

**SERIES:** VQA2-S | **DESCRIPTION:** IGBT DRIVER DC-DC

**FEATURES**

- designed for IGBT and SiC driver applications
- reinforced insulation
- 7,000 Vdc isolation voltage
- 5 pF max isolation capacitance
- -40 ~ 105°C temperature range with derating
- continuous short circuit protection
- UL/cUL 62368 certified



**MODEL**

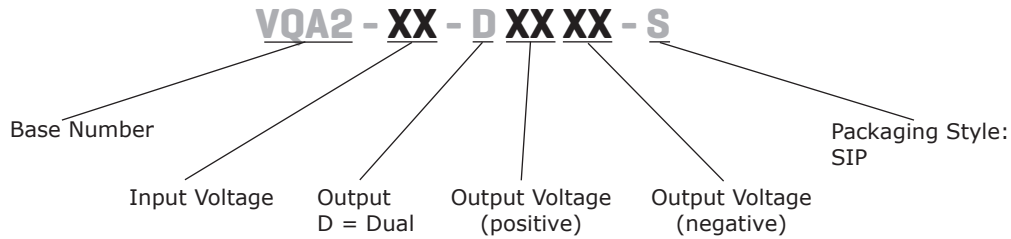
MODEL	input voltage		output voltage	output current	ripple and noise <sup>1</sup>	efficiency
	typ (Vdc)	range (Vdc)	(Vdc)	max (mA)	max (mVp-p)	typ (%)
VQA2-5-D0603-S	5	4.5~5.5	6 -3	220 -220	120	78.0
VQA2-5-D1505-S	5	4.5~5.5	15 -5	80 -40	100	84.0
VQA2-5-D1802-S	5	4.5~5.5	18 -2.5	80 -80	100	82.0
VQA2-5-D1803-S	5	4.5~5.5	18 -3.5	80 -80	100	84.0
VQA2-5-D2004-S	5	4.5~5.5	20 -4	80 -40	100	85.0
VQA2-5-D2005-S	5	4.5~5.5	20 -5	50 -200	100	81.0
VQA2-12-D0603-S	12	10.8~13.2	6 -3	220 -220	120	78.0
VQA2-12-D1502-S	12	10.8~13.2	15 -2.5	100 -100	100	85.5
VQA2-12-D1503-S	12	10.8~13.2	15 -3	95 -95	100	85.0
VQA2-12-D1504-S	12	10.8~13.2	15 -4	120 -120	100	86.5
VQA2-12-D1505-S	12	10.8~13.2	15 -5	80 -40	100	85.0
VQA2-12-D1802-S	12	10.8~13.2	18 -2.5	80 -80	100	86.0
VQA2-12-D1803-S	12	10.8~13.2	18 -3	100 -100	100	87.0
VQA2-12-D2005-S	12	10.8~13.2	20 -5	90 -90	100	87.0
VQA2-24-D1503-S	24	21.6~26.4	15 -3	95 -95	100	83.5
VQA2-24-D1504-S	24	21.6~26.4	15 -4	120 -120	100	85.5

## MODEL (CONTINUED)

	input voltage		output voltage	output current	ripple and noise <sup>1</sup>	efficiency
	typ (Vdc)	range (Vdc)	(Vdc)	max (mA)	max (mVp-p)	typ (%)
VQA2-24-D1505-S	24	21.6~26.4	15 -5	80 -40	100	82.0
VQA2-24-D1509-S	24	21.6~26.4	15 -9	80 -40	100	85.0
VQA2-24-D1802-S	24	21.6~26.4	18 -2.5	80 -80	100	84.5
VQA2-24-D2005-S	24	21.6~26.4	20 -5	90 -90	100	85.5

Notes: 1. Ripple and noise are measured at 20 MHz BW by "parallel cable" method. See application notes.  
2. All specifications are valid at nominal input voltage, full load and 25°C ambient temperature.

## PART NUMBER KEY



## INPUT

parameter	conditions/description	min	typ	max	units
current (no load)	5 Vdc input model		22		mA
	12 Vdc input model		15		mA
	24 Vdc input model		11		mA
filter	capacitance filter				

## OUTPUT

parameter	conditions/description	min	typ	max	units
capacitive load	VQA2-5-D0603-S, VQA2-12-D0603-S			330/680	μF
	all other input models			100/680	μF
voltage accuracy	VQA2-5-D0603-S, VQA2-12-D0603-S		±8		%
	all other input models		±5		%
line regulation	1% of Vin		1.2	1.5	%
load regulation	10% ~ 100% load		18		%
	VQA2-5-D0603-S, VQA2-12-D1504-S all other input models		15		%
switching frequency	at full load, nominal input	100			kHz

## PROTECTIONS

parameter	conditions/description	min	typ	max	units
short circuit protection	continuous, auto-recovery				

## SAFETY AND COMPLIANCE

parameter	conditions/description	min	typ	max	units
isolation voltage	input to output for 1 minute	5,000			Vac
	input to output for 2 seconds	6,000			Vac
isolation capacitance	input to output, 100 kHz/0.1 V			5	pF
continuous withstand voltage		1,500			Vac
safety approvals	certified to 62368-1: UL				

### SAFETY AND COMPLIANCE (CONTINUED)

parameter	conditions/description	min	typ	max	units
EMI	EN 55032 class B (with external filter)				
ESD	EN 61000-4-2, Air ±8 kV, perf. Criteria A				
radiated immunity	EN 61000-4-3, 3 V/m, perf. Criteria A				
EFT/burst	EN 61000-4-4, ±0.5 kV, perf. Criteria A				
surge	EN 61000-4-5, ±0.5 kV, perf. Criteria A				
conducted immunity	EN 61000-4-6, 3 Vrms, perf. Criteria A				
PFMF	EN 61000-4-8, 1A/m at 50 Hz, perf. Criteria A				
MTBF	as per MIL-HDBK-217F, Notice 2, at 25°C	14,810,000			hours
RoHS	yes				

### ENVIRONMENTAL

parameter	conditions/description	min	typ	max	units
operating temperature	see derating curve	-40		105	°C
storage temperature		-55		125	°C
maximum case temperature				120	°C
storage humidity	non-condensing	5		95	%

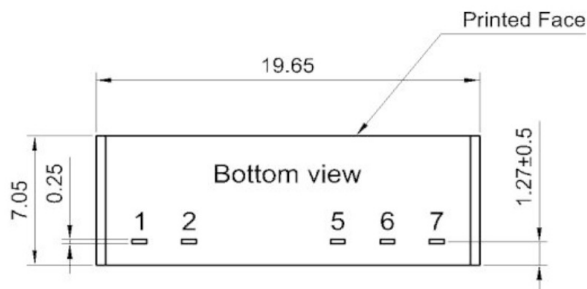
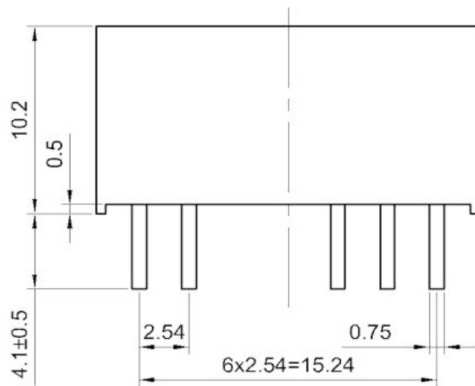
### MECHANICAL

parameter	conditions/description	min	typ	max	units
dimensions	19.65 x 7.05 x 10.20 [0.774 x 0.278 x 0.402 inch]				mm
material	plastic (UL94 V-0)				
weight			2.8		g
cooling method	natural convection				

### MECHANICAL DRAWING

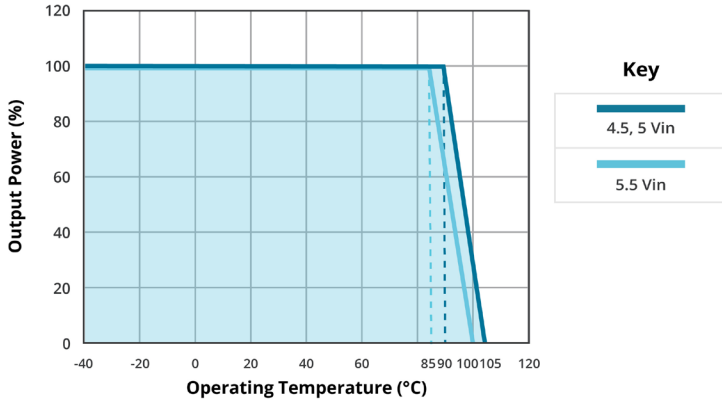
units: mm  
 tolerance: ±0.25  
 pin section tolerance: ±0.1

PIN CONNECTIONS	
PIN	FUNCTION
1	+Vin
2	-Vin
5	-Vout
6	Com.
7	+Vout

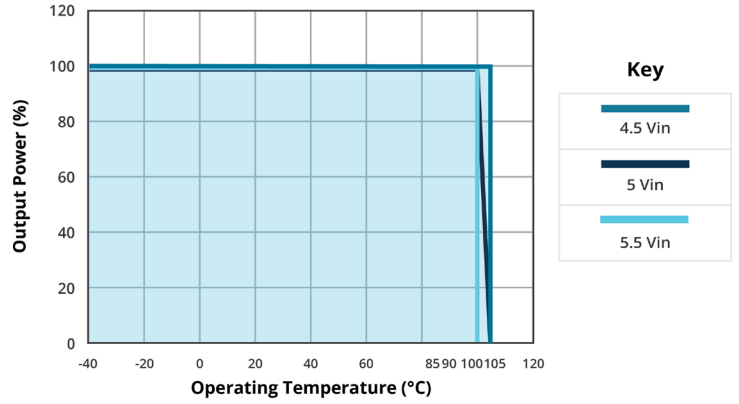


## DERATING CURVES

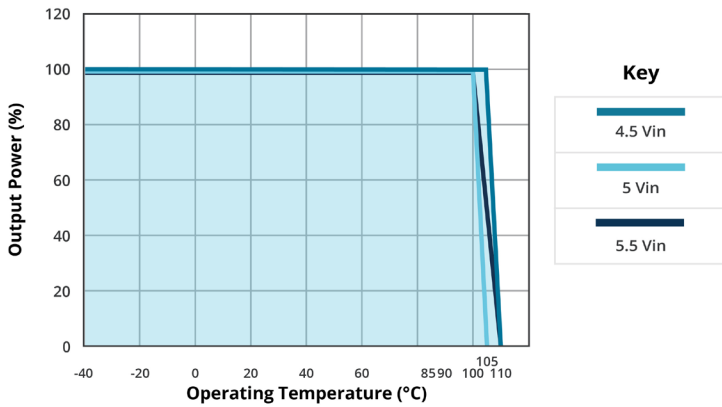
**TEMPERATURE DERATING CURVE**  
**VQA2-5-D0603-S**  
*(natural convection)*



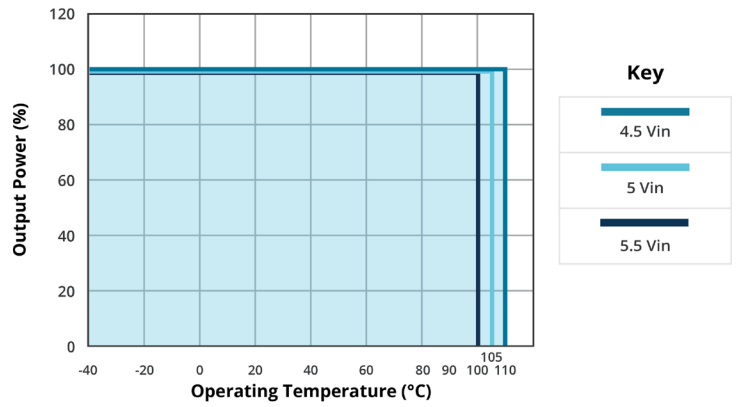
**TEMPERATURE DERATING CURVE**  
**VQA2-5-D1505-S**  
*(natural convection)*



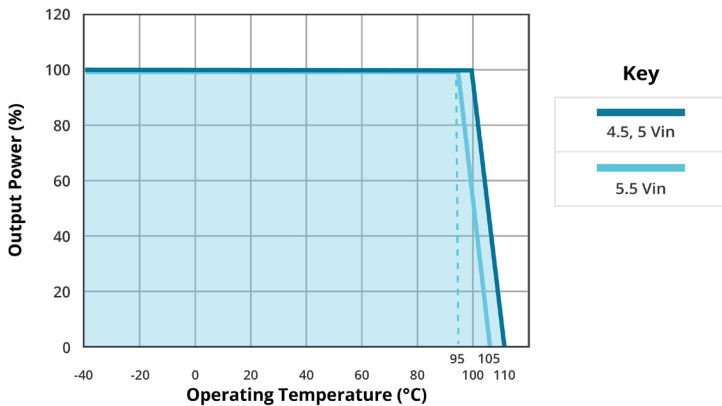
**TEMPERATURE DERATING CURVE**  
**VQA2-5-D1802-S & VQA2-5-D1803-S**  
*(natural convection)*



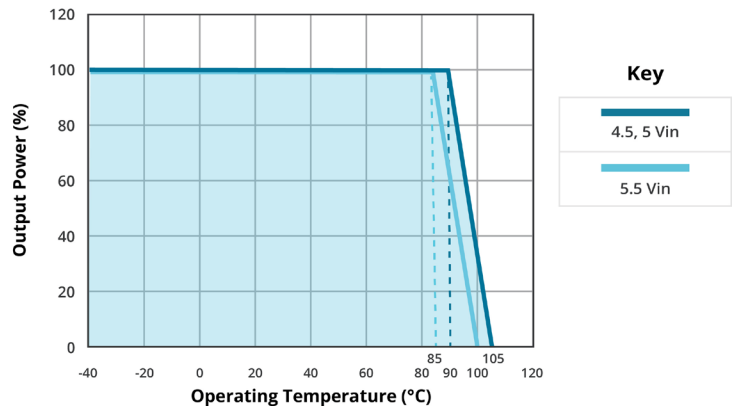
**TEMPERATURE DERATING CURVE**  
**VQA2-5-D2004-S**  
*(natural convection)*



**TEMPERATURE DERATING CURVE**  
**VQA2-5-D2005-S, VQA2-12-D1502-S**  
*(natural convection)*

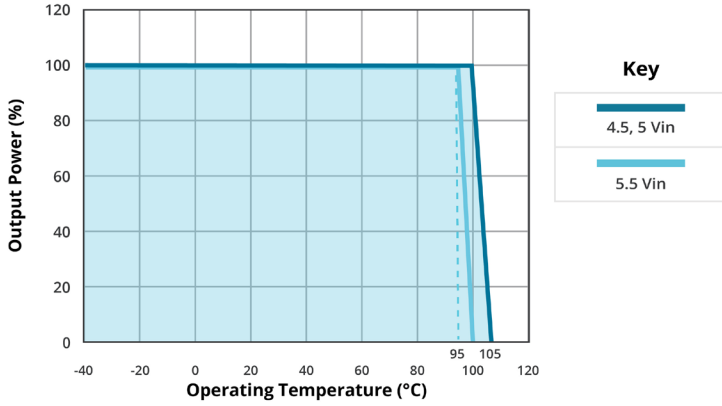


**TEMPERATURE DERATING CURVE**  
**VQA2-12-D0603-S**  
*(natural convection)*

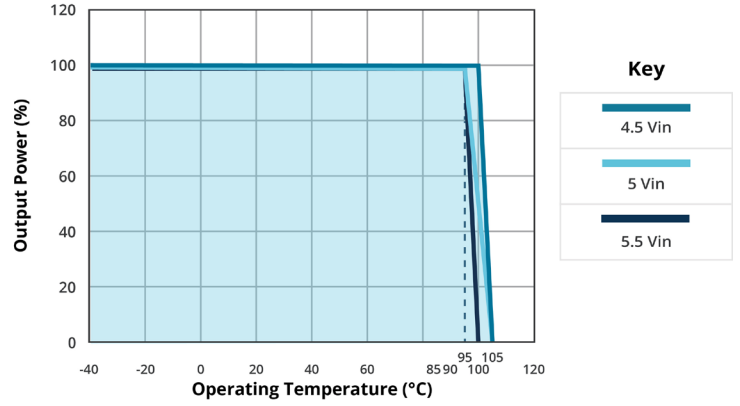


## DERATING CURVES (CONTINUED)

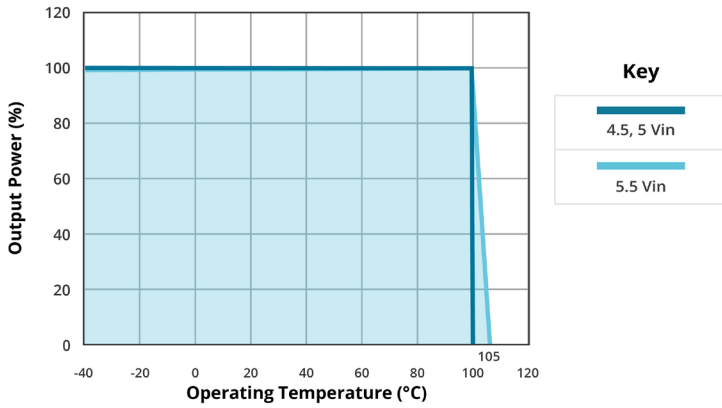
**TEMPERATURE DERATING CURVE**  
**VQA2-12-D1503-S, VQA2-12-D1505-S, VQA2-12-D1802-S, VQA2-12-D1803-S**  
*(natural convection)*



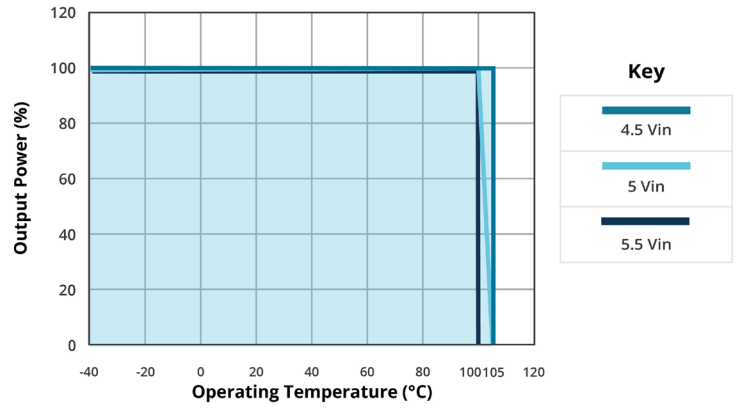
**TEMPERATURE DERATING CURVE**  
**VQA2-12-D1504-S, VQA2-12-D2005-S**  
*(natural convection)*



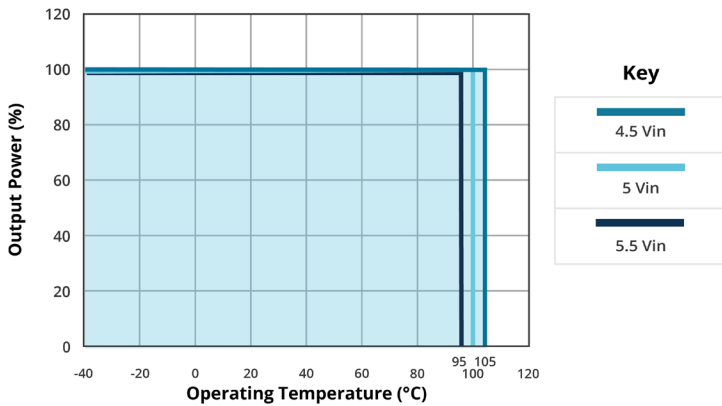
**TEMPERATURE DERATING CURVE**  
**VQA2-24-D1503-S**  
*(natural convection)*



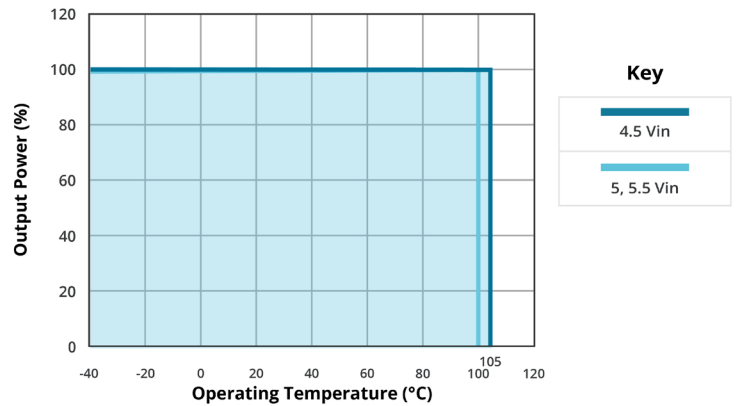
**TEMPERATURE DERATING CURVE**  
**VQA2-24-D1504-S, VQA2-24-D1509-S**  
*(natural convection)*



**TEMPERATURE DERATING CURVE**  
**VQA2-24-D1505-S**  
*(natural convection)*

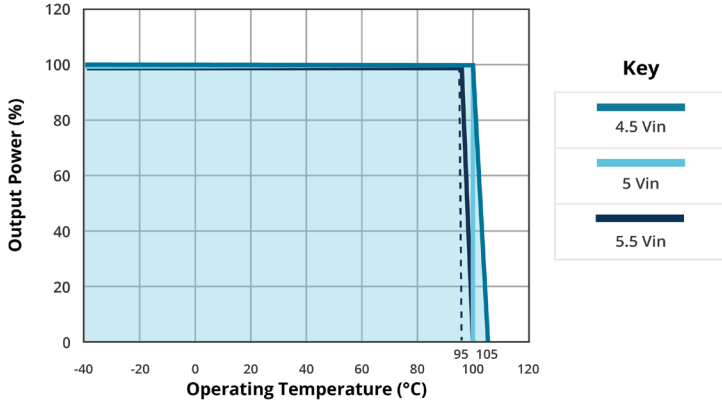


**TEMPERATURE DERATING CURVE**  
**VQA2-24-D1802-S**  
*(natural convection)*



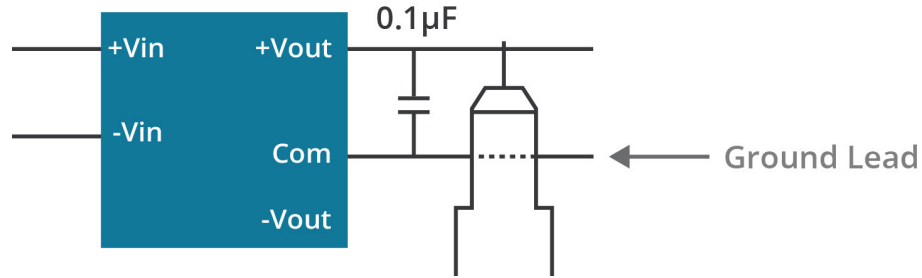
## DERATING CURVES (CONTINUED)

**TEMPERATURE DERATING CURVE**  
**VQA2-24-D2005-S**  
*(natural convection)*



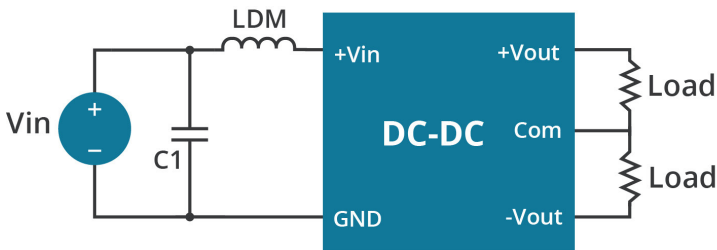
## RIPPLE AND NOISE MEASUREMENT

**Figure 1**



## EMC RECOMMENDED CIRCUIT CLASS A/B

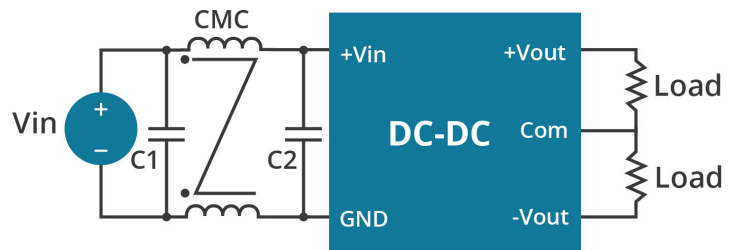
**Figure 2**  
**All other models**



**Table 1**

C1	LDM
10 µF	47 µH

**Figure 3**  
**VQA2-12-D2005-S**



**Table 2**

C1	CMC	C2
10 µF	0.56 mH	10 µF

## REVISION HISTORY

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rev.	description	date
1.0	initial release	03/11/2025

The revision history provided is for informational purposes only and is believed to be accurate.



**CUI INC**

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**Headquarters**

15575 SW Sequoia Pkwy #100  
Portland, OR 97224  
**800.275.4899**

Fax 503.612.2383  
**cui.com**  
techsupport@cui.com

CUI offers a two (2) year limited warranty. Complete warranty information is listed on our website.

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