## 1.5/2.8 Connector System

TE Internal #: 2098377-1

Housing for Female Terminals, Wire-to-Wire, 20 Position, .138 in [3.52 mm] Centerline, Black, Wire & Cable, Power & Signal, 1.5/2.8

Connector System

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Connector System: Wire-to-Wire

Number of Positions: 20

Connector & Housing Type: Housing for Female Terminals

Centerline (Pitch): 3.52 mm [ .138 in ]

Sealable: No

### **Features**

## **Product Type Features**

Mixed & Hybrid Connector	Yes
Connector Shape	Rectangular
Connector System	Wire-to-Wire
Connector & Housing Type	Housing for Female Terminals
Sealable	No
Connector & Contact Terminates To	Wire & Cable
Primary Locking Feature	Integrated in Housing
Configuration Features	
Number of Positions	20
Number of Rows	2
Electrical Characteristics	
Nominal Voltage Architecture	12 V
Body Features	

180°

Cable Exit Angle



Contact Size Contact Type Receptacle Mating Lab Width 1.5 mm, 2.8 mm [059 in][.11 in]  Mechanical Attachment  Terminal Position Assurance Strain Relief Without Mating Alignment Type Reyed Mating Alignment Type Mating Alignment Connector Mounting Type Connector Mounting Type Housing Material Contectine (Pitch) Dimensions  Row-to-Row Spacing Assurance Operating Temperature (Max) Operating Temperature Range Operating Temperature Range Circuit Application Circuit Application Agency/Standard Agency/Standard Packaging Quantity Packaging Method  1.5 mm, 2.8 mm 2.8 mm, 2.8 mm [.059 in][.11 in]  Wechanical Receptacle Reyed Without Circuit Application 1.5 mm, 2.8 mm [.059 in][.11 in]  Wechanical Attachment Without Cable Mount (Free-Hanging) With Cable Mount (Free-Hanging)  With Cable Mount (Free-Hanging)  Agency Standard  4.2 mm [.244 in]  2.5 "C[.257 "F]  Operation/Application  Circuit Application Assurance Assu		
Contact Features         1.5mm, 2.8mm           Contact Type         Receptacle           Mating Tab Width         1.5 mm, 2.8 mm, 0.99 in[1.11 in]           Mechanical Attachment         Terminal Position Assurance           Yes         Strain Relief           Mating Alignment Type         Keyed           Mating Alignment         With           Connector Mounting Type         Cable Mount (Free-Hanging)           Housing Features         110using Material           Conterline (Pitch)         3.52 mm[.138 in]           Dimensions         PRT CF           Conterline (Pitch)         3.52 mm[.1244 in]           Usage Conditions         0 perating 1 emperature (Max)         125 °C[.22 257 °F]           Operating Temperature Range         30 - 125 °C[.22 257 °F]           Operating Temperature Range         30 - 125 °C[.22 257 °F]           Operating Application         Power & Signal           Circuit Application         Power & Signal           Agency/Standards         SAF /USCAR-2           Packaging Features         Packaging Method         Carton           Other         Serviceable         Yes	Primary Product Color	Black
Contact Size Contact Type Receptable Mating Tab Width Machanical Attachment Terminal Position Assurance Strain Relief Mating Alignment Type Mating Alignment Width Connector Mounting Type Mating Alignment Contact Mounting Type Housing Features Housing Material Centerline (Pitch) Centerline (Pitch) Connector Mounting Type  Assure Conditions  PBT GF Centerline (Pitch) Contact Mounting Type  Assure Conditions  Operating Temperature (Max) Operating Temperature (Max) Conjunction  Circuit Application  Circuit Application  Agancy/Standard Agancy/Standard  Packaging Features  Packaging Quantity Packaging Matrod  Other  Serviceable Yes  Yes	Connector & Keying Code	A
Contact Type Mating Tab Width  Mating Tab Width  Mechanical Attachment  Terminal Position Assurance Strain Relief Without  Mating Alignment Type Method Alignment With  Connector Mounting Type With With With Connector Mounting Type With With With With With With With With	Contact Features	
Mechanical Attachment Terminal Position Assurance Strain Relief Without Mating Alignment Type Methanical Attachment With Connector Mounting Type Gable Mount (Free-Hanging) Housing Features Housing Material Centerline (Pitch) Dimensions Row-to-Row Spacing Operating Temperature (Max) Operating Temperature Range Operating Temperature Range Operating Application Circuit Application Circuit Application Agency/Standard Agency/Standard Packaging Peatures Packaging Quantity Packaging Method Other Serviceable Yes Serviceable Yes Serviceable Yes Serviceable Yes Serviceable Yes Serviceable View Mithout Without Keyed Without Circuit Application 1.5 mm, 2.8 mm[,059 in][,11 in] Without Keyed Without Circuit Application 1.5 mm, 2.8 mm[,059 in][,11 in] Ves Serviceable Ves Serviceable Ves Serviceable Ves Serviceable View Samm[,059 in][,11 in] Ves Serviceable Ves Serv	Contact Size	1.5mm, 2.8mm
Mechanical Attachment Terminal Position Assurance Strain Relief Without Mating Alignment Type Keyed Mating Alignment With Connector Mounting Type Cable Mount (Free Hanging) Housing Features Housing Material PBT Gf Centerline (Pitch) 3.52 mm[.138 in]  Dimensions  Row-to-Row Spacing 6.2 mm[.244 in]  Jsage Conditions Operating Temperature (Max) Operating Temperature Range Operating Temperature Range Poperation/Application Circuit Application Power & Signal  neustry Standards Agency/Standard SAE/USCAR-2  Packaging Features Packaging Quantity Packaging Method Other Serviceable Yes	Contact Type	Receptacle
Terminal Position Assurance Strain Relief Without  Mating Alignment Type Mating Alignment Connector Mounting Type Connector Mounting Type Connector Mounting Type Contection Mounting Type Contentine (Pitch) Contection (Pitch) Contentine C	Mating Tab Width	1.5 mm, 2.8 mm[.059 in][.11 in]
Strain Relief Without Mating Alignment Type Keyed Mating Alignment Connector Mounting Type Cable Mount (Free-Hanging)  Housing Features  Housing Material PBT GF Centerline (Pitch) 3.52 mm[,138 in]  Dimensions  Row-to-Row Spacing 6.2 mm[,244 in]  Usage Conditions  Operating Temperature (Max) 125 °C[257 °F] Operating Temperature Range 3.0 – 125 °C[-22 – 257 °F]  Operating Temperature Range Power & Signal  Industry Standards  Agency/Standard SAE/USCAR-2  Packaging Features  Packaging Quantity 390 Packaging Method Carton  Other  Serviceable Yes	Mechanical Attachment	
Mating Alignment Type Mating Alignment Musing Material Mousing Features  Housing Material Housing Material PBT GF  Centerline (Pitch)  3.52 mm[.138 in]  Dimensions  Row-to-Row Spacing Agency-to-Row Spacing Agency Standard Max)  Departing Temperature (Max)  Operating Temperature Range  Agency/Standard  Packaging Features  Packaging Quantity Packaging Quantity Packaging Method  Other  Serviceable  Yes	Terminal Position Assurance	Yes
Mating Alignment Connector Mounting Type Connecting Material Connecting Material Connecting Material Connecting PBT GF Conterline (Pitch) Space Condition Connecting Temperature (Max) Coperating Temperature (Max) Coperating Temperature (Max) Coperating Temperature Range Coperating Tempera	Strain Relief	Without
Connector Mounting Type  PBT GF  Centerline (Pitch)  3.52 mm[.138 in]  Connections  Row-to-Row Spacing  Coperations  Coperating Temperature (Max)  Operating Temperature Range  Operating Temperature Range  Operation/Application  Circuit Application  Circuit Application  Agency/Standard  Packaging Features  Packaging Quantity  Packaging Quantity  Packaging Method  Other  Serviceable  Yes	Mating Alignment Type	Keyed
Housing Features  Housing Material PBT GF  Centerline (Pitch) 3.52 mm[.138 in]  Dimensions  Row-to-Row Spacing 6.2 mm[.244 in]  Usage Conditions  Operating Temperature (Max) 125 °C[257 °F]  Operating Temperature Range -30 – 125 °C[-22 – 257 °F]  Operation/Application  Circuit Application Power & Signal  Industry Standards  Agency/Standard SAE/USCAR-2  Packaging Features  Packaging Quantity 390  Packaging Method Carton  Other  Serviceable Yes	Mating Alignment	With
Housing Material Centerline (Pitch) 3.52 mm[.138 in]  Dimensions  Row-to-Row Spacing 6.2 mm[.244 in]  Usage Conditions  Operating Temperature (Max) Operating Temperature Range Operating/Application  Circuit Application  Circuit Application  Agency/Standards Agency/Standard Packaging Features  Packaging Quantity Packaging Method Other  Serviceable  Packagine Features  Yes	Connector Mounting Type	Cable Mount (Free-Hanging)
Centerline (Pitch) Dimensions  Row-to-Row Spacing Absolutions  Operating Temperature (Max) Operating Temperature Range Operating Temperature Range Operation/Application Circuit Application Agency/Standard Agency/Standard Packaging Features Packaging Quantity Packaging Method Other Serviceable  Packaging Method Other  Serviceable  Agency/Standard Ag	Housing Features	
Row-to-Row Spacing 6.2 mm[.244 in]  Usage Conditions  Operating Temperature (Max) 125 °C[257 °F] Operating Temperature Range -30 – 125 °C[-22 – 257 °F]  Operation/Application Circuit Application Power & Signal Industry Standards  Agency/Standard SAE/USCAR-2  Packaging Features  Packaging Quantity 390  Packaging Method Carton  Other  Serviceable Yes	Housing Material	PBT GF
Row-to-Row Spacing  Usage Conditions  Operating Temperature (Max) Operating Temperature Range Operation/Application  Circuit Application  Agency/Standards  Agency/Standard  Packaging Features  Packaging Quantity Packaging Method Other  Serviceable  Agency-Standard  Serviceable  Agency-Standard	Centerline (Pitch)	3.52 mm[.138 in]
Operating Temperature (Max) Operating Temperature Range Operating Temperature Range -30 – 125 °C[-22 – 257 °F] Operation/Application Circuit Application Power & Signal Industry Standards Agency/Standard SAE/USCAR-2 Packaging Features Packaging Quantity Packaging Method Other Serviceable Yes	Dimensions	
Operating Temperature (Max)  Operating Temperature Range  Operation/Application  Circuit Application  Power & Signal  Industry Standards  Agency/Standard  Packaging Features  Packaging Quantity  Packaging Method  Other  Serviceable  125 °C[-22 – 257 °F]  -30 – 125 °C[-22 – 257 °F]	Row-to-Row Spacing	6.2 mm[.244 in]
Operating Temperature Range Operation/Application Circuit Application Power & Signal Industry Standards Agency/Standard Agency/Standard Packaging Features Packaging Quantity Packaging Method Other Serviceable Yes	Usage Conditions	
Operation/Application Circuit Application Power & Signal Industry Standards Agency/Standard Agency/Standard SAE/USCAR-2 Packaging Features Packaging Quantity Packaging Method Other Serviceable Yes	Operating Temperature (Max)	125 °C[257 °F]
Circuit Application Power & Signal Industry Standards  Agency/Standard SAE/USCAR-2  Packaging Features  Packaging Quantity 390  Packaging Method Carton  Other  Serviceable Yes	Operating Temperature Range	-30 – 125 °C[-22 – 257 °F]
Agency/Standard Agency/Standard SAE/USCAR-2 Packaging Features Packaging Quantity Packaging Method Carton Other Serviceable Yes	Operation/Application	
Agency/Standard  Packaging Features  Packaging Quantity  Packaging Method  Other  Serviceable  SAE/USCAR-2  SAE/USCAR-2  SAE/USCAR-2  Yes	Circuit Application	Power & Signal
Packaging Features Packaging Quantity  Packaging Method  Carton  Other  Serviceable  Yes	Industry Standards	
Packaging Quantity  Packaging Method  Carton  Other  Serviceable  Yes	Agency/Standard	SAE/USCAR-2
Packaging Method  Carton  Other  Serviceable  Yes	Packaging Features	
Other  Serviceable  Yes	Packaging Quantity	390
Serviceable Yes	Packaging Method	Carton
	Other	
Connector Position Assurance Capable No	Serviceable	Yes
	Connector Position Assurance Capable	No



## **Product Compliance**

For compliance documentation, visit the product page on TE.com>

EU RoHS Directive 2011/65/EU	Compliant
EU ELV Directive 2000/53/EC	Compliant
China RoHS 2 Directive MIIT Order No 32, 2016	No Restricted Materials Above Threshold
EU REACH Regulation (EC) No. 1907/2006	Current ECHA Candidate List: JUNE 2023 (235) Candidate List Declared Against: JUNE 2023 (235) Does not contain REACH SVHC
Halogen Content	Low Halogen - Br, Cl, F, I < 900 ppm per homogenous material. Also BFR/CFR/PVC Free
Solder Process Capability	Not applicable for solder process capability

#### Product Compliance Disclaimer

This information is provided based on reasonable inquiry of our suppliers and represents our current actual knowledge based on the information they provided. This information is subject to change. The part numbers that TE has identified as EU RoHS compliant have a maximum concentration of 0.1% by weight in homogenous materials for lead, hexavalent chromium, mercury, PBB, PBDE, DBP, BBP, DEHP, DIBP, and 0.01% for cadmium, or qualify for an exemption to these limits as defined in the Annexes of Directive 2011/65/EU (RoHS2). Finished electrical and electronic equipment products will be CE marked as required by Directive 2011/65/EU. Components may not be CE marked. Additionally, the part numbers that TE has identified as EU ELV compliant have a maximum concentration of 0.1% by weight in homogenous materials for lead, hexavalent chromium, and mercury, and 0.01% for cadmium, or qualify for an exemption to these limits as defined in the Annexes of Directive 2000/53/EC (ELV). Regarding the REACH Regulation, the information TE provides on SVHC in articles for this part number is based on the latest European Chemicals Agency (ECHA) 'Guidance on requirements for substances in articles' posted at this URL: https://echa.europa.eu/guidance-documents/guidance-on-reach

# Compatible Parts







Also in the Series | 1.5/2.8 Connector System





Automotive Connector Caps & Covers (6)



Automotive Housings(35)



Automotive Terminals(56)



Insertion & Extraction Tools(1)



Other Automotive Connector Accessories(1)



PCB Headers & Receptacles(1)

## Customers Also Bought



TE Part #368037-2 PL 250 REC 0.30-0.56MM2 0.40X21. OPRE-TIN



TE Part #2098407-1
GET .64 CONNECTOR SYSTEM,
CONNECTOR HSG



TE Part #1719958-1
GET 0.64 TERMINAL WIRE SIZE 0.



TE Part #1924900-1 Assy, Plug, 30p Hybrid Key A



TE Part #2098067-1 Plug Assembly, Hybrid, BCM, IP1, A Key



TE Part #2288276-1 Assy,Plug,USCAR,GenY,20p,Key A, No CPA



TE Part #5-1437710-6

NP1TA-00R2XX=CONN. 2W MALE
WAT



TE Part #1924136-3
Carrier, 26P GenerationY, Hand Mate
Conn



**Documents** 



## **Product Drawings**

20P PLUG ASSEMBLY UNSEALED HYBRID A-KEY

English

**CAD Files** 

3D PDF

3D

**Customer View Model** 

ENG\_CVM\_CVM\_2098377-1\_A\_c-2098377-1-a.2d\_dxf.zip

English

**Customer View Model** 

ENG\_CVM\_CVM\_2098377-1\_A\_c-2098377-1-a.3d\_igs.zip

English

**Customer View Model** 

ENG\_CVM\_CVM\_2098377-1\_A\_c-2098377-1-a.3d\_stp.zip

English

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**Instruction Sheets** 

Instruction Sheet (U.S.)

English