

# Delphi 150 & 280 Series GT FBT USCAR Unsealed Connection Systems

Delphi offers the industry's first application of advanced Flexible Beam Technology (FBT) designed into an automotive connection system. The connection system is an extension of the GT product line and features Flexible Beam Technology for the terminal-to-connector cavity interface. The connection system offers reduced complexity at lower cost while providing industry-leading terminal retention.

The GT FBT series includes 1.5 and 2.8 mm unsealed female connectors designed to mate to USCAR footprint devices. The GT FBT series provides better terminal retention, with reduced mass and a robust locking mechanism.

The GT terminal and connector system offers a small package size suited to fit the tight space requirements of today's vehicles. The GT Connection System includes:

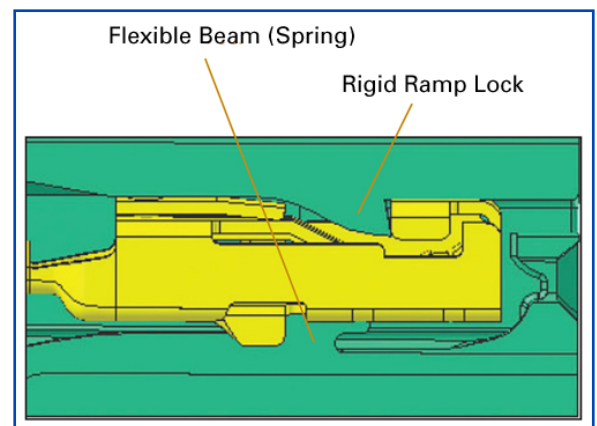
- Tangless terminals with stamped serrations
- Primary cantilever lock with features for optional Connector Position Assurance (CPA)
- Female terminals compatible with ISO or SAE blades

### ► Benefits

- Terminal position assurance without additional pieces is a technology differentiator
- Improvement in harness first time quality enhances quality/warranty performance
- Reduces mass up to 12 percent with fewer pieces
- 30 percent increase in terminal retention enhances performance
- Industry standard repair tools used for simple servicing, with no secondary pieces to remove
- Tangless terminals yield durability
- Low engage force improves reliability and ergonomics
- Primary cantilever lock with features for optional CPA for easy disassembly and low engage force
- Mates to ISO, SAE blades for compatibility with existing systems



**GT FBT USCAR 16 way unsealed 1.5 mm female connector**



**FBT uses a rigid ramp to provide the terminal primary lock. A flexible beam opposite the retention ramp holds the terminal against the ramp and provides audible and tactile feedback.**

▶ **Typical Applications**

The GT FBT Connection System can be used with any customer application of an unsealed USCAR footprint device for automotive interiors. In addition, the Flexible Beam cavity technology can also be applied to unique applications to meet customer-specific needs.

<b>Application Guidelines</b>	<b>150 Series</b>	<b>280 Series</b>
Cable Range	0.35 – 1.0 mm <sup>2</sup>	0.35 – 5.0 mm <sup>2</sup>
Current Range	0 – 15A	0 – 25A
Temperature Range	-40°C to 125°C	-40°C to 125°C
Resistance	<10mΩ @ 20mV	<10mΩ @ 20mV
Voltage Drop	<10.0mV/A	<4.0mV/A
Centerline Spacing – Unsealed	3.5 mm	5.25 mm
Blade Width	1.5 mm	2.8 mm
Terminal-to-Terminal Engage Forces: Mates to 0.80 mm blade	Avg. 4N Tin-plated	Avg. 7N Tin-plated

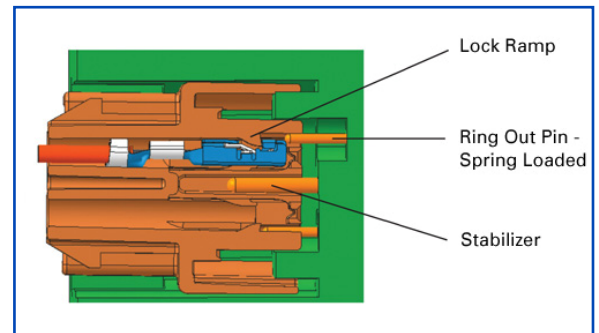
Terminals can be gold plated upon request.

The general application guidelines above are for reference only and may not account for all the variables that would be present in an actual application. For additional detailed product performance information, contact Delphi.

▶ **Performance Advantages**

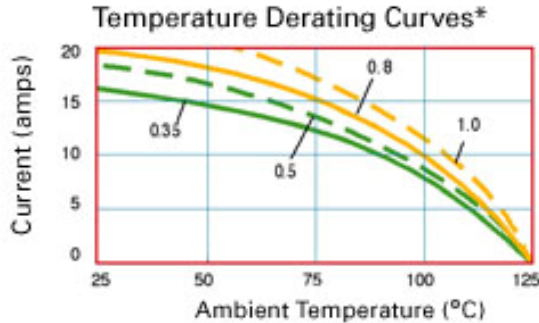
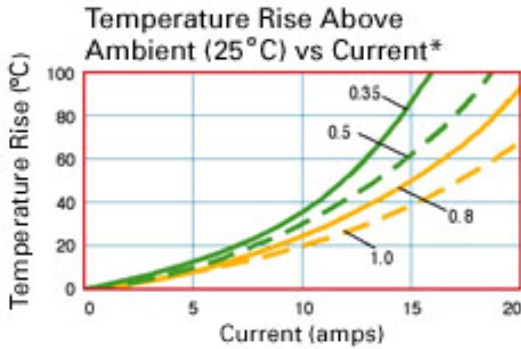
The GT FBT Connection System's terminal-to-terminal mating force is the lowest in its class. In addition, the design meets and exceeds ISO and USCAR electrical, mechanical, and environmental performance criteria.

Flexible Beam Technology is a product/process system. The Flexible Beam cavity design in combination with the build fixture used on the GT FBT family of connectors provides terminal position verification and eliminates the need for secondary locks found in most connection systems. The cavity/holder design relationship assures that a terminal has been seated.

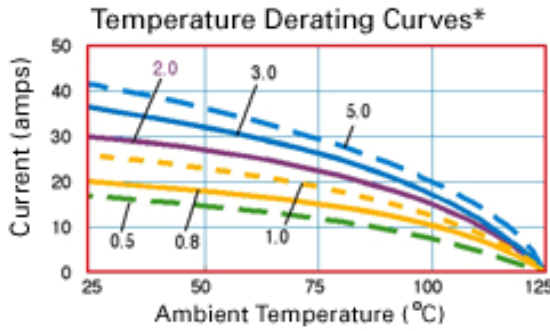
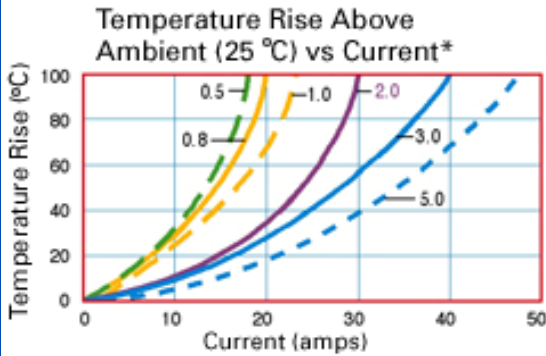


**At Line Ring Out (ALRO) holder utilizes a stabilizer pin/bar. The stabilizer ensures that the terminal is in contact with the ring out pin.**

**150 Series GT Terminal - Tin Plated**



**280 Series GT Terminal - Tin Plated**



Cable Sizes	
	0.35 mm <sup>2</sup>
	0.5 mm <sup>2</sup>
	0.8 mm <sup>2</sup>
	1.0 mm <sup>2</sup>
	2.0 mm <sup>2</sup>
	3.0 mm <sup>2</sup>
	5.0 mm <sup>2</sup>

\*The test data is based on single circuits in free space and was generated using a "Lumped Resistance" model. The data presented here does not account for all variables that would be present in an actual application. Delphi Engineering can model customers' specific applications upon request.

The graphs above show the temperature rise above ambient vs. current and the temperature derating curves for the GT 150 and 280 Series terminals using multiple cable sizes.