

3M™ Wiremount Sockets, CHG Series

0.100" x 0.100" (2.54mm x 2.54mm)

Product Specification 78-5102-0010-4

Released: 01-04-23



1. Scope

This document summarizes test methods, test conditions and product performance requirements for the 3M™ Wiremount Socket, CHG Series with 30 μ" gold plating. Listings of materials, finishes, test conditions, and test standards are included in this specification. In the event of conflict between this specification and any documents listed below, the listed documentation supersedes this specification.

2. 3M Documents

- 78-5100-0189-0 Technical Data Sheet, 3M™ Wiremount Socket .100" x .100", CHG-10XX-001010-KXX, CHG Series
- 78-5100-0191-6 Technical Data Sheet, 3M™ Wiremount Socket CHG-20XX-001010-KXX CHG Series
- 78-5100-0192-4 Technical Data Sheet, 3M™ Pak 100 Polarized Wiremount Socket, CHG Series

- 34-7021-1570-0 Assembly Instructions, 3M™ Wiremount Socket Connector 3739-CHGA
 Instructions for Notched Flat Cable

- 3624-41 Assembly Instructions, 3M™ Assembly Heads 3624-41 and 3624-42
- 3624-42 Instructions for discrete wire
- 3586-12 Manual Pistol Grip 3586-12

3. Performance and Test Description

Unless otherwise specified, all tests shall be performed on 3M™ Pak 100 Polarized Wiremount Socket, CHG Series sockets mated to 3M™ Four-Wall Header, 3000 Series or 3M™ Wiremount Socket CHG-20XX-001010-KXX CHG Series mated to 3M™ Pin Strip Header, 929 Series 0.235" to 0.318" lengths. Cable must be tinned 22, 24, 26, and 28 AWG; solid or stranded wire. Unless otherwise specified, all values and limits are typical of those obtained by qualification testing of the subject product. All specifications are subject to revision and change without notice from 3M.

4. Requirements Overview

4.1 Ratings

- Dielectric Withstanding Voltage: 500 VAC_{RMS} at sea level
- Temperature: -55°C to +105°C
- Insulation resistance: >1 x10⁹Ω at 500 VDC
- Current: (EIA-364-070 method 2, 30°C maximum temperature rise.)

	AWG				Units
	22	24	26	28	
1 Contact Powered	4.50	3.75	3.50	3.50	Amperes
4* Contacts Powered	3.00	2.50	2.00	2.00	
All Contacts Powered	1.50	1.25	1.00	1.00	

*Lines are adjacent in 2x2 configuration

4.2 Materials

- Socket
 - Insulation: Glass Filled PBT
 - Flammability: UL 94V-0
 - IDC Contact: Copper Alloy

4.3 Finishes

- Plating:
 - Nickel (second wipe, U-Slot, underplate): 50 - 150 μ inches (1.27 - 3.81 μm), ASTM B689-97, SAE AMS-QQ-N-290
 - Gold (first wiping area): 30 μ inches (0.76 μm) Avg, MIL-G-45204 Type II, Grade C

4.4 Cable Accommodation

- General Accommodation:
 - Tinned 22, 24, 26, 28 AWG stranded or solid conductor
 - .050" (1.27mm) pitch notched flat ribbon cable or discrete wire
 - PVC, FEP, or TPE insulation.

4.5 Regulatory Compliance

For regulatory information about this product, visit 3M.com/regs or contact your 3M representative.

5. Electrical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Dielectric Withstanding Voltage	1000	VAC _{RMS}	Measured between adjacent and opposing contacts. No disruptive discharge during 1 minute duration. Sea level with 70% relative humidity. Excludes cable.	EIA-364-20F Method B Test Condition I
Dielectric Breakdown Voltage	1000	VAC/sec	Ramp assembled pair at 500V/s until electrical arc. Sea level with 70% relative humidity. Excludes cable.	EIA-364-20F Method B Test Condition I
Insulation Resistance	>1x10 ⁹	Ohms	Mated connectors. Measured between adjacent and opposing contacts. 500 VDC for 1 minute duration.	EIA-364-21F
Temperature Rise (Current Rating)	22 AWG	Amperes	Tested with: Sockt Part Number: CHG-2060-01010-KEP Header Part Number: 2560-6002-UG 1 line energized. 30°C temp. rise. 20% derated. 4 lines (2x2) energized. 30°C temp. rise. 20% derated. All lines energized. 30°C temp. rise. 20% derated.	EIA-364-70A, Method 2
	24 AWG			
	4.00			
	3.75			
	3.00			
	2.50			
	1.50			
	1.25			
Temperature Rise (Current Rating)	26 AWG	Amperes	Tested with: Sockt Part Number: CHG-2060-01010-KCP Header Part Number: 2560-6002-UG 1 line energized. 30°C temp. rise. 20% derated. 4 lines (2x2) energized. 30°C temp. rise. 20% derated. All lines energized. 30°C temp. rise. 20% derated.	EIA-364-70A, Method 2
	28 AWG			
	3.50			
	3.50			
	2.00			
	2.00			
	1.00			
	1.00			
Low Level Connection Resistance	<10	Milliohms	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-23C

6. Mechanical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Vibration	50-2000 5.35	Hz g	1.5 hours X, Y, & Z axis. Mated connector shall exhibit no discontinuities greater than 10 ns and 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-20F Condition V, Table 2 Condition A 1.5
Mechanical Shock	50	g	3 Shocks each directions for X, Y, & Z axis. 18 total. Mated connector shall exhibit no discontinuities greater than 10 ns and 10 milliohm maximum ΔR contact resistance throughout testing.	EIA-364-27B Test Cond. C
Mating Force / Contact	200 max avg	g	Mated to a .025" square pin. Average for connector. (Insertion Force)	EIA-364-13E Method A
Unmating Force / Contact	35 min avg	g	Mated to a .025" square pin. Average for connector. (Withdrawl Force)	EIA-364-13E Method A
Durability (with Environmental)	50 (30 μ")	Mating cycles	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-09C

7. Physical

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Visual	NA	NA	No defects such as deformation, blister, damage, crack, etc.	EIA-364-18A
(Metallic Coating) Adhesion	NA	NA	No cracking, flaking.	MIL-G-45204 Section 4.6.2
Plating thickness Nickel Gold	50-150 30 Avg	μ"	Average of random measurements from any 3 lots.	EIA-364-48

8. Environmental

Description or Parameter	Values & Limits	Units	Requirement or Conditions	Test Standard or Method
Temperature Life	1000 105	hours °C	No physical abnormalities . 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-17C Method A Condition 4
Humidity Temperature Cycling	10 +25 to +65 80 to 100 -10	Days °C % RH °C	-10C subcycle. No physical abnormalities. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-31F Method IV Fig 1
Thermal Shock	-55 to +105 5	°C cycles	No physical abnormalities. 10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-32G Method A, Test Cond. VII
Salt Spray	5 48	% NaCl hours	10 milliohm maximum ΔR contact resistance per mated interface throughout testing.	EIA-364-26C Test Cond. B

9. Test Sequence

9.1 Sequenced Tests

TEST FLOW

TEST	EIA 364 TP NO.	TEST GROUP & TEST SEQUENCE					
		A	B	C	D	E	F
Visual	18	0,8	0,4	0,6	0,6	0,6	0,3
LLCR	23	1,3,5,7	1,3	1,3,5	1,3,5		
Durability (Full)	13	2			2	3	
Temperature Life (Full)	17		2				
Mechanical Shock	27			2			
Vibration	28			4			
Thermal Shock	32	4					
Humidity Temperature Cycling	31	6					
Salt Spray	26				4		
Dielectric Withstanding Voltage	20					1,4	2
Dielectric Breakdown Voltage	20					7	
Insulation Resistance	21					2,5	
Temperature Rise vs. Current	70						1

9.2 Independent Tests

1. Mating & Unmating Force
2. (Metal Coating) Adhesion

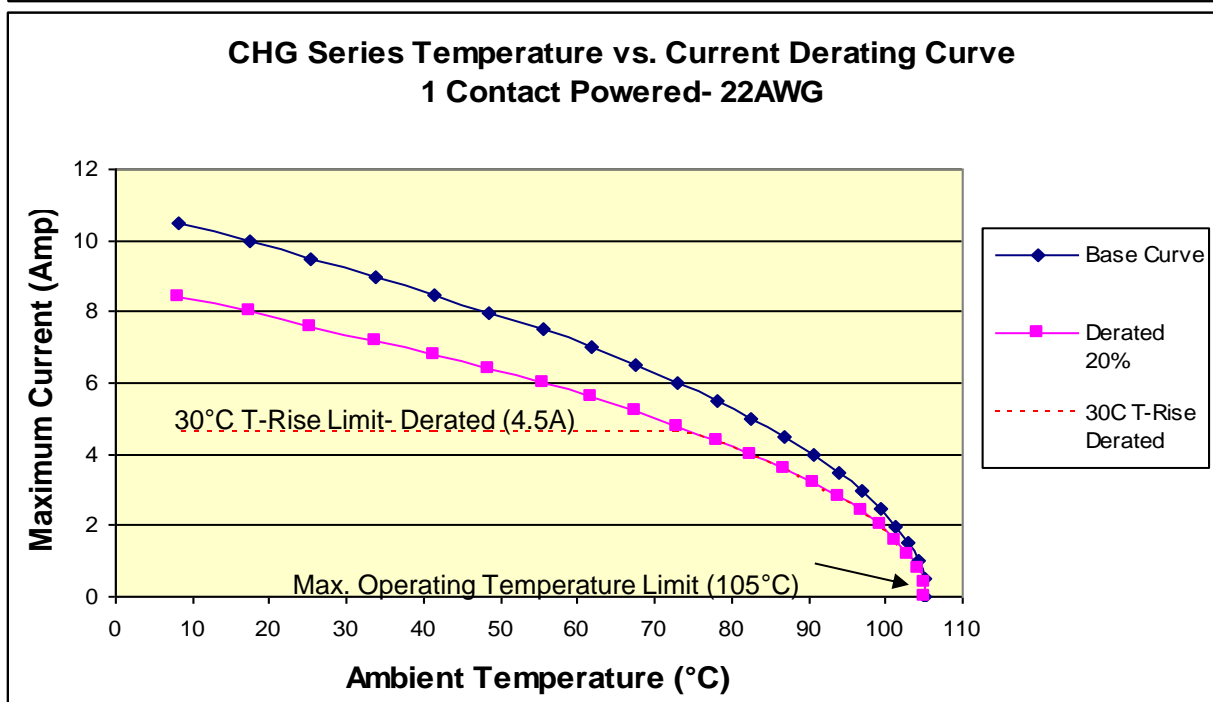
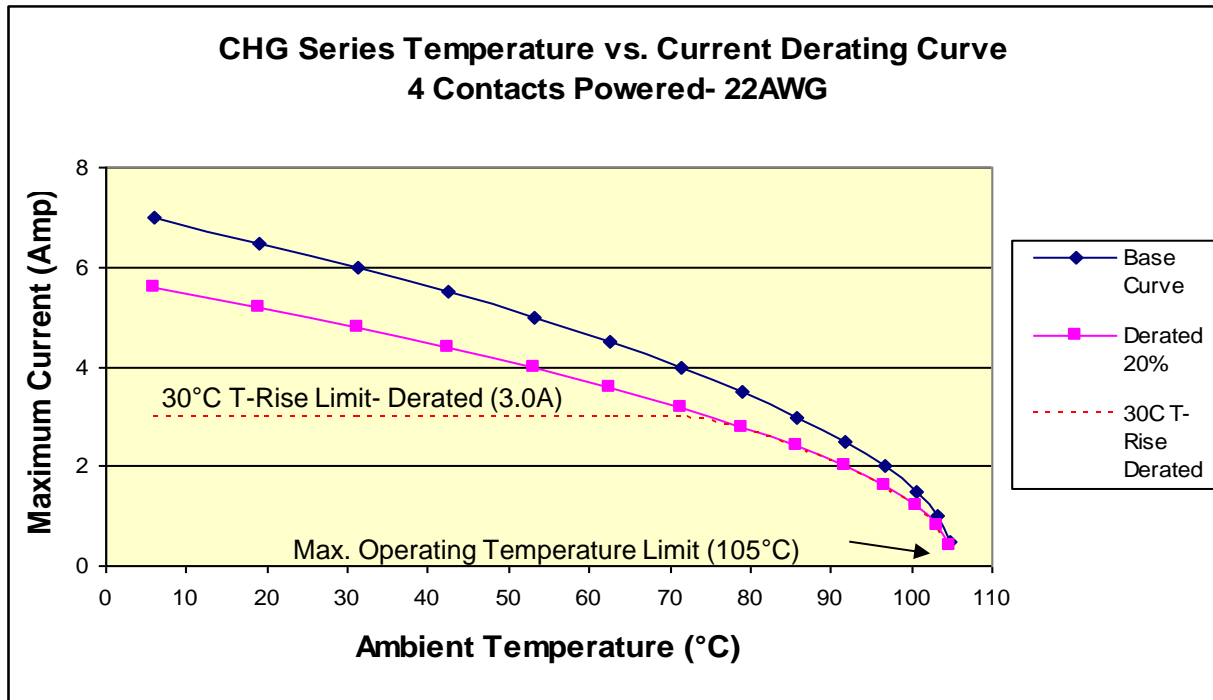
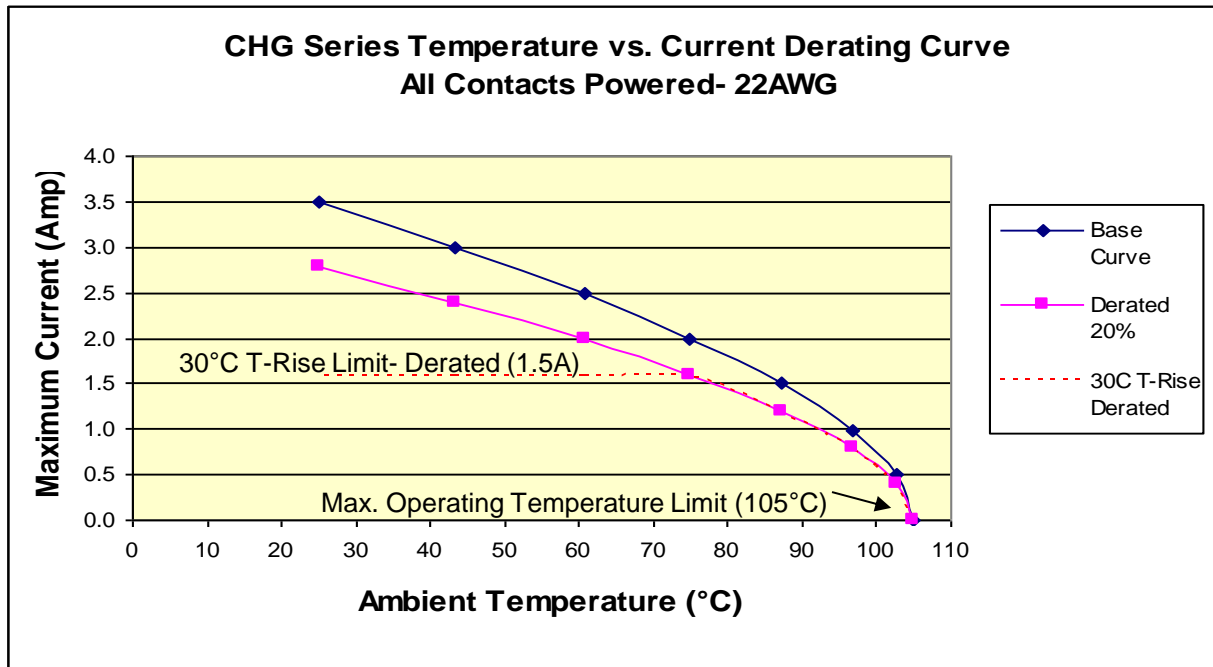
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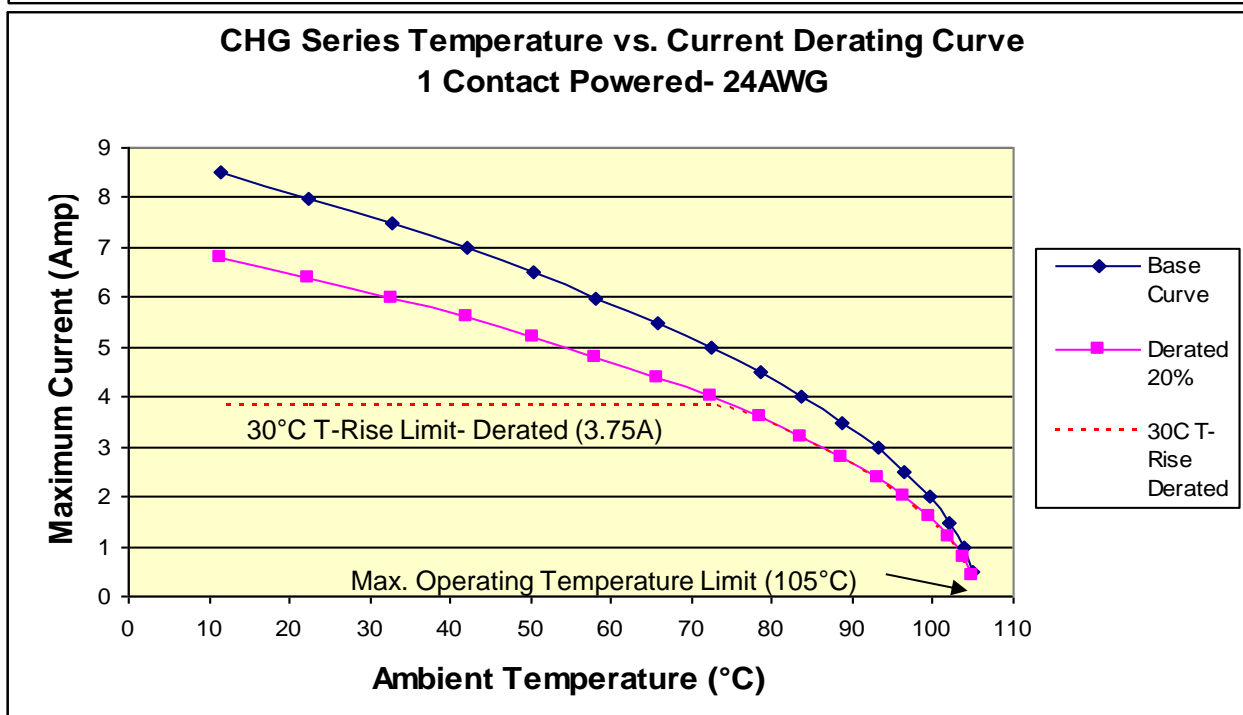
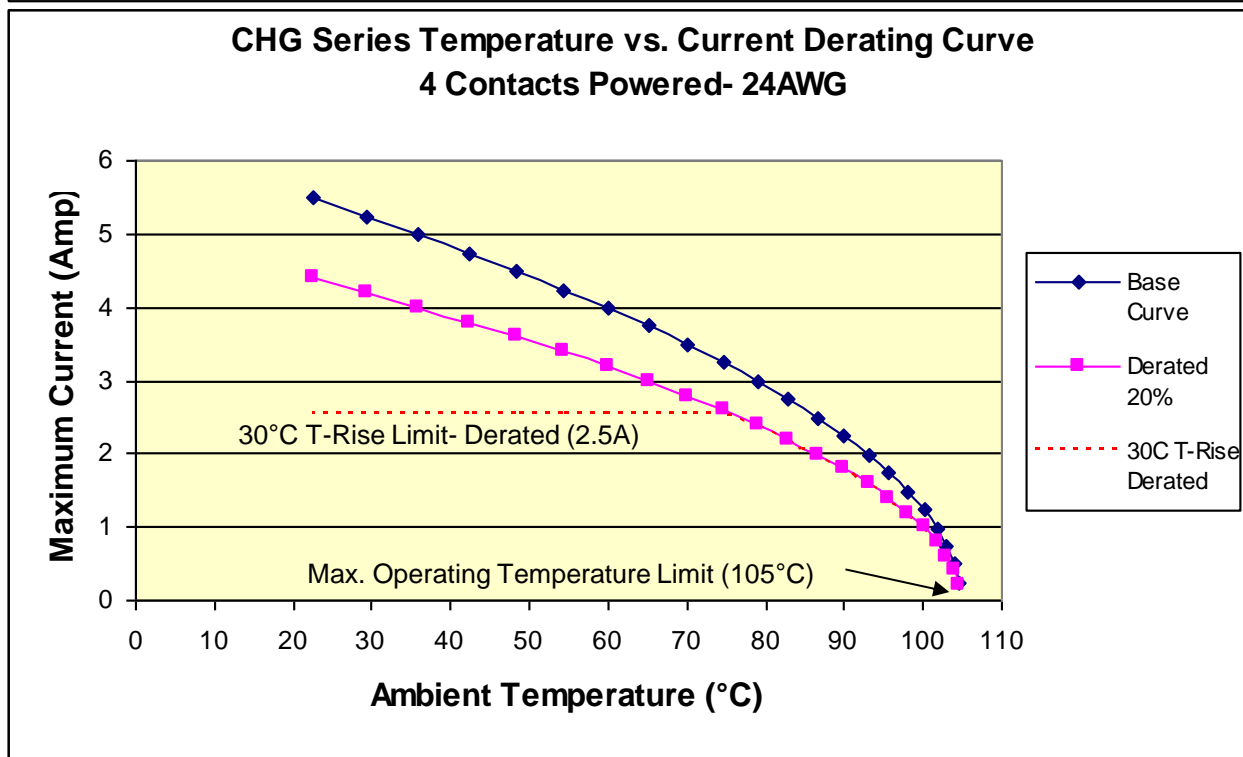
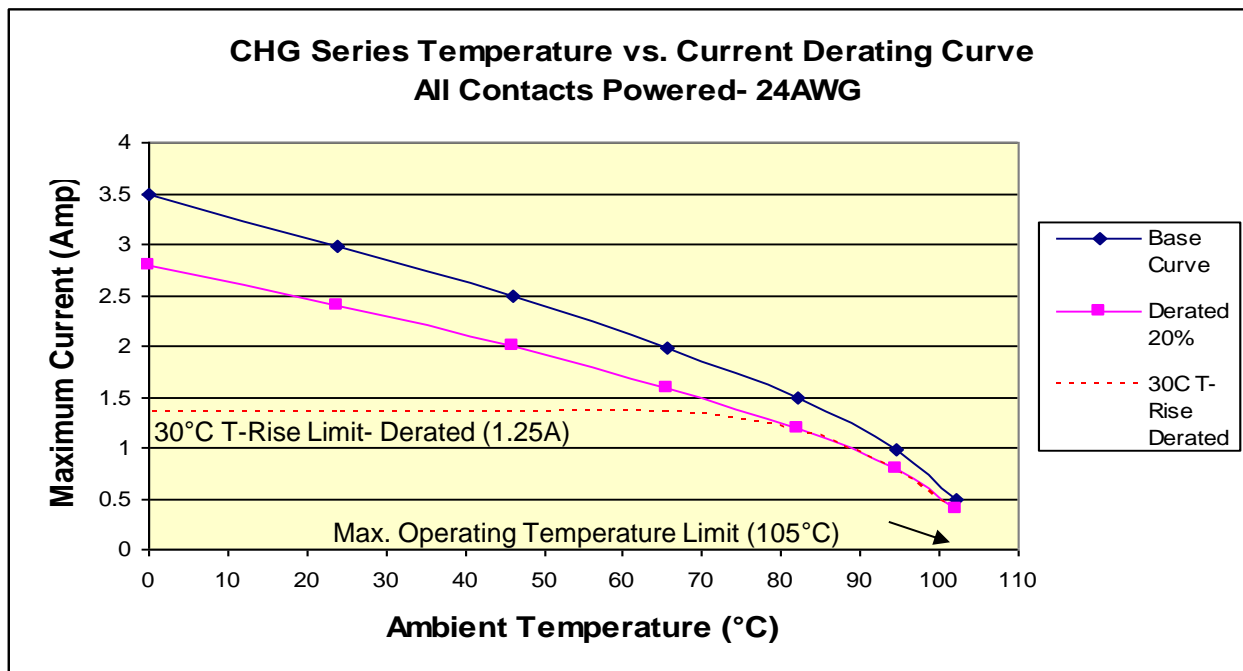
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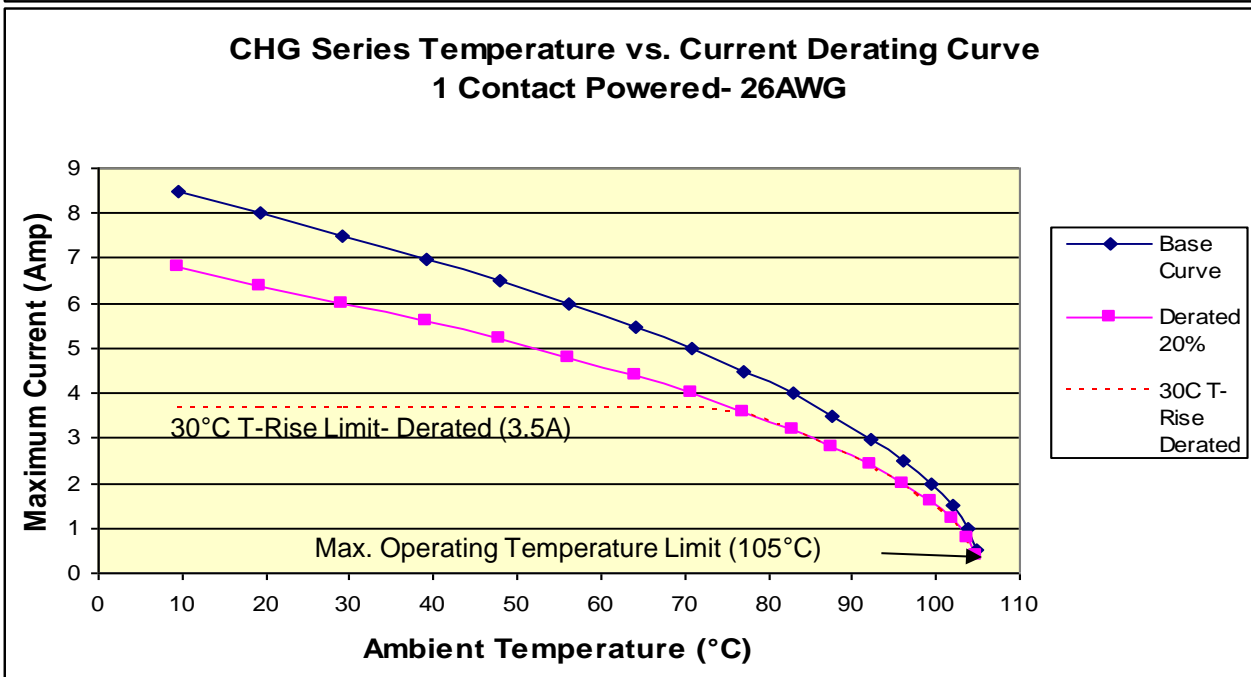
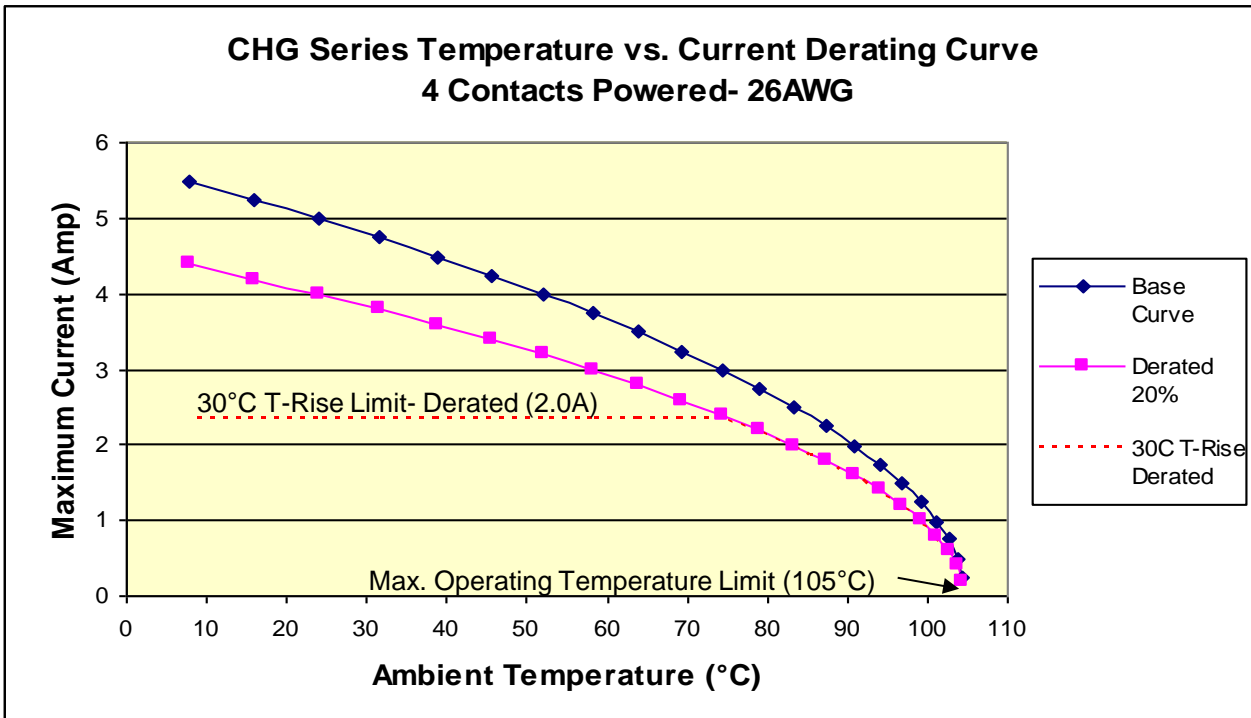
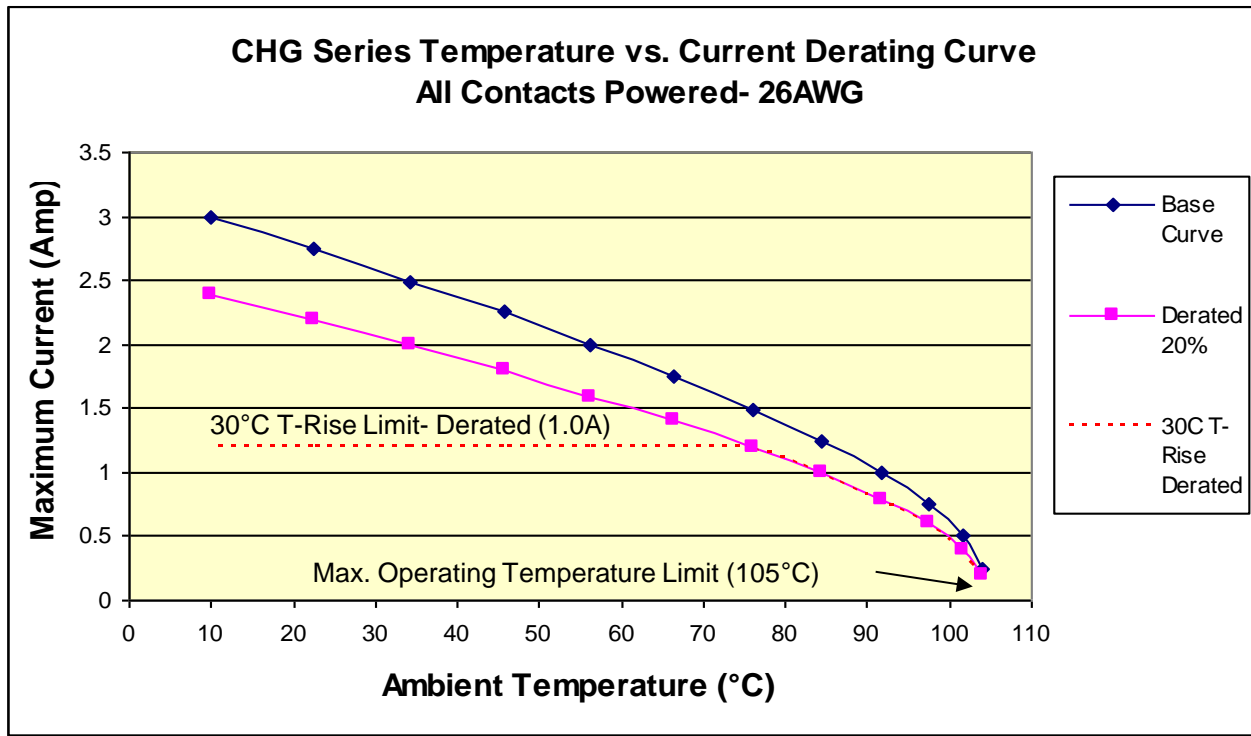
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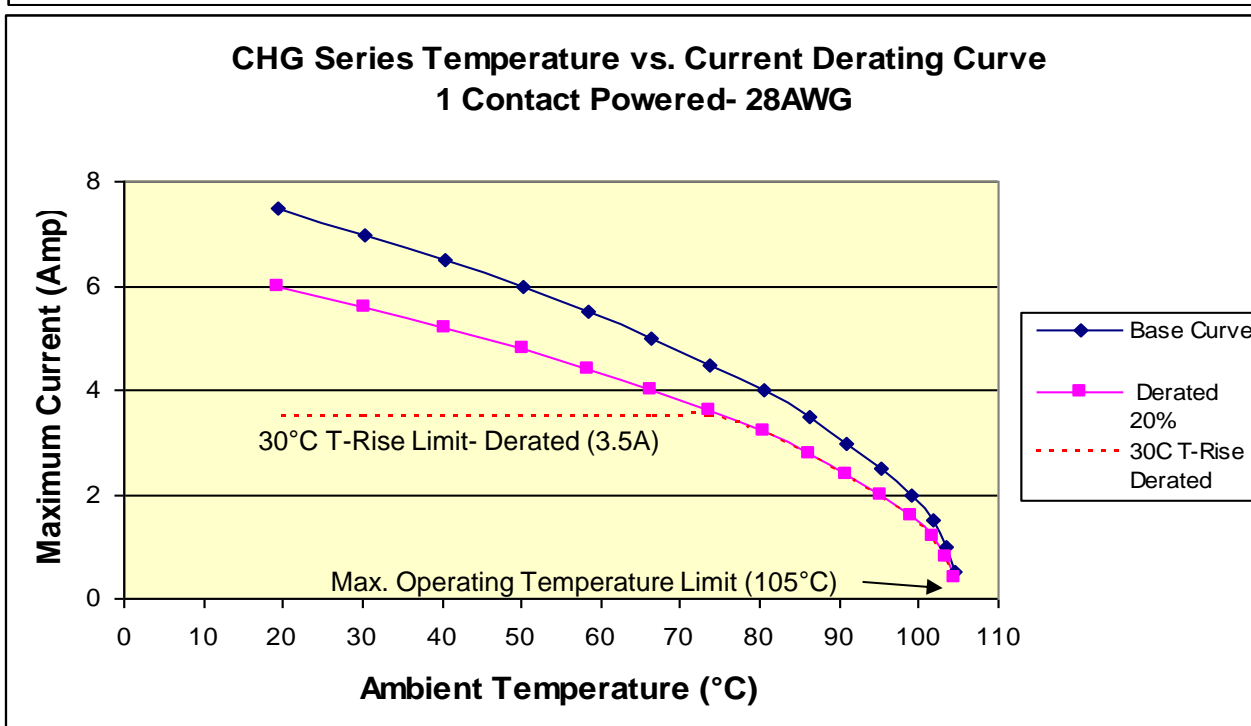
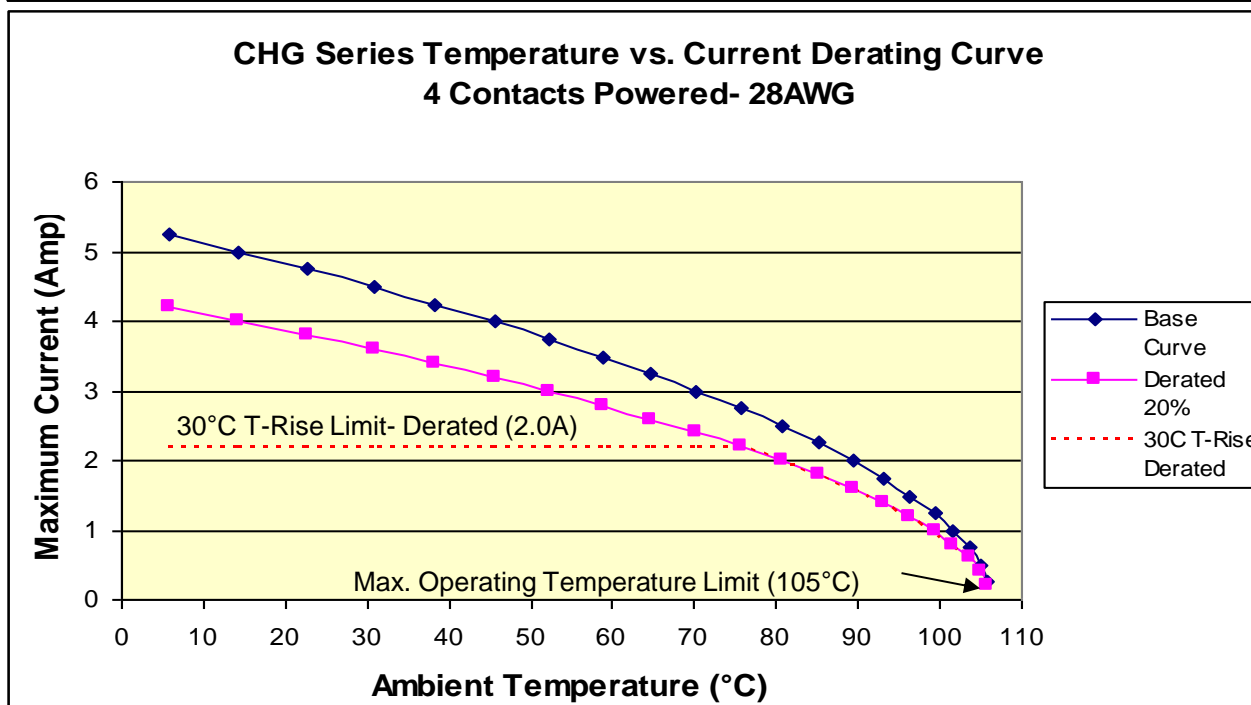
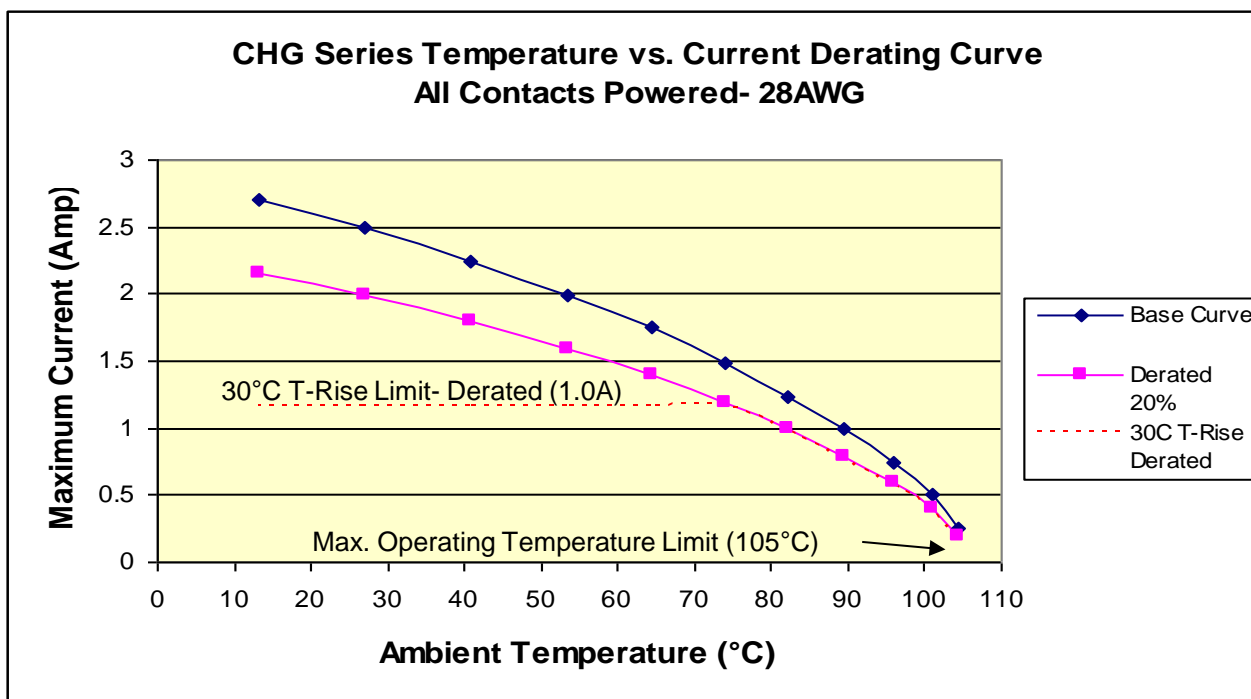
11.0 Figures

11.1 Temperature Rise vs. Current









Unless otherwise noted, references to industry specifications are intended to indicate substantial compliance to the material elements of the specification. Such references should not be construed as a guarantee of compliance to all requirements in a given specification.

Regulatory: For regulatory information about this product, visit [3M.com/regs](https://www.3m.com/regs)

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