### Applications

- Overcurrent and short-circuit protection

### Features

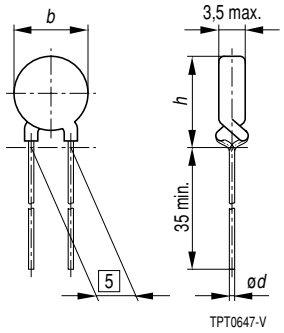
- Lead-free terminals
- Wide range of rated currents: 30 mA up to 1 A
- Manufacturer's logo and type designation stamped on
- UL approval for $T_{Ref}$ = 120 °C and 130 °C to UL 1434 with $V_{max}$ = 65 V and $V_N$ = 63 V (file number E69802)
- VDE approval (license number 104843 E)

### Options

- Leadless disks and leaded disks without coating available on request
- Thermistors with diameter $b \leq 11{,}0$ mm are also available on tape (to IEC 60286-2)

### Delivery mode

- Cardboard strips (standard)
- Cardboard tape reeled or in AMMO pack on request




Dimensions (mm)

| Type | $T_{Ref}$ | $b_{max}$ | ∅$d$ | $h_{max}$ |
|---|---|---|---|---|
| C 910 | 130 °C | 22,0 | 0,8 | 25,5 |
| C 930 | 80/120 °C | 22,0 | 0,6 | 25,5 |
| C 930 | 130 °C | 17,5 | 0,8 | 21,0 |
| C 940 | 80/120 °C | 17,5 | 0,6 | 21,0 |
| C 940 | 130 °C | 13,5 | 0,6 | 17,0 |
| C 950 | 80/120 °C | 13,5 | 0,6 | 17,0 |
| C 950 | 130 °C | 11,0 | 0,6 | 14,5 |
| C 960 | 80/120 °C | 11,0 | 0,6 | 14,5 |
| C 960 | 130 °C | 9,0 | 0,6 | 12,5 |
| C 970 | 80/120 °C | 9,0 | 0,6 | 12,5 |
| C 970 | 130 °C | 6,5 | 0,6 | 10,0 |
| C 980 | 80/120 °C | 6,5 | 0,6 | 10,0 |
| C 980 | 130 °C | 4,0 | 0,6 | 7,5 |
| C 990 | 80/120 °C | 4,0 | 0,5 | 7,5 |

### General technical data

| | | | |
|---|---|---|---|
| Max. operating voltage ($T_A$ = 60 °C) | $V_{max}$ | 80 | VDC or VAC |
| Rated voltage | $V_N$ | 63 | VDC or VAC |
| Switching cycles (typ.) | $N$ | 100 | |
| Resistance tolerance | $\Delta R_N$ | ± 25 % for $T_{Ref}$ = 80 °C or 120 °C<br>± 20 % for $T_{Ref}$ = 130 °C | |
| Operating temperature range ($V$ = 0) | $T_{op}$ | – 40/+ 125 | °C |
| ($V = V_{max}$) | $T_{op}$ | 0/+ 60 | °C |

**Electrical specifications and ordering codes**

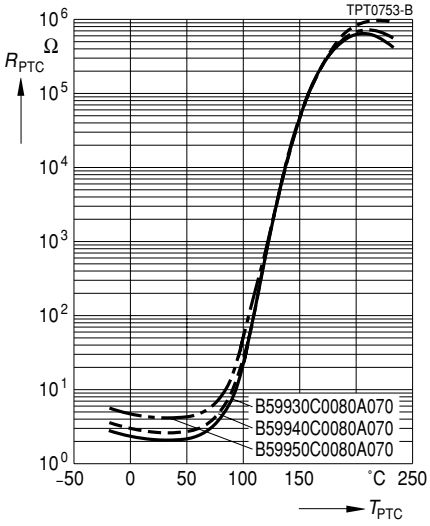
| Type | $I_N$ | $I_S$ | $I_{Smax}$ ($V=V_{max}$) | $I_r$ (typ.) ($V=V_{max}$) | $T_{Ref}$ | $R_N$ | $R_{min}$ | Ordering code |
|---|---|---|---|---|---|---|---|---|
| | mA | mA | A | mA | °C | Ω | Ω | |
| C 910 | 1000 | 1500 | 10,0 | 60 | 130 | 1,2 | 0,8 | B59910C0130A070 |
| C 930 | 700 | 1400 | 10,0 | 50 | 120 | 1,65 | 1,1 | B59930C0120A070 |
| C 930 | 700 | 1100 | 8,0 | 50 | 130 | 2,2 | 1,5 | B59930C0130A070 |
| C 940 | 450 | 900 | 8,0 | 40 | 120 | 2,3 | 1,5 | B59940C0120A070 |
| C 940 | 450 | 690 | 5,5 | 30 | 130 | 3,3 | 2,2 | B59940C0130A070 |
| C 930 | 340 | 700 | 10,0 | 35 | 80 | 1,65 | 1,1 | B59930C0080A070 |
| C 950 | 320 | 640 | 5,5 | 30 | 120 | 3,7 | 2,4 | B59950C0120A070 |
| C 950 | 320 | 500 | 4,3 | 25 | 130 | 4,9 | 3,2 | B59950C0130A070 |
| C 960 | 250 | 500 | 4,3 | 25 | 120 | 5,6 | 3,7 | B59960C0120A070 |
| C 960 | 250 | 380 | 3,0 | 20 | 130 | 8,0 | 5,2 | B59960C0130A070 |
| C 940 | 245 | 500 | 8,0 | 25 | 80 | 2,3 | 1,5 | B59940C0080A070 |
| C 950 | 170 | 350 | 5,5 | 20 | 80 | 3,7 | 2,4 | B59950C0080A070 |
| C 970 | 150 | 300 | 3,0 | 20 | 120 | 9,4 | 6,2 | B59970C0120A070 |
| C 970 | 150 | 240 | 1,0 | 18 | 130 | 20 | 13,2 | B59970C0130A070 |
| C 960 | 130 | 265 | 4,3 | 15 | 80 | 5,6 | 3,7 | B59960C0080A070 |
| C 970 | 90 | 190 | 3,0 | 11 | 80 | 9,4 | 6,2 | B59970C0080A070 |
| C 980 | 85 | 170 | 1,0 | 16 | 120 | 25 | 16,5 | B59980C0120A070 |
| C 980 | 85 | 130 | 0,7 | 15 | 130 | 62 | 40,9 | B59980C0130A070 |
| C 980 | 50 | 110 | 1,0 | 8 | 80 | 25 | 16,5 | B59980C0080A070 |
| C 990 | 50 | 100 | 0,7 | 12 | 120 | 55 | 36,3 | B59990C0120A070 |
| C 990 | 30 | 60 | 0,7 | 5 | 80 | 55 | 36,3 | B59990C0080A070 |

**Reliability data**

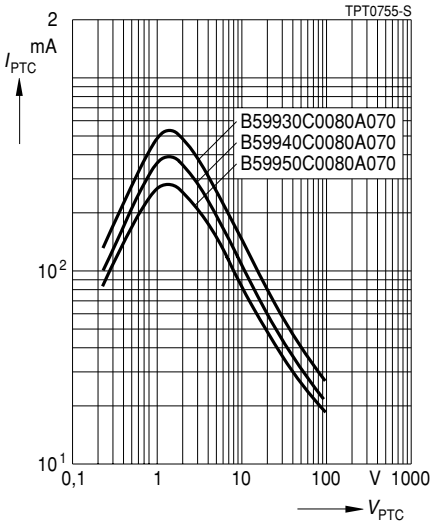
| Test | Standard | Test conditions | $\lvert\Delta R_{25}/R_{25}\rvert$ |
|---|---|---|---|
| Switching test at room temperature | IEC 60738-1 | $I_{Smax}$<br>$V_{max}$<br>Number of cycles: 100 | < 25% |
| Dry heat at upper category temperature | IEC 60738-1 | Storage at upper category temperature for<br>$t$: 1000 h | < 25% |
| Life test at $V_{max}/T_{op}$ | IEC 60738-1 | Storage at $V_{max}/T_{op}$ for<br>$t$: 1000 h | < 25% |
| Storage in damp heat | IEC 60068-2-3 | Temperature of air: 40 °C<br>Relative humidity of air: 93%<br>Duration: 56 days | < 10% |
| Rapid change of temperature in air | IEC 60068-2-14, Test $N_a$ | $T = T_{LCT}$, $T = T_{UCT}$<br>Number of cycles: 5<br>$t$: 30 min | < 10% |
| Vibration | IEC 60068-2-6, Test $F_C$ | $f$ = 10–55 Hz<br>h = 0,75 mm (respectively 10 g)<br>$t$: 3 · 2 h | < 5% |
| Bump | IEC 60068-2-27 | Pulse shape: half-sine<br>$a$: = 50 g<br>Pulse duration: 1 ms; 6 · 3 pulses | < 5% |
| Climatic sequence | IEC 60068-2-30 | Dry heat: $T = T_{UCT}$<br>$t$: 16 h<br>Damp heat first cycle<br>Cold: $T = T_{LCT}$<br>$t$: 2 h<br>Damp heat 5 cycles | < 10% |

**Characteristics (typical) for $T_{Ref}$ = 80 °C**

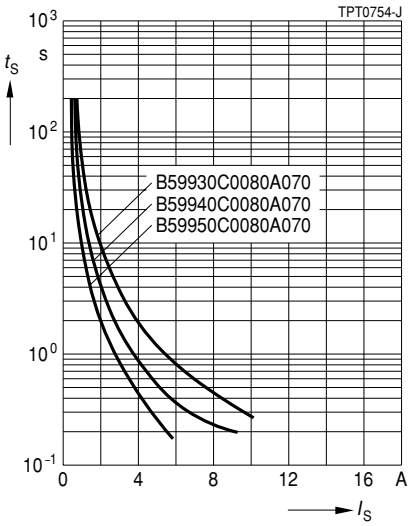
PTC resistance $R_{PTC}$ versus
PTC temperature $T_{PTC}$
(measured at low signal voltage)



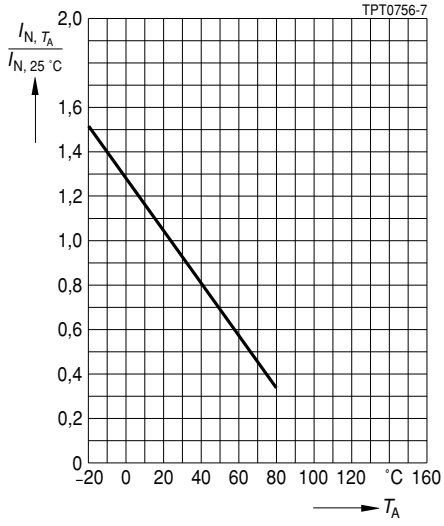

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$
(measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$
(measured at 25 °C in still air)

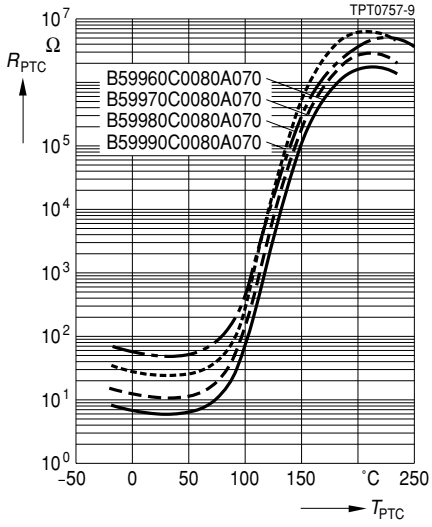



Rated current $I_N$ versus ambient temperature $T_A$
(measured in still air)

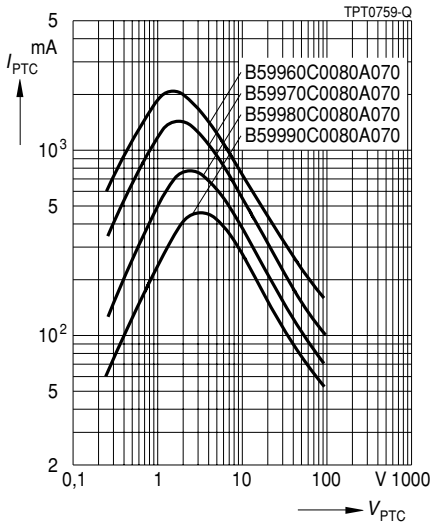


**Characteristics (typical) for $T_{Ref}$ = 80 °C**

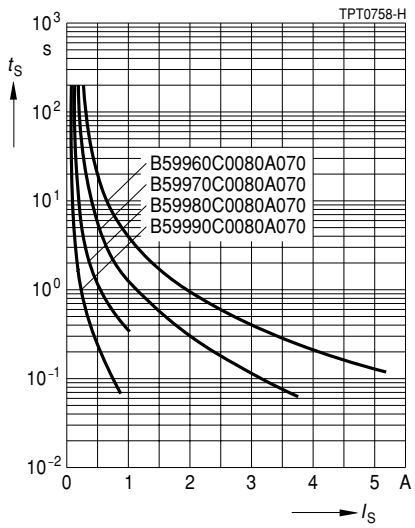
PTC resistance $R_{PTC}$ versus PTC temperature $T_{PTC}$ (measured at low signal voltage)



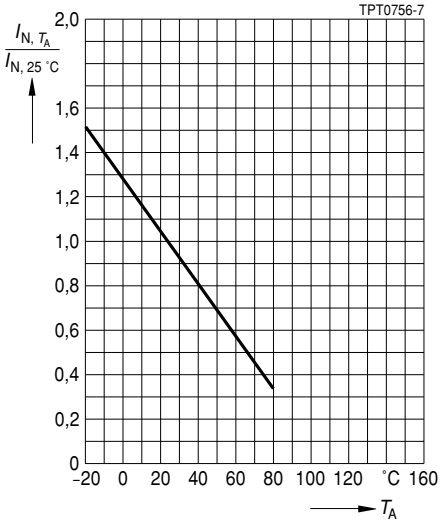

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$ (measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$ (measured at 25 °C in still air)

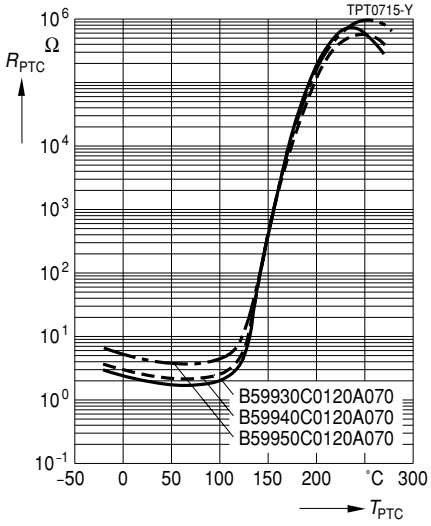



Rated current $I_N$ versus ambient temperature $T_A$ (measured in still air)

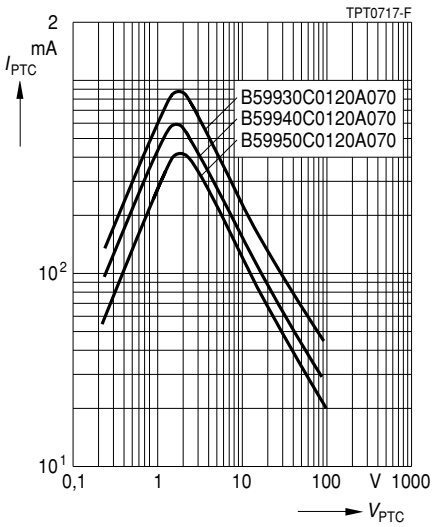


**Characteristics (typical) for $T_{Ref}$ = 120 °C**

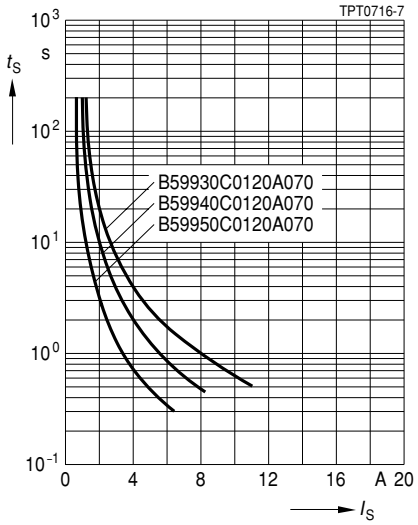
PTC resistance $R_{PTC}$ versus PTC temperature $T_{PTC}$ (measured at low signal voltage)



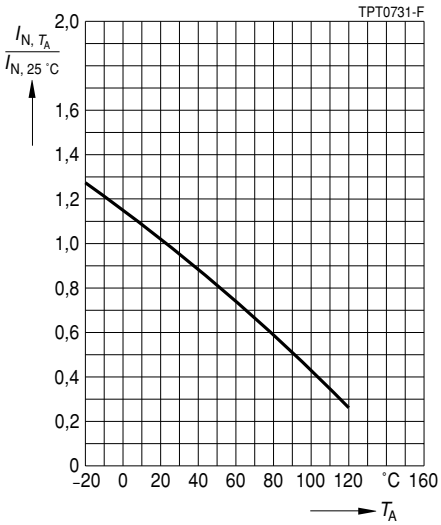

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$ (measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$ (measured at 25 °C in still air)

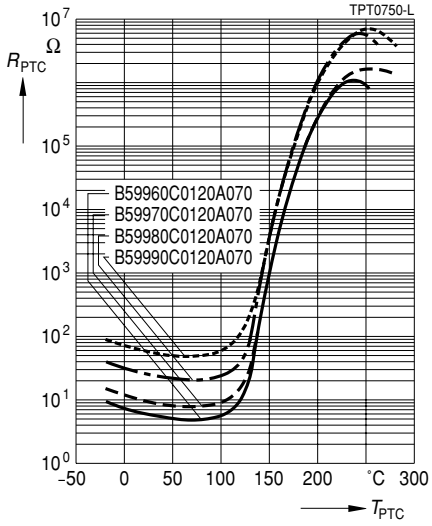



Rated current $I_N$ versus ambient temperature $T_A$ (measured in still air)

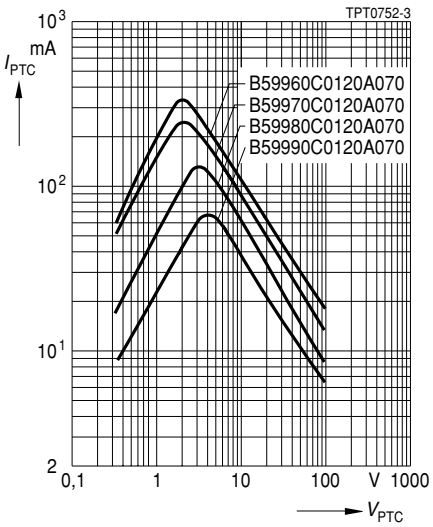


**Characteristics (typical) for $T_{Ref}$ = 120 °C**

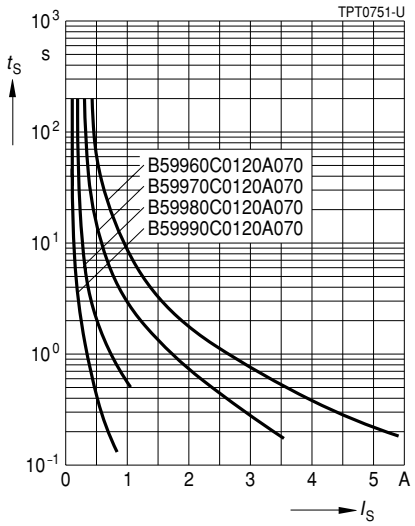
PTC resistance $R_{PTC}$ versus
PTC temperature $T_{PTC}$
(measured at low signal voltage)



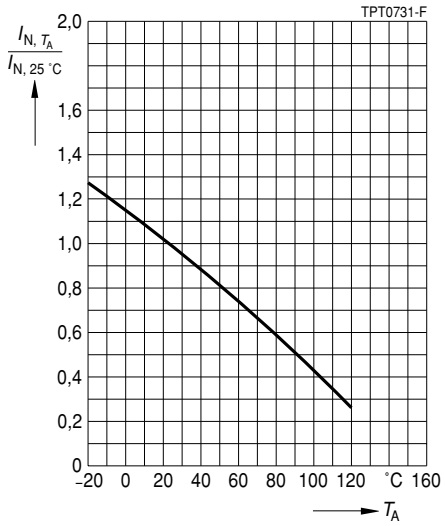

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$
(measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$
(measured at 25 °C in still air)

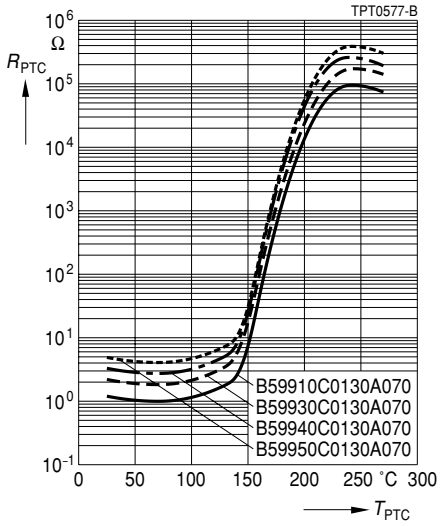



Rated current $I_N$ versus ambient temperature $T_A$
(measured in still air)

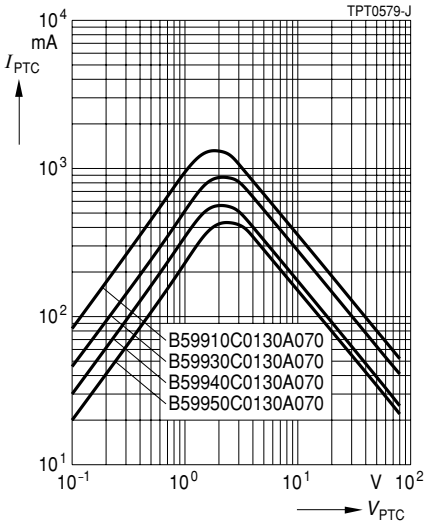


**Characteristics (typical) for $T_{Ref}$ = 130 °C**

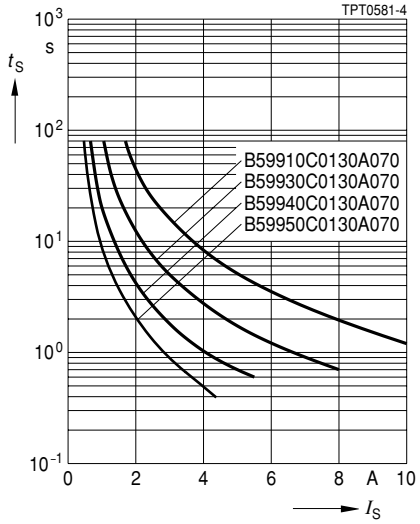
PTC resistance $R_{PTC}$ versus PTC temperature $T_{PTC}$ (measured at low signal voltage)



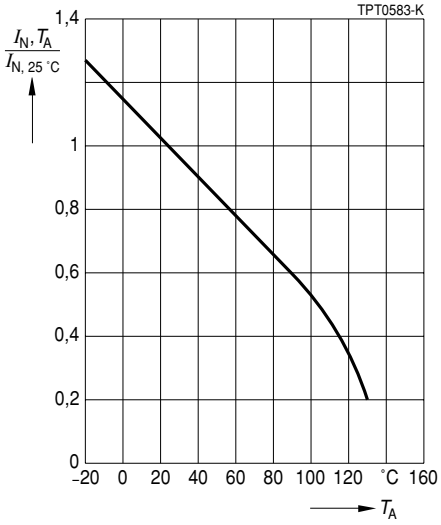

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$ (measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$ (measured at 25 °C in still air)

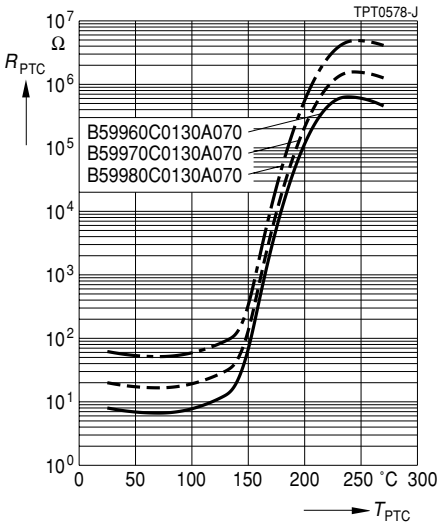



Rated current $I_N$ versus ambient temperature $T_A$ (measured in still air)

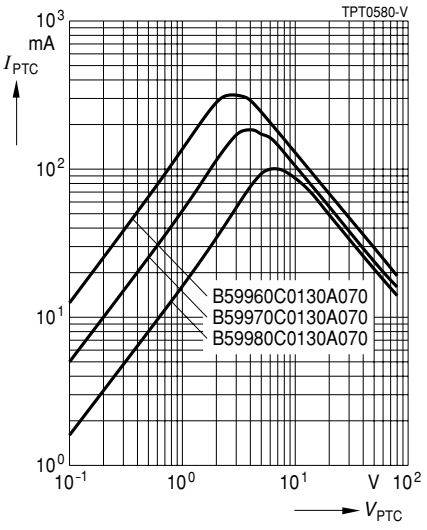


**Characteristics (typical) for $T_{Ref}$ = 130 °C**

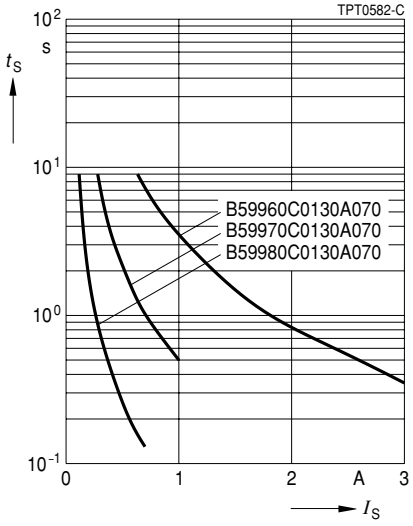
PTC resistance $R_{PTC}$ versus PTC temperature $T_{PTC}$ (measured at low signal voltage)



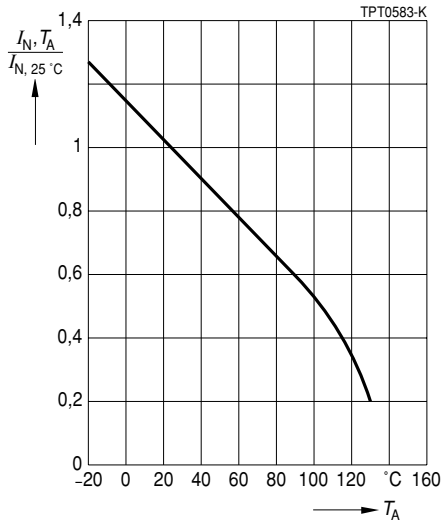

PTC current $I_{PTC}$ versus PTC voltage $V_{PTC}$ (measured at 25 °C in still air)




Switching time $t_S$ versus switching current $I_S$ (measured at 25 °C in still air)




Rated current $I_N$ versus ambient temperature $T_A$ (measured in still air)



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