



Sensors

B59300

Motor Protection, Triple Sensors

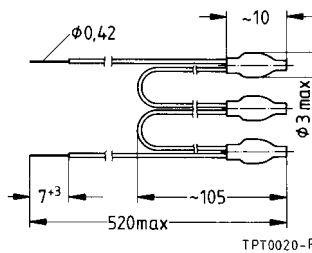
M 1300

**Applications**

- Thermal protection of winding in electric motors
- Limit temperature monitoring

**Features**

- Thermistor pellets with insulating encapsulation in series connection (triple sensor)
- Low-resistance type
- Silver-plated and Teflon-insulated AWG 26 litz wires
- Characteristics for nominal threshold temperatures of 90 up to 160 °C conform with DIN 44082
- Color coding of litz wires to DIN 44082, connecting wires in yellow



Dimensions in mm

**Delivery mode**

- Bulk

**General technical data**

Max. operating voltage	$(T_A = 0 \dots 40 \text{ }^\circ\text{C})$	$V_{\max}$	30	VDC
Max. measuring voltage	$(T_A - 25 \text{ K} \dots T_{\text{NTT}} + 23 \text{ K})$	$V_{\text{meas,max}}$	7,5	VDC
Rated resistance	$(V_{\text{PTC}} \leq 2,5 \text{ V})$	$R_N$	$\leq 300$	$\Omega$
Insulation test voltage		$V_{\text{ins}}$	2,5	kV AC
Thermal threshold time		$t_a$	$< 3$	s
Operating temperature range	$(V \leq V_{\text{meas,max}})$ $(V = V_{\max})$	$T_{\text{op}}$	$- 25 / T_{\text{NTT}} + 23$ 0/+ 40	$^\circ\text{C}$ $^\circ\text{C}$

**Electrical specifications and ordering codes**

$T_{\text{NTT}} \pm \Delta T$ $^\circ\text{C}$	$R(T_{\text{NTT}} - \Delta T)$ ( $V_{\text{PTC}} \leq 2,5 \text{ V}$ ) $\Omega$	$R(T_{\text{NTT}} + \Delta T)$ ( $V_{\text{PTC}} \leq 2,5 \text{ V}$ ) $\Omega$	$R(T_{\text{NTT}} + 15 \text{ K})$ ( $V_{\text{PTC}} \leq 7,5 \text{ V}$ ) $\Omega$	$R(T_{\text{NTT}} + 23 \text{ K})$ ( $V_{\text{PTC}} \leq 2,5 \text{ V}$ ) $\Omega$	Ordering code
60 ± 5	≤ 1710	≥ 1710	—	≥ 30 k	B59300M1060A070
70 ± 5	≤ 1710	≥ 1710	—	≥ 30 k	B59300M1070A070
80 ± 5	≤ 1710	≥ 1710	—	≥ 30 k	B59300M1080A070
90 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1090A070
100 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1100A070
110 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1110A070
120 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1120A070
130 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1130A070
140 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1140A070
145 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1145A070
150 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1150A070
155 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1155A070
160 ± 5	≤ 1650	≥ 3990	≥ 12 k	—	B59300M1160A070



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**Electrical specifications and ordering codes**

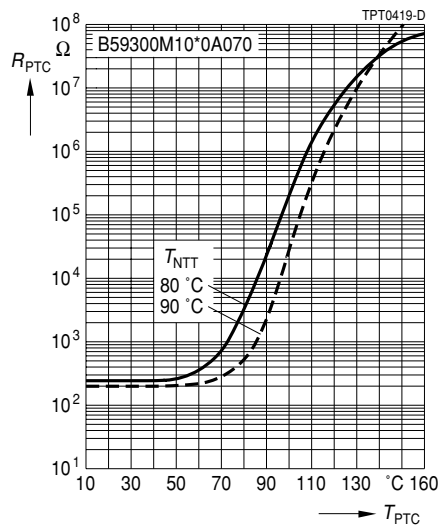
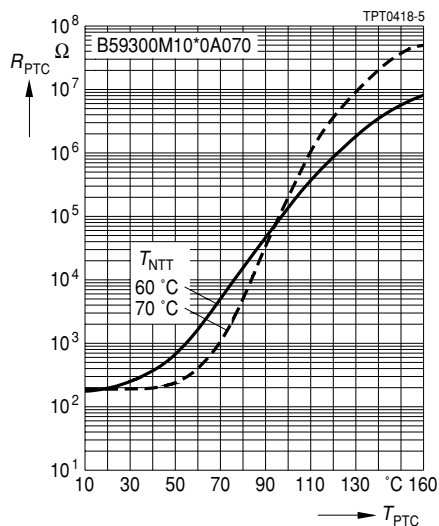
$T_{NTT} \pm \Delta T$ °C	$R(T_{NTT} - \Delta T)$ ( $V_{PTC} \leq 2,5 V$ ) Ω	$R(T_{NTT} + \Delta T)$ ( $V_{PTC} \leq 2,5 V$ ) Ω	$R(T_{NTT} + 15 K)$ ( $V_{PTC} \leq 7,5 V$ ) Ω	$R(T_{NTT} + 23 K)$ ( $V_{PTC} \leq 2,5 V$ ) Ω	Ordering code
$170 \pm 7$	$\leq 1710$	$\geq 1710$	—	$\geq 30 k$	B59300M1170A070
$180 \pm 7$	$\leq 1710$	$\geq 1710$	—	$\geq 30 k$	B59300M1180A070
$190 \pm 7$	$\leq 1710$	$\geq 1710$	—	$\geq 30 k$	B59300M1190A070

**Color coding of litz wires (to DIN 44082)**

$T_{NTT}$	°C	Color	$T_{NTT}$	°C	Color	$T_{NTT}$	°C	Color
	60	white/grey		120	grey/grey		160	blue/red
	70	white/brown		130	blue/blue		170	white/green
	80	white/white		140	white/blue		180	white/red
	90	green/green		145	white/black		190	black/grey
	100	red/red		150	black/black			
	110	brown/brown		155	blue/black			

**Characteristics (typical)**

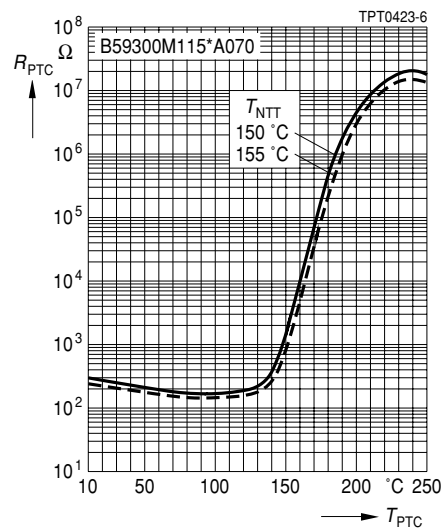
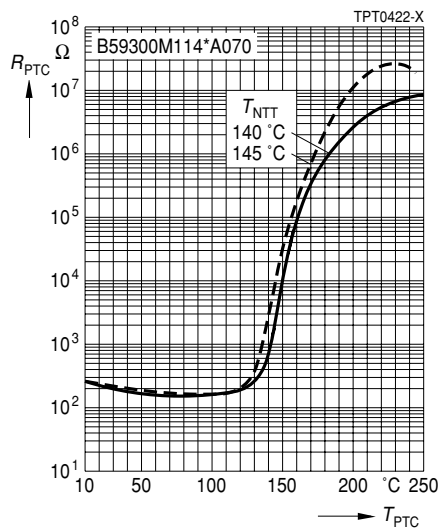
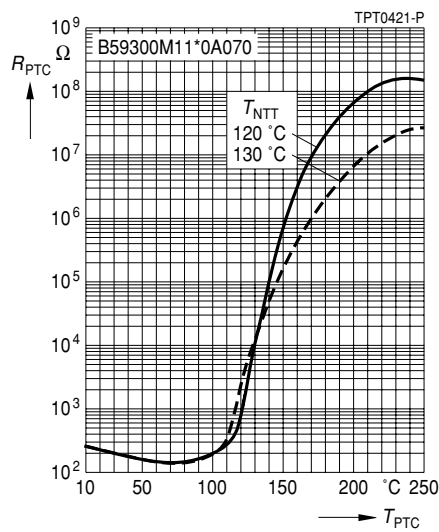
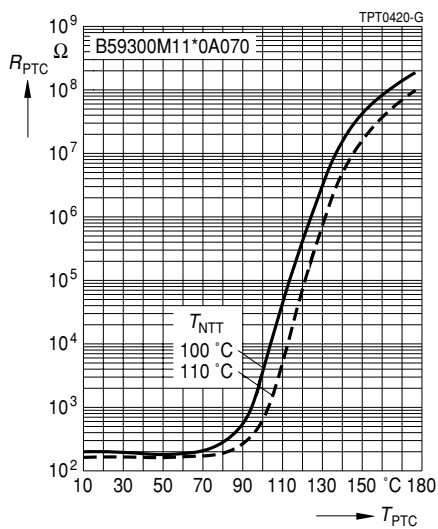
PTC resistance  $R_{PTC}$  versus PTC temperature  $T_{PTC}$   
(measured at low signal voltage)





**Characteristics (typical)**

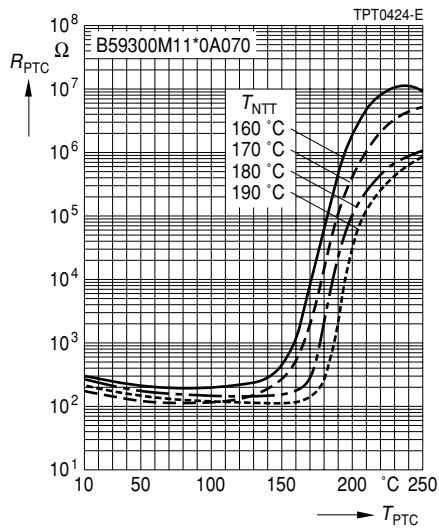
PTC resistance  $R_{PTC}$  versus PTC temperature  $T_{PTC}$   
(measured at low signal voltage)





Characteristics (typical)

PTC resistance  $R_{PTC}$  versus PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



**Herausgegeben von EPCOS AG**

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