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## DEUTSCH\* Ø8mm Pin and Socket Contacts

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### 1. SCOPE

#### 1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) DEUTSCH Ø8mm Pin and Socket Contacts.

#### 1.2. Qualification

When tests are performed on the subject product line, procedures specified in Table 2 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

### 2. APPLICABLE DOCUMENTS

The following documents constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

#### 2.1. TE Connectivity (TE) Documents

- [109-1](#) General Requirements for Testing
- [114-151039](#) Application Specification for DEUTSCH Ø8mm Pin and Socket Contacts
- [501-151030](#) Qualification Test Report (DTSK Series Connector System)
- Product Drawings. XX = plating codes. See individual product drawings for available plating.

Product Drawing Pin	Size	Product Drawing Socket	Size
SRK-PC-080-16/35-XX	8 mm	SRK-SC-080-16/35-XX	8 mm

#### 2.2. Industry Documents

DIN 72551-6, Road Vehicles - Low Tension Cables - part 6: Single-Core, Unscreened with Thin Insulation Wall; Dimensions, Materials, Marking

ISO 6722, Road Vehicles - 60V and 600V Single-Core Cables; Dimensions, Test Methods and Requirements

NFC 20-130, Requirements Crimp-Type Copper or Copper Alloy Non-Insulated Lugs for Copper Conductors

SAE J1127, Low Voltage Battery Cable

[TE Technical Paper](#), Overview of the Use of Silver in Connector Application.

### 3. REQUIREMENTS

#### 3.1. Design and Construction

Product shall be of the design, construction, materials and physical dimensions specified on the applicable product drawing.

#### 3.2. Ratings

- Voltage: See connector product specification
- Current (Amp): See Table 1

Connector Loading	Wire Size			
	4 AWG	2 AWG	25 mm <sup>2</sup>	35 mm <sup>2</sup>
All Circuits Energized at Connector Temperature 125 °C	100	115	100	125

Table 1

- Temperature: -55°C to +125°C



**NOTE**

*See connector product specification for connector temperature range*

3.3. Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure
Examination of Product	The contacts shall be correctly constructed, marked and shall show good quality and workmanship	SAE J2030 Visually inspected for use of materials, proper construction, correct part number and insert markings and over-all quality of workmanship. Damaged or improperly manufactured contacts, galling of metal parts, nicks and burrs of metal parts were considered adequate basis for rejection.

**ELECTRICAL**

Contact Resistance (Voltage Drop)	Contact Size	Wire Size AWG [mm <sup>2</sup> ]	Test Current (A)	Voltage Drop mV max	EIA-364-06 The test samples were energized by increasing the current until the test current listed in Figure 2 was achieved. The samples were allowed to stabilize at the test current. The voltage drop was measured and recorded. The reversed voltage drop was measured and recorded. The test sample voltage drop was calculated as follows:  Speciman mV = $\frac{\text{Forward mV} + \text{Reverse mV}}{2}$
	Ø 8 mm	4 [25.0]	120	100	
		2 [35.0]	150		

Test Description	Requirement	Procedure
Temperature Rise vs. Current	The temperature shall not exceed 30°C.	<p>EIA-364-70, Method 2</p> <p>Energize test samples with a test to produce 5°C to 10°C temperature rise (stabilized condition). Repeat at a minimum of 4 consecutively increasing current levels with each additional level generating an additional temperature rise (min) of 10 above previous recorded. See figure 1.</p> <p>Note: The contacts were tested in DTSK housings for this test.</p>

Temperature Rise vs Current

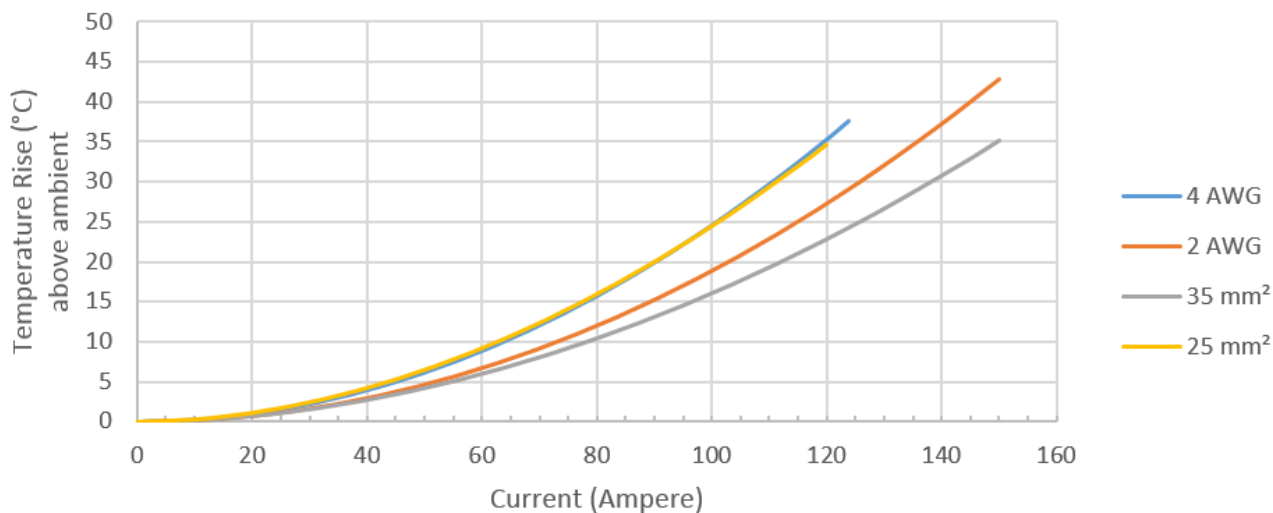


Figure 1

Test Description	Requirement	Procedure
Derating	Derating curve shall be documented for each terminal system	<p>IEC 60512-5-2, Test 5b</p> <p>The test samples were mounted in an enclosure which protects the immediate environment from external air movement. Thermocouple probes were assembled to the rest samples to measure temperature increase as the contact as the current increases. The current was increased in 1 Amp step in held for 1 hour after thermal stability. See figure 2.</p> <p>Note: The contacts were tested in DTSK housings for this test.</p>

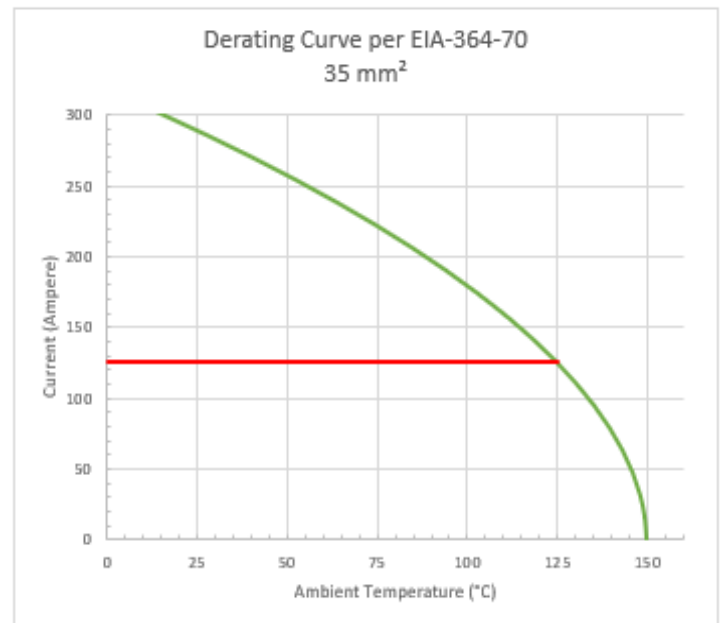
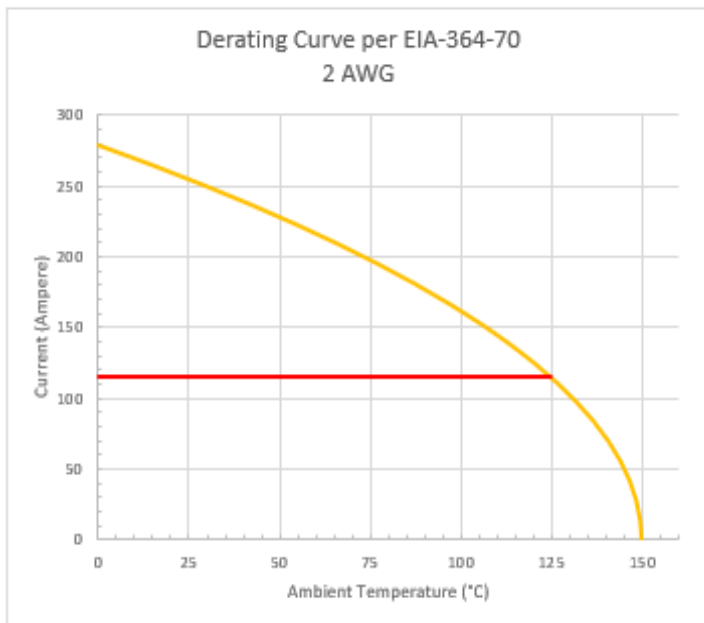
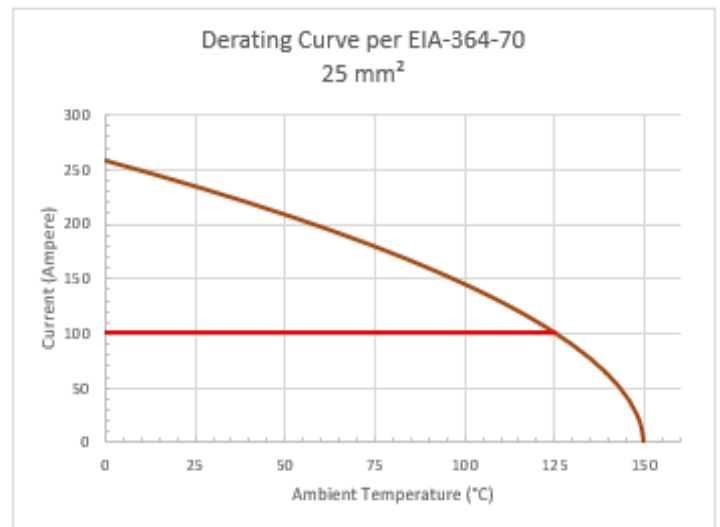
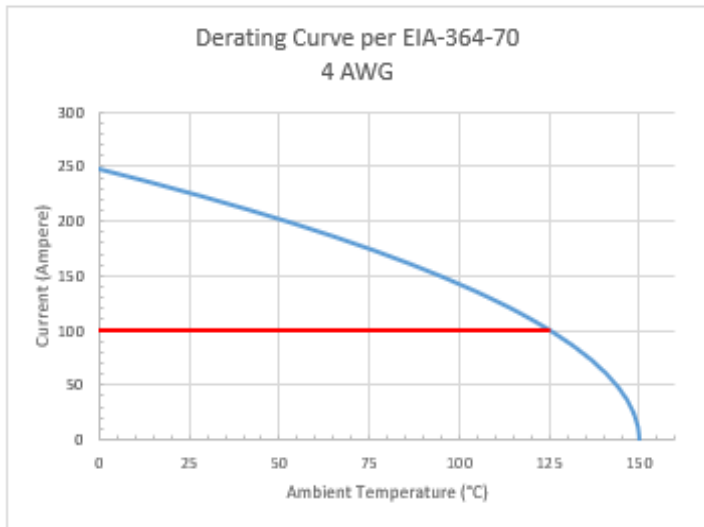


Figure 2

**MECHANICAL**

Test Description	Requirement	Procedure								
Durability	No evidence of damage to the contacts, contact plating, connector housing or seals which may be detrimental to reliable connector performance.	SAE J2030 The test samples shall be mated and unmated for a total of 50 complete cycles at room temperature.								
Vibration	No electrical discontinuity in excess of 1.0 microsecond and no disengagement of the mated connectors, no backing off of the coupling mechanism, and no evidence of cracking, breaking, or loosening of parts.	SAE J2030 Sine Sweep: 10 to 2000 Hz Initial Displacement: 0.07in [1.78mm] DA Maximum Acceleration: 20 G's Duration of Test: 24 hours Time per axis X,Y,Z 8 hours Test Current first 3-hours of each axis: <table border="1" data-bbox="1045 625 1528 890"> <thead> <tr> <th data-bbox="1045 625 1195 751">Contact size</th> <th data-bbox="1195 625 1349 751">Wire Size AWG [mm<sup>2</sup>]</th> <th data-bbox="1349 625 1528 751">Test Current Amp</th> </tr> </thead> <tbody> <tr> <td data-bbox="1045 751 1195 825" rowspan="2">Ø8mm</td> <td data-bbox="1195 751 1349 825">4 [25.0]</td> <td data-bbox="1349 751 1528 825">72</td> </tr> <tr> <td data-bbox="1195 825 1349 890">2 [35.0]</td> <td data-bbox="1349 825 1528 890">90</td> </tr> </tbody> </table>	Contact size	Wire Size AWG [mm <sup>2</sup> ]	Test Current Amp	Ø8mm	4 [25.0]	72	2 [35.0]	90
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Ø8mm	4 [25.0]	72								
	2 [35.0]	90								
Terminal Retention in Connector	The terminal shall maintain its original position in the connector throughout the test.	SAE J2030 Subject the contacts to a direct pull. The terminals shall withstand a minimum force of 56 lbf [250N] for 60 seconds.								
Terminal Crimp Strength	<table border="1" data-bbox="456 1037 995 1266"> <thead> <tr> <th data-bbox="456 1037 672 1121">Cable Size</th> <th data-bbox="672 1037 995 1121">Minimum Tensile lbf [N]</th> </tr> </thead> <tbody> <tr> <td data-bbox="456 1121 672 1178">25 mm<sup>2</sup> 4 AWG</td> <td data-bbox="672 1121 995 1178">489 [2175]</td> </tr> <tr> <td data-bbox="456 1178 672 1220">2 AWG</td> <td data-bbox="672 1178 995 1220">562 [2500]</td> </tr> <tr> <td data-bbox="456 1220 672 1266">35 mm<sup>2</sup></td> <td data-bbox="672 1220 995 1266">598 [2660]</td> </tr> </tbody> </table>	Cable Size	Minimum Tensile lbf [N]	25 mm <sup>2</sup> 4 AWG	489 [2175]	2 AWG	562 [2500]	35 mm <sup>2</sup>	598 [2660]	SAE J2030 The tensile strength of the crimped connection shall be tested by using suitable apparatus at a constant speed within the range of 20 mm to 100 mm/min. If the terminal has a cable insulation crimp it shall be rendered mechanically ineffective.
Cable Size	Minimum Tensile lbf [N]									
25 mm <sup>2</sup> 4 AWG	489 [2175]									
2 AWG	562 [2500]									
35 mm <sup>2</sup>	598 [2660]									
Connector Retention	There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.	SAE J2030 Apply a pulling force to the wire bundle of the mated connector at 444 N. The load was applied for 30 seconds.								

**ENVIRONMENTAL**

<b>Test Description</b>	<b>Requirement</b>	<b>Procedure</b>
Temperature Life	There shall be no evidence of cracking, distortion or detrimental damage to the connector following the test.	SAE J2030 Subject wired, mated connectors to 1000 hours of heat in a circulating air oven at 125°C [257°F].
Thermal Shock	There shall be no evidence of cracking, chipping or other damage detrimental to the normal operation of the connectors.	SAE J2030 The cabled-mated connector shall be subjected to 10 cycles of thermal shock. One cycle shall consist of a soak time at -55 °C ambient, then a transition within 2 min to an ambient of 125 °C, with a soak time there and then a transition back to -55 °C ambient within 2 min. The soak times shall be established as the time necessary to bring the internal connector temperature on test to within 5 °C of each of the ambient temperatures

Table 2

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#### 4. REVISION HISTORY

Rev	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	15-Aug-2019	AK	DM
A1	Update figure 2	22-Aug-2019	AK	DM