

**Applications**

- Overcurrent and short-circuit protection

**Features**

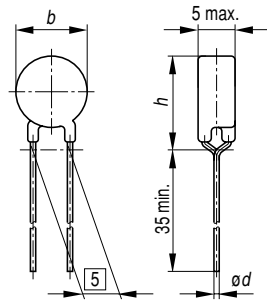
- Lead-free terminals
- Manufacturer's logo and type designation stamped on
- Short response times
- Reduced device temperature at  $V_{\max}$
- Type C 860, C 870 and C 890 also available with insulating voltage test to IEC 60738-1
- UL approval for  $T_{\text{Ref}} = 130\text{ °C}$  to UL 1434 with  $V_{\max} = 220\text{ V}$  and  $V_N = 220\text{ V}$  (file number E69802), except C 810 and PTCs with insulating voltage test
- UL approval for  $T_{\text{Ref}} = 120\text{ °C}$  to UL 1434 with  $V_{\max} = 230\text{ V}$  and  $V_N = 220\text{ V}$  (file number E69802), except for PTCs with insulating voltage test
- VDE approval (license number 104843 E), except PTCs with insulating voltage test (VDE pending) and C 810

**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



TPT0648-4

**Dimensions (mm)**

Type	$T_{\text{Ref}}$	$b_{\max}$	$\varnothing d$	$h_{\max}$
C 810	130 °C	22,0	0,8	25,5
C 830	80/120 °C	22,0	0,6	25,5
C 830	130 °C	17,5	0,8	21,0
C 840	80/120 °C	17,5	0,6	21,0
C 840	130 °C	13,5	0,6	17,0
C 850	80/120 °C	13,5	0,6	17,0
C 850	130 °C	11,0	0,6	14,5
C 860	80/120 °C	11,0	0,6	14,5
C 860	130 °C	9,0	0,6	12,5
C 870	80/120 °C	9,0	0,6	12,5
C 870	130 °C	6,5	0,6	10,0
C 872	120 °C	9,0	0,6	12,5
C 873	120 °C	9,0	0,6	12,5
C 874	120 °C	9,0	0,6	12,5
C 875	120 °C	9,0	0,6	12,5
C 880	80/120 °C	6,5	0,6	10,0
C 880	130 °C	4,0	0,6	7,5
C 883	120 °C	6,5	0,6	10,0
C 890	80/120 °C	4,0	0,5	7,5

**General technical data**

Max. operating voltage ( $T_A = 60\text{ °C}$ )	$V_{\max}$	265	VDC or VAC VDC or VAC
Rated voltage	$V_N$	230	
Switching cycles (typ.)	$N$	100	
Resistance tolerance	$\Delta R_N$	± 25 % for $T_{\text{Ref}} = 80\text{ °C}$ or $120\text{ °C}$ ± 20 % for $T_{\text{Ref}} = 130\text{ °C}$	
Operating temperature range ( $V = 0$ )	$T_{\text{op}}$	− 40/+ 125	°C
	$T_{\text{op}}$	0/+ 60	°C
	$(V = V_{\max})$		

**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	$R_N$ Ω	$R_{min}$ Ω	Ordering code
C 810	650	980	7,0	20	130	3,5	2,3	B59810C0130A070
C 830	460	920	7,0	20	120	3,7	2,4	B59830C0120A070
C 830	450	680	4,1	15	130	5	3,3	B59830C0130A070
C 840	330	660	4,1	15	120	6	3,8	B59840C0120A070
C 840	330	500	2,2	13	130	9	5,9	B59840C0130A070
C 830	250	510	7,0	15	80	3,7	2,2	B59830C0080A070
C 850	200	400	2,2	13	120	10	6,4	B59850C0120A070
C 850	200	320	1,5	10	130	13	8,6	B59850C0130A070
C 840	170	350	4,1	10	80	6	3,6	B59840C0080A070
C 860	140	280	1,5	10	120	15	9,0	B59860C0120A070
C 860	140	230	1,0	9	130	25	16,5	B59860C0130A070
C 850	110	230	2,2	8	80	10	6,0	B59850C0080A070
C 870	100	200	1,0	9	120	25	15	B59870C0120A070
C 870	100	150	0,4	6	130	50	33	B59870C0130A070
C 860	90	180	1,5	6	80	15	7,8	B59860C0080A070
C 872	80	160	1,0	9	120	35	21	B59872C0120A070
C 873	70	140	1,0	9	120	45	27	B59873C0120A070
C 874	60	125	1,0	9	120	55	31	B59874C0120A070
C 870	60	130	1,0	5	80	25	13,1	B59870C0080A070
C 880	55	110	0,4	6	120	70	39	B59880C0120A070
C 875	55	110	1,0	9	120	65	36	B59875C0120A070
C 880	55	90	0,2	5	130	160	106	B59880C0130A070
C 883	35	70	0,4	5	120	120	67	B59883C0120A070
C 890	30	60	0,2	5	120	150	84	B59890C0120A070
C 880	30	70	0,4	4	80	70	36,7	B59880C0080A070
C 890	15	40	0,2	3	80	150	78,7	B59890C0080A070
<b>Insulating voltage test (265 <math>V_{rms}</math>)</b>								
C 860	140	280	1,5	10	120	15	9,0	B59860C0120A470 <sup>1)</sup>
C 870	100	200	1,0	9	120	25	15	B59870C0120A470 <sup>1)</sup>
C 890	30	60	0,2	5	120	150	84	B59890C0120A470 <sup>1)</sup>

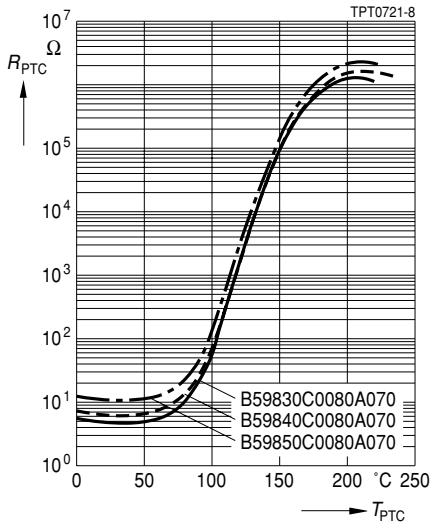
1) Insulating voltage test (265  $V_{rms}$ ) to IEC 60738-1, chapter 4.8, metall ball method.

**Reliability data**

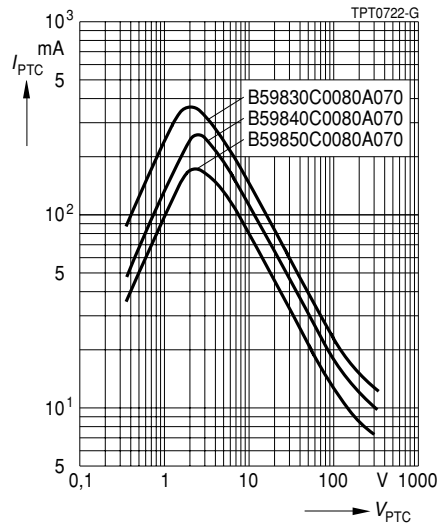
Test	Standard	Test conditions	$ \Delta R_{25}/R_{25} $
Switching test at room temperature	IEC 60738-1	$I_{Smax}$ $V_{max}$ Number of cycles: 100	< 25 %
Dry heat at upper category temperature	IEC 60738-1	Storage at upper category temperature for $t$ : 1000 h	< 25 %
Life test at $V_{max}/T_{op}$	IEC 60738-1	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  $T_{Ref} = 80\text{ }^{\circ}\text{C}$

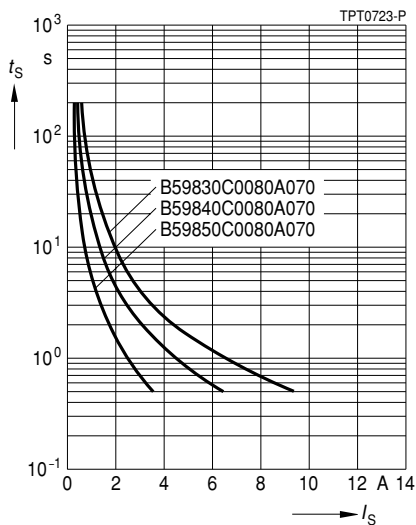
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



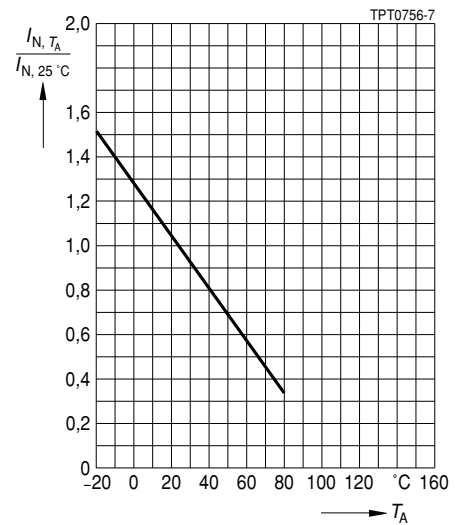
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at 25 °C in still air)



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

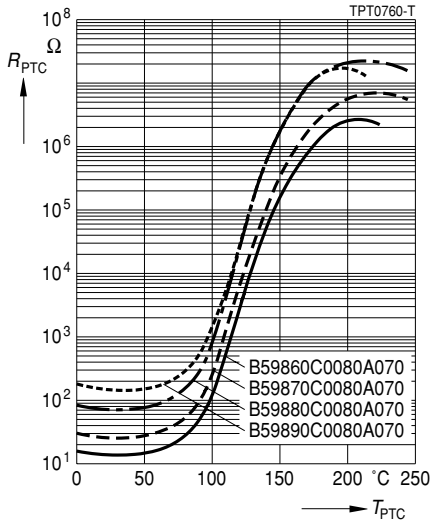


Rated current  $I_N$  versus ambient temperature  $T_A$   
(measured in still air)

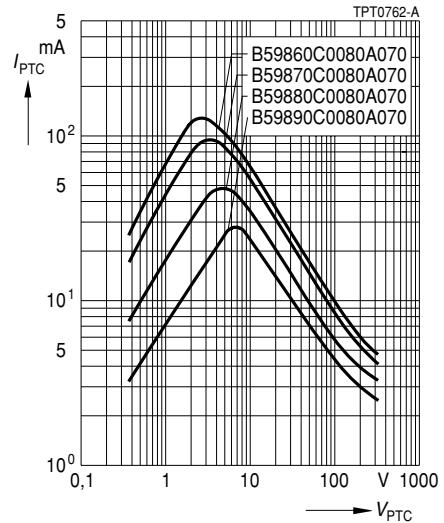


Characteristics (typical) for  $T_{Ref} = 80\text{ }^{\circ}\text{C}$

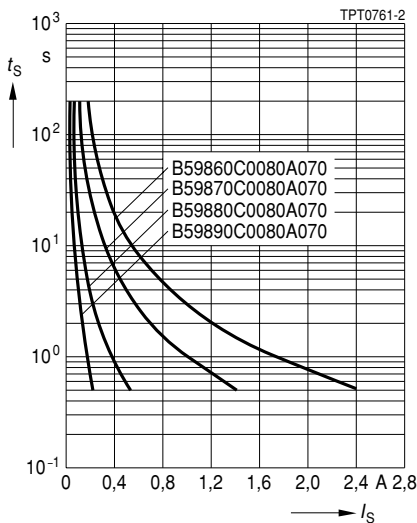
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



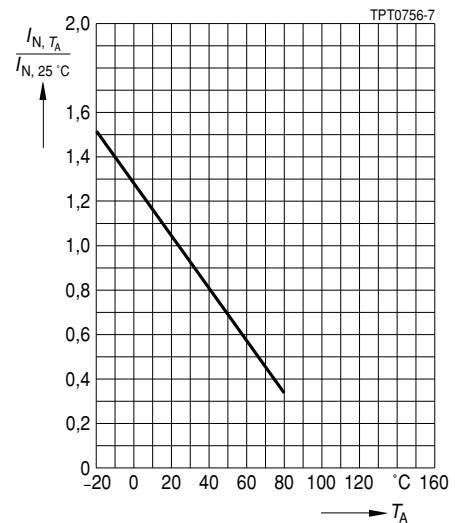
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)



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

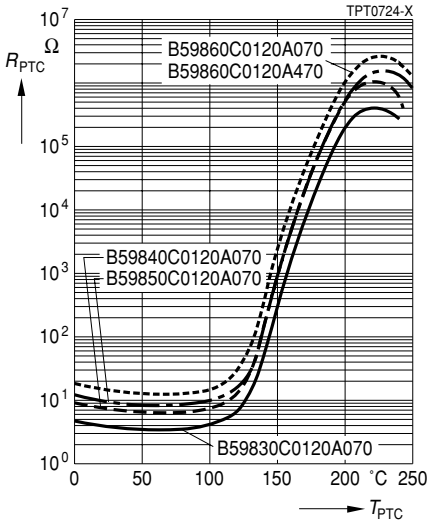


Rated current  $I_N$  versus ambient temperature  $T_A$   
(measured in still air)

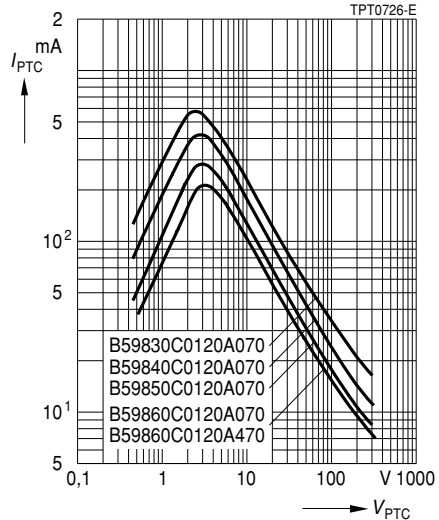


**Characteristics (typical) for  $T_{Ref} = 120\text{ }^{\circ}\text{C}$**

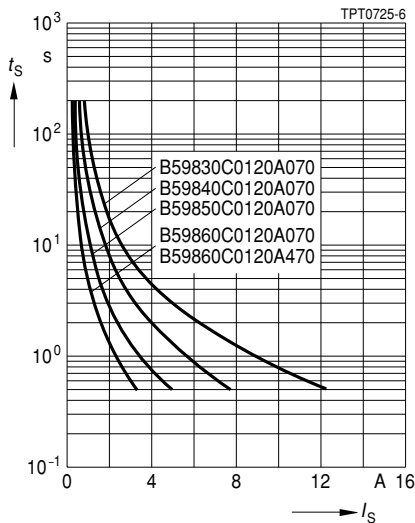
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



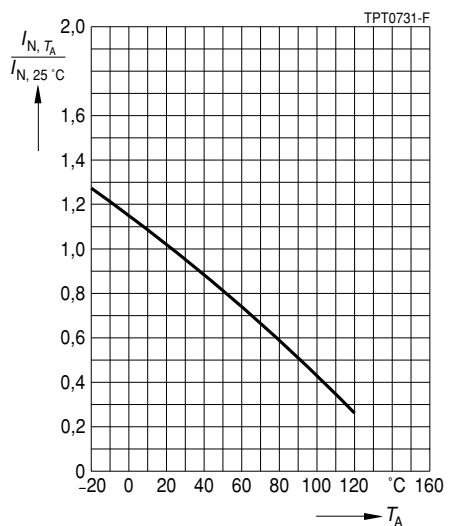
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at  $25\text{ }^{\circ}\text{C}$  in still air)



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

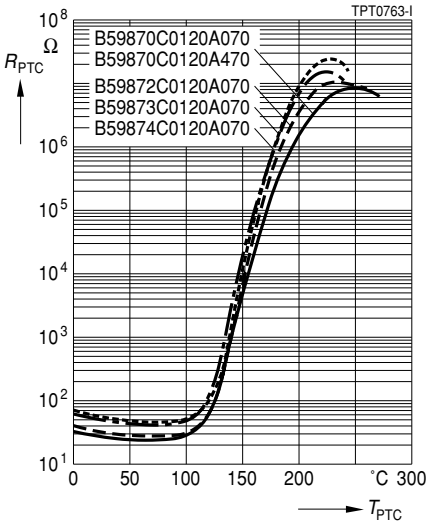


Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)

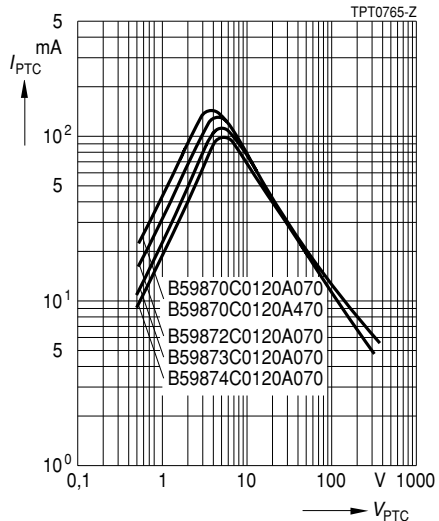


Characteristics (typical) for  $T_{Ref} = 120\text{ }^{\circ}\text{C}$

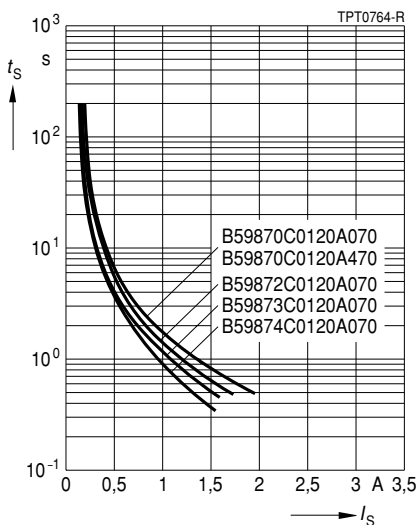
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



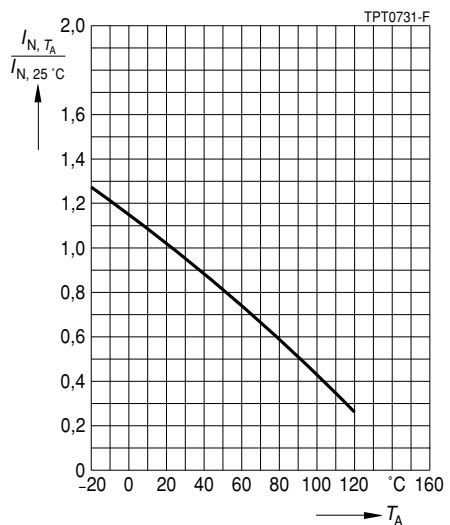
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
(measured at  $25\text{ }^{\circ}\text{C}$  in still air)



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

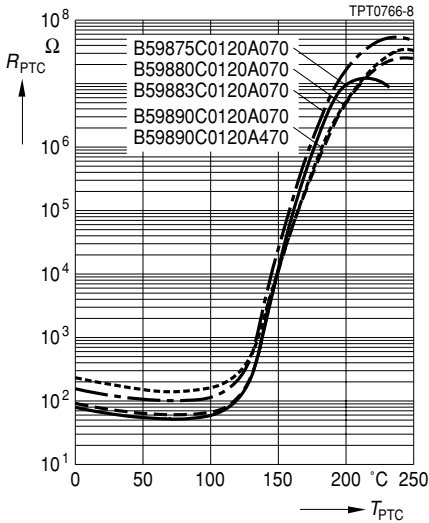


Rated current  $I_N$  versus ambient temperature  $T_A$   
(measured in still air)

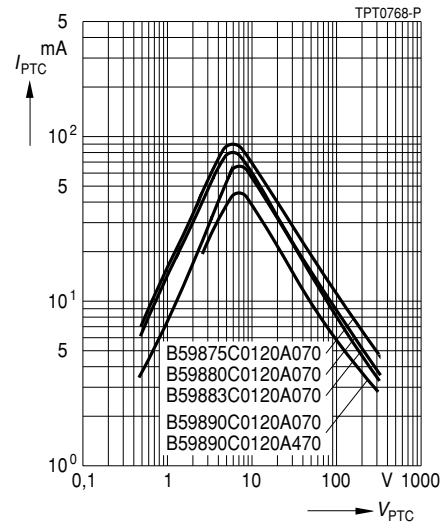


**Characteristics (typical) for  $T_{Ref} = 120\text{ °C}$**

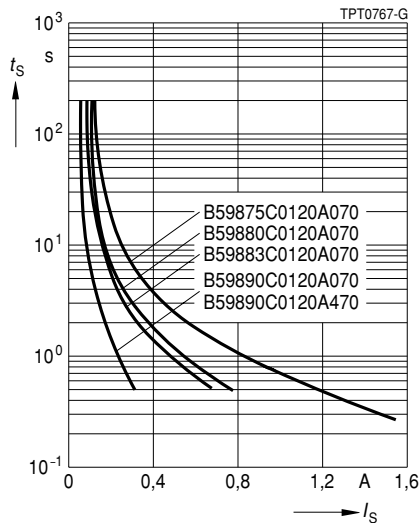
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



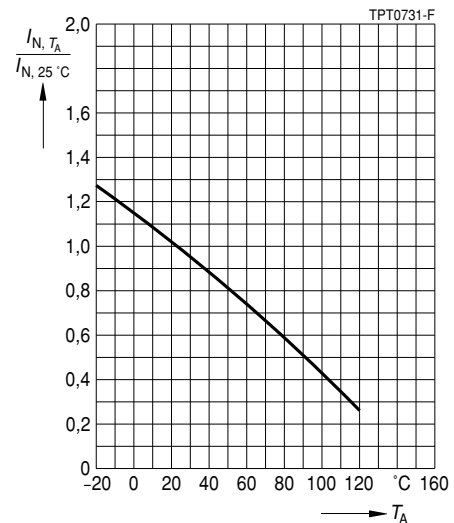
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at 25 °C in still air)



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



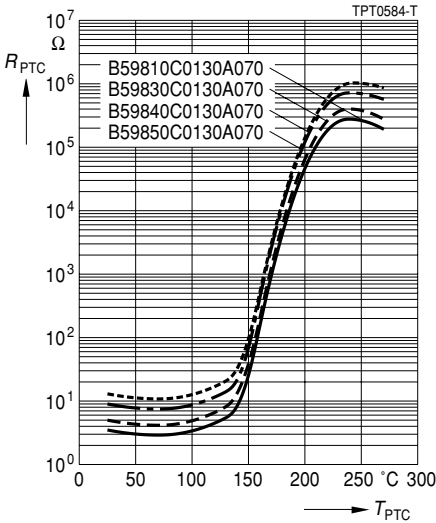
Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)



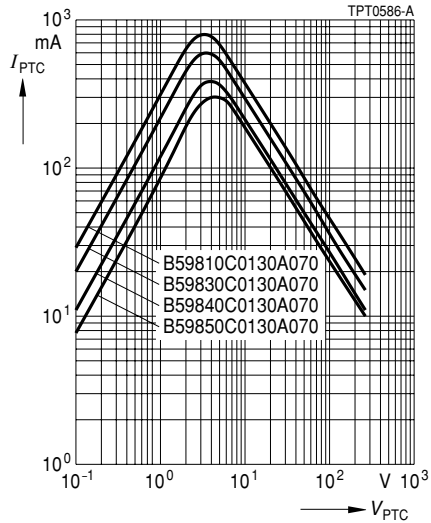


**Characteristics (typical) for  $T_{Ref} = 130\text{ }^{\circ}\text{C}$**

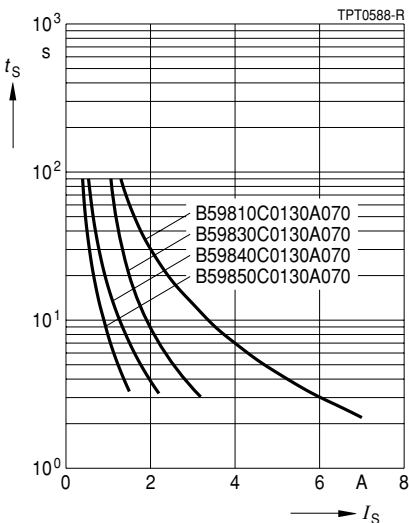
PTC resistance  $R_{PTC}$  versus  
 PTC temperature  $T_{PTC}$   
 (measured at low signal voltage)



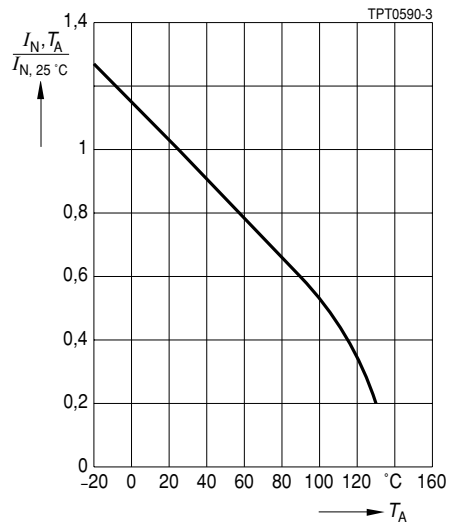
PTC current  $I_{PTC}$  versus PTC voltage  $V_{PTC}$   
 (measured at 25 °C in still air)



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

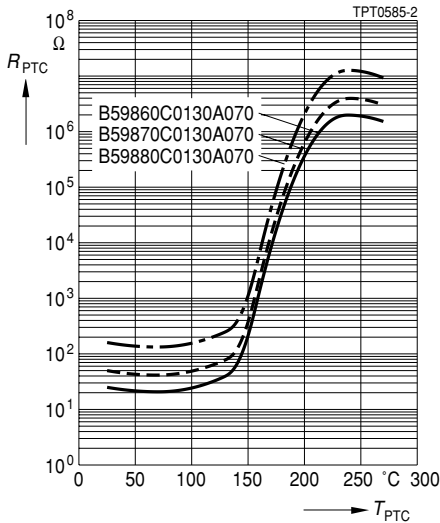


Rated current  $I_N$  versus ambient temperature  $T_A$   
 (measured in still air)

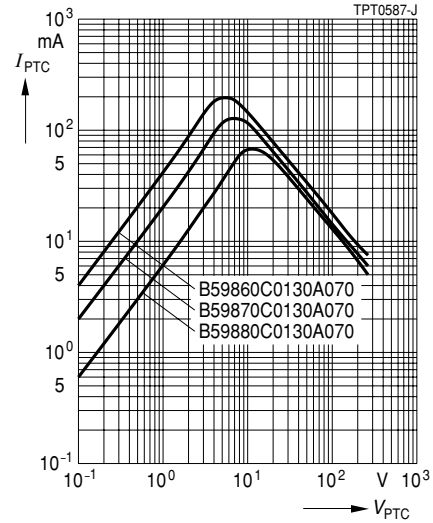


**Characteristics (typical) for  $T_{Ref} = 130\text{ }^{\circ}\text{C}$**

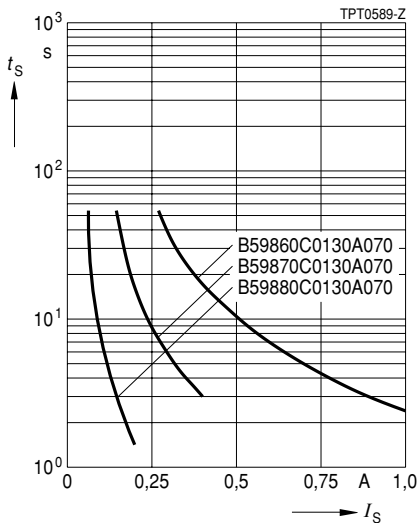
PTC resistance  $R_{PTC}$  versus  
PTC temperature  $T_{PTC}$   
(measured at low signal voltage)



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)

