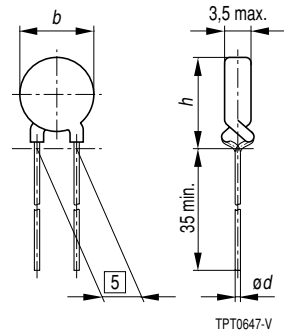


**Applications**

- 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  $T_{Ref} = 120\text{ °C}$  and  $130\text{ °C}$  to UL 1434 with  $V_{max} = 65\text{ V}$  and  $V_N = 63\text{ V}$  (file number E69802)
- VDE approval (license number 104843 E)



TPT0647-V

**Options**

- Leadless disks and leaded disks without coating available on request
- Thermistors with diameter  $b \leq 11,0\text{ mm}$  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	$T_{Ref}$	$b_{max}$	$\varnothing d$	$h_{max}$
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 ( $T_A = 60\text{ °C}$ )	$V_{max}$	80	VDC or VAC
Rated voltage	$V_N$	63	
Switching cycles (typ.)	$N$	100	
Resistance tolerance	$\Delta R_N$	± 25 % for $T_{Ref} = 80\text{ °C}$ or $120\text{ °C}$ ± 20 % for $T_{Ref} = 130\text{ °C}$	
Operating temperature range ( $V = 0$ )	$T_{Op}$	– 40/+ 125	°C
	$T_{Op}$	0/+ 60	°C

**Electrical specifications and ordering codes**

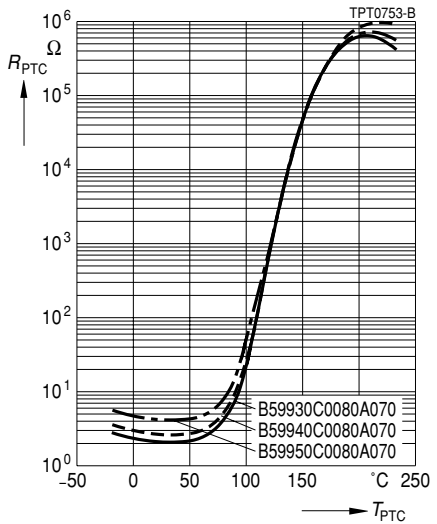
Type	$I_N$ mA	$I_S$ mA	$I_{Smax}$ ( $V=V_{max}$ ) A	$I_r$ (typ.) ( $V=V_{max}$ ) mA	$T_{Ref}$ °C	$R_N$ $\Omega$	$R_{min}$ $\Omega$	Ordering code
C 910	1000	1500	10,0	60	130	1,2	0,8	B59910C0130A070
C 930	700	1400	10,0	50	120	1,65	1,1	B59930C0120A070
C 930	700	1100	8,0	50	130	2,2	1,5	B59930C0130A070
C 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**

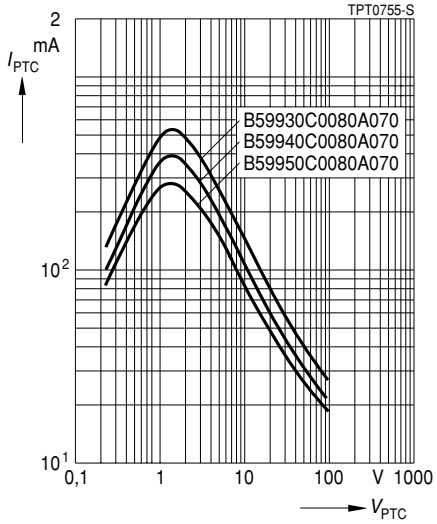
Test	Standard	Test conditions	$ \Delta R_{25}/R_{25} $
Switching test at room temperature	IEC 60738-1	$I_{Smax}$ $V_{max}$ Number of cycles: 100	< 25 %
Dry heat at upper category temperature	IEC 60738-1	Storage at upper category temperature for $t$ : 1000 h	< 25 %
Life test at $V_{max}/T_{op}$	IEC 60738-1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

**Characteristics (typical) for  $T_{Ref} = 80\text{ }^{\circ}\text{C}$**

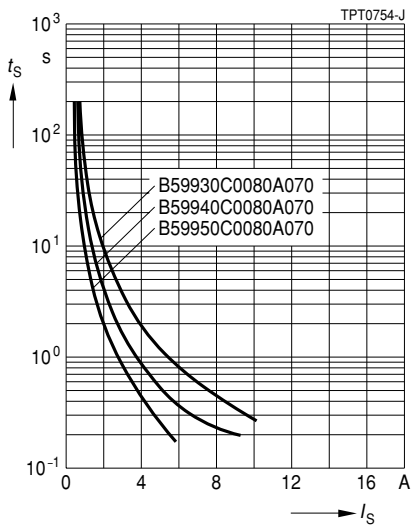
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



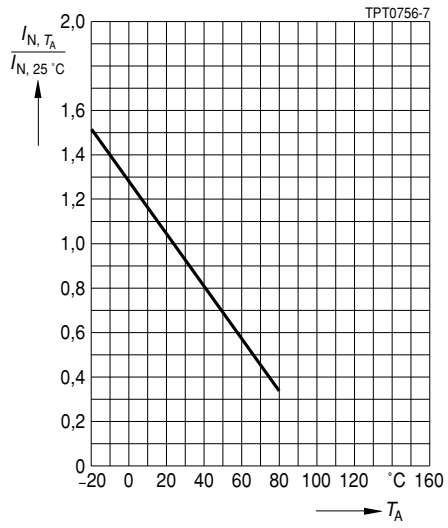
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)



Switching time  $t_S$  versus switching current  $I_S$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)

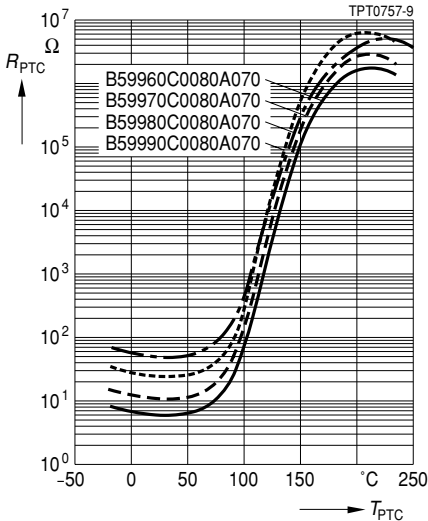


Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)

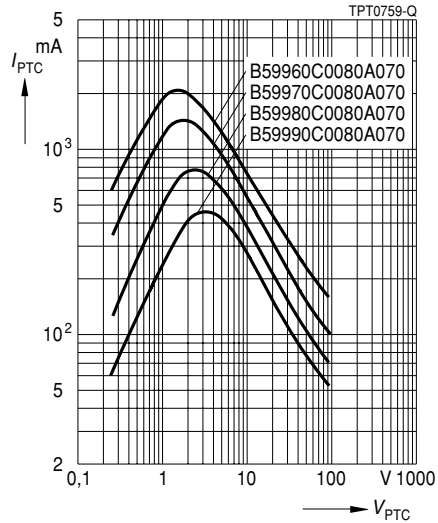


**Characteristics (typical) for  $T_{Ref} = 80\text{ }^{\circ}\text{C}$**

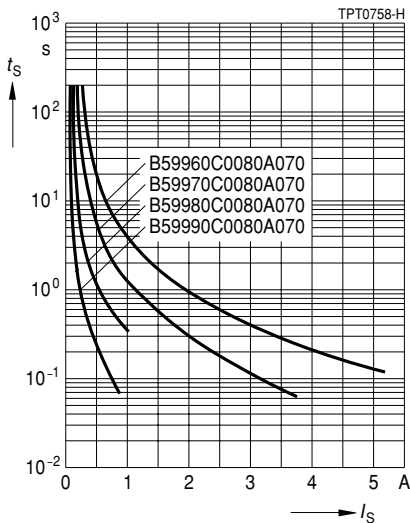
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



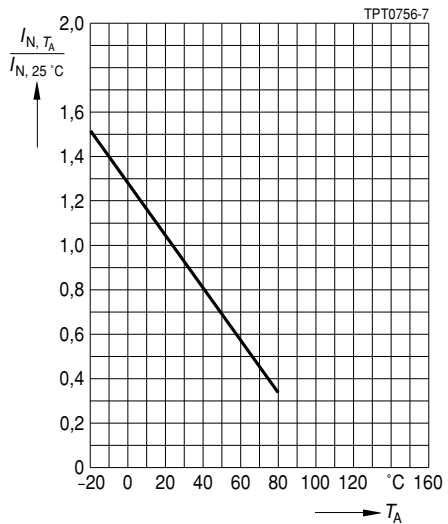
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)



Switching time  $t_S$  versus switching current  $I_S$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)

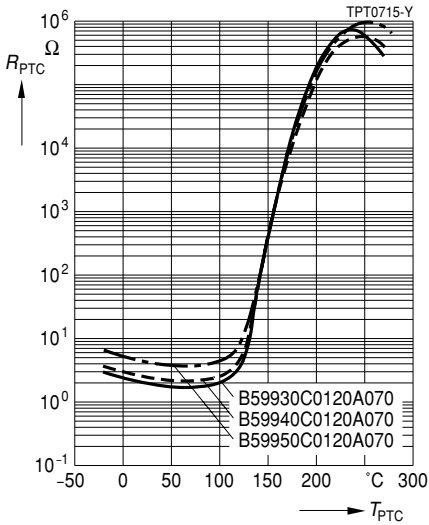


Rated current  $I_N$  versus ambient temperature  $T_A$   
(measured in still air)

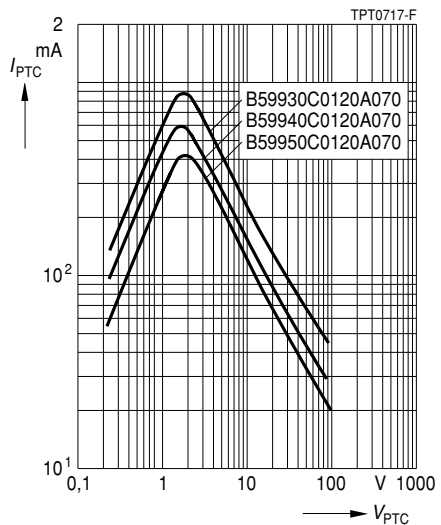


**Characteristics (typical) for  $T_{Ref} = 120\text{ }^{\circ}\text{C}$**

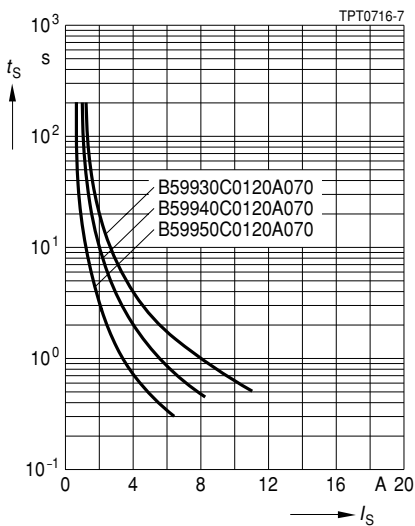
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



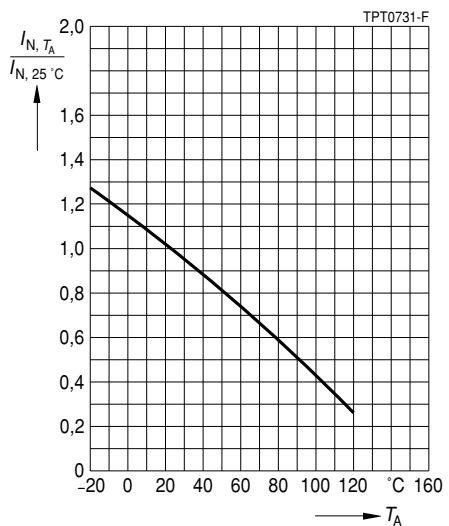
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)



Switching time  $t_S$  versus switching current  $I_S$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)

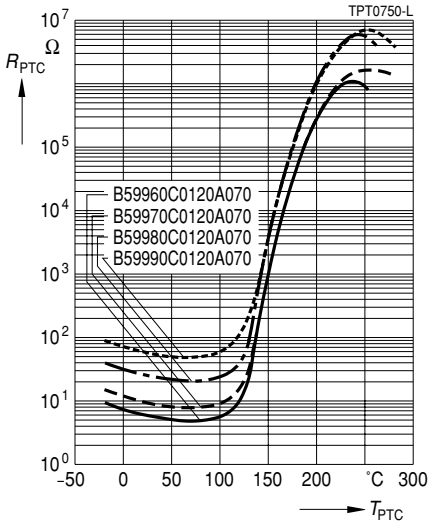


Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)

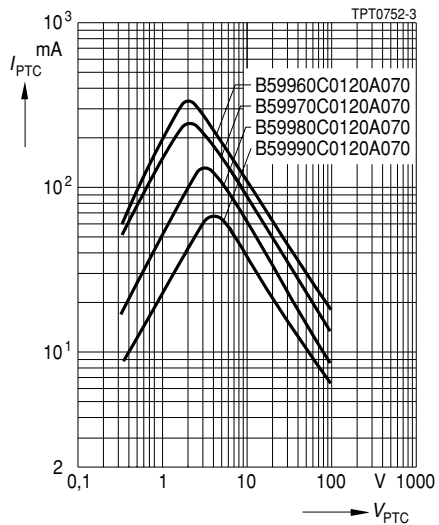


**Characteristics (typical) for  $T_{Ref} = 120\text{ }^{\circ}\text{C}$**

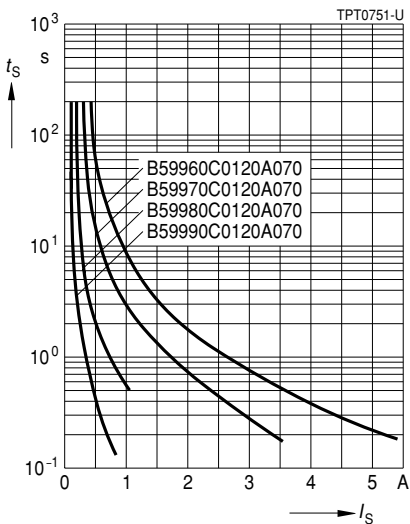
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



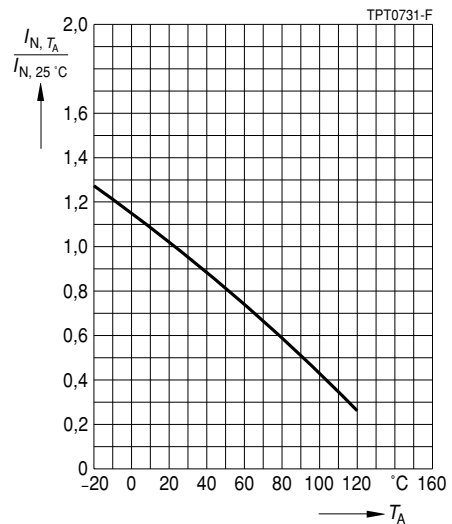
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)



Switching time  $t_S$  versus switching current  $I_S$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)

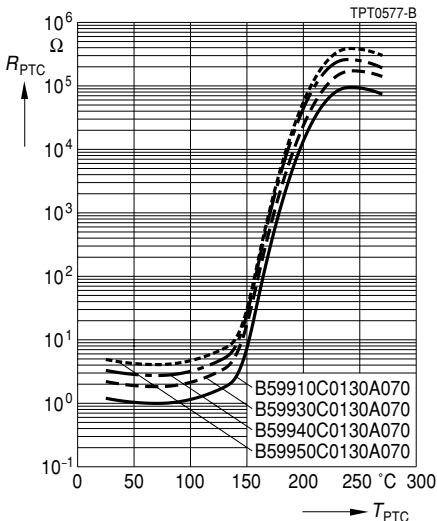


Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)

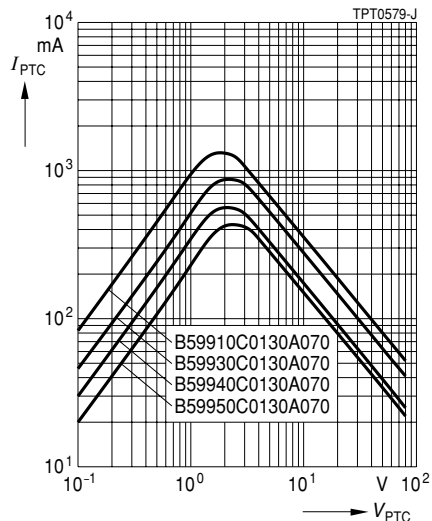


**Characteristics (typical) for  $T_{Ref} = 130\text{ }^{\circ}\text{C}$** 

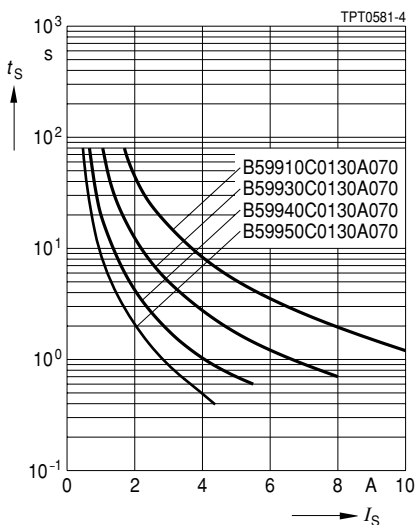
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



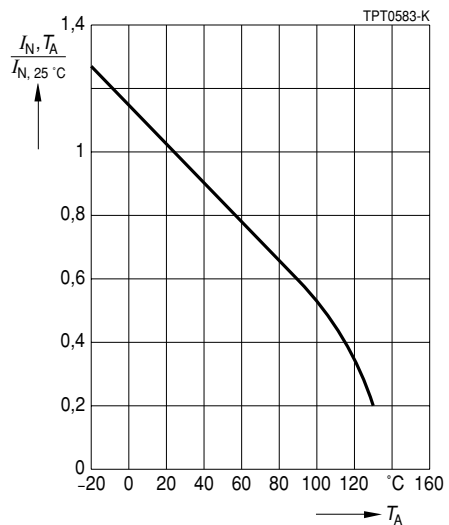
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)



Switching time  $t_S$  versus switching current  $I_S$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)

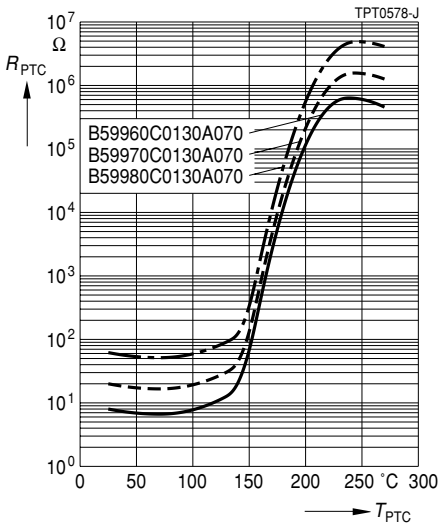


Rated current  $I_N$  versus ambient temperature  $T_A$   
(measured in still air)

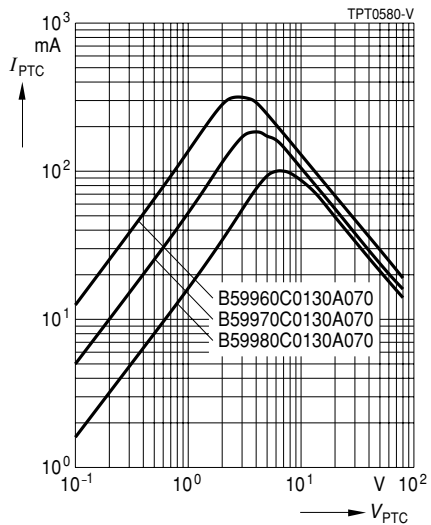


Characteristics (typical) for  $T_{Ref} = 130\text{ }^{\circ}\text{C}$

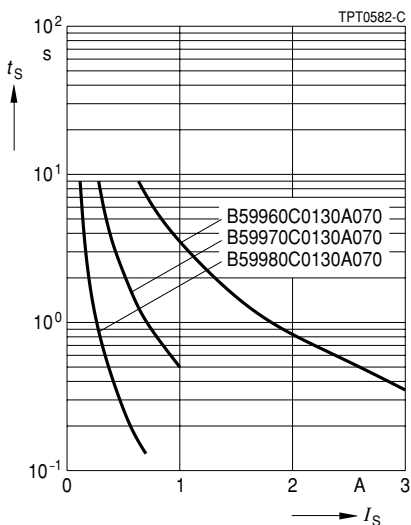
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



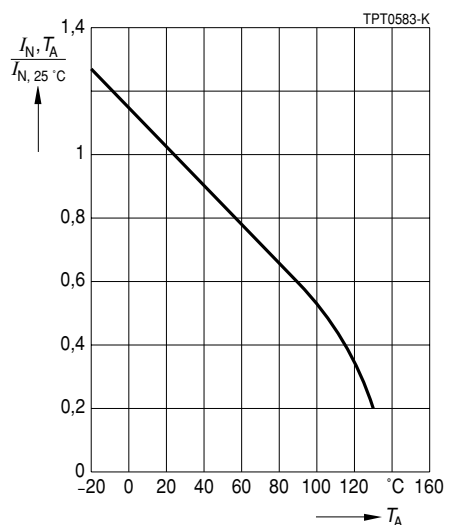
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at 25 °C in still air)



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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