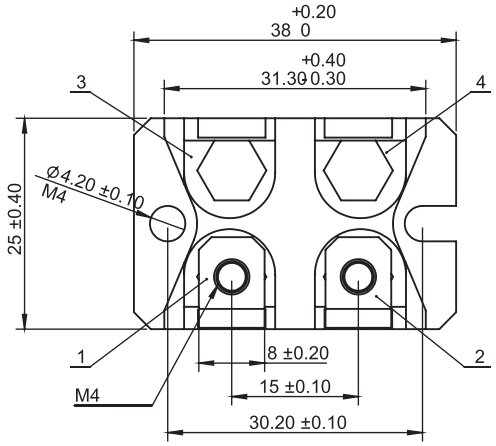
Technical characteristics:

- 120W rated power, BCT≤85°C, single resistor configuration.
- SOT227 mould package, M4 screw flange plate。
- 4 terminals, 6 configurations available.
- Pulse load capability needs to be clarified with EBG

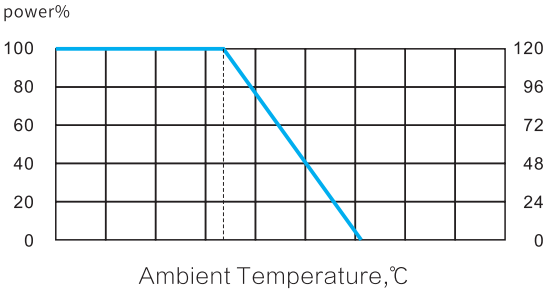


Specifications:

- Resistance: 0.1Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/°C(25°C ~ 105°C)
- Rated power: 120W at85°C
- Max. Oper.voltage: 500VDC,(1000VDC on request)
- Partial discharge: on request.
- Dielectric strength: 4,000VDC
- Load life: 1000 hours at rated power, BCT at 85°C, ▵R≤± (1.0%R+0.001Ω).
- Moisture resistance: 56 days /40°C,RH≥95% , △R≤ ± (0.25%R+0.001Ω).
- Thermal shock: MIL-Std-202, method 107,Cond.F,▵R≤± (0.3%R+0.001Ω).
- Vibration, high frequency: MIL–Std–202, method 204,Cond.D, ▵R≤±(0.2%R+0.001Ω).
- Working temperature: -55°C ~ +155°C
- Base plate installation: M4 screw, Max. torque 1.5Nm.
- Contact terminal: M4 screw, Max. torque 1.3Nm.



Power derating curve (power VS BCT)



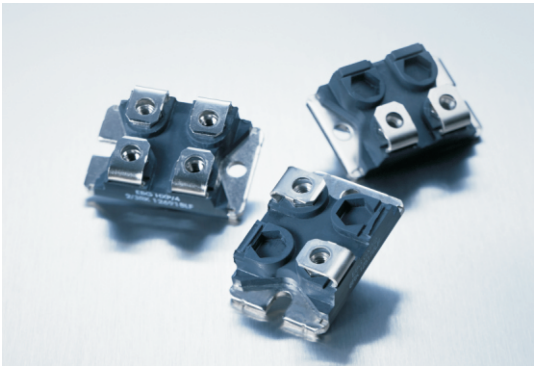
Derating slope (thermal resistance): 2.22W/°K (0.45°K/W), refer to "EBG power resistor cooling requirements"

EBG RESISTORS

A Miba Group Company

HXP 200 SOT-227 Flange Plate Power Resistors

EBG general medium power resistance. Main applications are: Variable speed Drives, Power Supplies, Control Devices, Telecom, Robotics, Motor Controls and other switching designs.Specials and custom designed components on request.

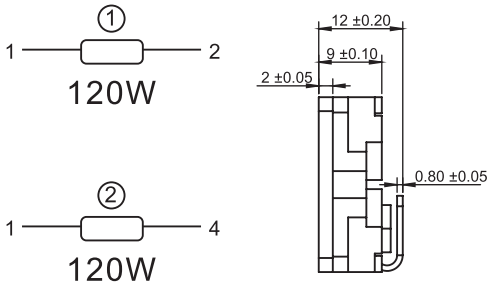


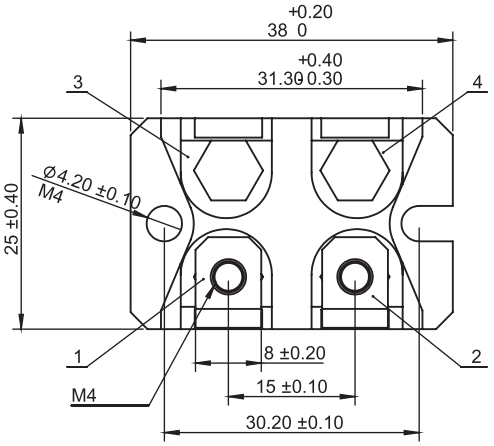
Technical characteristics:

- 200W rated power, BCT≤85°C, single resistor configuration.
- SOT227 package with flange plate, M4 screw mounting.
- 4 contact terminals, 5 internal configurations.
- Pulse load capability needs to be clarified with EBG

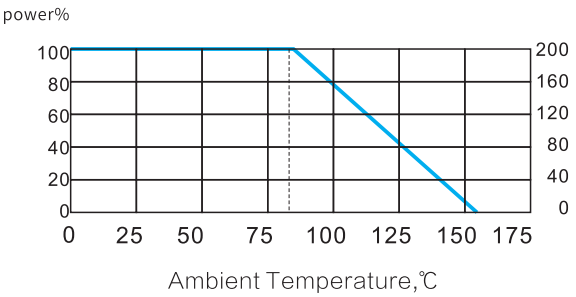
Specifications:

- Resistance: 0.1Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/°C(25°C ~ 105°C)
- Rated power: 200W at 85°C
- Max. operating voltage: 500VDC,(1000VDC on request)
- Partial discharge: on request
- Dielectric strength: 4,000VDC
- Load life: 1000 hours at rated power, BCT=85℃, ▵R≤±(1.0%R+0.001Ω).
- Moisture resistance: 56 days /40℃,RH≥95%,△R≤±(0.25%R+0.001Ω).
- Thermal shock: MIL-Std-202,method 107,Cond.F,▵R≤±(0.3%R+0.001Ω).
- Vibration: MIL–Std–202, method 204,Cond.D,▵R≤±(0.2%R+0.001Ω).
- Working temperature range: -55°C ~ +155°C
- Base plate installation:M4 screw, Max. torque 1.5Nm
- Contact installation: M4 screw, Max. torque 1.3Nm.





Power derating curve (power VS BCT)



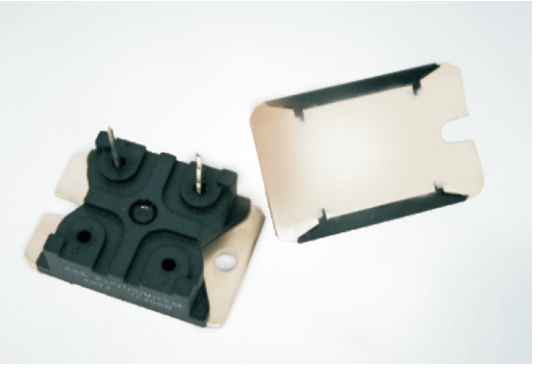
Remark: thermal resistance: 2.86W/°K(0.35°K/W)Refer to "EBG power resistor cooling requirements"

EBG RESISTORS

A Miba Group Company

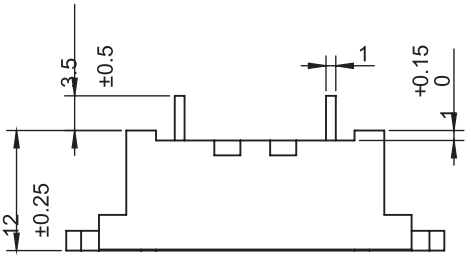
PXP 200 SOT-227 Flange Plate Power Resistors

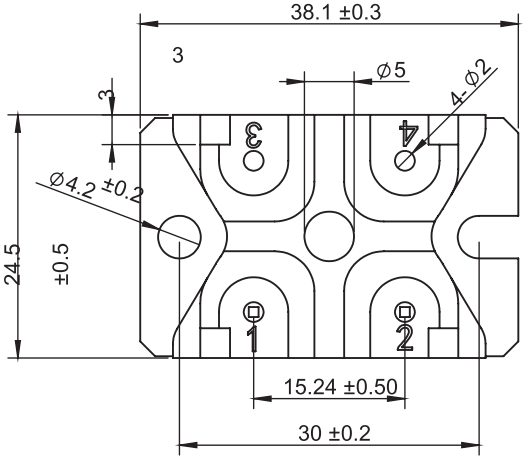
EBG general medium power resistance,. Main applications are: Variable speed Drives, Power Supplies, Control Devices, Telecom, Robotics, Motor Controls and other switching designs.Specials and custom designed components on request.



Technical characteristics:

- 200W rated power, BCT≤85°C, single resistor configuration.
- 4 contact terminals, 5 internal configurations.
- Pulse load capability needs to be clarified with EBG

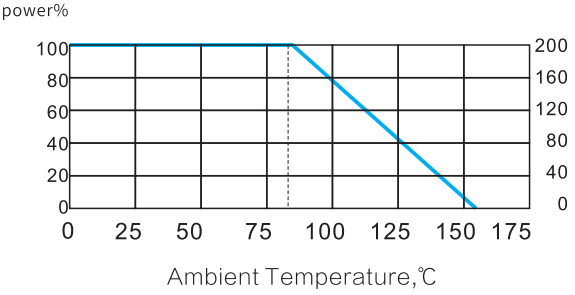




Specifications:

- Resistance: 0.1Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±50ppm/°C(25°C ~ 105°C)
- Rated power: 200W at 85°C
- Max. operating voltage: 500VDC,(1000VDC on request)
- Partial discharge: on request
- Dielectric strength: 4,000VDC
- Load life: 1000 hours at rated power, BCT=85℃, ▵R≤±(1.0%R+0.001Ω).
- Moisture resistance: 56 days /40℃,RH≥95%,△R≤±(0.25%R+0.001Ω).
- Thermal shock: MIL-Std-202,method 107,Cond.F,▵R≤±(0.3%R+0.001Ω).
- Vibration: MIL–Std–202, method 204,Cond.D,▵R≤±(0.2%R+0.001Ω).
- Working temperature range: -55°C ~ +155°C
- Base plate installation:M4 screw, Max. torque 1.5Nm
- Contact installation: M4 screw, Max. torque 1.3Nm.

Power derating curve (power VS BCT)



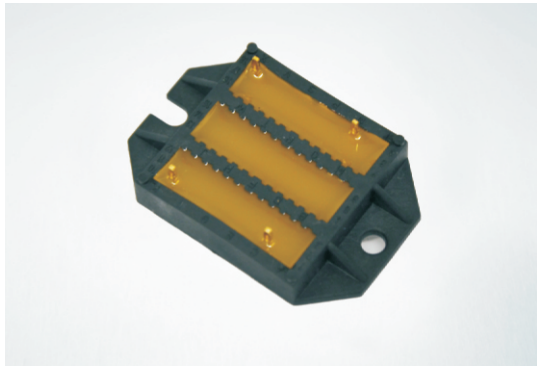
Remark: thermal resistance: 2.86W/°K(0.35°K/W)Refer to "EBG power resistor cooling requirements"

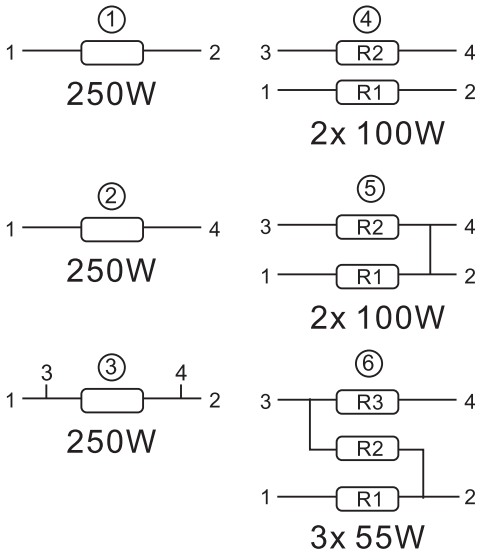
EBG RESISTORS

A Miba Group Company

LPP-250 With Press Pins

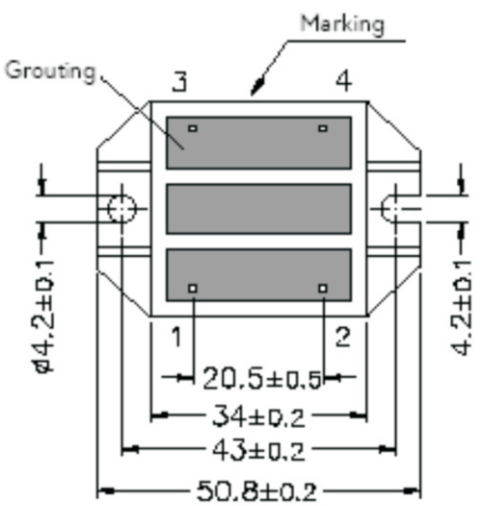
250 W at 85°C bottom case

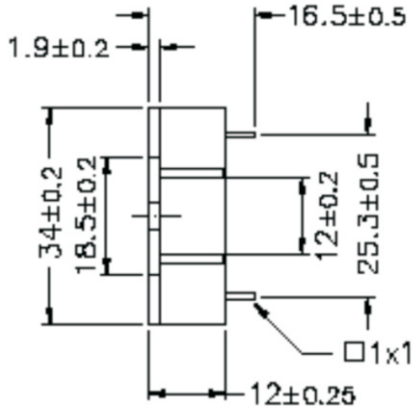




Specifications:

- Resistance: 0.1Ω ~ 1MΩ
- Tolerance: ±1% ~ ±10%
- TCR: ±250ppm/°C(other on request)
- Rated power: 250 W at 85°C; derating to 0 W at 150°C
- Max.operating voltage: 500VDC,(higher voltage on request)
- Partial discharge: 2kVrms, <80PC
- Electric strength voltage:Dielectric strength up to 4,000VDC against ground
- Insulation resistance:10GΩ min.at 1KV
- Short time overload: 1.25 x rated power at 85℃ bottom case temp.for 10 sec,ΔR≤±0.4%R
- Working temperature range: -55°C~+150°C





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