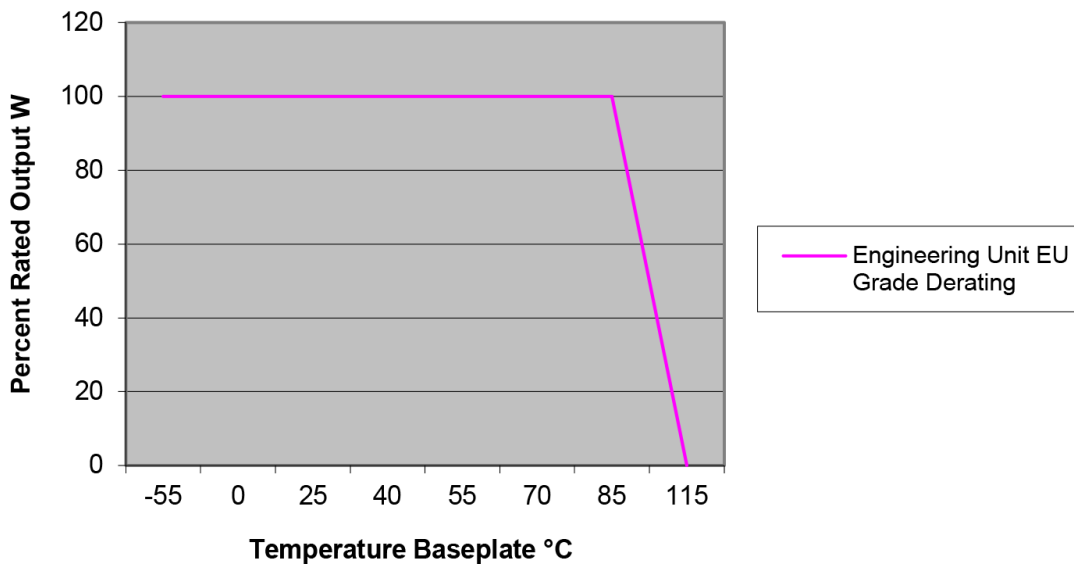


# Standard Hybrid DC-DC converter derating for baseplate temperature

MDI standard hybrid DC-DC converters are designed, manufactured and tested for continuous operation at one hundred percent (100%) of published power rating up to their respective grade level maximum operation baseplate temperature. This is achieved by derating their internal components, elements and materials for thermal, electrical and environmental stresses during engineering design as described throughout these application notes. Power derating versus baseplate temperature by grade level illustrations follows for reference.

## Engineering Unit EU Grade Derating



### Grade EU:

Full Power Output at Tcase = +85°C

Linearly derates to zero at Tcase = +115°C

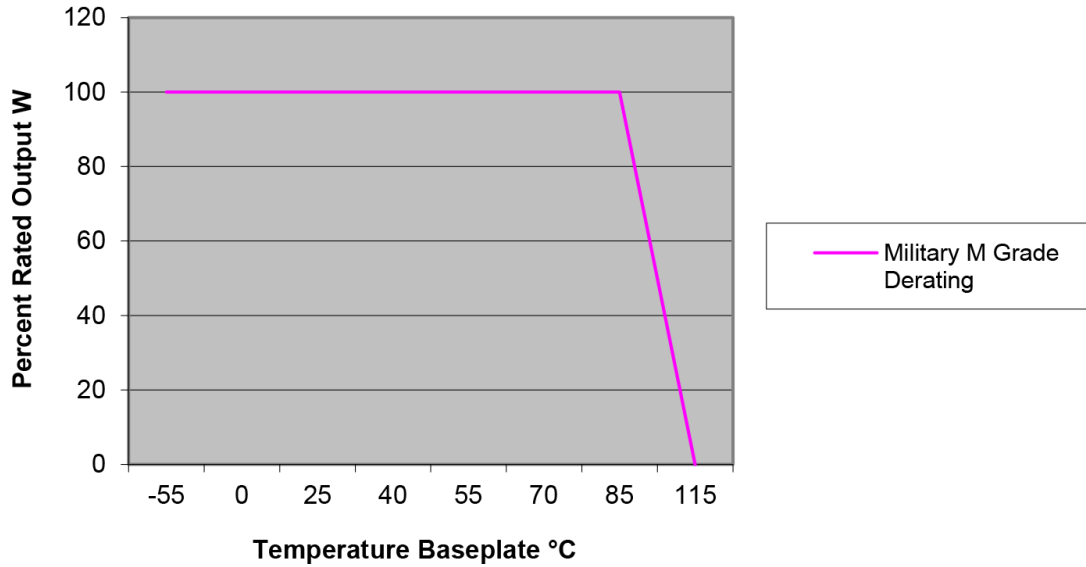
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+40°C	100%
+55°C	100%
+70°C	100%
+85°C	100%
+115°C	0%



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## Military M Grade Derating



### Grade M:

Full Power Output at Tcase = +85°C

Linearly derates to zero at Tcase = +115°C

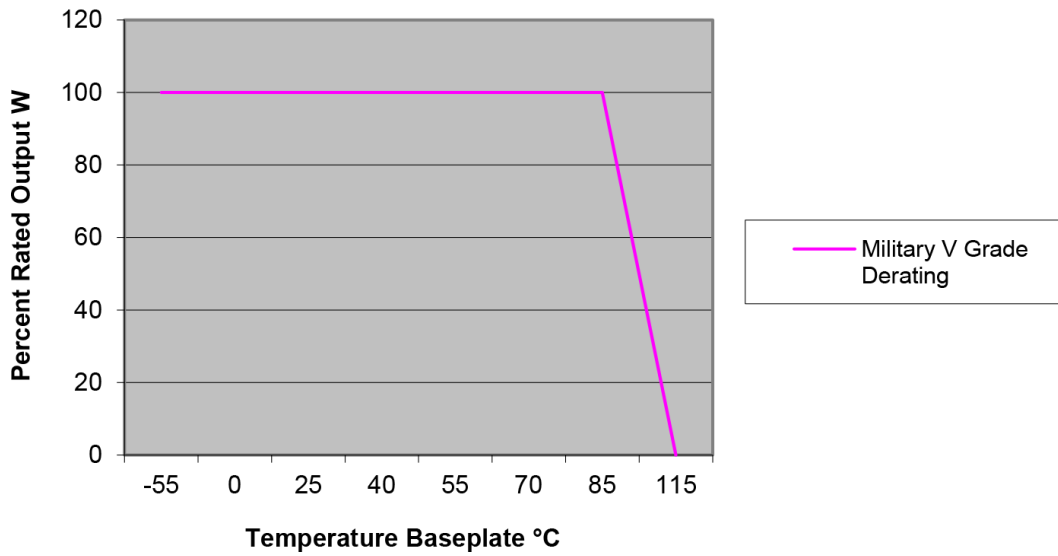
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+40°C	100%
+55°C	100%
+70°C	100%
+85°C	100%
+115°C	0%



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## Military V Grade Derating



### Grade V:

Full Power Output at Tcase = +85°C

Linearly derates to zero at Tcase = +115°C

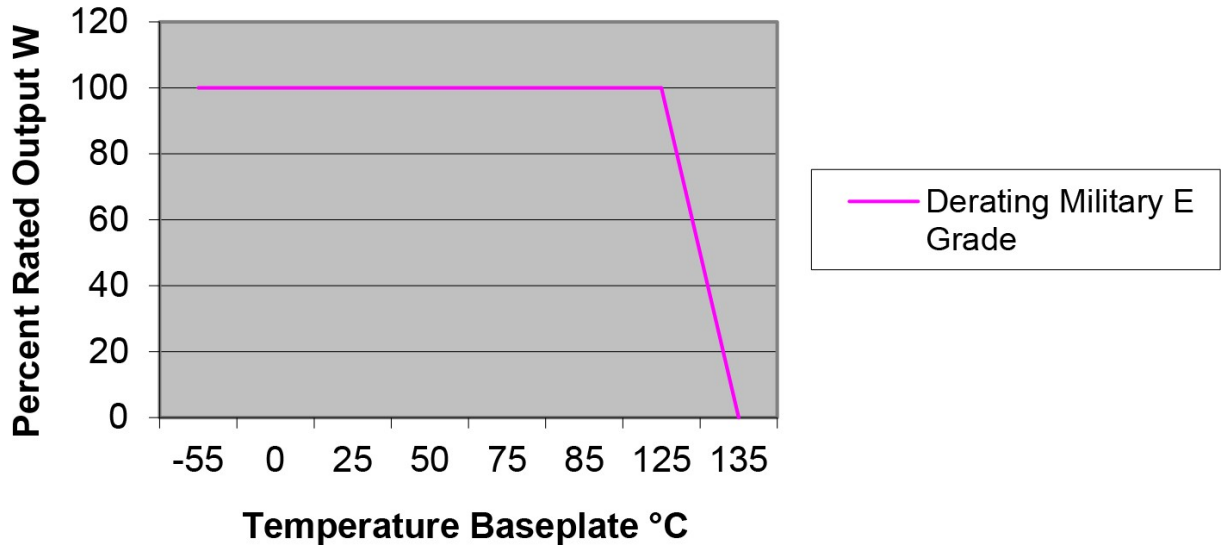
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+40°C	100%
+55°C	100%
+70°C	100%
+85°C	100%
+115°C	0%



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## Military E Grade Derating



### Grade E:

Full Power Output at Tcase = +125°C

Linearly derates to zero at Tcase = +135°C

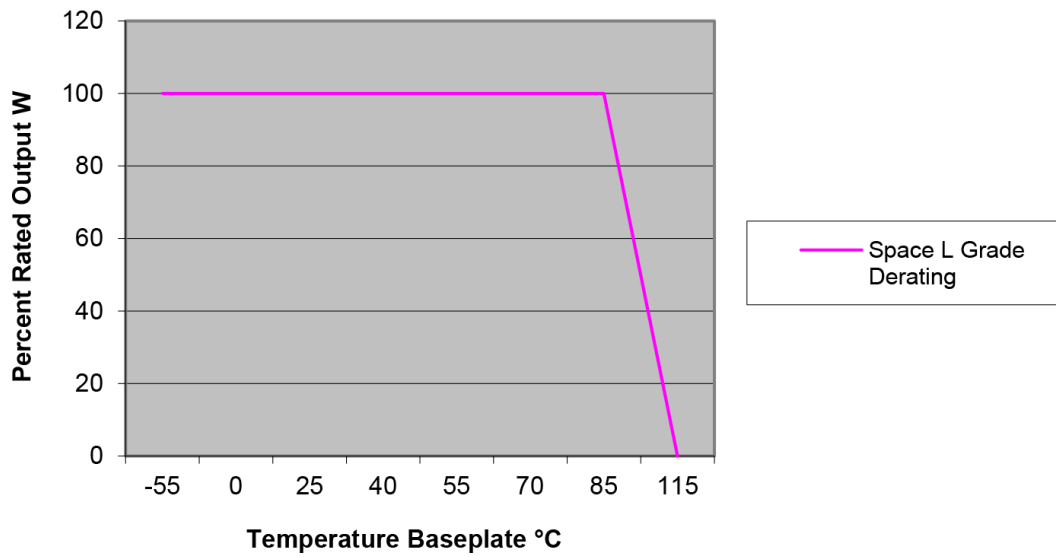
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+50°C	100%
+75°C	100%
+85°C	100%
+125°C	100%
+135°C	0%



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## Space L Grade Derating



### Grade L:

Full Power Output at Tcase = +85°C

Linearly derates to zero at Tcase = +115°C

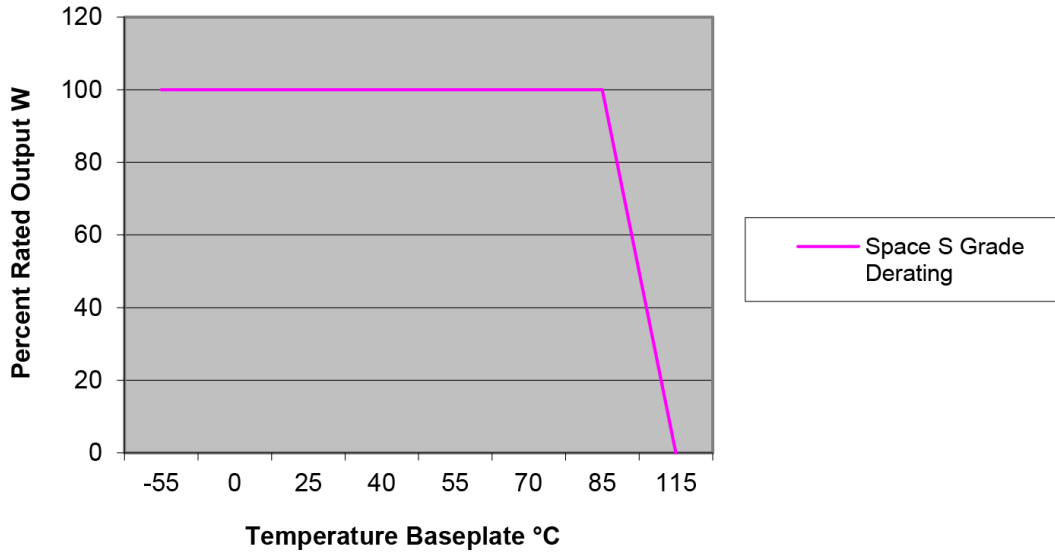
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+40°C	100%
+55°C	100%
+70°C	100%
+85°C	100%
+115°C	0%



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## Space S Grade Derating



### Grade S:

Full Power Output at Tcase = +85°C

Linearly derates to zero at Tcase = +115°C

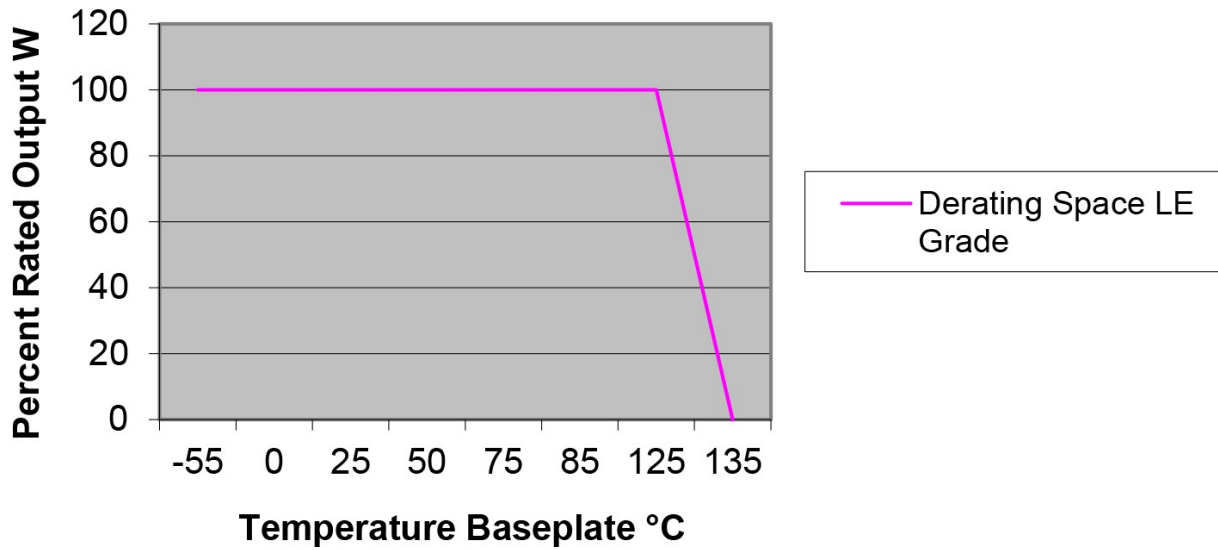
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+40°C	100%
+55°C	100%
+70°C	100%
+85°C	100%
+115°C	0%



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## Space LE Grade Derating



**Grade LE:**

Full Power Output at Tcase = +125°C  
 Linearly derates to zero at Tcase = +135°C

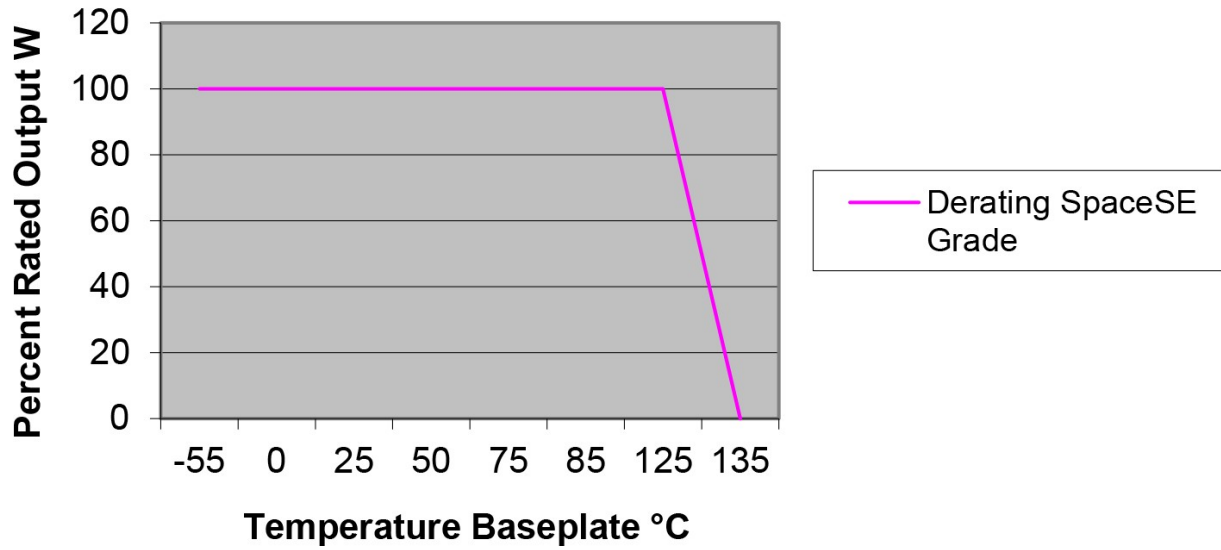
Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+50°C	100%
+75°C	100%
+85°C	100%
+125°C	100%
+135°C	0%



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## Space SE Grade Derating



### Grade SE:

Full Power Output at Tcase = +125°C

Linearly derates to zero at Tcase = +135°C

Temperature Baseplate °C	Percent Rated Output Watts
-55°C	100%
0°C	100%
+25°C	100%
+50°C	100%
+75°C	100%
+85°C	100%
+125°C	100%
+135°C	0%



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