

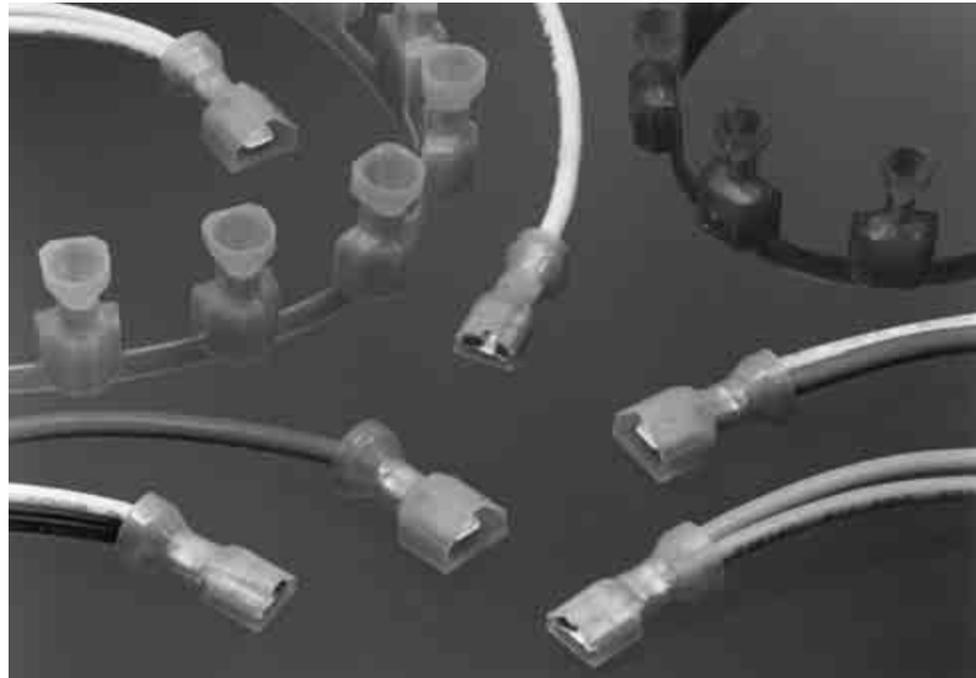
## Ultra-Fast Fully Insulated FASTON Receptacles and Tabs

### Product Facts

- One-piece Fully Insulated Premier Line FASTON Receptacle crimp helps prevent shock and short hazards
- Designed for correct lead-in of tab
- Designed for full mating with a variety of tab styles including those with shoulders
- Funnel wire entry
- Wire Stop
- Visual inspection of crimp and wire brush
- Assemblies are color-coded by wire size
- Assemblies contain wire size and tab size designation
- Mating tab thickness marked on terminal and visible through housing (.110, .187 and .205 Series)
- Application tooling available to meet production requirements
- Tin plated copper alloy terminals
- UL rated at + 105°C
- Terminates 26-10 AWG solid, fused and stranded wire (Flags terminate stranded wire only)

### Performance Capabilities

- Meets UL-310 specification for quick connect terminals; UL listed under File No. E-66717 
- Meets CSA C22.2, No. 153 specification for quick connect terminals; CSA Certified under File No. LR 7189 
- VDE tested according to DIN VDE 0627/9.91, specification for connectors and plug and socket devices, VDE Reg. No. 
- 600-volt application capability (1,000 volts for signs and fixtures)



The Ultra-Fast Fully Insulated FASTON Receptacle and Tab offers the advantage of a completely protected terminal and a wire crimp with comparable electromechanical performance to open barrel "F" crimp FASTON Terminals. The "User-Friendly" design combines easy mating with rounded corners. The .187 and .250 series receptacles incorporate a two-stage roll configuration and a cantilever mounted dimple which provides easy insertion and multiple independent points of contact for reduced tab interface resistance.

Ultra-Fast Fully Insulated FASTON Receptacles, Flag Receptacles and Tabs preclude the need for costly electrical safety interlocks or special protective shields to help prevent shock hazards. In addition, electrical short circuits from exposed leads are eliminated, even in equipment requiring close contact spacing.

The Ultra-Fast FASTON Receptacle, Flag Receptacle

and Tab are preinsulated assemblies featuring a housing molded from type 6/6 nylon material with a +130°C UL temperature rating.

The Ultra-Fast FASTON Receptacle housing completely encloses a tin plated copper alloy Premier FASTON receptacle which has been stress-relieved for increased durability and resistance to abuse. The FASTON receptacle is recessed sufficiently within the housing to allow its use in 600-volt applications. The receptacle portion of the terminal is designed for positive mating with a variety of tabs, including those with shoulders. The housing has a slotted membrane which is displaced by two tab shoulders allowing proper engagement of tab and receptacle while maintaining the fully insulated characteristic.

Positive entry and lead-in of the tab is provided by the inner housing wall and the lead-in on the terminal rolls.

This permits positive engagement, even in blind mating locations.

The Ultra-Fast FASTON Tab housing completely encloses a tin plated copper alloy FASTON tab. The FASTON tab is recessed sufficiently within the housing to allow its use in 600-volt applications. The housing is designed to completely encapsulate the tab and receptacle when the two are mated.

Quality control is easily maintained. The nylon housing is translucent, allowing visual inspection of the termination. In addition, a crimp code on the platform hand tool is indented into the housing during the crimping operation which identifies that the proper crimp dies were used.

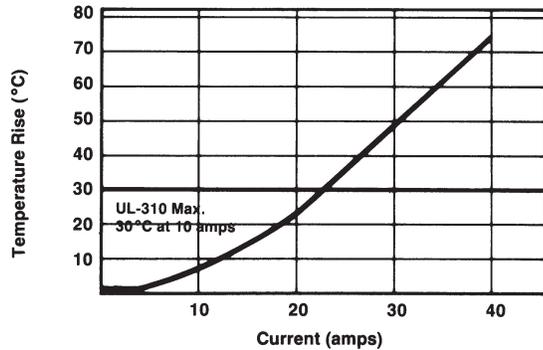
Depending on production requirements, Tyco Electronics provides a complete selection of terminating equipment from hand tools to automatic lead makers.

**Ultra-Fast Fully Insulated FASTON Receptacles and Tabs (Continued)**

**Test Specifications**

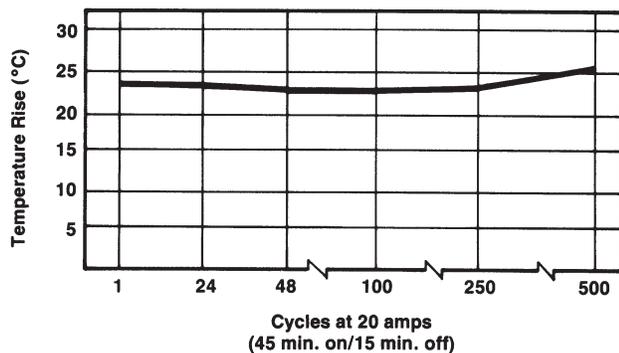
The following information and accompanying graphs are taken from Tyco Electronics Product Qualification Testing of Ultra-Fast FASTON product. Tests were conducted on representative production samples, and all values shown are averages of group results. The values shown are typical results and may vary due to differences in processing, application and methods of testing.

**Current vs. Temperature Rise (16 AWG)**



The heat generated by the current passing through a termination is a primary limit to the load-carrying capabilities of the application. A low termination resistance will produce a lower temperature rise as current is applied. In order to evaluate this characteristic, UL has established current ratings for each wire size and set a maximum temperature rise to assure safe operation. For example, 16 AWG stranded wire has a UL 310 maximum temperature rise of 30°C above ambient temperature at the rated current of 10 amps. In the testing of the Ultra-Fast FASTON product applied to 16 AWG wire, the temperature rise was found to be below 10°C at the rated current. In fact, the temperature rise did not exceed 30°C until the current was above 20 amps, more than twice the rated current.

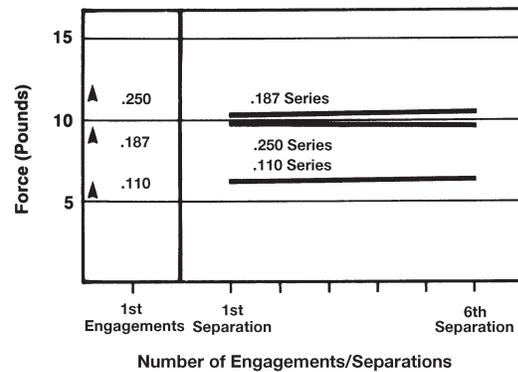
**Current Cycling vs. Temperature Rise (16 AWG)**



Maintaining a safe temperature rise during cyclic applications of excessive current is the toughest challenge for the crimp-thru-plastic concept. The ability of the Ultra-Fast FASTON product line to meet this goal sets it apart from other preinsulated terminations. Tyco Electronics' experience in crimp development results in a termination that exhibits stable heating characteristics which are well within the safety requirements of the industry.

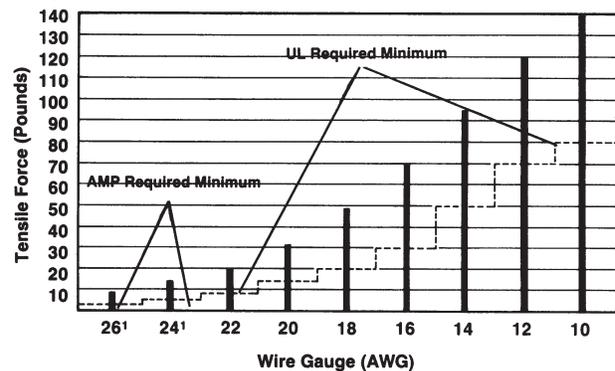
To test a product, it must be subjected to 500 on and off cycles at twice the rated current for the particular wire size. The temperature rise is measured on the 24th cycle and the 500th cycle. The maximum temperature rise is limited to 85°C above ambient temperature with a maximum of 15°C increase on any sample between the 24th and 500th cycles. Our testing of 16 AWG wire application indicated a 25.5°C maximum temperature rise up to 500 cycles, with a maximum increase of 0.8°C from the 24th to the 500th cycle for one sample in the test group.

**Engagement/Separation**



The forces caused by the rolls of FASTON style terminals determine the contact interface integrity of a mated receptacle and tab. These forces must be high enough to prevent oxidation and corrosion from forming inside the contact area. As these forces are raised to increase the electrical performance, the engagement and separation forces for mating the contacts are significantly increased. For this reason, the Premier Low Insertion Force FASTON concept of receptacle design has been carried over to the Ultra-Fast FASTON products. This feature provides consistent engagement and separation forces while maintaining a high standard of electrical reliability.

**Crimp Tensile**



<sup>1</sup> UL does not have requirements for wire gauges below 22 AWG. Note: Minimum requirements are per Tyco Electronics specifications.

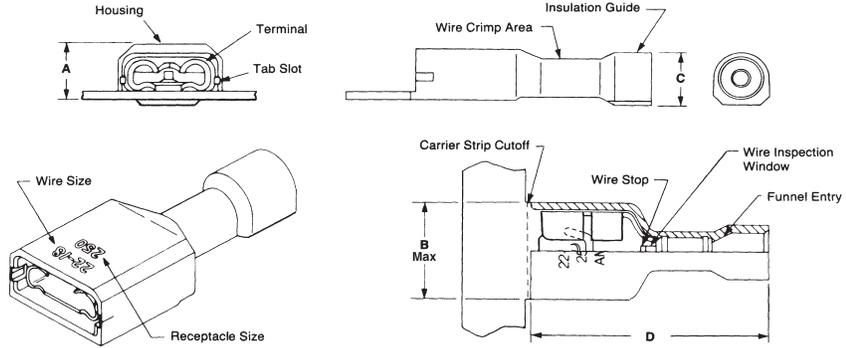
The crimp tensile strength of a wire-to-terminal connection is important in guarding against such hazards as wire flexing, vibration and wire strain. However, maximum tensile strength does not insure maximum electrical performance. An acceptable compromise between tensile strength and electrical performance must always be reached, using recommended crimp heights.

**Ultra-Fast Fully Insulated FASTON Receptacles and Tabs (Continued)**

**Ultra-Fast Fully Insulated FASTON Receptacles**

**Material**

- Housing** — Nylon Type 6/6
- Flammability** — UL 94 V-2
- Terminal** — Tin plated, copper alloy
- Color Code (Translucent)**
- Violet** — 26-22 AWG
- Red** — 22-18 AWG
- Blue** — 16-14 AWG
- Yellow** — 12-10 AWG



Description	Wire Range AWG	Ins. Dia. Max.	Dimensions				Mating Tab	Terminal Base Material	Part Numbers		
			A	B	C	D			Strip	Loose Piece	
.110/.125 Series	26-22	.100 2.54	.145 3.68	.275 6.99	.138 3.51	.735 18.67	.020 x .110/.125 0.51 x 2.79/3.18	Brass	7-520365-2 <sup>1</sup>	7-520366-2 <sup>1</sup>	
									2-520080-2 <sup>1</sup>	2-520081-2 <sup>1</sup>	
	22-18	.120 3.05	.160 4.06	.275 6.99	.167 4.24	.735 18.67	.020 x .110/.125 0.51 x 2.79/3.18	Brass	2-520083-2	2-520084-2	
									2-520272-2 <sup>3</sup>	2-520273-2	
									2-520306-2	—	
									2-520310-2	—	
	16-14	.260 6.60	.175 4.45	.275 6.99	.325 8.26	.865 21.97	.020 x .110/.125 0.51 x 2.79/3.18	Brass	3-520370-2 <sup>2</sup>	—	
									2-520181-2 <sup>3</sup>	2-520182-2	
	.187 Series	22-18	.135 3.43	.165 4.19	.336 8.53	.200 5.08	.855 21.72	.020 x .187 0.51 x 4.75	Phos. Brz.	2-520181-4	—
										2-520193-2 <sup>3</sup>	2-520194-2 <sup>3</sup>
22-18		.230 5.84	.165 4.19	.336 8.53	.295 7.49	.935 23.75	.020 x .187 0.51 x 4.75	Brass	2-520261-2	2-520262-2	
									2-520274-2	2-520275-2	
16-14		.160 4.06	.185 4.70	.336 8.53	.225 5.72	.855 21.72	.020 x .187 0.51 x 4.75	Brass	3-350815-2	3-350816-2	
									3-520124-2 <sup>3</sup>	3-520125-2	
22-18		.260 6.60	.185 4.70	.336 8.53	.325 8.26	.935 23.75	.020 x .187 0.51 x 4.75	Brass	3-520150-2	3-520151-2	
									3-520276-2 <sup>3</sup>	—	
.205 Series		22-18	.135 3.43	.195 4.95	.409 10.39	.200 5.08	.855 21.72	.020 x .205 0.81 x 5.21	Brass	2-521406-2	—
										2-521308-2	—
.250 Series	22-18	.135 3.43	.195 4.95	.409 10.39	.200 5.08	.855 21.72	.032 x .250 0.81 x 6.35	Brass	2-520183-2 <sup>3</sup>	2-520184-2	
									Phos. Brz.	2-520183-4	2-520184-4
	22-18	.230 5.84	.195 4.95	.409 10.39	.295 7.49	.935 23.75	.032 x .250 0.81 x 6.35	Brass	2-520263-2	2-520264-2	
									Phos. Brz.	2-520263-4	—
	16-14	.160 4.06	.195 4.95	.409 10.39	.225 5.72	.855 21.72	.032 x .250 0.81 x 6.35	Brass	3-350819-2	3-350820-2	
									Phos. Brz.	3-520116-2	3-520117-2
12-10	.260 6.60	.195 4.95	.409 10.39	.325 8.26	.935 23.75	.032 x .250 0.81 x 6.35	Brass	3-520140-2 <sup>3</sup>	3-520141-2		
								Phos. Brz.	3-520140-4	—	
12-10	.320 8.13	.250 6.35	.409 10.39	.388 9.86	.935 23.75	.032 x .250 0.81 x 6.35	Brass	4-520447-2 <sup>3</sup>	4-520448-2		

<sup>1</sup> UL Recognized, CSA Certified.

<sup>2</sup> UL Recognized 8 AMPS Max. CSA Certified.

<sup>3</sup> Available with black insulator — Part Number 9-XXXXXX-2.

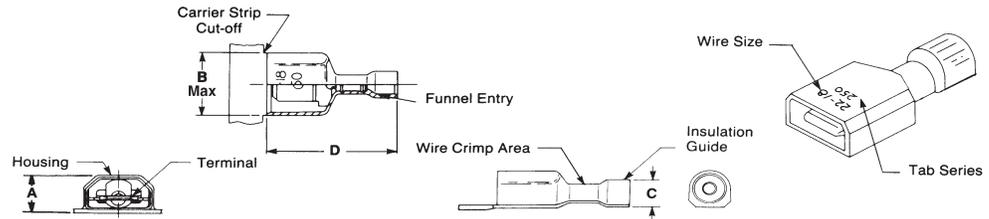
**Note:** All part numbers are RoHS compliant.

**Ultra-Fast Fully Insulated FASTON Receptacles and Tabs (Continued)**

**Ultra-Fast Fully Insulated FASTON Tabs**

**Material**

- Housing** — Nylon Type 6/6
- Flammability** — UL 94 V-2
- Terminal** — Tin plated, copper alloy
- Color Code (Translucent)**
- Red** — 22-18 AWG
- Blue** — 16-14 AWG
- Yellow** — 12-10 AWG



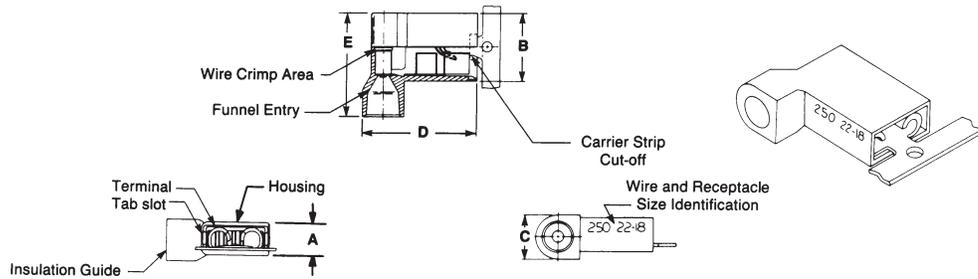
Description	Wire Range AWG	Ins. Dia. Max.	Dimensions					Tab Size	Terminal Base Material	Part Numbers	
			A	B	C	D	Strip			Loose Piece	
.250 Series	22-18	.135	.290	.522	.205	.855	.032 x .250	Brass	2-520102-2	2-520103-2	
		3.43	7.37	13.26	5.21	21.72	0.81 x 6.35				
		.230	.290	.522	.295	.935	.032 x .250				
	16-14	.160	.290	.522	.230	.855	.032 x .250	Brass	3-520106-2	3-520107-2	
		4.06	7.37	13.26	5.84	21.72	0.81 x 6.35				
		.260	.290	.522	.325	.935	.032 x .250				
12-10	.320	.352	.522	.388	.935	.032 x .250	Brass	4-521097-2	4-521098-2		
	8.13	8.94	13.26	9.86	23.75	0.81 x 6.35					
.187 Series	22-18	.135	.250	.448	.205	.793	.020 x .187	Brass	2-521102-2	2-521103-2	
							0.51 x 4.75				
							.032 x .187				
							0.81 x 4.75			2-521104-2 <sup>1</sup>	2-521105-2 <sup>1</sup>

<sup>1</sup> Available with black insulator — Part Number 9-XXXXXX-2.

**Ultra-Fast Fully Insulated FASTON Flag Receptacles**

**Material**

- Housing** — Nylon Type 6/6
- Flammability** — UL 94 V-2
- Terminal** — Tin plated, copper alloy
- Color Code (Translucent)**
- Red** — 22-18 AWG
- Blue** — 16-14 AWG
- Yellow** — 12-10 AWG



Description	Wire Range <sup>1</sup> AWG	Ins. Dia. Max.	Dimensions					Mating Tab	Terminal Base Material	Part Numbers	
			A	B	C	D	E			Strip	Loose Piece
.187 Series	22-18	.165	.187	.320	.235	.636	.515	.020 x .187	Brass	2-520334-2 <sup>2</sup>	2-520335-2
								0.51 x 4.75			
								.032 x .187			
	16-14	.185	.187	.320	.255	.632	.515	.020 x .187	Brass	3-520338-2 <sup>2</sup>	3-520339-2
		4.70	4.75	8.13	6.48	16.05	13.08	0.51 x 4.75			
		.032 x .187									
.205 Series	22-18	.165	.187	.385	.235	.636	.580	.032 x .205	Brass	2-521164-2	—
								0.81 x 5.21			
.250 Series	22-18	.165	.187	.385	.235	.636	.580	.032 x .250	Brass	2-520128-2	2-520129-2
								0.81 x 6.35			
								.230			
	16-14	.185	.187	.385	.255	.632	.580	.032 x .250	Brass	3-520132-2 <sup>2</sup>	3-520133-2
		4.70	4.75	9.78	6.48	16.05	14.73	0.81 x 6.35			
		.260									
12-10	.320	.352	.522	.388	.935	.032 x .250	Brass	4-521097-2	4-521098-2		
	8.13	8.94	13.26	9.86	23.75	0.81 x 6.35					

<sup>1</sup> Stranded wire only.

<sup>2</sup> Available with black insulator — Part Number 9-XXXXXX-2.

**Note:** All part numbers are RoHS compliant.

## Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs

### Product Facts

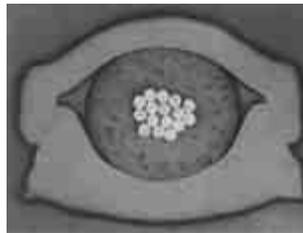
- One-piece Fully Insulated Premier line FASTON Receptacle with insulation crimp helps prevent shock and short hazards
- Designed for correct lead-in of tab
- Designed for full mating with a variety of tab styles including those with shoulders
- Funnel wire entry
- Wire stop
- Visual inspection of crimp and wire brush
- Assemblies are color-coded by wire size
- Assemblies contain wire size and tab size designation
- Mating tab thickness marked on terminal and visible through housing (110 and 187 Series)
- Application tooling available to meet production requirements
- Tin plated copper alloy terminals
- UL rated at +105°C
- Terminates 22-14 AWG solid, fused and stranded wire
- Complies with the IEC 380, 601, 950, and UL 1950 requirements for a secondary means of insulation fixing

### Performance Capabilities

- Meets UL-310 specification for quick connect terminals; UL listed under File No. E-66717 
- Meets CSA C22.2, No.153 Specification for quick connect terminals; CSA Certified under File No. LR 7189 
- VDE tested according to DIN VDE 0627/ 9.91, specification for connectors and plug and socket devices VDE Reg. No. 

- 600-volt application capability (1,000 volts for signs and fixtures)
- Tested by TUV File No. E9071003 as suitable for end product certification to the following standards:  
EN 60 950/09.87  
DIN IEC 380/VDE 0806/08.81  
DIN IEC 601-1 Part 1/VDE 0750 T1/05.82  
DIN VDE 0700 T1/02.81

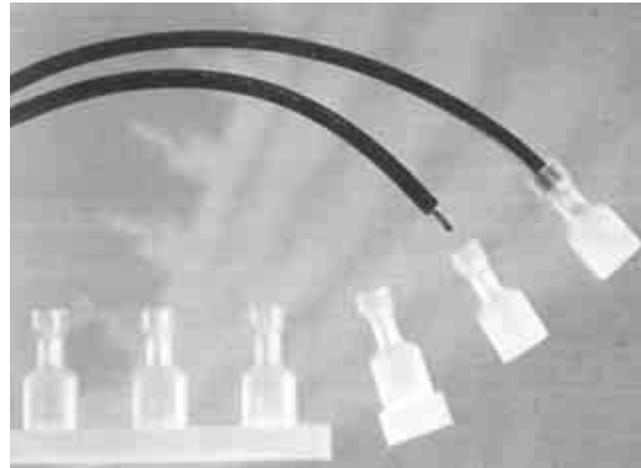
Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs offer all the advantages of the standard Ultra-Fast product plus an insulation crimp.



Insulation Crimp Cross Section

Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs preclude the need for costly electrical safety interlocks or special protective shields to help prevent shock hazards. In addition, electrical short circuits from exposed leads are eliminated, even in equipment requiring close contact spacing.

Ultra-Fast Plus FASTON Receptacles and Tabs are preinsulated assemblies featuring a co-molded housing produced from two different nylon materials. The receptacle/ tab and wire barrel portions of the



housing are molded from type 6/6 nylon material with a +130°C UL temperature rating. The insulation barrel is molded from a premium grade nylon selected to retain the insulation crimp shape. This premium nylon exhibits minimal springback, thus providing actual insulation crimp tensile strength as well as strain relief for applications where extreme wire dressing and/or vibration are present.

The Ultra-Fast Plus FASTON Receptacle housing completely encloses a tin plated copper alloy Premier FASTON receptacle which has been stress relieved for increased durability and resistance to operator abuse. The FASTON receptacle is recessed sufficiently within the housing to allow its use in 600-volt applications. The receptacle portion of the terminal is designed for positive mating with a variety of tabs, including those with shoulders. The housing has a slotted membrane which is displaced by two tab shoulders allowing proper

engagement of tab and receptacle while maintaining the fully insulated characteristics.

Positive entry and lead-in of the tab is provided by the inner housing wall and the lead-in on the terminal rolls. This permits positive engagement, even in blind mating locations.

The Ultra-Fast Plus FASTON Tab housing completely encloses a tin plated copper alloy FASTON tab. The FASTON tab is recessed sufficiently within the housing to allow its use in 600-volt applications. The housing is designed to completely encapsulate the tab and receptacle when the two are mated.

Quality control is easily maintained. The nylon housing is translucent, allowing visual inspection of the termination.

Depending on production requirements, Tyco Electronics provides a complete selection of terminating equipment from hand tools to automatic lead makers.

**Ultra-Fast Plus Fully Insulated FASTON Receptacles and Tabs (Continued)**

**Ultra-Fast Plus Fully Insulated FASTON Receptacles**

**Material**

**Housing** — Nylon

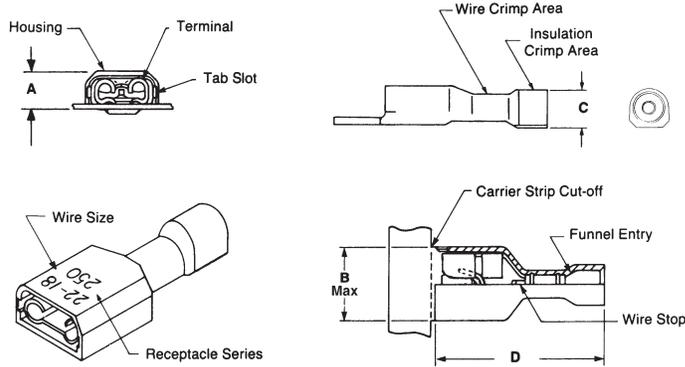
**Flammability** — UL 94 V-2

**Terminal** — Tin plated, copper alloy

**Color Code (Translucent)**

**Red** — 22-18 AWG

**Blue** — 16-14 AWG



Description	Wire Range AWG	Ins. Dia. Range	Dimensions				Mating Tab	Terminal Base Material	Part Numbers	
			A	B	C	D			Strip	Loose Piece
.110/.125 Series	22-18	.060-.120 1.52-3.05	.160	.275	.167	.735	.020 x .110/.125 0.51 x 2.79/3.18	Brass	2-520932-2	—
			.160	.275	.167	.735	.032 x .110/.125 0.81 x 2.79/3.18	Brass	2-520979-2	—
.187 Series	22-18	.060-.135 1.52-3.43	.165	.336	.200	.855	.020 x .187 0.51 x 4.75	Brass	2-520401-2	2-520409-2
			.165	.336	.200	.855	.032 x .187 0.81 x 4.75	Brass	2-520403-2	2-520411-2
	16-14	.090-.160 2.29-4.06	.185	.336	.225	.855	.020 x .187 0.51 x 4.75	Brass	3-520402-2	3-520410-2
			.185	.336	.225	.855	.032 x .187 0.81 x 4.75	Brass	3-520404-2	3-520412-2
.250 Series	22-18	.060-.135 1.52-3.43	.195	.409	.200	.855	.032 x .250 0.81 x 6.35	Brass	2-520405-2	2-520407-2
			.195	.409	.225	.855	.032 x .250 0.81 x 6.35	Brass	3-520406-2	3-520408-2

**Ultra-Fast Plus Fully Insulated FASTON Tabs**

**Material**

**Housing** — Nylon

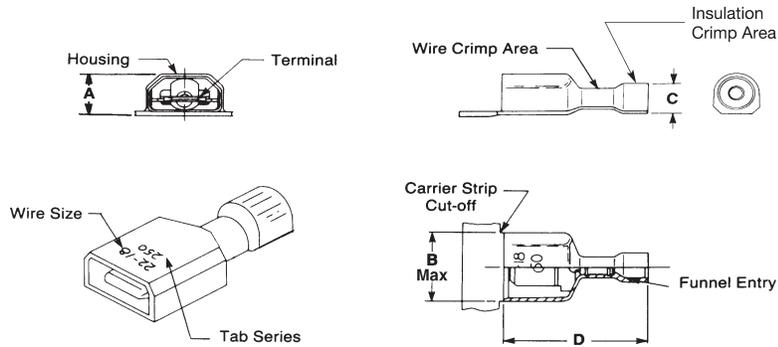
**Flammability** — UL 94 V-2

**Terminal** — Tin plated, copper alloy

**Color Code (Translucent)**

**Red** — 22-18 AWG

**Blue** — 16-14 AWG



Description	Wire Range AWG	Ins. Dia. Range	Dimensions				Mating Tab	Terminal Base Material	Part Numbers	
			A	B	C	D			Strip	Loose Piece
.187 Series	22-18	.060-.135 1.52-3.43	.250	.488	.205	.793	.020 x .187 0.51 x 4.75	Brass	2-521360-2	—
			.250	.488	.205	.793	.032 x .187 0.81 x 4.75	Brass	2-521361-2	—
.250 Series	22-18	.060-.135 1.52-3.43	.290	.522	.205	.855	.032 x .250 0.81 x 6.35	Brass	2-521055-2	—
			.290	.522	.230	.855	.032 x .250 0.81 x 6.35	Brass	3-521057-2	—

**Note:** All part numbers are RoHS compliant.