

## FORTRON® 4184L6 - PPS

### Description

Fortron 4184L6 is an easier flow version of Fortron 4184L4. It offers similar characteristics to the 4184L4. This grade is especially used for thin walled parts requiring long flow lengths, stiffness and dimensional control. Applications made of this grade are typically electronic components.

Physical properties	Value	Unit	Test Standard
Density	1800	kg/m <sup>3</sup>	ISO 1183
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.02	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	16600	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	165	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	1.4	%	ISO 527-2/1A
Flexural modulus, 23°C	16200	MPa	ISO 178
Flexural stress at break	250	MPa	ISO 178
Charpy impact strength, 23°C	29	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	29	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	7	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	7	kJ/m <sup>2</sup>	ISO 179/1eA
Izod impact notched, 23°C	7	kJ/m <sup>2</sup>	ISO 180/1A
Izod impact notched, -30°C	7	kJ/m <sup>2</sup>	ISO 180/1A
Izod impact unnotched, 23°C	27	kJ/m <sup>2</sup>	ISO 180/1U
Izod impact unnotched, -30°C	27	kJ/m <sup>2</sup>	ISO 180/1U
Compressive modulus	16200	MPa	ISO 604
Rockwell hardness (M-Scale)	100	M-Scale	ISO 2039-2

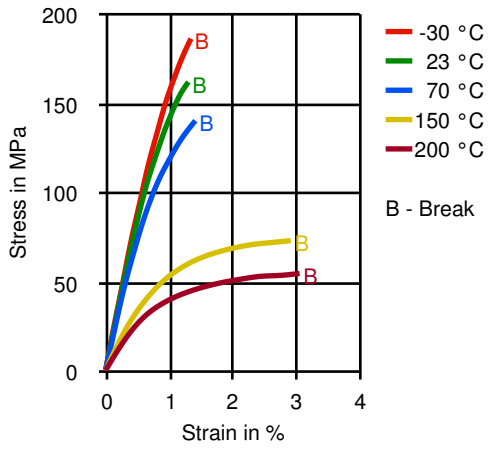
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	280	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90	°C	ISO 11357-1, -2, -3
DTUL at 1.8 MPa	270	°C	ISO 75-1, -2
DTUL at 8.0 MPa	215	°C	ISO 75-1, -2
Coeff. of linear therm expansion, parallel	0.24	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	0.32	E-4/°C	ISO 11359-2
Flammability @1.6mm nom. thickn.	V-0	class	UL 94
thickness tested (1.6)	1.5	mm	UL 94
Flammability at thickness h	V-0	class	UL 94
thickness tested (h)	0.75	mm	UL 94

Electrical properties	Value	Unit	Test Standard
Relative permittivity, 1MHz	4.7	-	IEC 60250
Dissipation factor, 1MHz	20	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	27	kV/mm	IEC 60243-1

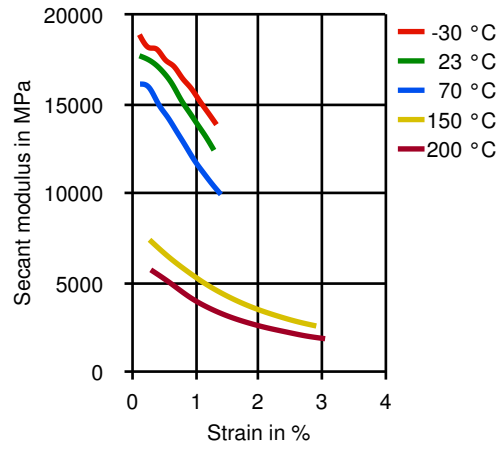
Rheological calculation properties	Value	Unit	Test Standard
Spec. heat capacity melt	1500	J/(kg K)	Internal

**Diagrams**

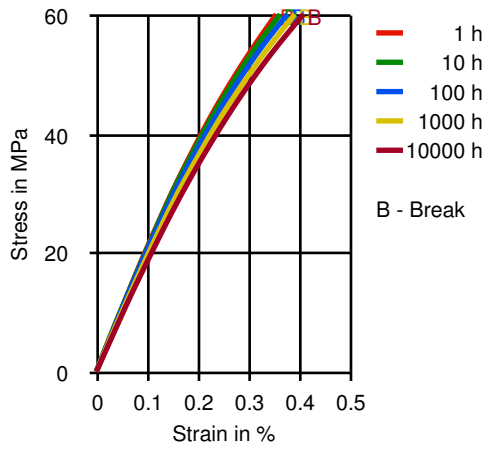
**Stress-strain**



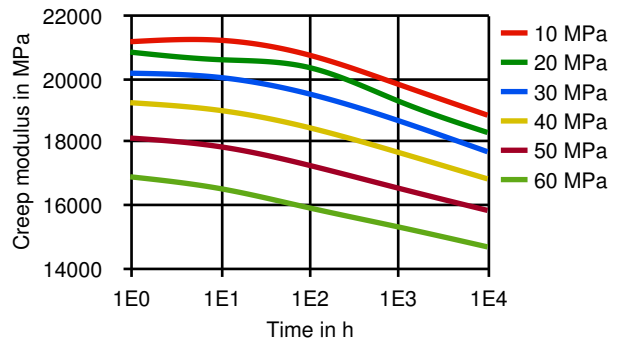
**Secant modulus-strain**



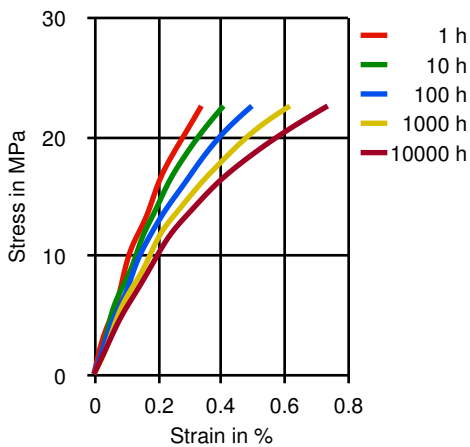
**Stress-strain (isochronous) 23 °C**



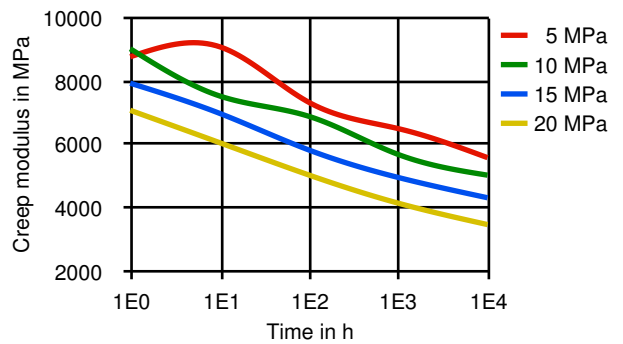
**Creep modulus-time 23 °C**



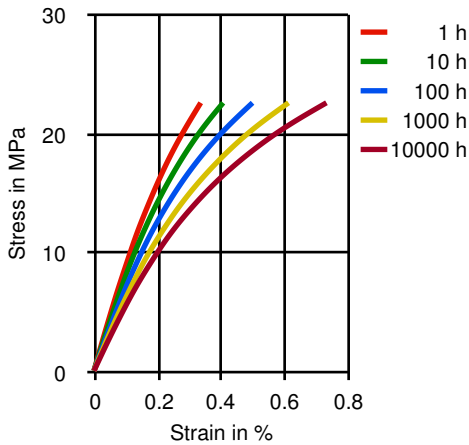
**Stress-strain (isochronous) 120 °C**



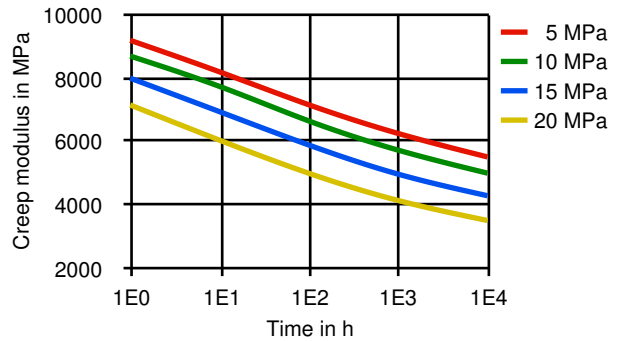
**Creep modulus-time 120 °C**



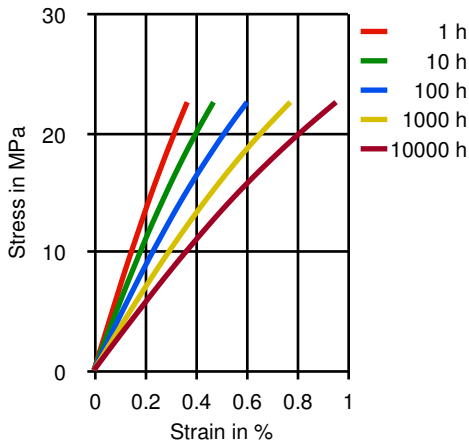
**Stress-strain (isochronous) 150 °C**



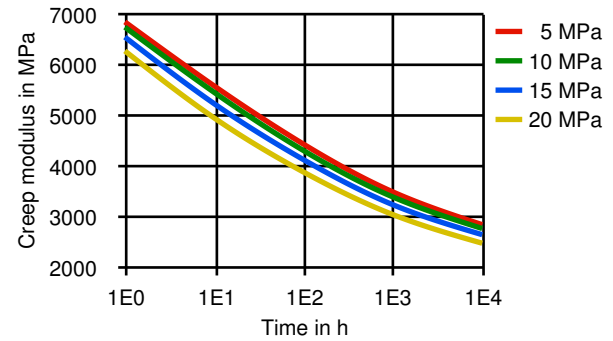
**Creep modulus-time 150 °C**



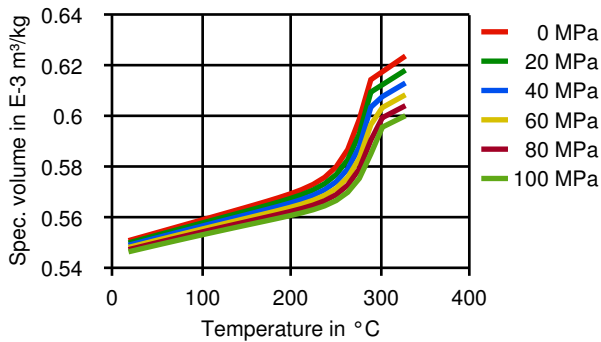
**Stress-strain (isochronous) 200 °C**



**Creep modulus-time 200 °C**



**Moldflow Specific volume-temperature (pVT)**



**Typical injection moulding processing conditions**

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	0.02	%	-
Drying time	3 - 4	h	-
Drying temperature	130 - 140	°C	-
Temperature	Value	Unit	Test Standard
Hopper temperature	20 - 30	°C	-
Feeding zone temperature	60 - 80	°C	-
Zone1 temperature	290 - 300	°C	-

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Zone2 temperature	310 - 320	°C	-
Zone3 temperature	330 - 340	°C	-
Zone4 temperature	330 - 340	°C	-
Nozzle temperature	310 - 330	°C	-
Melt temperature	330	°C	-
Mold temperature	140 - 160	°C	-
Hot runner temperature	330 - 340	°C	-
<b>Pressure</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Back pressure max.	30	bar	-
<b>Speed</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Injection speed	fast	-	-
<b>Screw Speed</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Screw speed diameter, 25mm	120	RPM	-
Screw speed diameter, 40mm	75	RPM	-
Screw speed diameter, 55mm	50	RPM	-

### Other text information

#### Pre-drying

FORTRON should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be  $\leq -30^{\circ}\text{C}$ . The time between drying and processing should be as short as possible.

#### Longer pre-drying times/storage

For subsequent storage the material should be stored dry in the dryer until processed ( $\leq 60$  h).

#### Injection molding

On injection molding machines with 15-25 D long three-section screws, as are usual in the trade, the FORTRON is processable. A shut-off nozzle is preferred to a free-flow nozzle.

Melt temperature 320-340 degC

Mold wall temperature at least 140 degC

A medium injection rate is normally preferred. All mold cavities must be effectively vented.

### Characteristics

#### Special Characteristics

Flame retardant, Light stabilized

#### Delivery Form

Pellets

#### Product Categories

Mineral/Glass reinforced

#### Additives

Release agent

#### Processing

Injection molding

### Contact Information

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### **General Disclaimer**

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