



# Certificate of Compliance

**Certificate:** 80154981

**Master Contract:** 303537

**Project:** 80154981

**Date Issued:** 2023-03-26

**Issued To:** Vicor Corporation  
25 Frontage Rd  
Andover, Massachusetts, 01810  
United States

**Attention:** Mr. Daniel Clarkson

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



**Issued by:** Wei Sheng Wu  
Wei Sheng Wu

## **PRODUCTS**

CLASS - C531167 - POWER SUPPLIES - Component Type (CSA 62368-1)

CLASS - C531197 - POWER SUPPLIES - Component Type (UL 62368-1) - Certified to US Stds

DC-DC converter -

Model: DCMaaaaTcccwxyzz (Where aaaa = 3623 or 2323; ccc = A5K, A5N, 72S or 50T; ww = 04, 06, 13, 15, 17, 26, 31, or 53; xx = 35, 40, 50, 60, 80, A0, A2, B4 or C0; y = C, T or M; zz = Any two alphanumeric combination)

Type: DCM3623 / DCM2322 Railway Series

Input Voltage:

(DCM2322 series) DC 30V, 43V, 100V or 110V

(DCM3623 series) DC 100V or 110V

Output Voltage:

DC 3.3V, 5.0V, 12.0V, 13.8V, 15.0V, 24V, 28V, or 48V

Output Power:

(DCM3623 series) 300W Max.

(DCM2322 series) 120W Max.

See Product Description and Attachment 2 "Derating Chart" for additional model information and electrical ratings



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**Note:**

The subject Component Power Supplies are for use with Audio, Video, Information Technology Equipment and Telecommunication Equipment where the suitability of the combination is to be determined.

**APPLICABLE REQUIREMENTS**

- CAN/CSA-C22.2 No. 62368-1:14 - Audio/video, information and communication technology equipment – Part 1: Safety requirements
- UL 62368-1 2<sup>nd</sup> Ed. - Audio/video, information and communication technology equipment – Part 1: Safety requirements

**Notes:**

Products certified under Class C531167 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). [www.scc.ca](http://www.scc.ca)





## *Supplement to Certificate of Compliance*

**Certificate:** 80154981

**Master Contract:** 303537

*The products listed, including the latest revision described below,  
are eligible to be marked in accordance with the referenced Certificate.*

### **Product Certification History**

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| <b>Project</b> | <b>Date</b> | <b>Description</b>   |
|----------------|-------------|--|
| 80154981       | 2023-03-26  | Original certification for model DCMaaaaTcccwwxyzz, type DCM 3623 Railway Series and DCM 2322 Railway Series |



# Descriptive Report

**MASTER CONTRACT:** 303537

**REPORT:** 80154981

**PROJECT:** 80154981

**Edition 1:** March 26, 2023; Project 80154981 - Toronto  
Prepared and Authorized By: Wei Sheng Wu

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Supplement to Certificate of Compliance – Page 1  
Description and Tests - Pages 1 to 8  
Attachment 1 – Photo - Page 1 to 2  
Attachment 2 – Derating Chart - Page 1 to 15

## PRODUCTS

CLASS 5311 67 - POWER SUPPLIES - Component Type (CSA 62368-1)

CLASS 5311 97 - POWER SUPPLIES - Component Type (UL 62368-1) - Certified to U.S. Standard

DC-DC converter -

Model: DCMaaaaTcccwxyzz (Where aaaa = 3623 or 2323; ccc = A5K, A5N, 72S or 50T; ww = 04, 06, 13, 15, 17, 26, 31, or 53; xx = 35, 40, 50, 60, 80, A0, A2, B4 or C0; y = C, T or M; zz = Any two alphanumeric combination)

Type: DCM3623 / DCM2322 Railway Series

Input Voltage:

(DCM2322 series) DC 30V, 43V, 100V or 110V

(DCM3623 series) DC 100V or 110V

Output Voltage:

DC 3.3V, 5.0V, 12.0V, 13.8V, 15.0V, 24V, 28V, or 48V

Output Power:

(DCM3623 series) 300W Max.

(DCM2322 series) 120W Max.

See Product Description and Attachment 2 “Derating Chart” for additional model information and electrical ratings.

Note:

The subject Component Power Supplies are for use with Audio, Video, Information Technology Equipment and Telecommunication Equipment where the suitability of the combination is to be determined.

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## **APPLICABLE REQUIREMENTS**

- CAN/CSA-C22.2 No. 62368-1:14 - Audio/video, information and communication technology equipment – Part 1: Safety requirements
- UL 62368-1 2<sup>nd</sup> Ed. - Audio/video, information and communication technology equipment – Part 1: Safety requirements

## **MARKINGS**

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

### **PART 1: Minimum Markings:**

Marking Method: (For Minimum Markings)

Laser carving.

Required Information: (For Minimum Markings)

- The submitter's name and/or Master Contract Number "303537" and/or Trademark;  
Note: If the file number or Master Contract number are used as the submitter's identification, they shall be located adjacent to the CSA Mark.
- Model or identifying designation;
- Date of manufacture, serial number or date code traceable to month and year of manufacture;
- The CSA Monogram and an appropriate indicator as applicable;
- For Use in Canada and the U.S.: CSA Monogram with "C/US" or "NRTL/C"

### **PART 2: Additional Markings and Documentation: (Due mainly to safety issues)**

Complete electrical rating in volts and watts in specification sheet

## **Nameplate adhesive label material approval information:**

N/A, Laser carving.

## **ALTERATIONS**

Markings as above appear on each unit.

**FACTORY TESTS**

[X] Production-line Dielectric Voltage-Withstand Test:

- (a) Only ac values are specified. As an alternative, the equivalent dc voltage (1.414 times the ac voltage) may be used.
- (b) The factory test may be done at existing room temperature.

For Double Insulated Units (Class II) Up to 130V Not Having Exposed Metal Parts: The equipment at the conclusion of manufacture, before shipment, shall withstand for one sec, without breakdown, the application of 1950V dc between live parts Input and Outputs.

Transformers - N/A

Warning:

The factory test(s) specified may present a hazard of injury to personnel and/or property and should only be performed by persons knowledgeable of such hazards and under conditions designed to minimize the possibility of injury.

**CONDITIONS OF ACCEPTABILITY**

1. Maximum output power and case temperature. See attached thermal curves for maximum operating conditions for each package size and voltage rating.
2. The Input is considered to be a non-MAINS ES1 or ES3 with a maximum Transient Voltage of 1500V and separated from MAINS by double or reinforced insulation.
3. Models with a Vin range below ES3 levels were evaluated for ES3 insulation/isolation requirements.
4. Nominal Output voltages ranging from 3.3V to 28.0V are considered ES1.
5. A Nominal Output voltage of 48.0V is considered ES2 due to a single fault condition that causes the output overvoltage protection to activate.
6. The Output is separated from the Input by a Reinforced Safeguard
7. The DCMs must be mounted on minimum V-1 flame rated printed wiring board.
8. The need for insulation/safeguard between an ES2 output and user accessible circuits to be evaluated in the end-product.
9. The DCMs were evaluated with the following fuses.

| Package Size | Nominal Vin | Required Fuse (Max value)   |
|--------------|-------------|---|
| 2322         | 30          | Littelfuse 487 series rated 10A or EATON ABC series rated 10A   |
| 2322         | 43          | Vout ≤ 5V, Littelfuse 487 series rated 8A or EATON ABC series rated 8A<br>Vout > 5V Littelfuse 487 series rated 12.5A or EATON ABC series rated 12A |
| 2322         | 100         | EATON PC-Tron series rated 5A   |
| 3623         | 100         | Vout ≤ 5V, EATON PC-Tron rated 5A<br>Vout > 5V, Littelfuse 487 series rated 8A  |
| 3623         | 110         | Littelfuse 487 series rated 8A  |

**SPECIAL INSTRUCTIONS FOR FIELD SERVICES**

1. Component descriptions marked with either the “(INT)” or “(INT\*)” identifiers may be substituted with other components providing the requirements specified under the notes in the “Description” are complied with.

**COMPONENT SPECIAL PICKUP** [N/A]

1. Component descriptions marked with the identifier “(CT)” are subject to annual pickup and Conformity Testing.

**DESCRIPTION**

Notes:

1. Component Substitution
  - a) Critical components (those identified by mfr name, cat no), which are NOT identified with either "INT" or "INT\*" are not eligible for substitution without evaluation and report updating
  - b) The term "INT" means a "Certified" and/or "Listed" (or a "Recognized" and/or "Accepted") component may be replaced by one "Certified" and/or "Listed" by another certification organization accredited by the appropriate accreditation body or scheme requirements to the correct standard, for the same application; providing the applicable country identifiers are included and requirements in item "d" below are complied with.
  - c) The Term "(INT\*)" means a "Recognized" and/or "Accepted" component may be replaced by a component that is CSA Certified. The applicable country identifiers shall be included, the requirements in item "d" below as well as any "conditions of suitability" for the component (as recorded in this descriptive report) shall be complied with;
  - d) Components which have been substituted, must be of an equivalent rating, configuration (size, orientation, mounting) and the applicable minimum creepage and clearance distances are to be maintained from live parts to bonded metal parts and secondary parts.
  - e) Substitution of a "Certified" and/or "Listed" component with a component that is "Recognized" or "Accepted" is not permitted without evaluation and report updating.
  - f) Substitution of a "Recognized" and/or "Accepted" component by one that is not CSA Certified is not permitted without a proper evaluation as well as a report update because the Conditions of Acceptance of the original component may be different than the Conditions of Acceptance of the substitute component.

| <b>TEST ITEM PARTICULARS:</b>   |  |
|---------------------------------|--|
| Classification of use by..... : | Instructed person  |
| Supply Connection..... :        | External Circuit - not Mains connected<br>- <input checked="" type="checkbox"/> ES1 <input type="checkbox"/> ES2 <input checked="" type="checkbox"/> ES3 |
| Supply % Tolerance .....        | See model matrix for full DC voltage range   |
| Supply Connection – Type .....  | Other: For building-in   |
| Equipment mobility .....        | For building-in  |
| Class of equipment .....        | Class II   |

|   |  |
|---|--|
| Pollution degree (PD) .....                         | PD 2   |
| Manufacturer’s specified maxium operating ambient : | 125°C  |
| IP protection class .....                           | IPX0   |
| Altitude during operation (m) .....                 | 5000 m   |
| Mass of equipment (kg) .....                        | 0.014 kg (2322 package)<br>0.025 kg (3623 package) |

**General product information**

Product Description –

DC-DC converter -

Model: DCMaaaaTcccwxyzz (Where aaaa = 3623 or 2323; ccc = A5K, A5N, 72S or 50T; ww = 04, 06, 13, 15, 17, 26, 31, or 53; xx = 35, 40, 50, 60, 80, A0, A2, B4 or C0; y = C, T or M; zz = Any two alphanumeric combination.)

Type: DCM3623 / DCM2322 Railway Series

DCM 3623 / 2322 Railway Series Model Matrix: DCM3623Tcccwxyzz or DCM2322Tcccwxyzz

Example: DCM3623TA5N53B4T00

DCM = Constant

| Product Type |                        |
|--------------|------------------------|
| DCM          | DC-DC Converter Module |

aaaa = 3623 or 2322

| Package Size (mm) |         |
|-------------------|---------|
| 2322              | 23 x 22 |
| 3623              | 36 x 23 |

T = Constant

| Lead Designator |              |
|-----------------|--------------|
| T               | Through-Hole |

ccc = A5N

| Input Voltage                              |                 |
|--|-----------------|
|  | Nominal (Range) |
| A5K  | 110V (60-154)   |
| A5N  | 100V (43-154)   |
| 72S  | 43V (14-72)     |
| 50T  | 30V (9-50)      |
| DCM3623 models only use A5K and A5N ranges |                 |
| DCM2322 models use all ranges              |                 |



ww = 53

| Output Voltage                              |         |    |         |
|---|---------|----|---------|
|   | Nominal |    | Nominal |
| 04  | 3.3V    | 17 | 15.0V   |
| 06  | 5.0V    | 26 | 24.0V   |
| 13  | 12.0V   | 31 | 28.0V   |
| 15  | 13.8V   | 53 | 48.0V   |
| Nominal Trim range = +10% / -15% of Nominal |         |    |         |

xx = B4

| Output Power                   |     |    |      |    |      |
|--------------------------------|-----|----|------|----|------|
| 35                             | 35W | 60 | 60W  | A2 | 120W |
| 40                             | 40W | 80 | 80W  | B4 | 240W |
| 50                             | 50W | A0 | 100W | C0 | 300W |
| 120W max for 2322 package size |     |    |      |    |      |
| 300W max for 3623 package size |     |    |      |    |      |

y = T

| Temperature Grade<br>(Operating internal temperature range)  |              |
|--|--------------|
| C  | -20 to 125°C |
| T  | -40 to 125°C |
| M  | -55 to 125°C |
| Note: The operating internal temperature is controlled by maintaining the case temperature specified on the de-rating curves |              |

zz = 00

| Options (non-safety related), Any alphanumeric combination, non-inclusive list of examples below |                       |
|--|-----------------------|
| 00   | Analog Communication  |
| 01   | Digital Communication |

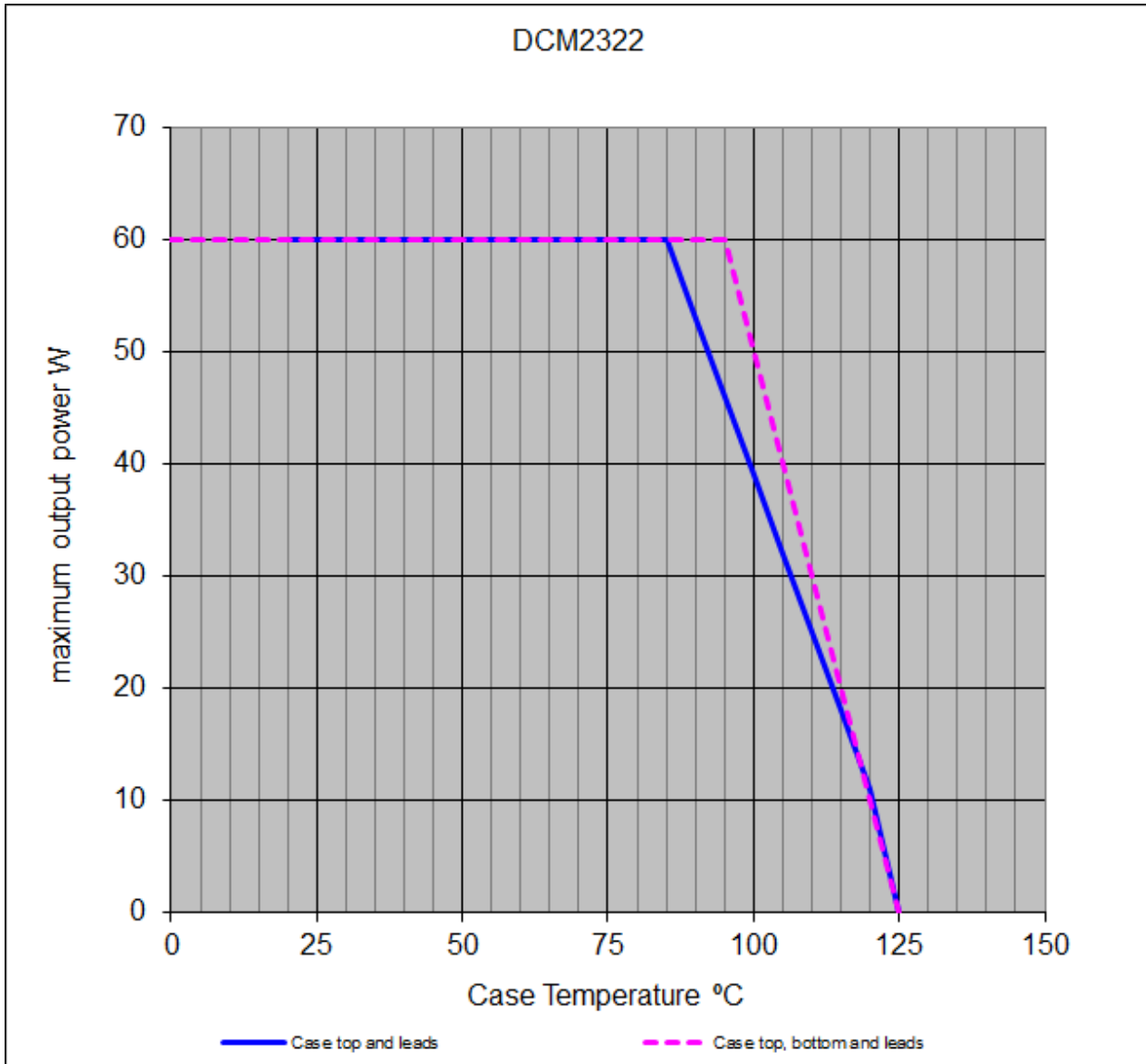
Model Differences:

See “Product Description” above.

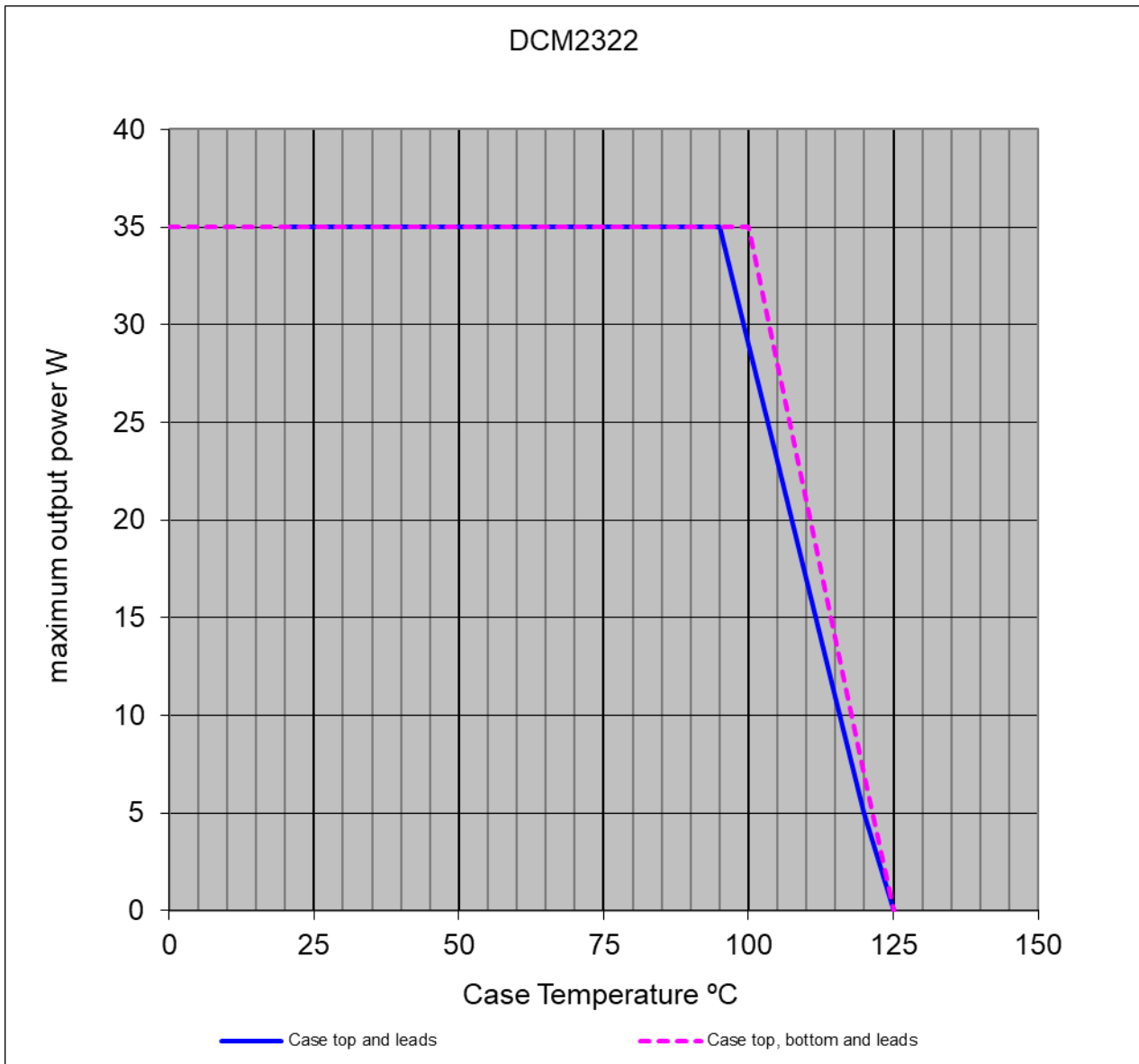
Ratings and principal characteristics

See “Attachment 2” for Output Power Derating

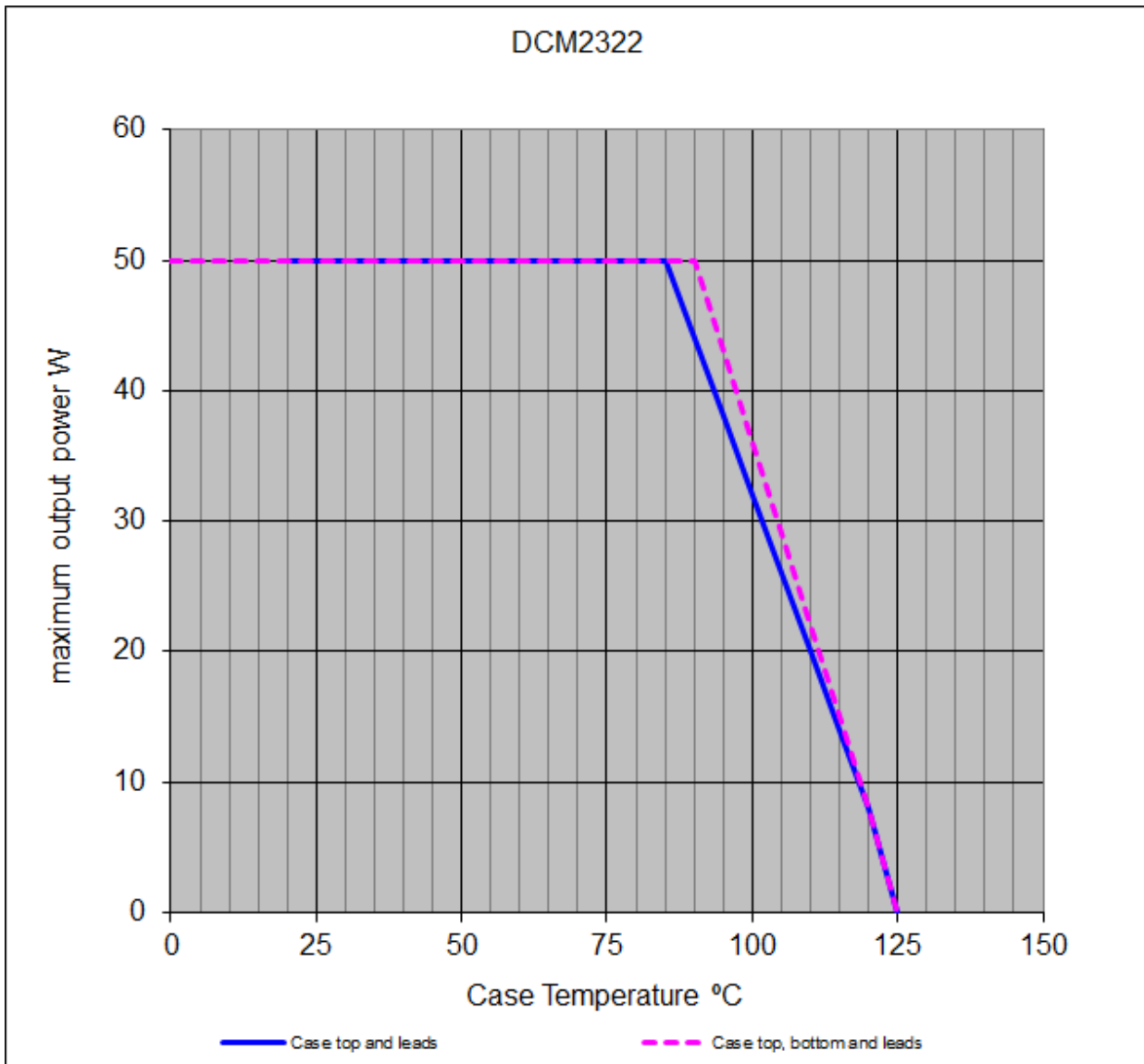
| Power vs. Temperature         |                                       |
|-------------------------------|---------------------------------------|
| Nominal Input Voltage (Range) | 30V (9 - 50)                          |
| Nominal Output Voltage (Trim) | 12V, 15V, 24V, 28V, 48V (+10% / -40%) |
| Maximum Output Power          | 60W                                   |



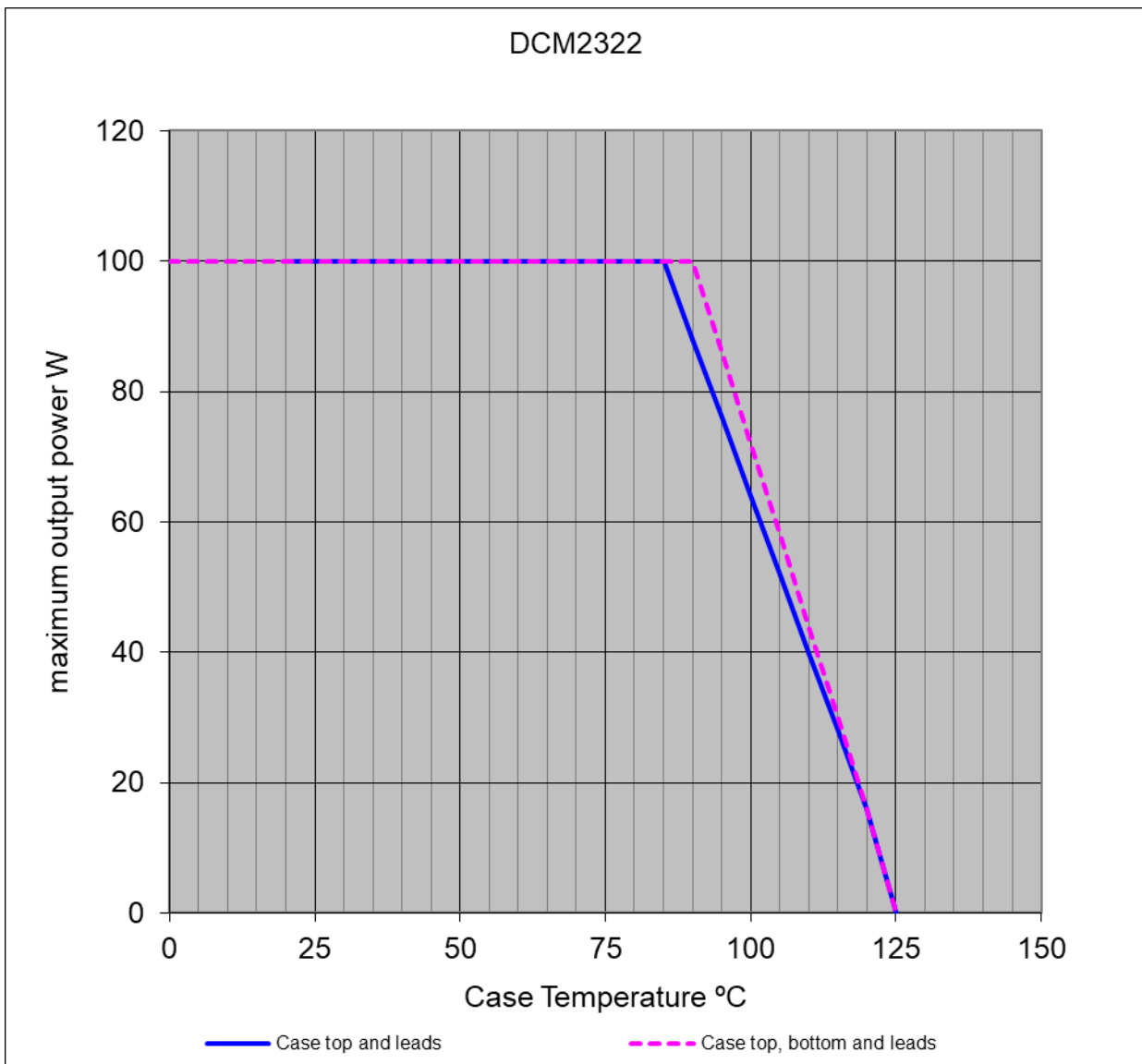
| Power vs. Temperature         |                    |
|-------------------------------|--------------------|
| Nominal Input Voltage (Range) | 43V (14-72)        |
| Nominal Output Voltage (Trim) | 3.3V (+10% / -40%) |
| Maximum Output Power          | 35W                |



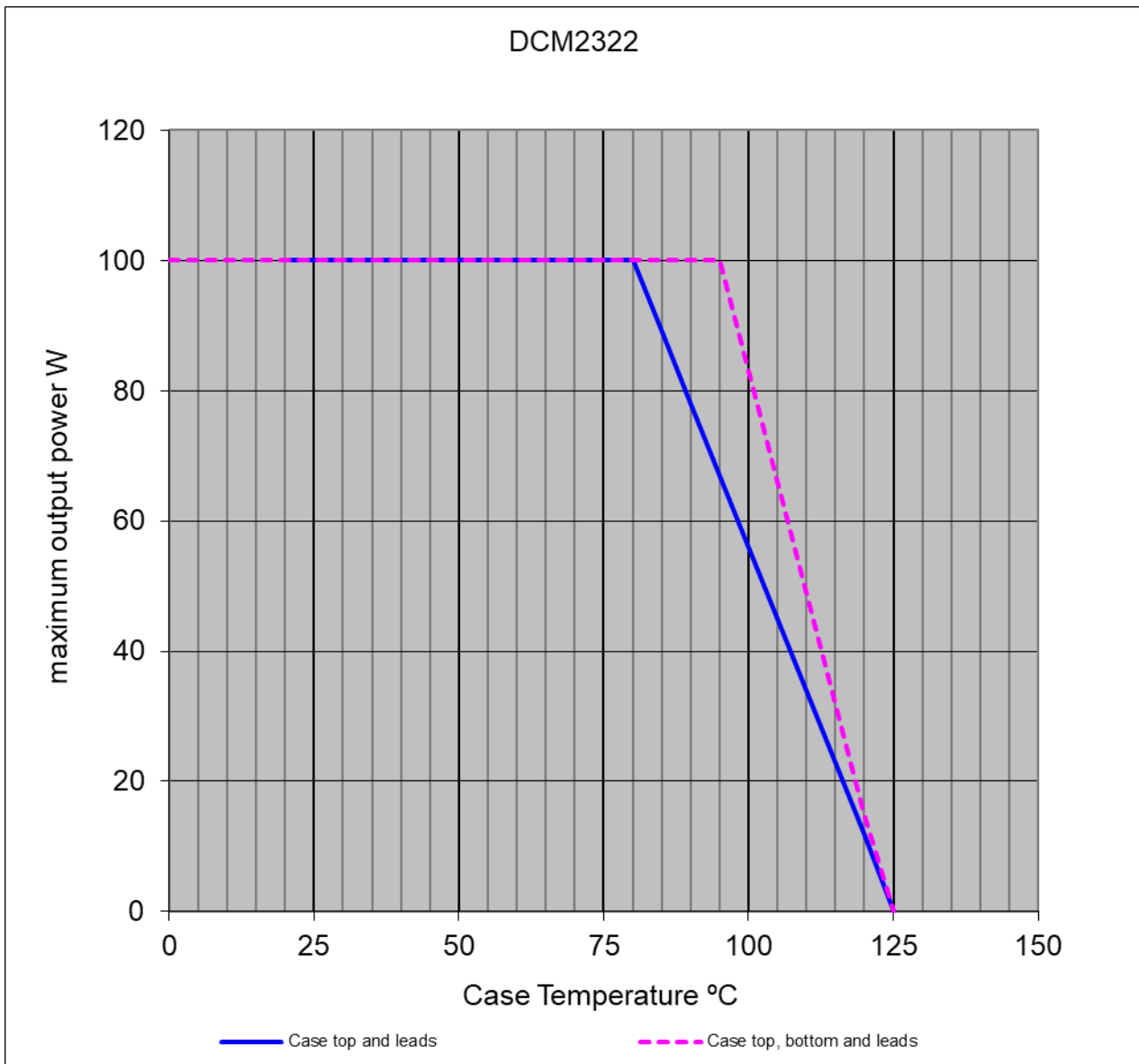
| Power vs. Temperature         |                  |
|-------------------------------|------------------|
| Nominal Input Voltage (Range) | 43V (14-72)      |
| Nominal Output Voltage (Trim) | 5V (+10% / -40%) |
| Maximum Output Power          | 50W              |



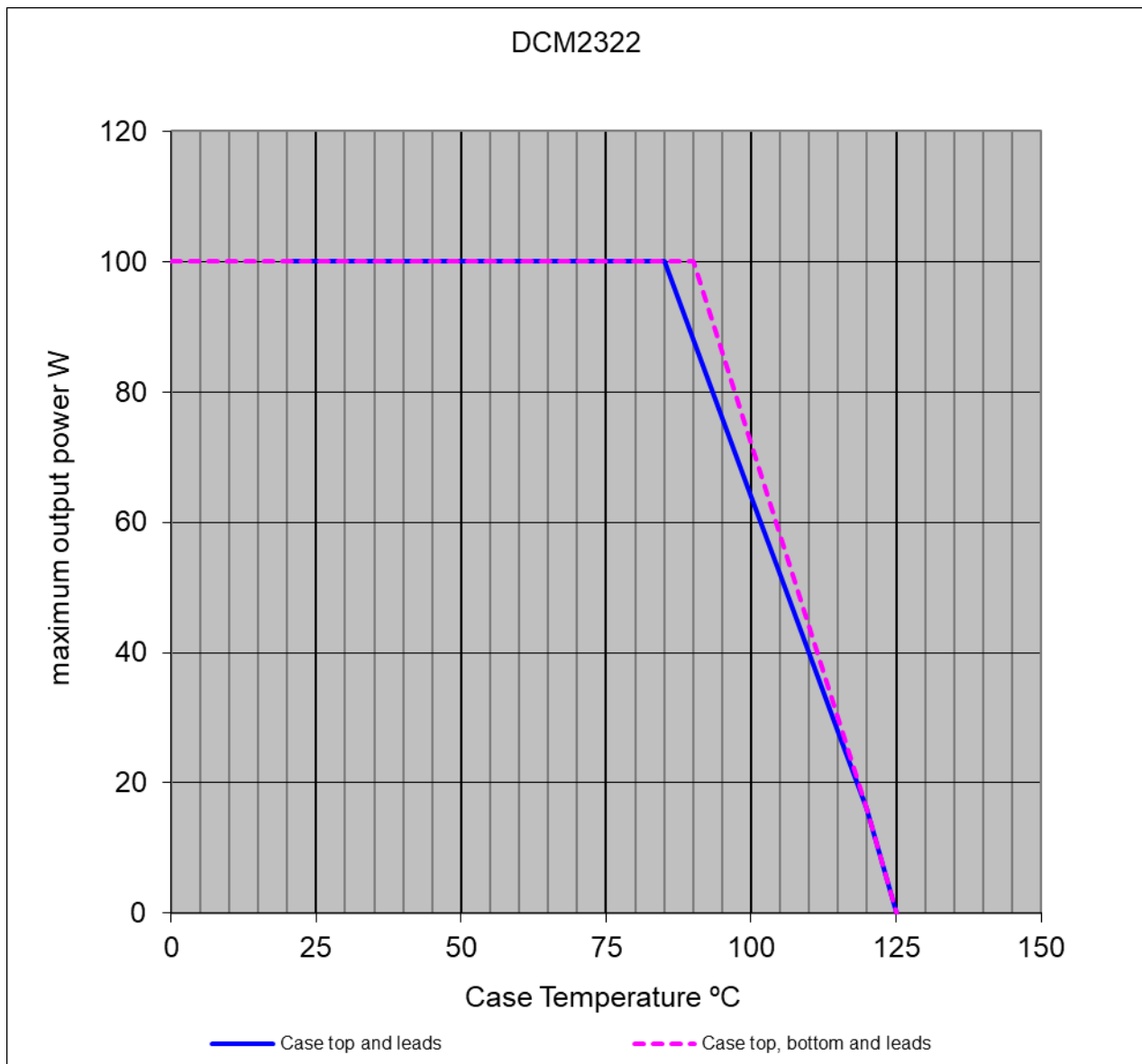
| Power vs. Temperature         |                       |
|-------------------------------|-----------------------|
| Nominal Input Voltage (Range) | 43V (14-72)           |
| Nominal Output Voltage (Trim) | 12, 15V (+10% / -40%) |
| Maximum Output Power          | 100W                  |



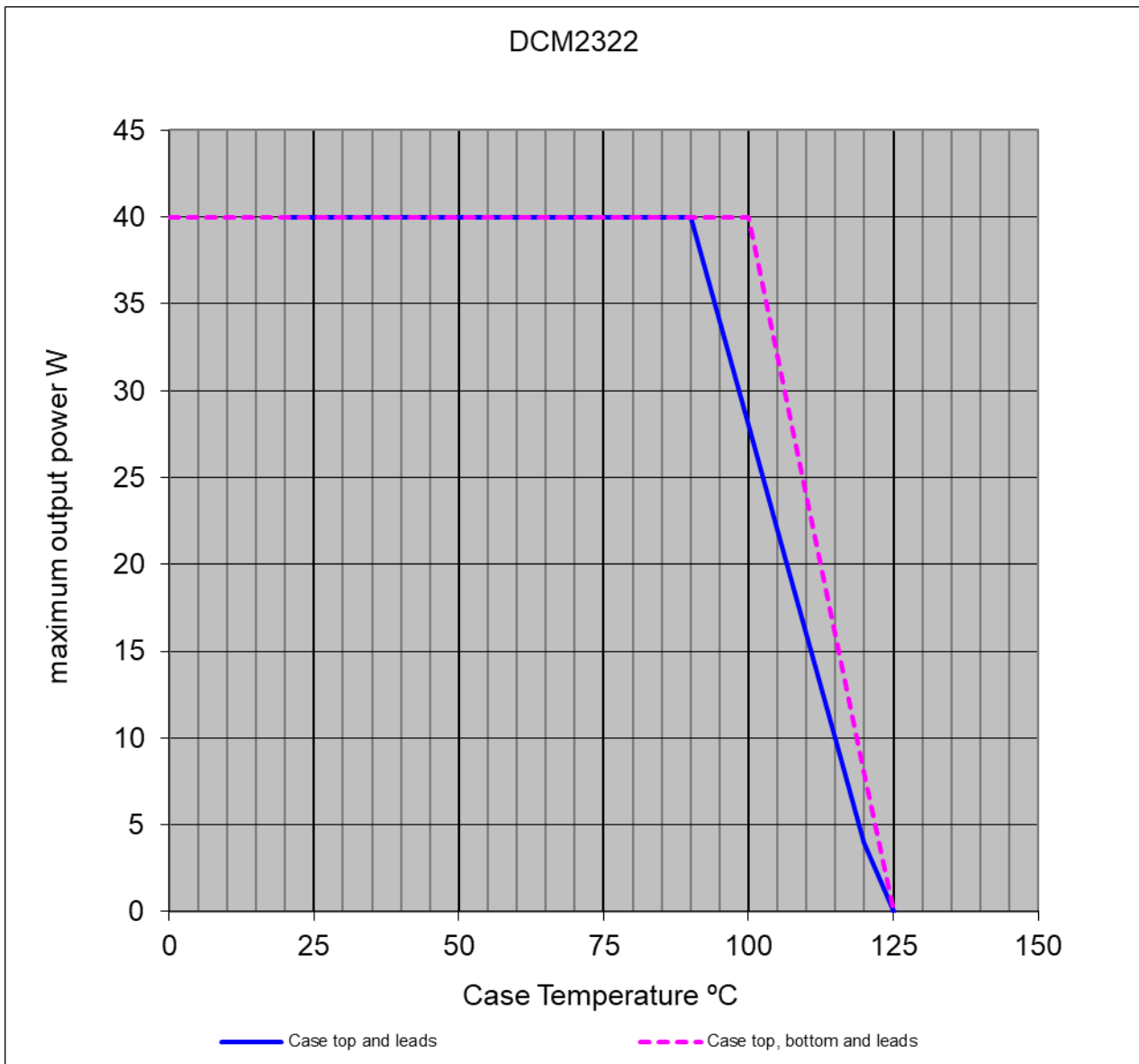
| Power vs. Temperature         |                       |
|-------------------------------|-----------------------|
| Nominal Input Voltage (Range) | 43V (14-72)           |
| Nominal Output Voltage (Trim) | 24, 28V (+10% / -40%) |
| Maximum Output Power          | 100W                  |



| Power vs. Temperature         |                   |
|-------------------------------|-------------------|
| Nominal Input Voltage (Range) | 43V (14-72)       |
| Nominal Output Voltage (Trim) | 48V (+10% / -40%) |
| Maximum Output Power          | 100W              |

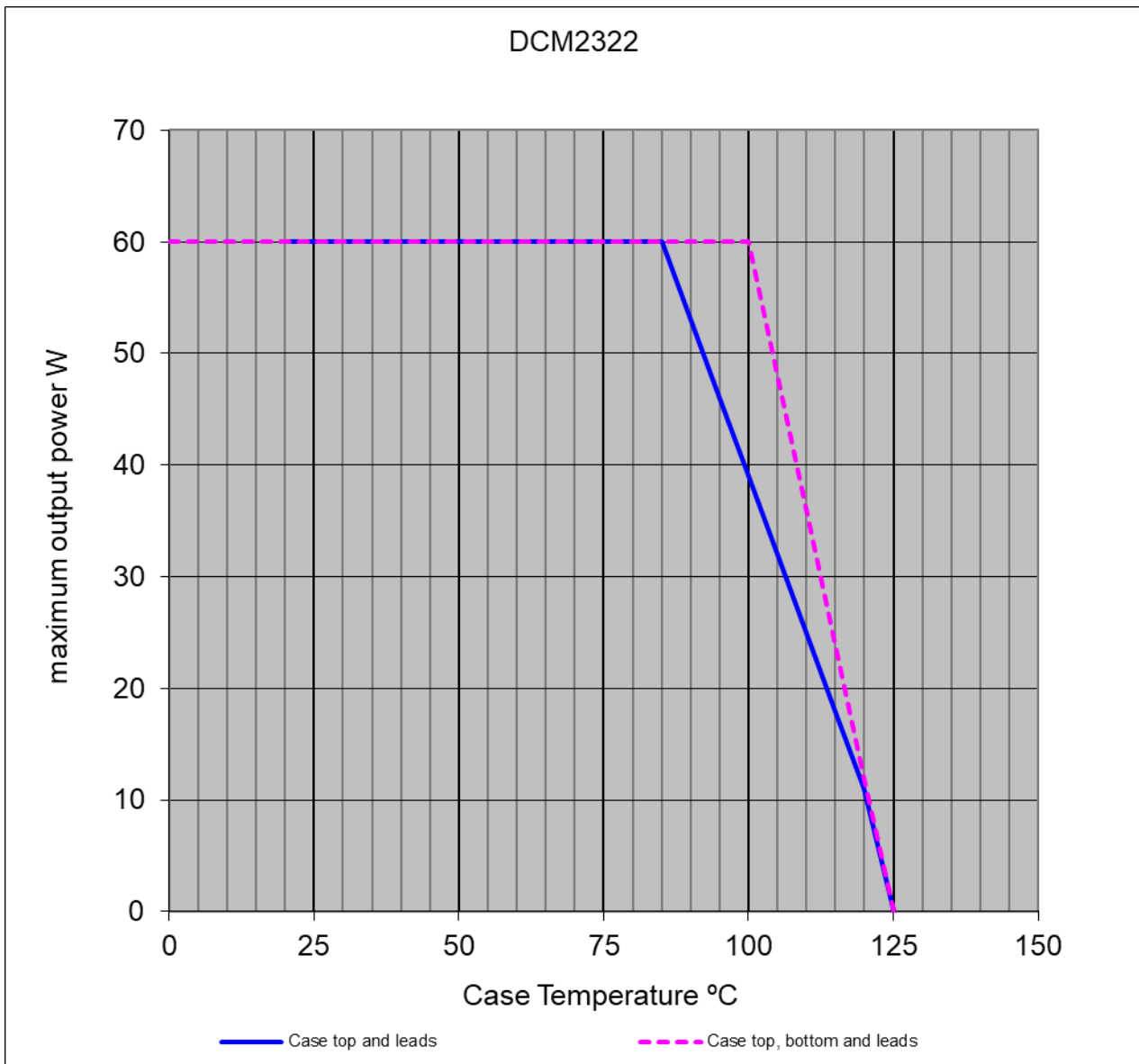


| Power vs. Temperature         |                    |
|-------------------------------|--------------------|
| Nominal Input Voltage (Range) | 100V (43-154)      |
| Nominal Output Voltage (Trim) | 3.3V (+10% / -40%) |
| Maximum Output Power          | 40W                |

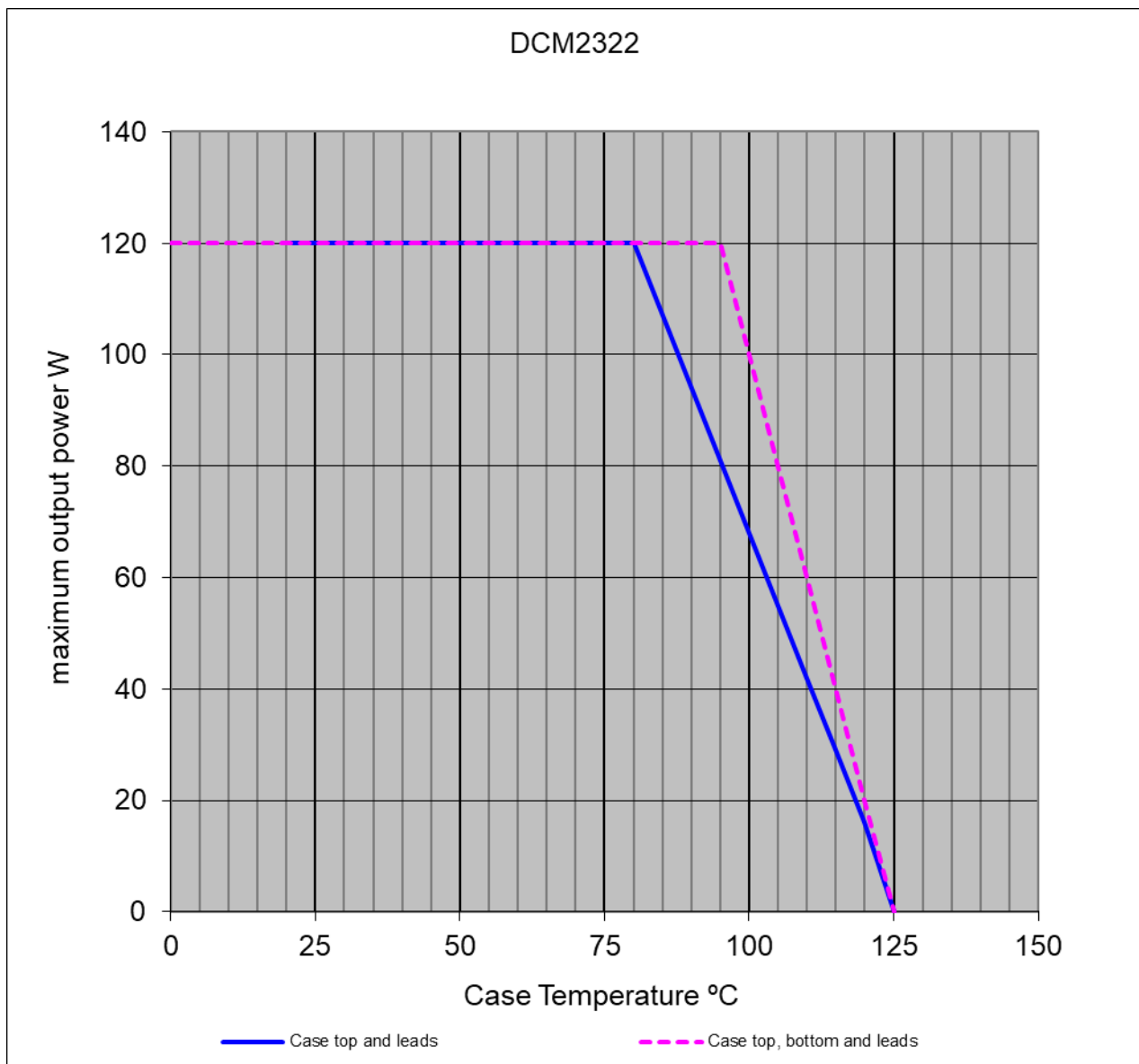




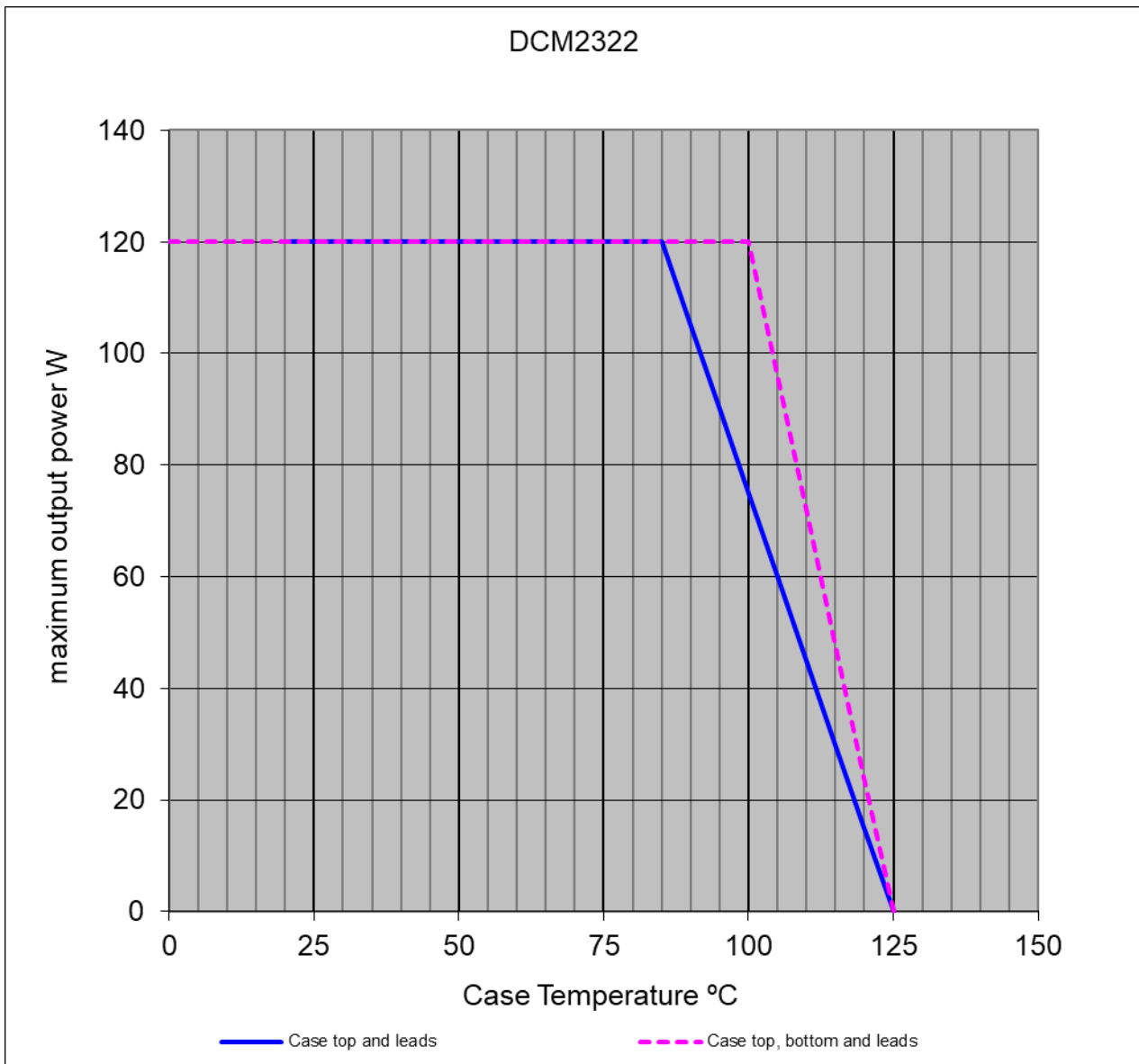
| Power vs. Temperature         |                  |
|-------------------------------|------------------|
| Nominal Input Voltage (Range) | 100V (43-154)    |
| Nominal Output Voltage (Trim) | 5V (+10% / -40%) |
| Maximum Output Power          | 60W              |



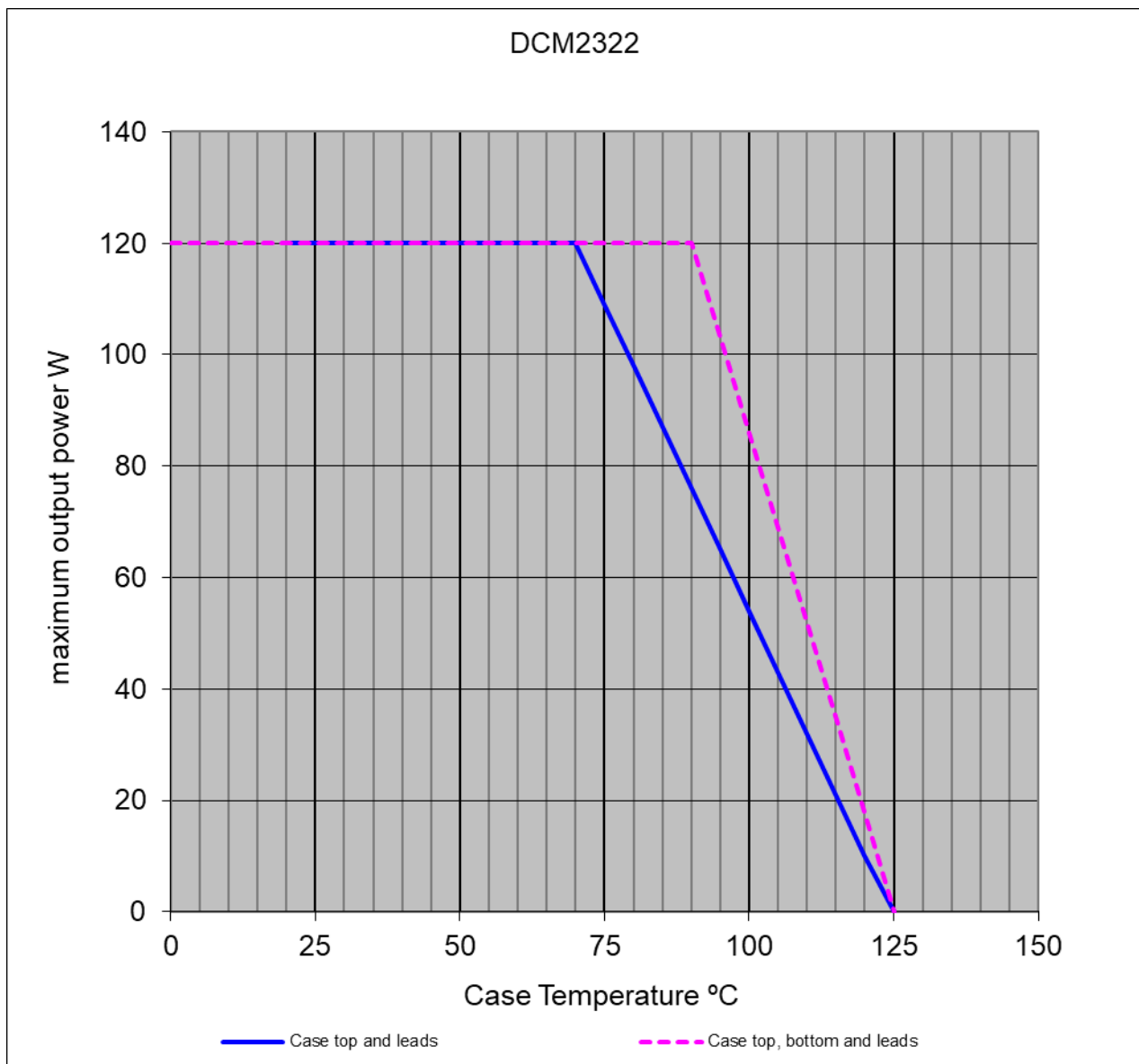
| Power vs. Temperature         |                           |
|-------------------------------|---------------------------|
| Nominal Input Voltage (Range) | 100V (43-154)             |
| Nominal Output Voltage (Trim) | 12V and 15V (+10% / -40%) |
| Maximum Output Power          | 120W                      |



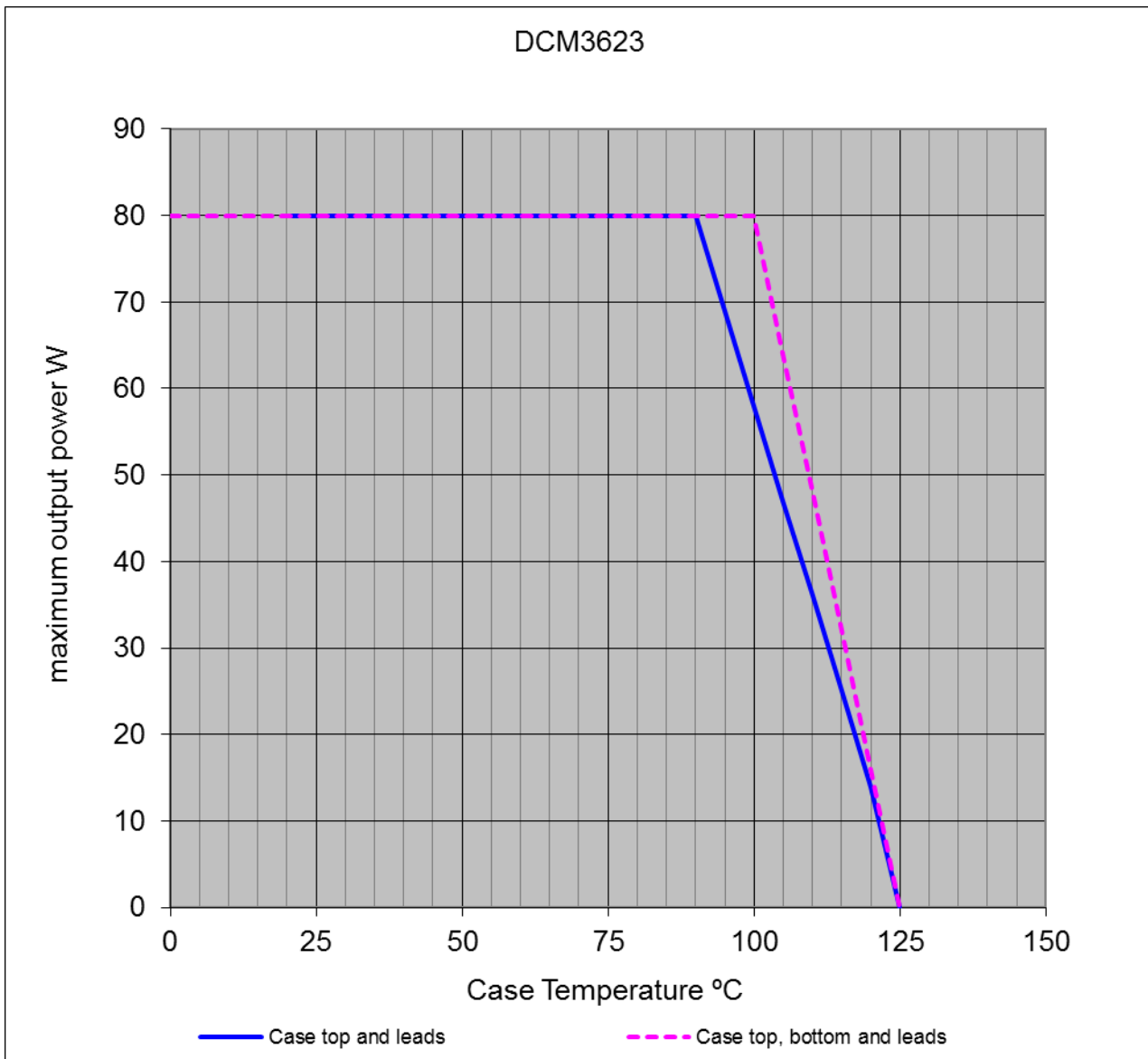
| Power vs. Temperature         |                           |
|-------------------------------|---------------------------|
| Nominal Input Voltage (Range) | 100V (43-154)             |
| Nominal Output Voltage (Trim) | 24V and 28V (+10% / -40%) |
| Maximum Output Power          | 120W                      |



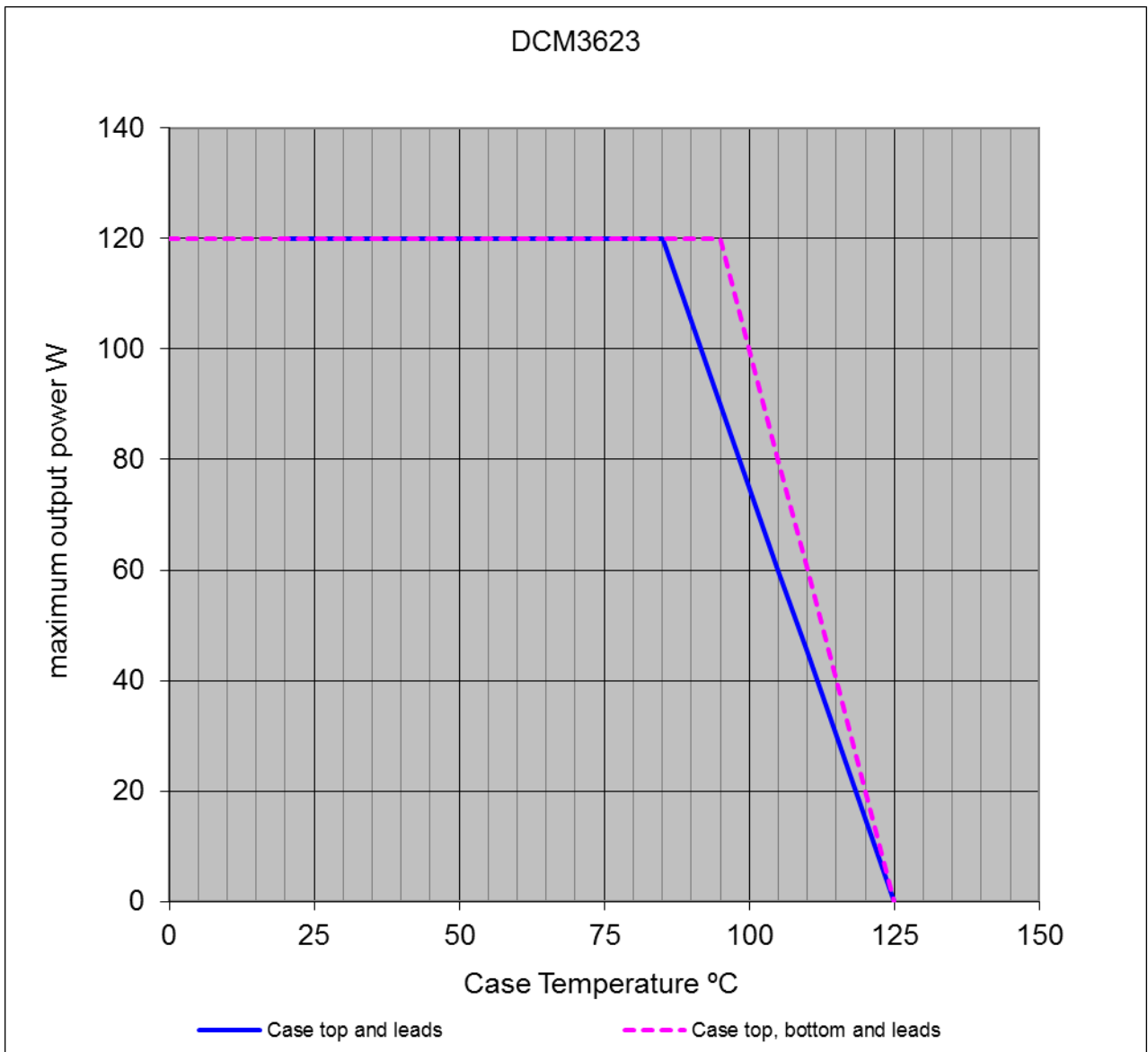
| Power vs. Temperature         |                   |
|-------------------------------|-------------------|
| Nominal Input Voltage (Range) | 100V (43-154)     |
| Nominal Output Voltage (Trim) | 48V (+10% / -40%) |
| Maximum Output Power          | 120W              |



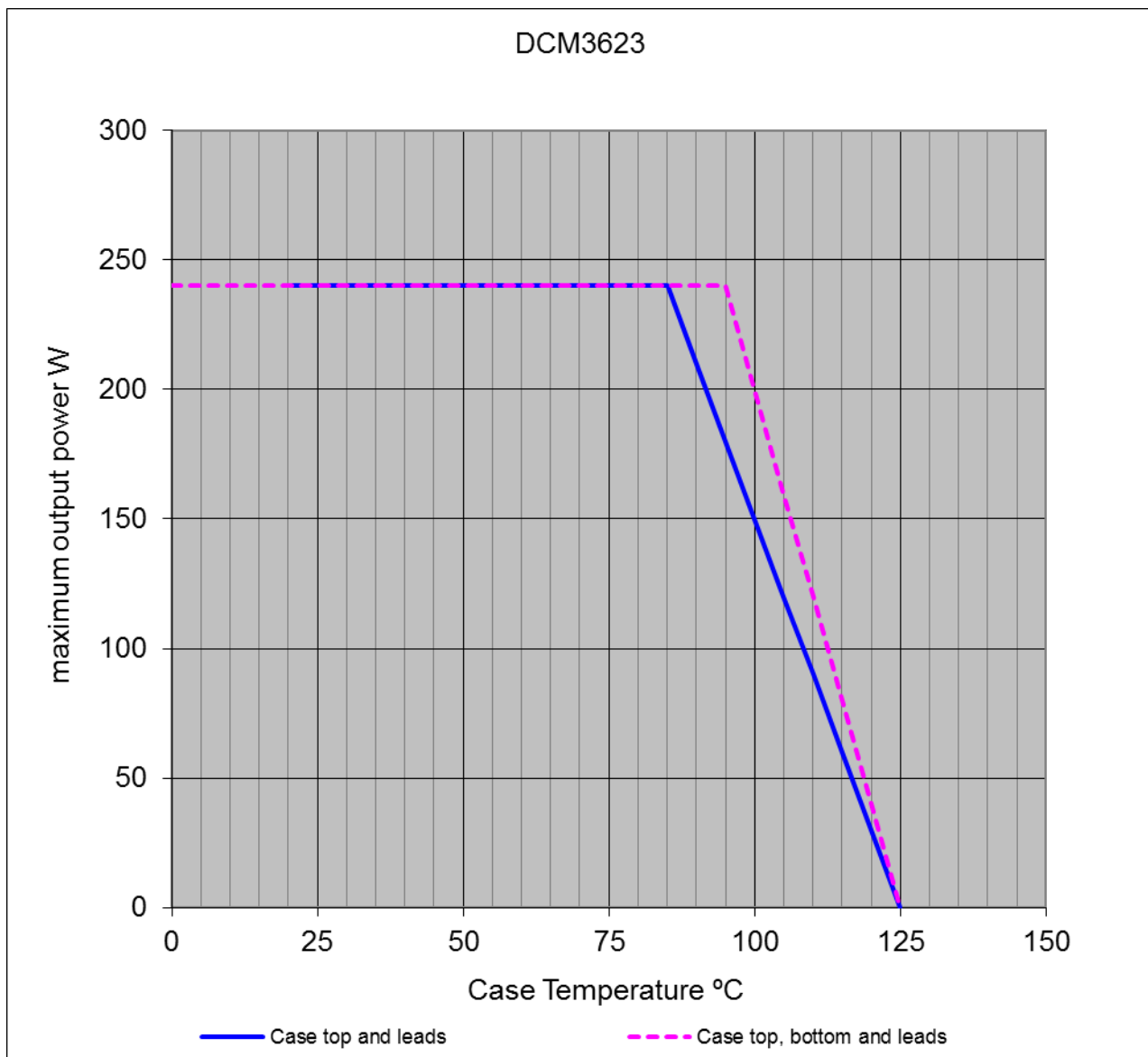
| Power vs. Temperature         |                     |
|-------------------------------|---------------------|
| Nominal Input Voltage (Range) | 100V (43-154)       |
| Nominal Output Voltage (Trim) | 3.3 V (+10% / -40%) |
| Maximum Output Power          | 80W                 |



| Power vs. Temperature         |                  |
|-------------------------------|------------------|
| Nominal Input Voltage (Range) | 100V (43-154)    |
| Nominal Output Voltage (Trim) | 5V (+10% / -40%) |
| Maximum Output Power          | 120W             |



| Power vs. Temperature         |                                       |
|-------------------------------|---------------------------------------|
| Nominal Input Voltage (Range) | 100V (43-154)                         |
| Nominal Output Voltage (Trim) | 12V, 15V, 24V, 28V, 48V (+10% / -40%) |
| Maximum Output Power          | 240W                                  |



| Power vs. Temperature         |                    |
|-------------------------------|--------------------|
| Nominal Input Voltage (Range) | 110V (60 - 154)    |
| Nominal Output Voltage (Trim) | 13.8 (+10% / -40%) |
| Maximum Output Power          | 300W               |

